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EDIBLE WILD PLANTS of EASTERN NORTH AMERICA

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An Illustrated Guide to all Edible Flower- ing Plants and Ferns, and some of the more important Mushrooms, Seaweeds and Lich- ens growing wild in the region east of the Great Plains and Hudson Bay and north of Peninsular Florida

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INTRODUCTION NEARLY EVERY ONE has a certain amount of the pagan or gypsy in his nature and occasionally finds satisfaction in living for a time as a primitive man. Among the primi- tive instincts are the fondness for experimenting with un- familiar foods and the desire to be independent of the conventional sources of supply. All campers and lovers of out-of-door life delight to discover some new fruit or herb which it is safe to eat, and in actual camping it is often highly important to be able to recognize and secure fresh vegetables for the camp-diet; while in emergency the ready recognition of possible wild foods might save life. In these days, furthermore, when thoughtful people are wondering about the food-supply of the present and future generations, it is not amiss to assemble what is known of the now neglected but readily available vege- table-foods, some of which may yet come to be of real economic importance. Every one who lives out-of-doors knows a limited num- ber of edible berries, strawberries, raspberries, blackber- ries, blueberries and a few others; but comparatively few people realize the almost unlimited store of roots, new shoots and young herbage which caQ safely and accept- ably be brought to the table. And even those who do un- derstand in a general way that there are hundreds of possible wild foods about us, are restrained, through a nat- ural and wholesome fear of getting hold of some poison- ous plant by mistake, from attempting to use them. As a matter of fact, however, the number of seriously poison- ous wild plants which might seem tempting to the searcher for salads and potherbs is very limited. They are all readily recognized by the careful observer, and only the Vii

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viiiINTRODUCTION careful observer should ever attempt to use auy wild plant for food or to try it on his friends. In a highly civilized community we are so used to the conventional dishes that there are some among us who have a prejudice or squeamishness about eating weeds. It is natural that those whose daily life leads them far from a sympathetic attitude toward wild nature should balk at an invitation to eat carrion-flower,

burdock or pigweed; but, as a matter of fact, these common weeds make wholesome and really delicious food, when properly prepared, and the prejudice against them is chiefly due to the unsavory connotation of their names. Occasionally a common weed, like pokeweed for instance, has, in some sections of the country, become a popular vegetable, so thoroughly familiar as to find ready sale in city markets; although, on account of the prejudice referred to, it is certain that plants advertised as carrion-flower, burdock or pigweed would find no sale whatever. In this connection it may be noted that, although many people are averse to eating pigweed, even the most orthodox Hebrew has no objection to eating pokeweed. The wild plants are to be considered not merely as possible food for the camper. In many rural communities certain of them, such as the marsh-marigold (cow-slips), the docks and the dandelion are regularly gathered for greens; and, although eighty years ago Unger, in an exhaustive enumeration of plants used for food, classed the dandelion as hardly worth mentioning, that common weed has now risen to the dignity of a regular place in the market garden and the city market. During several years of camping the writers have experimented when possible with the plants of the woods and fields which furnished tolerable or, in many cases, surprisingly attractive food and, in an attempt to amplify their own experiences, they have searched with care the writings of others in various parts of America, Europe and eastern Asia, upon the wild plants which may be

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INTRODUCTIONix used for food, for, although we are geographically far removed from eastern Asia, the similarity and often the identity of plants of eastern North America and of Japan, China and other eastern Asiatic countries is well known. As a result of this study a large mass of data has been accumulated which may be of practical value to others and which, certainly, will be of interest to some who have not been so situated as to have access to many of the sources of information. The following chapters, therefore, are offered for what they are worth, with the clear understanding that in many cases the information is derived wholly or in part from sources other than the writers experience, and that many people, with many palates, may find the plants which have proved palatable to others quite unattractive to their own tastes; although new and untried methods of preparation may render them acceptable to any palate. It should be noted that only the flowering plants and ferns are here discussed in great detail. Mushrooms are so dangerous for the novice to experiment with and are already so well treated in many available books that our chapter upon them deals only with a very limited number of easily recognized kinds and, of course, the most deadly toad-stools which every beginner should be able promptly to recognize. Every species of plant has a technical Latin name by which it is known to scientists all over the world, whether their mother-tongue be English, Russian or even Chinese, this name having to trained botanists a perfectly

definite signification; in other words, the Latin names are the international language of botanists. But, unfortunately, not all colloquial names, such as cowslip or may-flower, have a specific connotation, for these names are very differently applied in different regions; and in many cases plants without very conspicuous flowers or fruits seem never to have received any colloquial name whatsoever. Consequently, although in most cases we have been

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xINTRODUCTION able to use a well established colloquial name, in some cases we have been forced to use only the Latin name of the plant. In all cases the technical name of the species or at least of the genus (when there are several similar species) which is authorized by the International Rules of Botanical Nomenclature has been entered opposite the colloquial name. When plants are sometimes known in America under different names, the synonyms have been added in parentheses. The long chapter enumerating the full 1000 ferns and flowering plants of Eastern America which are useful or which could be used as food is arranged systematically by families, following the sequence now generally accepted by botanists. This chapter, the longest in the book, contains the detailed matter which will be found more briefly summarized and systematized under appropriate headings in an earlier chapter. The outline drawings, one series prepared when he was a student at Harvard by Dr. Edwin J. Haertl, with aid from the Milton Fund for Research of Harvard University, a later series drawn by Helen P. Schiefer of Radcliffe College, are, naturally, for the most part not as large as in nature but will be found sufficiently characteristic to be of aid in the identification of the plants; the photographs, unless otherwise indicated, are our own. It should again be emphasized that, before attempting to identify unknown but possibly edible plants, every one should thoroughly familiarize himself with the illustrations in the brief chapter on poisonous plants, for in a few cases these are superficially similar to harmless or even edible species. At the time of preparation of the original manuscript we had not heard of calories; and the designation of vitamins was still in the future. No estimate of the calories or of the vitamin-values of most of these wild plants are available. That many of them have real food-value is evident. When calories first began to be estimated the senior author organized a party of eight

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INTRODUCTIONxi botanists, with a corps of guides and packers, to make botanical explorations in the mountains of Gasp6. One member of the party, an enthusiast over calories, took charge of the commissary-department. After three days of living on calories the guides and packers showed evident dissatisfaction; by the end of the fourth day the other scientists in the party joined them, and demanded food. We had had the theoretically correct number of calories; we wanted to satisfy our hunger. Luckily, the snow-filled ravines were full of young ostrich-fern and beautifully blanched young cow-parsnip, pushing up under the snow; and on warm slopes the melting snow exposed broad carpets of spring-beauty and alpine cress. With these we supplemented the calories and went happily through the hard trip. Although we are not now able to state the caloric value of most of the wild food-plants nor what vitamins they contain, it is certain that there is abundant nourishment in a plate of saut6ed inky mushrooms, with cooked, fresh young cat-tail spikes, salad of dressed, chilled cat-brier sprouts or young milk-weed, bread made of wild grains, acorn-flour or seeds of cow-lilies, spread with a butter of beechnut-oil or oil of hickory-nuts, while there is real refreshment in a cup of cassina-tea, served with marmalade of squaw-huckle-berry, topped off by a dessert of pudding made of dried persimmons, with confections of candied wild ginger or root of elecampane, with a cordial, if wished, from any of several wild berries or aromatic herbs. After such an early-summer meal one will not ask about calories or vitamins; he will be perfectly content. Or in mid-summer, if he is lucky enough to find under the leaves of the mixed or hardwood forest a clump of Lactarius, rendered firm and solid by an over-growth of Hypomyces, he will have a meal as hearty as beef-steak; and if he supplements this with cooked orach-tips, saut6ed groundnuts, fresh muffins of Jack-in-the-Pulpit corms, salad of chilled cooked purs-lane, ice-cream of black raspberry, blackberries or blue-

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xiiINTRODUCTION berries, tea of sweet gale, inkberry or clover-tops and a cheese (Cheshire cheese) made with the aid (as rennet) of bedstraw or nettle-tips, he will again be quite content. In late autumn he can have the chief entr6e of giant puff-balls, pasture mushrooms, fairy-rings or some other species, hickory-nut bread and butter, a potherb of sow-thistle or a mess of seaside plantain cooked like string-beans, escalloped roots of goats-beard, jelly or marmalade from any one of two hundred sources, a choice of scores of fruits for dessert, cheese with thistle-flowers or sundew-leaves as rennet, and tea from many mints or from sweet fern, sassafras or strawberry-leaves. Again he will be most content; and every time he will recognize that he has made small draft on the ration-book of coupons. Gray Herhariu~m, Cambridge, Mass.

Title Page

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EDIBLE WILD PLANTS of EASTERN NORTH AMERICA by MERRITT LYNDON FERNALD Fisher Professor of Natural History and Director of the Gray Herbarium, Harvard University AND ALFRED CHARLES KINSEY Professor of Zoology, Indiana University IDLEWILD PRESS CORNWALL~ONMUDSON, N. Y.

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EDIBLE WILD PLANTS of EASTERN NORTH AMERICA

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CHAPTER I EDIBLE WILD PLANTS OF EASTERN NORTH AMERICA
CLASSIFIED ACCORDING TO USES IN THIS CHAPTER the plants are grouped into different sections according to their uses, special emphasis being given some of the more important species, the unimportant being merely enumerated with page-references to the more detailed discussion in Chapter III. The more important are printed in capitals. Purges
1. PURGES AND Sours
Purges consist largely of boiled green vegetable mashed through a sieve or strainer, sometimes thickened with a little flour or corn-starch mixed with cold water until smooth. A purge is seasoned with salt and pepper to taste, and in the case of more acid plants sugar is necessary. After the purge is thoroughly cooked scalded milk may be added if desired. The following wild plants are used for purges: CAT-TAIL (young flowering spike), p. 171
BLADDER-CAMPION (young leaves and leaves), p. 193
sprouts), p. 140
Fireweed

(young shoots), p. MOUNTAIN-SORREL (young 279 leaves and stems), p. 167ilnewort (leaves), p. 287 DocKs (leaves), p. 169Elder (pith), p. 349 Of these the purbes made from the Cat-tail, Cat-brier, Mountain-Sorrel, Docks, Sorrels, and Bladder-Campion can be recommended by the writers; the others they have 1

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2EDIBLE WILD PLANTS not tried. The Mountain-Sorrel, Sorrel and some of the Docks are acid and need a little sugar. Most of the Docks are slightly bitter rather than acid, while the Bladder- Campion has the flavor of green peas with a slight bit- terness. The soup from the young flowering spikes of Cat-tail, said to be one of the delicacies of the Pah-Ute Indians, is easy to prepare and, since it proves equally palatable to the white taste, it could be made in early sum- mer by every family throughout the country.

STARCHY OR MUCILAGINOUS Sours These soups are chiefly prepared from starchy sub- stances which, when boiled, form a thickening which adds much nutriment to a soup. The soups of this class can be made from the following plants: Seaweeds, p. 402 Lichens, p. 406 Arbor Vitae (pith of young twigs), p. 81 MANNNA-GRASS (seeds), p. 93 WILD RICE (seeds), p. 102 DAY-LILIES (buds and flow- ers), p. 130 WALNUTS (meats), p. 149 HICKORY-NUTS (meats), p. 150 CHESTNUTS (meats), p. 158 COW- LILY (seeds), p. 197 SASSAFRAS (pith and young shoots or powdered leaves), p.219 MALLOW (seeds), p. 274 Violet (rootstocks), p. 275 Prickly-Pear (seeds), p. 276 Tobacco-root, p. 351 SUNFLOWER (seeds), p. 357 Burdock (roots), p. 364 Of these the soups thickened with the seeds of Wild Rice, Manna-grass and Cow-Lily have somewhat the qual- ity of the familiar barley soups; while most of the others are thickish, viscid soups, in quality suggesting either gumbo- or potato-soup. The gumbo-soups are prepared from the young or dried and powdered leaves or young pith of Sassafras, from the seeds of Mallows, or from the young rootstocks of some of the purple Violets. The thick soups prepared from powdered nuts and from Sunflower- seeds have been in repute among the American Indians and have been highly praised by the Europeans who have tried them.

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OF EASTERN NORTH AMERICA³ FRUIT Sours The fruit soups are prepared much like the conven- tional tomato soups, either as a thin soup carrying the acid of fruit juices, or as a thick soup, in which case flour or cornstarch is added, first mixed with cold water until thoroughly blended and creamy and thoroughly cooked by itself. The cooked

thickening is added to the strained extract obtained by boiling the fruits, seasoned to taste, usually a small amount of sugar added and then, if desired, a small amount of scalded milk. Practically any of our juicy or more acid fruits may be used this way, but the sweeter, more highly flavored, or insipid fruits are hardly to be recommended. Among the wild fruits from which a palatable soup can be prepared -are RASPBERRIES, p. 236 PLUMS, p. 239 BLACKBERRIES, p. 236 CHERRIES, P. 240 DEWBERRIES, p. 237 ELDERBERRIES, p. 349

2. STARCHY OR ROOT-VEGETABLES, CEREALS, NUTS AND BREADSTUFFS A large number of wild plants of eastern America supply farinaceous food or nutritious roots. These may appropriately be grouped according to their uses into 1) those which are used like potatoes or parsnips as cooked vegetables; 2) a few used as nuts; 3) a limited number used as cooked cereals or breakfast foods; 4) a long list of possible breadstuffs.

COOKED STARCHY OR ROOT-VEGETABLES The list of possible cooked vegetables of this class is a long one: Lichens, p. 406 ARROW-HEADS (tubers), p. 86 Cat-tail (bases), p. 82 Mud-Plantain (rootstocks), p. Bur-reed (tubers), p. 85 89 Pondweeds (rootstocks and tu-Flowering-Rush (rootstocks), bers), p. 85 p. 89 Reed (rootstocks), p. 94

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4 EDIBLE WILD PLANTS Water-Millet (young root-stocks), p. 101 CHUFA (tubers), p. 107 Nut-Grass (tubers), p. 110 Arrow-Arum (roots and seeds), p. 113 Golden-club (roots and seeds), p. 119 Erect Day-flower (roots), p. 124 Bellwort (roots), p. 126 Lilies (bulbs), p. 132 Day-Lily (thick roots), p. 130 Adder s-tongue Lily (bulbs), p. 132 Star-of-Bethlehem (bulbs) ~, p. 133 False Spikenard (rootstocks), p. 135 CINNAMON-VINE, p. 143 Golden Canna?, p. 145 CHESTNUTS, p. 158 Slippery Elm (inner bark), p. 161 ALPINE BISTORT (rootstocks), p. 174 SPRING-BEAUTY (roots), p. 197 Cow-Lmy (rootstocks and seeds), p. 197 White Water-Lily (rootstocks and seeds), p. 199 WATER-CHINQUAPIN (root-stocks and seeds), p. 200 Water-shield (rootstocks), p. 202 Bulbous Crowfoot (bulbs), p. 202 Silverweed (roots), p. 233 PRAIRIE-TURNIP (roots), p. 246 Wild Licorice (roots), p. 248 LICORICE-ROOT (roots), p. 249 BEACH-PEAS (young peas), p. 251 Tuberos Vetch (tubers), p. 251 GROUNDNUT, Apios (roots), p. 252 HOG-PEANUT (underground seeds), p. 256 Prickly-Pear (stem), p. 276 EVENING-PRIMROSE (roots), p. 280 Water-Chestnuts, p. 281 Indian Spikenard (roots), p. 282 Dwarf Ginseng (roots), p. 284 Harbinger-of-Spring (roots), p. 287 Honewort (roots), p. 287 CARAWAY (roots), p. 290 Water-Parsnip, Simm (roots), p. 291 WILD PARSNIP (roots), p. 297 COW-PARSNIP (roots), p. 297 Wild Carrot (roots), p. 301 Man-of-the-Earth (roots), p. 326 Woundwort (rootstocks and tu- bers), p. 331 BUGLEWEED (tubers), p. 332 Tobacco-root, p. 351 Bellflower, Cam panula rapun- cidoides (roots), p. 353 JERUSALEM ARTICHOKE (tu- bers), p. 357 Burdock (roots), p. 364 YELLOW

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OF EASTERN NORTH AMERICA⁵ It is obvious that many of these plants are trivial and by the ordinary person will be classed only as emergency-foods; but such roots or tubers as those of the Spring-beauty, Groundnut, Evening-Primrose, Caraway, Bugleweed and Jerusalem Artichoke are so abundant where they occur as already to have many users. The root of Licorice-root, *Hedysarum alpinum* or *H. boreale*, is very large, and it might become of some importance in the regions of Labrador, Newfoundland, Canada and Maine where it abounds. Certain plants which supply abundant starchy material or inulin and which are eaten by the Indians are so unpalatable to the European taste that, until some method of preparation is found by which their undesirable qualities may be removed, they are likely to be ignored. This group includes the Arrow-Arum, Goldenclub and Prickly-Pear. Among the edible seeds the Chestnut, Cow-Lily, and Beach-Pea are most important and, where abundant, the Hog-Peanut, although the latter is rarely found in sufficient quantity to supply a large company.

NUTS AND LARGE SEEDS

The wild nuts are mostly well known, although two or three species which supply nuts or nut-like roots are less familiar. The nuts and edible large seeds of eastern America include Pine-seeds, p. 77 **CHINQUAPINS**, p. 159 **PICKEREL-WEED-SEEDS**, p. 125 Sweet Acorns, p. 159 **WALNUTS**, p. 148 Hemp, p. 162 **BUTTERNUTS**, p. 148 Bastard Toadilax (fruits), p. **HICKORY-NUTS**, pp. 148-150 166 **PECANS**, p. 150 **ALPINE BISTORT** (roots), p. **HAZELNUTS**, p. 151 174 Hornbeam-nuts, p. 152 Cow-Lily (seeds), p. 197 **BEECHNUTS**, p. 152 Water-Chinquapin (seeds), p. **CHESTNUTS**, p. 158 200

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6 EDIBLE WILD PLANTS Kentucky Coffee-tree (seeds), Bladder-nut (seeds), p. 266 p. 242 Dwarf Ginseng (roots), p. 284 Peanut (seed), p. 250 Except that they have uses which are often unfamiliar, the more important nuts, as already said, are well known and consequently need little discussion. The detailed notes under Walnuts, Hickory-nuts, Beechnuts and Chestnuts indicate how universal has been their use as cooked vegetables and as sources of soups, oils and, especially, breadstuffs. Some, like the Pine-seeds or the nuts of Bastard Toadilax and the roots of Dwarf Ginseng, occur in such limited quantities or are so difficult to procure that they are likely to be used only as

occasional relishes or nibbles; and the nuts of the Hornbeams are so small as to be tempting only in time of great need; but in late summer and autumn Pickerel-weed supplies an abundance of palatable and nutritious nutty seeds, enough to supply every trampler in the eastern states. The use of nuts at the present time is not so general as it should be but the following extract from old Dr. Culpepper indicates that in the 18th century, also, nuts were not generally appreciated. And if this be true, as it is, then why should the Vulgar so familiarly affirm, That eating Nuts causeth shortness of Breath, than which nothing is falser? For, how can that which strengthens the Lungs, cause shortness of Breath? I confess the Opinion is far elder than I am; I knew Tradition was a Friend to Errors before, but never that he was the Father of Slanders: or are Mens Tongues so given to slandering one another, that they must slander Nuts too, to keep their Tongues in use ~ And thus I have made an Apology for Nuts, which cannot speak for themselves.

BREAKFAST CEREALS Only a few species of our wild plants furnish seeds of such quality or in sufficient quantity to supply breakfast

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OF EASTERN NORTH AMERICA7 foods. In fact, only the following have been specially recommended. Arrow-grass, p. 86 Cane, p. 91 Reed, p. 94 **WILD RICE**, p. 102 Cow-Lily, p. 197 Water-Chinquapin, p. 200 Of these, Arrow-grass, on account of the peculiar, oily flavor of its seeds is not likely to be palatable to the European taste. Some of the larger-seeded grasses besides Wild Rice would doubtless supply a breakfast food, if they could be secured in sufficient quantity. **BREADSTUFFS** An amazing number of plants have been drawn upon by primitive peoples to supply breadstuffs, and a surprising diversity in the part of the plant used is exhibited in the list of possible breadstuffs in eastern America. The important requirement seems to be merely a large amount of nutritive material more or less farinaceous, flavor being secondary. The breads made by primitive races were often quite unpalatable to the whites and even the breads made in northern Europe in times of famine are more nutritious than attractive. Many of the breadstuffs, however, are not merely nutritious and wholesome, but, when properly prepared, are often delicious and supply breads, muffins and cakes which rival those made from the cultivated cereals. The wild breadstuffs of eastern America are the following: Lichens, p. 406 Pine (inner bark), p. 77 Hemlock (inner bark), p. 80 **CAT-TAIL** (pollen), p. 82 Flowering-Rush (rootstock and tubers), p. 89 Arrow-grass (seeds), p. 86 Cane (grains), p. 91 Manna-grass (grains), p. 93 Reed (young stems and grains), p. 94 **STRAND-WHEAT** (grains), p. 95 Witch-grass (rootstocks), p. 95 Drop-seed Grass (grains), p. 96 Mountain-Rice (grains), p. 97

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OF EASTERN NORTIHI AMERICA9 As already said, many of these breadstuffs are to
be considered as emergency-foods and only as last resorts in time of famine were they
depended upon by primitive peoples or those remote from abundant crops; for in- stance,
the rootstocks of Buckbean which have furnished a missem (famine)-bread in
Scandinavia, described as nutritious but bitter and disagreeable. Similarly, many
members of the Arum family, although containing abun- dant starchy material, also have
such a fiercely pucker- ing, peppery principle that their roots may be used only after
prolonged drying and even then there will often be left some of the peppery quality.
Some of the other plants supply breadstuff of consid- erable importance. For instance, the
juicy inner bark of the Scotch Pine, stripped off in early summer and dried, has long been
recognized in Scotland and in Scandinavia as a source of nutritive flour in times of
scarcity of wheat; and the sappy inner bark of our Sugar-Maple was simi- larly used by

our American Indians and it certainly suggests the possibility of furnishing a palatable breadstuff. In this connection it is well to remember the statement, attributed to the late Dr. Harvey Wiley, that Sawdust is fine board. Bread and cake made from flour prepared from nuts is so familiar in these days of vegetarian recipes as to need no special introduction, but it is noteworthy that the American Indians were much more alive to the desirability and the highly nutritive qualities of these breads than are the whites. The use of acorns as a source of bread was so general among the Indians, particularly of the Southwest, where acorn-bread is described by army surgeons as extremely wholesome and fattening, that it is surprising that few efforts have been made by the whites to use the abundant crop of acorns that annually goes to waste. The acorns of the White Oaks are sweet and only slightly bitter and, when properly prepared by leaching out the

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10EDIBLE WILD PLANTS tannin, furnish a flour from which the most delicious cake and bread may be prepared. Only a few of the smaller seeds occur in sufficient quantity for practical use in bread-making, but from such common weeds of cultivated fields and barnyards as the Pigweeds and Amaranths a remarkable quantity of seeds can be readily rattled out. Bread prepared from the ground seeds of these plants is thoroughly palatable and apparently wholesome, although with as characteristic a flavor as that of barley and some other cereals to which the American taste was forced during the last war to accustom itself. The Indians even prepared breads from some of the stone-fruits and dried berries, grinding such fruits as dried persimmons, stones and all! The ubiquitous Elder is the source of delicious rolls and muffins. The fluffy cream-white corollas and buds shaken or pulled off the broad clusters and used on the 50-50 principle with white flour yield muffins which are marvelously light and of delicate flavor. This flour can be stored for winter use by rattling off the corollas and drying them rapidly; then storing in tight receptacles. 3. COOKED GREEN VEGETABLES The wild plants which can be used as cooked green vegetables are about as numerous as the starchy vegetables or those with inulin. They group rather naturally into (1) those used as potherbs or greens; (2) some served like asparagus, in lengths; and (3) a few prepared like string beans, stewed celery, or other conventional vegetables. POTHEEBS OR GREENS The potherbs or greens~~ are more familiar to the layman than any other of our green vegetables; and almost every one is accustomed to the use of one or another of our wild greens, such as Dandelion, Dock, Mustard, or

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OF EASTERN NORTH AMERICA¹¹ Marsh-Marigold. The prejudice against this group of plants is likely to be much less with those not particularly familiar with wild plants than that against the making of bread from acorns or from the seeds of various wild herbs. In preparing greens, great pains must be taken to include only the young and tender foliage, since a single tough or old leaf will injure the quality of the entire dish. Particular pains should also be taken in the identification of the species, since, at the stage when most plants are available for greens, flowers and fruits are rarely found and the dangers of confusion are much greater than at other seasons. In cooking greens certain general principles should be followed. Our wild potherbs fall into two groups; the first with mild flavor and harmless juices, the second with strong or bitter principles or poisonous properties which are withdrawn in boiling. The species with mild and entirely wholesome foliage should, after being picked over, and thoroughly washed and drained, be put into as little boiling water as will cook them and then allowed to simmer in their own juices, to which a pinch of soda (in case only of plants with very tough or stringy fibers), and salt according to judgment, has been added. Occasionally, if the leaves are of dry texture, the addition of a bit of salt-pork (unless one objects to it) while cooking may be desirable. The coarser-leaved greens, after cooking and draining, should be finely chopped and seasoned with a little pepper and additional salt if needed, with as liberal an addition of butter, oil or cream, as may be desired or available. The thoroughly chopped, creamy mass should then be heated and allowed to dry out to the required consistency. Attractive modifications are the mixing of some of the greens with buttered crumbs and, after the addition of a beaten egg (or eggs) and some milk, baking the dish until the top is delicately browned. The addition of slices of

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12EDIBLE WILD PLANTS hard-boiled eggs also makes the greens more attractive. Most greens when thoroughly cooked, chopped and seasoned, make delicious salads after they have been chilled, the only addition being the usual dressings of conventional salads. The following species are sufficiently mild to be cooked in their own juices, although by throwing off the first water the herby and often slightly disagreeable flavor may be removed. Reed (young shoots), p. 94 Canary-grass, p. 100 Day-flower, p. 122 Aneilema, p. 124 Spiderwort, p. 124 Pickerel-weed, p. 125 Water-Hyacinth, p. 125 Corn-Lily (cucumber-flavor), p. 134 Wake-Robin, p. 138 Beech (young leaves), p. 154 Hop, p. 163 Nettles, p. 164 Richweed?, p. 166 MOUNTAIN-SORREL (acid and watery), p. 167 DockS (watery), p. 169 SORREL (acid), p. 171 JAPANESE 1(NOTWEED (acid), p. 175 SACHALINE (acid), p. 176 PIGWEED, p. 177 Strawberry-Blite, p. 180 ORACH, p. 180 Summer-Cypress, p. 182 AMARANTH, p. 184 Sea-Purslane, pp. 187-189 Chickweed, p. 190 Mouse-ear Chickweed, p. 190 PUR5LANE (mucilaginous), p. 195 SPRING-

BEAUTY, p. 197 Water-Chinquapin, p. 200 Shepherds-purse, p. 213 Scurvy-Grass (horseradish-flavor), p. 214 Sea-Rocket (strong turnip- / odor), p. 215 MUSTARD, p. 216 Hedge-Mustard, p. 216 Horseradish (strong, pungent flavor), p. 218 Alpine Cress, p. 221 Live-forever, p. 222 Roseroot, p. 224 Wild Senna, p. 243 Sickle-pod, p. 244 Clover, p. 246 Hyacinth-Bean, p. 256 Mallow, p. 274 Fireweed (Epilobium), p. 279 RIVER-BEAUTY, p. 279 Angelica-tree, p. 282 Water-Pennywort?, p. 285 Centella?, p. 285 HONEWORT, p. 287 Sweet Pepperbush, p. 305 Pimpernel, p. 318 Waterleaf, p. 326 Ilenbit, p. 330 Natrimony-vine, p. 336 Brooklime, p. 336

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OF EASTERN NORTH AMERICA 13 Dicteria, p. 340 SEASIDE PLANTAIN, p. 340 Common Plantain, p. 342 Cleavers, p. 342 Eclipta, p. 357 Cosmos, p. 360 Galinsoga, p. 360 Sweet Coltsfoot, p. 364 Fireweed (Erechtites), p. 364 GOATS-BEARD, p. 371 SALSIFY, p. 371 Wild Lettuce, p. 374 The second series of potherbs consists of species with such strong flavor or such bitter or slightly poisonous properties when green that it is necessary to cook them in two or more waters, sometimes with a pinch of soda, the strong qualities of the plant being extracted by the water and thrown off with it. It is perhaps a bit shocking to persons who are not familiar with the fact, that many of our staple foods come from plants which, in their fresh state, are notoriously poisonous. For instance tapioca, cassava, and arrowroot-flour are prepared from the tuberous roots of species of Manihot, the fresh juice of which is highly poisonous. In cooking the strong-tasting or somewhat doubtful potherbs it is wisest to throw off at least two of the waters, and experience will sometimes show the desirability of using even more waters before the final seasoning, chopping and simmering. To some people the bitter of the Dandelion or the Marsh-Marigold is agreeable, but to most of us these and other strong greens are more palatable after two or three waters have been thrown off. In the final cooking these stronger-flavored greens are treated exactly as the milder ones described above. The following are the chief species in our flora belonging to this class. Skunk-Cabbage, p. 117 WILD ONIONS, p. 126 Dog-tooth Violet, p. 132 Sea-Blite, p. 184 POKEWEEED, p. 185 BLADDER-CAMPION, p. 193 Cursed Crowfoot, p. 203 MARSH-MARIGOLD (bitter), p. 204 WINTER-CRESS (bitter), p. 219 Clover, p. 246 Storksbill, p. 259 Balloon-vine, p. 270 Honewort, p. 287

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14 EDIBLE WILD PLANTS Caraway, p. 289 Black-berried Nightshade, p. FENNEL (aromatic), p. 292 334 SCOTCH LOVAGE (celery-like), Large-leaved Aster, p. 355 p. 295 Burdock (bitter), p. 364 MILKWEED (bitter), p. 323 Nipplewort (bitter), p. 368 Hydrolca, p. 327 CHICORY (bitter), p. 369 Comfrey, p. 327 DANDELION (bitter), p. 372 Sow-Thistle (bitter), p. 373 SERVED LIKE ASPARAGUS The wild plants which are cooked like asparagus are, naturally, available only in the early part of the season, while the new shoots are very tender. Only the young and tender tips should be used; these should be gathered and carefully kept from wilting before use, the hairy or scaly portions rubbed off and the shoots thoroughly washed and drained. They are then cooked either immersed in or steamed over boiling water; in either case salt should be added, the cooked sprouts when thoroughly tender drained, seasoned with pepper and more salt if needed, and dressed with butter, oil, or a sauce. Several of our wild plants, such as the Pasture-Brake, Ostrich-Fern, Carrion-flower, Cat-brier, Pokeweed and Milkweed, are rather extensively used by those who know them and in many regions may be gathered in large quantities. Many of the remaining species in the following list are included on the recommendation of others, some of the plants being extremely local, although a few are sufficiently abundant for any one so inclined to test their quality. As in the case of the potherbs, these sprouts which may be cooked like asparagus are difficult to describe so that the novice may recognize them, for they are in condition for use long before the flowers or fruits are developed. Furthermore, many poisonous species produce vigorous and tempting sprouts which might by the less observant be very easily mistaken for the new shoots of edible species. Consequently it is necessary to urge that the great-

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OF EASTERN NORTH AMERICA 15 est care be taken in the use of this class of plants and, as in the case of mushrooms, the general rule should be: when in doubt let them alone; although many plants, such as the ferns, Wild Onions, Cat-brier, Hop, and Milkweed are so distinct in appearance that there is practically no danger of confusing them with poisonous species. The following have been used like asparagus. PASTURE-BRAKE, p. 71 JAPANESE KNOTWEED, p. 175 OSTRICH-FERN, p. 73 POKEWEED, p. 185 Cat-tail, p. 82 Water-Chinquapin, p. 200 Cane, p. 91 Fireweed, p. 279 Reed, p. 94 RIVER-BEAUTY, p. 279 Beliwort, p. 126 Spikenard, p. 282 WILD ONIONS, p. 126 Indian Pipe, p. 305 False Spikenard, p. 135 MILKWEED, p. 323 Solomons-seal, p. 136 Elder, p. 349 Carrion-flower, p. 138 PLUMELESS THISTLE, p. 367 CAT-BRIER, p. 140 YELLOW GOATS-BEARD, p. 371 hop, p. 163 OTHER GREEN OR STARCHY VEGETABLES Besides the large group of potherbs and substitutes for asparagus there are a certain number of wild plants which make palatable vegetables as substitutes for string beans, stewed celery, and other vegetables of the market. Some of these are

commonly used in country districts; for instance, the Pasture-Brake, its young stems cut into short pieces and served like string beans; or the Seaside Plantain similarly treated. Others, like Burdock and Cow- Parsnip, are less generally known as excellent vegetables when properly prepared. In fact, the tender young stems of Burdock, when carefully peeled, cut into small cubes and deprived, by cooking in two or more waters, of their bitter or rank properties, furnish a vegetable as delicious as salsifyone long advocated by European writers, while in Asia a garden form of the Burdock has long been cultivated for food.

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16LDIBLT~ WILD PLANTS This somewhat miscellaneous group of wild vegetables contains the following limited number of species, the details of uses of which will be found in the systematic section of the book: PASTURE-BRAKE (young fronds), p. 71 OSTRICH-FERN (young fronds), p. 73 White Pine (Staminate aments), p. 77 CAT-TAIL (young spikes), p. 82 Cane (young sprouts), p. 91 WILD ONIONS, p. 126 LEEK, p. 126 DAY-LILY (flowers and buds), p.130 Dog-tooth Violet (bulbs), p. 132 Slippery Elm (inner bark), p. 161 White Mulberry (young shoots), p. 163 JAPANESE KNOTWEED (sprouts), p. 175 SACHALINE, p. 176 Moss-Campion (moss-like mat), p. 195 Water-Lily (buds), p. 199 Water-Chinquapin, p. 200 Red-bud (buds and flowers), p. 245 Locust (flowers), p. 246 BEACH-PEA (young sprouts), p. 251 Wisteria (flowers), p. 248 Groundnut (beans), p. 252 Wild Beans, p. 255 Cow-Pea, p. 255 Hyacinth-Bean, p. 256 Soy-Bean, p. 256 HOG-PEANUT (beans), p. 256 Maple (seeds), p. 266 Prickly-Pear (joints), p. 276 Spikenard (sprouts), p. 282 Fennel, p. 292 Seacoast Angelica (young stems and leaf-stalks), p. 296 PURPLE ANGELICA (young stems and leaf-stalks), p. 296 Cow-PARSNIP (young stems and leaf-stalks), p. 297 Thrift (bases of plants), p. 318 MILKWEED (young seed-pods), p. 323 SEASIDE PLANTAIN (leaves), p. 340 Tansy, p. 362 BURDOCK (pith of young stems), p. 364 Thistles (peeled young stems), p. 367 Scotch Thistle (base of young flower-head), p. 368 4.SALADS The wild salad plants fall naturally into different groups according to the part used or its preparation. Several are used in the raw state much as lettuce, water-

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OF EASTERN NORTH AMERICA17 cress, or cucumbers; others are more desirable when cooked and served cold with salad-dressing. A few belong perhaps as much in our

group of nibbles and relishes as to the group of fresh salads, but because of their delicacy or fresh attractiveness are here included. Some of the best salad-plants, Water-Cress for instance, luxuriate in slow-moving or standing water, the source and the purity of which is questionable. It is, therefore, advisable to disinfect all aquatic salads before eating. The addition to the water in which they are washed of a tablet of chlorazene, a well known disinfectant, is advisable. One tablet in two quarts of water purifies the latter and, as emphasized, should be used in washing all salads from doubtful sources including Water-Cress from the market. For the most part these salads are best when dressed with oil, vinegar, salt and pepper, with the addition, if one wishes, of a bit of Wild Onion or Wild Chives. Many of the species are best when used as ingredients in mixed salads such plants as Sweet Flag, Sorrel, Peppergrass, Shepherds-purse, Sea-Rocket, Scurvy-Grass, Water-Cress, Winter-Cress, Spring-Cress, Wood-Sorrel, Caraway and Brooklime. Others, like Corn-Lily, Purslane, Live-forever, Roseroot, and Seaside Plantain, are sufficiently mild and succulent to be used by themselves like lettuce; and a few species are bitter or strong and are best when they have grown through litter or have been allowed otherwise to blanch such plants as Scotch Lovage, Chicory and Dandelion. In a few cases, for example Cat-brier sprouts and Beach-Pea sprouts, the shoots need to be cooked. A few are merely crisp roots which, dressed like cucumbers, make a palatable substitute for them such as the white roots of the Indian Cucumber. Besides the plants enumerated in the list below practically any of the potherbs, as already stated, may be served cold with salad dressing,

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18 EDIBLE WILD PLANTS most of them making a highly satisfactory salad. The following wild plants supply salads. Cat-tail (bases of new sprouts), p. 82 Canary-grass (young plants), p. 100 SWEET FLAG (bases of new inner leaves), p. 121 Spiderwort (leaves and young tops), p. 124 Corn-Lily (unrolling leaves), p. 134 Yucca (flowers), p. 134 INDIAN CUCUMBER (roots), p. 137 CAT-BRIER (vigorous sprouts), p. 140 Bamboo-vine (vigorous sprouts), p. 143 MOUNTAIN-SORREL (leaves and tips), p. 167 SORREL (leaves), p. 171 SAMPHIRE (young branches), p. 183 Sea-Purslane (young branches), p. 189 PURSLANE (leaves and tips), p. 195 Water-shield (young leaves), p. 202 Penny-Cress (leaves and young tips), p. 212 Peppergrass (new leaves), p. 213 Shepherd s-purse (new leaves), p. 213 SCURVY-GRASS (leaves, flowers and fruit), p. 214 SEA-ROCKET (leaves and young pods), p. 215 MUSTARD (young leaves), p. 216 Garlic-Mustard (young leaves), p. 216 Yellow Cress (young leaves), p. 217 WATER-CRESS, p. 218 Winter-Cress, p. 219 Crinkle-root (rootstocks), p. 219 SPRING-CRESS, p. 220 Ladys-smock, p. 221 NATIVE WATER-CRESS, p. 221 Alpine Cress, p. 221 Wild Mignonette (leaves), p. 222 LIVE-FOREVER (leaves and tips), p. 222 ROSEROOT (leaves and tips), p. 224 Lettuce-Saxifrage (young leaves), p. 225 Swamp Saxifrage

(young leaves), p. 225 Golden Saxifrage (leaves), p. 226 Burnet (young leaves), p. 238 Wild Rose (petals), p. 239 Red-bud (flowers), p. 245 Clover (young leaves), p. 246 Wisteria (flowers), p. 248 Wild Licorice (roots), p. 248 BEACH-PEA (young shoots, cooked), p. 251 Hyacinth-Bean (young tips), p. 256 Wood-Sorrel (leaves), p. 258

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OF EASTERN NORTH AMERICA 19 Storksbill (leaves), p. 259 False Mermaid (leaves and stems), p. 261 Deergrass (leaves), p. 277 Water-Pennywort ?, p. 285 Centella?, p. 285 Honewort (blanched leaves and stems), p. 287 Caraway (young leaves), p. 289 Scotch Lovage (blanched shoots), p. 295 Purple Angelica (new stems and leaf-stalks peeled), p. 296 Cow-Parsnip (new stems and leaf-stalks peeled), p. 297 Pimpernel (leaves), p. 318 WOUNDWORT (rootstocks and tubers), p. 331 BUGLEWEED (tubers), p. 332 Brooklime (leaves and tips), p. 336 Diclptera?, p. 340 SEASIDE PLANTAIN (leaves), p. 340 Plantain (very young leaves), p. 342 CORN-SALAD (leaves), p. 352 Purple Bellifower (tubers), p. 353 JERUSALEM ARTICHOKE (tubers), p. 357 Cosmos, p. 360 Ox-eye Daisy (young leaves), p. 361 Costmary (young leaves), p. 362 Fireweed (Erechtites), p. 364 BURDOCK (pith of young stem), p. 364 Scotch Thistle (vigorous young shoots peeled), p. 368 Nipplewort (young leaves), p. 368 CHICORY (blanched young leaves), p. 369 GOAT S-BEARD (blanched leaves), p. 371 WILD SALSIFY (blanched leaves), p. 371 DANDELION (blanched young leaves), p. 372 Sow-Thistle (blanched young leaves), p. 373 5. NIBBLES AND RELISHES Here belong a few plants which supply pleasant radish-like roots, or seeds or sprouts which are eaten raw chiefly by children or as minor relishes, though rarely brought to the table. The list is so miscellaneous in character that it is not readily classified, but the reason for here entering these minor food-plants will be apparent from the comment appended to each name.

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20 EDIBLE WILD PLANTS SEaweeds, p. 402 PASTURE-BRAKE (young stems), p. 71 Buckhorn (young fronds), p. 76 Ground-Hemlock (berries), p. 77 Ground-Juniper (berries), p. 81 Eel-Grass (rootstock), p. 85 Sand-reed (tender bases of joints), p. 97 CHUFA (tubers), p. 107 CAT-BRIER (young leaves), p. 140 BRYONY-LEAVED JACOB S-LAD- DER (berries), p. 140 Bamboo-vine (young shoots), p. 143 Sweet Fern (young nutlets), p. 147 Alder (buds and bark), p. 154 HACKBERRY (thin pulp of berries), p. 161 BASTARD TOADFLAX (nut-like fruits), p. 166 Wild Ginger (rootstock

gin- gery), p. 167 SORREL (leaves acid), p. 171 ALPINE BISTORT (rootstock and bulblets nut-like), p. 174 BARBERRY (young leaves acid), p. 208 RASPBERRY (young sprouts peeled), p. 236 Blackberry (young sprouts peeled), p. 236 Wild Rose (petals), p. 239 Honey-Locust (sweet, pulpy lining of pod), p. 243 Clover (flowers with abundant honey at base), p. 246 Peanut, p. 250 Mallow (young seeds, called Cheeses), p. 274 DEERGRASS (acid leaves and nutty tubers), p. 277 Water-Parsnip (nutty roots), p. 291 Fennel (young tips), p. 292 Bunchberries (insipid stone- fruit), p. 301 Trailing Arbutus (flowers pleasantly acid), p. 309 CHECKERBERRY (young leaves and berries), p. 309 Blueberry (flowers mildly acid), p. 315 Mints (young shoots), p. 328 WOUNDWORT (crisp finger-like rootstocks), p. 331 BUGLEWEED (crisp tubers), p. 332 Partridge-berry (insipid, seedy berries), p. 344 Hobblebush (sweet stone- fruit), p. 348 WILD RAISIN (sweet stone- fruit), p. 348 Black Haw (sweet stone- fruit), p. 348 6. PICKLES A rather large number of wild plants are used in various communities as pickles, ordinarily soaked in alum-

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OF EASTERN NORTH AMERICA²¹ water, then in salted water, and finally preserved in boiling, spiced vinegar; though a few plants are of such mild flavor and delicate texture that they can be put at once into weak vinegar without the use of the alum-water. Such pickles as those made from Walnuts and Butternuts have long been popular and their preparation is usually described in the better cook-books. Others, like the Wild Onion, are prepared exactly as if they were small, cultivated onions, and to this class of roots and tubers belong several wild plants that are less generally used. The wild roots and tubers which furnish good pickles are Cat-tail, p. 82 INDIAN CUCUMBER, p. 137 WILD ONIONS, p. 126 LIVE-FOREVER, p. 222 False Spikenard, p. 135 BUGLEWEED, p. 332 Solomons-seal, p. 136 JERUSALEM ARTICHOKE, p. 357 In a few cases the leafy young plants or the young branches are used entire. These are all succulent or fleshy plants, the best-known of which is the salty Samphire of the salt marshes. The latter, with a few other species similarly used, makes the following list. SAMPHIRE, p. 183 PURSLANE, p. 195 POKEWEED, p. 185 Sea-Milkwort, p. 319 Sea-Purslane, p. 189 A number of flower-buds or young fruits are pickled like capers and used like them, and presumably many more might be added to the list. The following have been definitely tried or recommended. MARSH-MARIGOLD (buds), p. Red-bud (buds and flowers), 204 p. 245 Barberries (green), p. 208 ASH (fruits), p. 322 BROOM (buds and young Elder (buds), p. 349 pods), p. 244 The remaining species are so differently prepared and

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22 EDIBLE WILD PLANTS used that they are merely enumerated, with a note as to the part which is pickled. Cat-tail (tender young Kentucky Coffee-tree (pods shoots), p. 82 like tamarinds), p. 242 Reed (tender young shoots), p. Unicorn-plant (young pods), 94 p. 340 WALNUTS and BUTTERNUTS (young), p. 149 7. CONDIMENTS AND SEASONING It is naturally difficult to draw a sharp line between condiments, nibbles and pickles. As here classified, however, the condiments are the plants generally used in seasoning or flavoring, or which, like Horseradish, stand somewhat intermediate between the seasonings, relishes and pickles. Onion-flavor is, of course, readily found wherever species of Wild Onion occur. Pepper finds a tolerable substitute in the Smartweeds and in a milder form in the seeds of Peppergrass. Salt is not so easily obtained, although the Indians claimed that the hollow basal portions of the stems of Cow-Parsnip furnish a substitute, and some of the fleshy salt-marsh plants like Samphire are highly charged with salt and can be added, either green or cooked, to season other plants. Sweet herbs and savory seeds quite as good as the imported bay and other conventional condiments of the grocer are supplied by Sweet Gale, Wax-Myrtles, Wild Ginger, Sassafras, Red-Bay, Spice-bush, Sweet Cicely, Caraway, and Tansy. Checkerberry-flavor is found not only in the Checkerberry plant but in the Moxie-vine, and abundantly in the twigs and buds of the Sweet Birch and somewhat less so in the Yellow Birch. Pleasant acid is readily secured from the Sorrels, Mountain-Sorrel, and Wood-Sorrel; good substitutes for Horseradish are found in the roots of Crinkle-root and Spring-Cress; while the wild species of Mints, the Mugwort and Worm-

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OF EASTERN NORTH AMERICA 23 wood, are as good as those ordinarily used in the kitchen. More concisely stated this list of condiments is as follows: WILD ONIONS, p. 126 Wild Garlic, p. 126 Wild Chives, p. 126 SWEET GALE (savory), p. 146 WAX-MYRTLE (savory), p. 146 BAYBERRY (savory), p. 146 Sweet Birch (checkerberry-flavor), p. 153 Yellow Birch (checkerberry-flavor), p. 153 Hackberry (sweetish), p. 161 WILD GINGER, p. 167 Mountain-Sorrel (acid), p. 167 SORRELS (acid), p. 171 Smartweed (peppery), p. 173 Samphire (salt), p. 183 SASSAFRAS (savory), p. 209 Spice-bush (savory), p. 211 Red-Bay, p. 211 Poppy (seeds), p. 211 Shepherds-purse (seeds), p. 213 Penny-Cress (peppery), p. 212 Peppergrass (mildly peppery), p. 213 Garlic-Mustard, p. 216 Mustard, p. 216 HORSERADISH (mildly peppery), p. 218 Crinkle-root (like Horseradish), p. 219 Spring-Cress (like Horseradish), p. 220 Wood-Sorrel (acid), p. 258 SWEET CICELY (anise-oil), p. 287 CARAWAY, p. 289 Water-Parsnip, p. 291 FENNEL (aromatic), p. 292 Cow-Parsnip (?salt), p. 297 CHECKERBERRY, p. 309 MOXIE-VINE (checkerberry-flavor), p. 311 MINTS, p. 330

Horehound, p. 330 BEE-BALM, p. 330 Pennyroyal, p. 330 MOUNTAIN-MINT, p. 330 Mustard John-Henry (savory), p.351 Costmary, p. 362 Tansy, p. 362 Mugwort, p. 363 Wormwood, p. 363 8.DRINKS TEA Singularly enough there are as many substitutes for tea and some other conventional drinks as for spinach or flour. In fact almost any plant with harmless properties or only mildly medicinal tendencies seems to have been used by some one in the preparation of tea. The familiar

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24EDIBLE WILD PLANTS herb-teas of a few generations ago, while still sometimes used as spring medicine~~ or as cures for catarrh (or for anything else), are no longer popular; but a few of them have outgrown their medicinal uses and are now recommended as camp-teas. Thus the teas prepared from Sweet Gale or from Sweet Goldenrod have their enthusiastic advocates. Some sing the praises of Sassafras-tea, others of Clover-tea or Basswood-tea; while the numerous names like New Jersey Tea, Oswego Tea and Labrador Tea hark back to early uses of these plants. The following list includes the principal wild plants (excluding the mints and other strong-flavored plants, which to some are too suggestive of medicine to form an entirely pleasant beverage, but to others are attractive and well known) which have been recommended as substitutes for tea. The approved method of curing the leaves in Revolutionary days will be found under the discussion of New Jersey Tea (p. 271) or of Cassina (p.263). Hemlock (young tips), p. 80 Arbor Vitae (twigs, chips), p. 81 Sweet Vernal-grass, p. 100 SWEET GALE (leaves), p. 146 SWEET FERN (leaves), p. 147 Sweet Birch (leaves, bark, twigs), p. 153 Slippery Elm (inner bark), p. 161 MEXICAN TEA (leaves), p. 180 SASSAFRAS (bark of roots), p. 209 Spice-bush (leaves and twigs), p. 211 Witch-Hazel (leaves), p. 228 STRAWBERRY (leaves), p. 232 Shrubby Cinquefoil (leaves), p. 234 Blackberry (leaves), p. 238 Raspberry (leaves), p. 238 CLOVER (heads), p. 246 CASSINA (leaves), p. 263 INKBERRY (leaves), p. 265 Black Alder (leaves), p. 265 Holly (leaves), p. 265 NEW JERSEY TEA (leaves), p. 271 Basswood (flowers), p. 274 Fireweed (leaves), p. 279 Ginseng (leaves), p. 284 LABRADOR TEA (leaves), p. 306 Lapland Rosebay (leaves), p. 307 Bog-Rosemary (leaves), p. 308 Leatherleaf (leaves), p. 308 CHECKERBERRY (leaves), p. 309 MOXIE-VINE (whole plant), p. 311

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OF EASTERN NORTH AMERICA 25 Persimmon (leaves), p. 321 Mints, p. 330

Speedwell (leaves), p. 338 ELDER (flowers), p. 351 Sweet Goldenrod (young leaves and flowers), p. 354 COFFEE The number of substitutes for coffee is decidedly less than for tea. One or two, like Chicory- and Dandelion- roots, are already market-substitutes, in some countries extensively raised for this purpose, and by many people preferred to coffee itself or used mixed with coffee. The bristly, nut-like seeds of Cleavers or Goose-grass, Gal- ium, have long been recommended as a most satisfactory substitute for coffee and, belonging to the same natural group with coffee, these seeds when parched and properly prepared may well sustain their reputation. In colonial days the seeds of the Kentucky Coffee-tree acquired considerable fame, although it is noteworthy that all travellers agree that, when imported coffee could be secured it was always preferred. Various other large seeds and nuts, when parched, have had temporary pop- ularity, and it is probable that many species could be added to the brief list here appended. Ground-Juniper (berries), p. 82 Arrow-grass (seeds), p. 86 Chufa (tubers), p. 108 Asparagus (seeds), p. 134 Beechnuts, p. 157 CHESTNUTS, p. 159 Kentucky Coffee-tree (seeds), p.242 Wild Senna (seeds), p. 243 BROOM (seeds), p. 244 Peanuts, p. 250 Persimmons (seeds), p. 322 CLEAVERS (seeds), p. 342 Wild Coffee (berries), p. 345 Sunflower (seeds), p. 357 CHICoRY (root), p. 369 DANDELION (root), p. 373 CHOCOLATE There are only three genera of plants in our flora which have achieved any fame as substitutes for chocolate. The most important of these is the Basswood or Linden, the young fruit of which when mashed has a chocolate-odor

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26EDIBLE WILD PLANTS or flavor; in fact so promising was the Linden-fruit as a source of cocoa that, at various times in European his- tory, extended experiments were made with the hope of producing a marketable product. Although the European experimenters eventually abandoned the problem, they suggested that in North America, where there are differ- ent species of Linden, the experiments might prove suc- cessful. Early explorers in Carolina stated that, from the Dwarf Chestnut or Chinquapin was prepared a Choco- late, not much inferiour to that made from Cacao; while some enthusiasts, among whom the present writers are not yet to be counted, claim that a delicious chocolate- drink may be prepared from the root of the Purple Avens. The three chocolate-substitutes are, then, Chinquapin (nuts), p. 159Linden (young nuts), Purple Avens (root), p. 235 p. 273 COLD DRINKS In this group are included the various home- brewed drinks such as birch-beer, and the simple summer drinks prepared from acid fruits and used like lemonade. We have not entered the very extensive field of distilled liquors, and there are some people who might object to indication of the ingredients of birch-beer, root-beer and other mildly alcoholic beverages, but no one can object to pink lemonade prepared by bruising Sumach-berries in water or from the juice of Prickly-Pears or Barberries. The number of these refreshing cold drinks is larger than we should have

imagined; they may be prepared from the following: Spruce (for beer), p. 80 RED OR BLACK MULBERRIES, p. Hemlock (for beer), p. 80 163 Sandbur (grain), p. 107 Mountain-Sorrel (leaves), p. Chufa (tubers), p. 108 169 CAT-BRIER (roots), p. 142 Sorrel (leaves), p. 171 Birch (for beer), p. 153 Sea-Purslane, p. 189

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OF EASTERN NORTH AMERICA 27 MAY-APPLES, p. 206 BARBERRIES, p. 208 Mountain-Ash (berries), p. 230 RASPBERRIES, p. 236 BLACKBERRIES, p. 236 DEWBERRIES, p. 236 CHERRIES, p. 240 honey-Locust (pods in beer), p. 243 Locust (flowers), p. 248 Hop-tree (for beer), p. 260 Crowberries, p. 261 SUMACH (berries), p. 262 MAPLE (sap), p. 269 GRAPES, p. 272 Prickly-Pears, p. 276 Soapberries, p. 277 Buffalo-berries, p. 277 Spikenard (root), p. 282 Wild Sarsaparilla (root), p. 283 Pipsissewa (leaves), p. 305 BOG-CRANBERRIES, p. 317 PERSIMMONS, p. 321 Yellow Bedstraw, p. 344 ELDERBERRIES, p. 349 9. IRENNETS Warm milk can be coagulated or turned to a curd by pouring it into fruit syrups just as it is frequently curdled in the kitchen by the use of rennet. Besides these fruit-acids there are several wild plants which have become especially noteworthy as substitutes for rennet, and which have won considerable recognition in the literature of folk-botany. A strong decoction of Nettles has been used in some of the Scotch islands, Lightfoot saying of it: A common spoonfull of this liquor will coagulate a large bowl of milk very readily and agreeably, which we saw and experienced. Sorrel has a similar use, but the most interesting plants with this property are the insectivorous Sundews and Butterworts. This brief list, then, excluding the acid fruits, is Nettles, p. 165 Sorrel, p. 171 Sundews, p. 222 Butterwort, p. 338 Yellow Bedstraw, p. 343 Plumeless Thistle (flowers), p. 367 Thistles (flowers), p. 367

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28 EDIBLE WILD PLANTS 10. SYBUPS AND SUGARS, CONFECTIONS SYRUPS AND SUGARS The heading Syrups and Sngars inevitably suggests Maple which is, of course, our most important native source of sugar; but the sap of many other trees contains appreciable sugar and some species, like the Walnuts, Hickories, Birches, Plane-tree, Basswood and Ash, have supplied syrups and sugars which by those who have used them are stated to be of good quality, although often more scanty than the product from the Sugar-Maple and the Ash-leaved Maple. Other sources are less important, but it is

stated that the meat of the European Chestnut contains 14 per cent of sugar. Decidedly picturesque but of little practical value is the extraction of sugar, reported by various travellers, from the dew-drops gathered from the flowers of Milkweed! And decidedly difficult, because of the labor of securing the roots, is the conventional Indian method of extracting sugar from the rootstocks of the tall Bulrushes or Tules: It is probable that other sources of sugar may be discovered among our wild plants, but the following include the principal ones which have been recommended. Bulrush or Tule (rootstock), Honey-Locust (pulpy lining of p. 111 pod), p. 243 Walnuts (sap), p. 149 MAPLES (sap), pp. 266-269 HICKORIES (sap), p. 149 Basswood (sap), p. 273 Birches (sap), p. 153 Milkweed (dew on flowers), p. Chestnut (fruit), p. 158 324 Plane-tree (sap), p. 228 CONFECTIONS Such confections as candied Chestnuts (marrons glacés), Marshmallows, candied Sweet Flag-root and candied Angelica-shoots are familiar and have found their place at the confectioners, while candied Rose-petals and Violets are dainties appreciated chiefly for their color

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OF EASTERN NORTH AMERICA²⁹ and delicate flavor; but confections prepared from Burdock, White Pine or Reeds are certainly less familiar. Nevertheless, in the early days of New England the stripped young shoots of the White Pine were candied; by the Indians of western America a taffy-like confection is prepared from the young shoots of the Reed; while by some European authors the pith of the young stems of Burdock is recommended to make a confection. In early days the root of Elecampane was similarly used; and on northern seacoasts the root and shoots of Scotch Lovage are considered worthy rivals of Angelica. Confections may be prepared from these wild plants. White Pine (young tips), p. 77 Water-Chestnuts, p. 281 Reed (new shoots), p. 94 SCOTCH LOVAGE (root and new SWEET FLAG (root), p. 121 shoots), p. 295 CHESTNUTS, p. 158 ANGELICA (root and new WILD GINGER (rootstock), p. shoots), p. 296 167 HOREHOUND, p. 330 Rose (petals), p. 239 ELECAMPANE (root), p. 356 MARSHMALLOW (juice), p. 274 COLTSFOOT, p. 363 Violets, p. 275 Burdock (young pith), p. 366 Soapberry, p. 277 11. FRESH OR PRESERVED FRUITS, JELLIES, MARMALADES FRUITS, FRESH OR COOKED Although some people have the false notion that any fruit is edible, the number of really poisonous ones is limited and the number of wild fruits which are edible or at least eatable is surprisingly large. The majority of our best wild fruits are, naturally enough, known to every one who is familiar with the fields and woods: the Red or Black Mulberry, Pawpaw, May-Apple, Barberry, Gooseberries, Currants, Strawberries, Raspberries, Blackberries, Dewberries, Grapes, Huckleberries, Blueberries, Persimmon, etc. These need no special comment, but there are many others less familiar and looked upon with suspicion by the uninitiated; e.g. the

Service-berries or

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30EDIBLE WILD PLANTS Shad-berries or, as they are often called, Sugar-Pears, are by a large proportion of people considered poisonous but they are not only harmless but make a most delicious pie, comparable only with sweet cherry-pie. Again: the Dangleberry and the Squaw-Huckleberry are commonly ignored, under the impression that they are inedible, but the Dangleberry, when well developed, is one of the juici- est and most delicious of the genus, while the Squaw- Huckleberry when properly cooked and sweetened makes a sauce as delicious as good old-fashioned gooseberry- sauce. A few berries which in small quantity are edible are, if eaten to excess, cathartic or otherwise medicinal; e.g., the False Solomons-seal and Twisted-stalk; while some others, though trivial as fruits, afford to those who are still young in spirit a pleasant nibble, for example the deliciously sweet pulp of the red berries of Ground-Hem- lock, or the date- like film over the large stones of some species of Viburnum. Several of these minor fruits, like the berries of Ground-Hemlock, Hackberry, Hobblebush and Wild Raisin, have such large stones and such ex- tremely limited pulp that few people would attempt to cook them. Their chief value is as masticatories. Others, however, like the Crowberry, Alpine Bearberry, Squaw- Huckleberry, Black-berried Nightshade and Squash- berry, although eatable in the raw condition, are much better when properly cooked. The edible wild fruits of our region are Ground-Hemlock, p. 77 Fig, p. 164 Ground-Juniper, p. 82 Strawberry-Blite, p. 180 False Spikenard, p. 135 PAWPAW, p. 205 Two-leaved Solomons-seal, p. MAY-APPLE, p. 206 136 BARBERRY, p. 208 Twisted-stalk, p. 136 Akebia, p. 209 Hackberry, p. 162 Goose BERRIES, p. 226 RED OR BLACK MULBERRY, p. CURRANTS, p. 226 163 SERVICE-BERRIES, p. 230 White Mulberry, p. 164

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OF EASTERN NORTH AMERICA 31 Haws, p. 232 STRAWBERRIES, p. 232 RASPBERRIES, p. 237 BLACKBERRIES, p. 237 DEWBERRIES, p. 237 CLOUDBERRY, p. 236 PLUMS, p. 239 CHERRIES, pp. 240, 241 GROUND-PLUM, p. 248 Crowberries, p. 260 GRAPES, p. 272 Maypops, p. 275 Prickly-Pear, p. 276 Silverberry, p. 276 Buffalo-berry, p. 277 Buncliberies, p. 301 Checkerberry, p. 309 ALPINE BEARBERRIES, p. 310 Bearberries, p. 310 MOXIE-PLUM, p. 311 BLACK

HUCKLEBERRY, p. 312 DANGLEBERRY, p. 313 Dwarf Huckleberry, p. 314 SQUAW-HUCKLEBERRY, p. 314 BLUEBERRIES, p. 315 MOUNTAIN-CRANBERRY, p. 316 BOG-CRANBERRIES, p. 317 PERSIMMON, p. 320 Silver-bell, p. 322 Beauty-berry, p. 328 Black-berried Nightshade, p. 334 Husk-Tomato, p. 336 WATERBERRY, p. 344 HIGH-BUSH CRANBERRY, p. 346 SQUASHBERRY, p. 347 Hobblebush, p. 348 Wild Raisin, p. 348 Black Haw, p. 348 ELDERBERRIES, p. 349

JELLIES AND MARMALADES The making of jelly and marmalade from the conventional fruits is too well known to need special discussion here, but several of the wild fruits, furnishing the best of jellies and marmalades and now going almost wholly to waste, should be better known and more widely used; for example, such fruits as the Haws, which often yield a surprising quantity of syrup; the Rum-Cherry, famous in old New England as the source of cherry bounce, but also the source of a rich jelly as delicious as that from guava; the despised Choke-Cherry, now commonly used only as the source of practical jokes but yielding a clear, acid jelly; and the Squaw-Huckleberry, described in our manuals of botany as having a mawkish and inedible fruit, but really furnishing a rich palate-tickling marmalade comparable with the best gooseberry-sauce. Besides the wild fruits there are other and rather surprising sources of jelly in our flora. It is stated, for instance, that the In-

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32 EDIBLE WILD PLANTS dians extracted a jelly from the roots of the Cat-tail; and one of the most famous jellies of the southern Indians was prepared from the roots of the common Cat-brier. In preparing jelly from the wild fruits it will be found necessary in many cases, the Cherries for example, to add a fair proportion of tart apples, for many of the wild fruits contain little or no pectin, which is required to make the syrup jell. Wherever in the detailed discussion of each species the addition of apple or the market certo seems important to jelly-making, the fact is specially noted. Fruits to be used for jelly should be gathered, whenever possible, before they are thoroughly ripe. The juices are then thicker and more inclined to jell, whereas the overripe fruit is apt to be infected with germs of mold and decay. After being picked over, washed and drained, the fruit is boiled in as little water as possible enough to keep it from burning. When thoroughly cooked the fruit is mashed with a pestle or heavy spoon in order to free the juices, then drained through a closely woven cloth (or two layers of fine cheesecloth or other convenient jelly-bag). This juice, to which has been added apple-juice if needed, is then boiled vigorously for twenty minutes or half-an-hour in order to drive off excess water, then measured and in most cases boiled vigorously for five minutes with an equal quantity of granulated sugar. The ideal jelly will jell or become stringy when dripped from a spoon during the first five minutes of boiling; if it does not jell within at most fifteen minutes it will be necessary to add more sugar and boil again. The latter procedure is an

unfortunate one, since jelly which has been too long boiled with sugar is apt to become gummy and to have a stinging taste. As soon as the syrup has jelled it should be removed from the fire, skimmed and poured, by means of a small sterilized pitcher or dipper, into glasses, allowed to cool and then to stiffen, which ordinarily requires two or three days.

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OF EASTERN NORTH AMERICA³³ Marmalades are prepared like jellies except that the pulp as well as the juice is retained, the whole being pressed through a sieve. The following wild plants are possible sources of jellies or marmalades: Cat-tail (rootstock), p. 83 CAT-BRIER (rootstock), p. 141 RED MULBERRY, p. 136 MAY-APPLE, p. 206 BARBERRY, p. 208 GOOSEBERRIES, p. 226 CURRANTS, p. 226 WILD CRABS, p. 229 Chokeberries, p. 229 Ilaws, p. 232 STRAWBERRIES, p. 232 RASPBERRIES, p. 236 BLACKBERRIES, p. 236 DEWBERRIES, p. 236 Cloudberry, p. 236 Wild Rose, p. 239 PLUMS, p. 239 CHERRIES, pp. 240-242 GRAPES, p. 272 Buffalo-berry, p. 277 Spikenard, p. 282 SQUAW-HUCKLEBERRY, p. 314 Blueberries, p. 315 MOUNTAIN-CRANBERRIES, p. 316 CRANBERRIES, p. 317 PERSIMMON, p. 320 HIGH-BUSH CRANBERRY, p. 346 SQUASHBERRY, p. 347 Elderberry, p. 349 DRYING OF FRUITS Although we read of the drying of berries and other fruits by the American Indians, concrete directions are generally lacking. Very practical processes are described by the late Dr. George W. Carver, the Tuskegee scientist who accomplished so much in improving economic and agricultural conditions in Alabama. From his *Natures Garden for Victory and Peace* we freely quote: The shortage of tin cans, glass containers, the high price of sugar as well as the containers, make it emphatic that we have some other method within the reach of the humblest citizen. Drying is without doubt the simplest and best method of preserving a number of fruits and vegetables. And it is a source of much regret that such a few know how to appreciate the delicious taste of home-dried fruits and vegetables.

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³⁴EDIBLE WILD PLANTS The following list of fruits and vegetables are more or less abundant throughout the South, and the methods given show how easily and how cheaply they may be taken care of. FRUITS Begin drying just as soon as the seed matures, or as soon as the fruit is two-thirds ripe, and continue as long as you can handle it without mashing the pulp. Caution In drying either fruits or vegetables in the sun, screen wire or

mosquito netting should be stretched over a suitable frame to keep off the flies and other insects; and everything, of course, must be scrupulously clean if a superior flavored, the most attractive appearing and the most appetizing, healthy and wholesome product is desired. **STRAWBERRY LEATHER (Delicious)** Take thoroughly ripe strawberries, mash to a pulp, spread on platters, and dry in the sun or oven; when dry, dust with powdered sugar, and roll up like a jelly cake into suitable sized pieces and pack away in jars. This may be eaten as a confection or soaked in water and used for pies, short cake, sauce, tarts, etc. The powdered sugar is a matter of taste and may be left out if desired. **DRIED STRAWBERRIES** Put the berries in a moderate oven, heat through thoroughly, but not enough to become soft and juicy, spread out in the sun or finish in the oven. Then follow specific directions for Blackberries and Dewberries, treated like strawberries, or first mashed through a sieve to remove the hard stones; for Plums, covered with boiling water and left standing for twenty minutes; drain and spread in the sun to dry. Stir occasionally; when dry examine them frequently and at first appearance of worms put in the oven and heat for a few minutes.~~ Peaches, figs, pears, apples and various

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OF EASTERN NORTH AMERICA 35 vegetables are similarly dried, and the Muscadine Grape is given a special treatment which will be quoted under that delectable fruit (see p. 273). **12. OILS AND BUTTER** The sources of oil and butter in our wild flora are very limited, the Indians having depended almost exclusively upon the rich oils from the Walnuts, Hickory-nuts and Sunflower-seeds, the oil from the nuts of the Shagbark-Hickory having been one of the most prized staples of the Indian household. At the present time these nut-oils are rarely seen, but Sunflower-oil has become very familiar to the white man. In France and some other countries of Europe the preparation of oil from Beechnuts has been an important industry and a century and a half ago it was estimated that the forests of Compiègne alone in a single season furnished sufficient oil to supply all the needs of that district for half a century. This oil, properly clarified, is said to be as delicate as olive oil and to be substituted extensively for it. The amateur preparation of table-oils is a somewhat exacting task and only the enthusiast is likely to undertake it. A somewhat detailed account of the method will be found in the discussion of the Beech (see p. 156). The chief wild sources of table-oil and butter are as follows: Walnuts, p. 148 Peanuts, p. 250 Hickory-nuts, p. 148 Sunflower-seeds, p. 357 Beechnuts, p. 156 **13. MASTICATED AND CHEWING GUMS** MASTICATED Under this heading are included a few plants the chewing of which usually relieves thirst. It is of course needless here to mention such thirst-quenchers as juicy

36EDIBLE WILD PLANTS fruits. A few of the masticatories, like the juicy cambium of the White Pine, which is familiar to real northeastern country boys under the name of slivers, or the mucilaginous inner bark of the Slippery Elm (too strongly suggestive of medicine to be very popular), supply considerable nourishment as well as stimulating salivation. Others, like the buds of Alder or Basswood, stimulate the salivary glands without overloading the stomach with food; while such leaves as those of Sorrel, young Barberry, Wood-Sorrel, Deergrass and Sorrel-tree are pleasantly acid, and several of them have long been recognized by trampers as comforting nibbles during a long, hot tramp. In the Southwest the new shoots of the Bulrush or Tule have a considerable reputation as a masticatory, but in regions of abundant springs and fresh water the labor of securing the Tule-rootstock is too great for the amount of relief obtained in chewing it. Our more important masticatories are: Pasture-Brake (young croziers), p. 72 Ground-Hemlock (berries), p. 77 PINES (sappy inner bark), p. 77 Ground-Juniper (berries), p. 82 Tule (new shoots), p. 110 Alder (buds), p. 154 Slippery Elm (inner bark), p. 161 Hackberries, p. 162 SORRELS (leaves), p. 171 BARBERRY (young leaves and berries), p. 208 WILD CHERRIES, p. 241 WOOD-SORREL (leaves), p. 259 WILD GRAPES, p. 272 Basswood (inner bark and buds), p. 274 Deergrass (leaves), p. 279 SOUR GUM (berries), p. 302 Sorrel-tree (leaves), p. 308 Wild Olive or Silver-bell (acid drupes), p. 322 SWEET-LEAF, p. 322 Hobblebush (berries), p. 348 Wild Raisin (berries), p. 348 Black Haw (berries), p. 348 CHEWING GUM Unfortunately the modern American is too apt to feel lost without his chewing gum, and, although the gum of

OF EASTERN NORTH AMERICA³⁷ Red Spruce is the standard among our native gums, there are other wild gums available in regions where the Spruce is not found. On account of its fragrance, the Sweet Gum from Liquidambar is chewed in the Southern States; and the gum of Bird-Cherry trees is sought by children and occasionally by those who have overlooked the fact that they are no longer children. The Omaha Indians chew the resinous gum of the Rosin-weed; while a chewing gum is prepared by the Indians and by some white boys from the juice of the Milkweeds. This small group of plants indispensable to the comfort of many Yankees is: SPRUCE, p. 79 Milkweed, p. 323 SWEET GUM, p. 228 Rosin-weed, p. 356 Bird-Cherry, p. 241 14. EMERGENCY-FOODS Most of the plants already discussed naturally serve as the best sort of emergency-foods; but under this heading are here included a few plants or plant-products which, although not ordinarily sought when better food is available, would temporarily support life. Among the roots which it is possible to eat and which furnish considerable

nutrition are those of the Wild Sarsaparilla, the Spike- nard and the Ginseng, all slightly aromatic and with mucilaginous juices, but woody in texture. The thickened tuber-like roots or bulbs of our Orchids are full of nutri- tion but most of them are rare and only under pressure of extreme hunger would it be justifiable to attempt eating them. The roots of the common Locust-tree which, how- ever, rarely occurs in regions remote from civiliza- tion, are sweet and suggestive of licorice but, although sometimes eaten, are to be avoided as being unwholesome. The sapwood or cambium of many trees has been re- sorted to in emergency, for, although tough and somewhat difficult to secure, this sappy inner bark is full of nutri

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38EDIBLE WILD PLANTS tion. Similarly, the young twigs of many trees, especially the Pines, Spruce, Fir and Hemlock, and the pith of the Cedars, are nutritious but of strong flavor. One of the most available emergency foods of the North, though one disagreeable to eat, is the pitchy balsam found in the blis- ters on the bark of Balsam-Fir. This is reported to have saved lives in the woods but only under the most extreme pressure of hunger would one be tempted to eat it. These emergency-foods which, as above stated, are available, though unattractive, are listed below. Lichens, p. 406 Pines (inner bark and young twigs), p. 77 Hackmatack or Larch (young shoots), p. 79 Spruces (inner bark and young twigs), p. 79 Fir (inner bark, young twigs and balsam), p. 80 Hemlock (inner bark and young twigs), p. 80 Cedars (young twigs), p. 81 Sand-reed (rootstoeks), p. 97 Orchids (thick roots), p. 145 Willows (inner bark), p. 145 Poplars (inner bark), p. 146 Alders (inner bark, buds), p. 154 Ironwood (small nuts), p. 152 Slippery Elm (inner bark), p. 161 Cursed Crowfoot (leaves), p. 203 Silverweed (roots), p. 233 Locust (inner bark), p. 246 Vetch (seeds), p. 250 Bittersweet (inner bark, young twigs), p. 265 Maple (inner bark), p. 266 Basswood (inner bark, young twigs), p. 274 Spikenard (root), p. 282 Wild Sarsaparilla (root), p. 283 Ginseng (root), p. 284

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CHAPTER II POISONOUS FLOWERING PLANTS LIKELY TO BE MISTAKEN FOR EDIBLE SPECIES UNDER POISONOUS PLANTS we here include oniy Such spe- cies as might be mistaken for edible ones or which are actively poisonous if eaten, i.e. plants with fleshy roots or bulbs which might prove tempting or with attractive ber- ries or with tender shoots which might lead the over-bold to try them as food. Many

plants poisonous to eat but tough and uninviting, like Poison Ivy and Poison Sn- mach, are naturally omitted. In the wild flora of eastern America there are, however, several species which are sufficiently poisonous, when eaten by mistake, to cause serious inconvenience or in a few cases violent illness or even death. These are enumerated below, under appro- priate headings, a brief description given of each and, in case of the more important ones, a characteristic illustra- tion given. In some plants, like Marsh- Marigold, the raw plant is poisonous but the cooked one quite wholesome and much used; in some others the green fruit is at least un- wholesome while the ripe fruit is regularly eaten. These cases are specially noted under each species in Chapter III and the poisonous Mushrooms are discussed under Chapter IV. The old saying that one mans poison is another mans food finds exemplification in the wild plants. Many plants eaten by the American Indians are often at least unpal- atable to the white mans taste. As one reads of the plants sometimes eaten by the natives of Java, for instance, or in other regions where habit or racial differences may have established immunity he is impressed with the soundness 39

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40EDIBLE WILD PLANTS of the advice given nearly two and a half centuries ago by John Evelyn: How cautious then ought our Saiiet-Gatherers to be, in reading ancient Authors; lest they happen to be im- posed on, where they treat of Plants that are familiarly eaten in other Countries, and among other Nations and People of more robust and strong Constitutions; besides the hazard of being mistaken in the Names of divers Sim- pies, not as yet fully agreed upon among the Learned in Botany. When we read of oriental people cooking and eating the plant of Castor-bean or even eating the cooked seed, three of which raw, the source of castor-oil, would kill an ordinary occidental, it is evident that racial differences extend beyond color, speech and methods of thought. Some plants entered, because eaten by some peoples, in Chapter III may seem to the experimenter to belong in Chapter II. 1. PoisoNous BULBS AND ROOTS In regard to tunicated bulbs, those consisting of broad- ened and fleshy leaf-like coats, as in the onion, no one not absolutely certain of his diagnosis should ever attempt to eat any which lack the familiar odor of onions (onion- oil). Some bulbs which superficially resemble onions are among the deadliest of poisons, Fly-poison (Amian- thium), IDeath-Camass (Zigadenus), Atamasco Lily (Zephyranthes) etc., while the bulbs of Narcissus, Tulip and other cultivated ornamentals are open to suspicion. Allium (Onion, Leek and Garlic) has the flowers or top-bulbs in an umbel (all arising like rays of an um- brella), the others (except Narcissus) do not. Fly-poison (bulb)Atamasco Lily (bulb) Death-Camass (bulb)Blue Flag (rootstock) Star-of-Bethlehem (bulb)Pokeweed (root) Red-root (rootstock)May-Apple (rootstock)

OF EASTERN NORTH AMERICA 41 Bloodroot (rootstock) Water-Hemlock (fleshy roots) Cowbane (fleshy roots) Butterfly-weed (root) FLY-POISON, *Amianthium* (or *Chrosperma*) *Muscaetoxicum*. FIG. 1 KEY-CHARACTERS: bulb coated as in the onion, without its odor; leaves basal, broadly linear; flowers in an elongating raceme, the flowers on expanding white, with no glands at base of the segments, then turning green or slightly purplish, enlarging and persisting. HABITAT AND RANGE: acid peaty or sandy low woods, thickets and bogs, Florida to southern Missouri and Oklahoma, north along the mountains to West Virginia and Pennsylvania and on the coastal plain to Long Island. FLY-POISON, as its name implies, is deadly to flies, it is known to poison cattle. Recently, a well known botanist, after gathering the bulbs for drug-studies and most scrupulously washing his hands before touching his mouth, has spent some weeks prostrated and in the hospital. The toxic alkaloid in bulb and foliage is not one to treat lightly. DEATH-CAMASS, WHITE CAMASS, POISONOUS CAMASS, *Zigadenus* (including *Anticlea*, *Toxicoscordion* and *Oceanoros*). FIG. 2 KEY-CHARACTERS: bulbous plants with narrow grass-like leaves clustered at base, the racemes or panicles with white, yellowish, greenish or bronze flowers with 6 segments, each segment with a shining spot (gland) at base, the elongate capsule with 3 beaks. FIG. 1, FLY-Poison, bulbous base folded back (deadly)

42 EDIBLE WILD PLANTS II HABITAT AND RANGE: one species or another across the continent from the lower St. Lawrence in Quebec to Alaska, south to our southernmost states. In gravels, rock-crevices, meadow, prairie or sandy and peaty pine-lands. The genus *Zigadenus*, which from Virginia southward also has a tall species with stout rootstock instead of a bulb, but marked by the pale perianth with 6 glands at base, must be most scrupulously avoided by the seeker for edible bulbs. Its violently poisonous alkaloid, zygadenine, is responsible for the deaths of many grazing animals, statistics showing that in some droves which have been allowed to eat the plant more than half have died from the poison. The bulbs are attractive and look good. In eastern Quebec, where one species abounds, it is reported to be a powerful medicine for the guts. FIG. 2, DEATH-CAMASS, bulbs, with flowers at right, fruit at left (deadly; do not mistake for onion)

5 OF EASTERN NORTH AMERICA43 STAR-OF-BETHLEHEM, *Ornithogalum umbellatum* Although sometimes advocated for food (see p. 133), the bulbs should not be eaten. They and the foliage are poisonous, either dry or fresh, to herbivorous animals. RED-ROOT, *Lachnanthes* (or *Gyrotheca*) *tinctoria* KEY-CHARACTERS:leaves grass-like or iris-like; rootstock and subterranean runners as thick as a pencil, bright red; flower-stem somewhat leafy, bearing at the summit a flat-topped, white-woolly cluster of creamy-white 6-parted flowers 1/2 inch long. HABITAT AND RANGE: wet sandy or peaty pond-margins, cranberry-bogs, etc., Florida to Louisiana, northward, chiefly on the coastal plain, to south-eastern Massachusetts; also western Nova Scotia. The succulent red rootstocks and runners of RED-ROOT might prove attractive to the searcher for edible roots, especially since it is often associated with *Lycopus* (see p. 332) or with *Stachys hyssopifolia* (see p. 331) and could easily be gathered with them. It is well recognized in the South as poisonous to hogs, animals which are not always too fastidious about their diet. It is generally stated, however, that in Australia the natives roast and eat the fleshy roots of the closely related genus *Haemodorum*. The rootstocks of our Red-root, roasted, may prove to be harmless, if anyone wishes cautiously to make the test. ATAMASCO LILY, *Zephyranthes Atamasco* (or *Atamasco Atamasco*), and other species KEY-CHARACTERS:bulb suggesting an onion but without its odor; leaves similar to those of *Narcissus*; flower a handsome erect *Amaryllis*, a white to pinkish funnellform 6-parted flower 35 inches high, with 6 stamens, the flower on a naked stem with a 2-parted bract at summit. HABITAT AND RANGE: *Z. Atamasco* ia rich woods and damp clearings from Florida to Mississippi, north to Virginia, flowering in spring; other species southward. In the South staggers of horses are often supposed to be caused by eating the foliage of ATAMASCO LILY. The

44EDIBLE WILD PLANTS plant is related to *Amaryllis*, *Narcissus* and some other genera which have toxic alkaloids. It is safest not to try eating it. BLUE FLAG, *Iris versicolor*, and other species The common BLUE FLAG or *Iris* of meadow-lands has a bad reputation, the rootstock when eaten often causing fatality. The root is violently emetic and cathartic, containing the poisonous *irisin*, and great care should be taken not to confuse it with the edible Sweet Flag or *Calamus* (see p. 121), which superficially resembles it and grows in similar habitats. At flowering time there is no danger of confusion, but in the young, sprouting stage or in fruit the differences are less

conspicuous. Sweet Flag has yellowish-green foliage and when bruised gives off an aromatic fragrance; Blue Flag has darker-green foliage and no pleasant aroma. Sweet Flag has minute flowers in dry, drab, finger-like spikes, borne from the side of a leaf-like stalk; Blue Flag has the familiar purple Iris flower, succeeded by an ellipsoid 3-valved pod. The rootstock of the Sweet Flag is gingery in odor and taste; that of the Blue Flag is essentially odorless and with a strong, disagreeable flavor. **POKEWEED, PIGEON-BERRY, GARGET**, *Phytolacca americana* (or *P. decandra*). FIGs. 53 and 54 The new shoots of **POKEWEED** are much eaten as a substitute for asparagus and the plant is described and fully discussed in the next chapter (p. 185). The large tap-root, however, often as large as the human leg, is poisonous and, although very fleshy and succulent and many times larger than a good-sized parsnip, is not safe to experiment with as food. The root has long been reputed in medicine a powerful narcotic, emetic and cathartic, frequently causing death.

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OF EASTERN NORTH AMERICA45 **MAY-APPLE, MANDRAKE** or **WILD JALAP**, *Podophyllum peltatum*. FIG. 60 The fruit of the **MAY-APPLE** is edible, the plant being discussed under the edible species, P. 206. The rootstock, however, is poisonous, producing a fatal prostration. It somewhat resembles the rootstock of the common **Solomons-seal** and the plant grows in rich woods where **Solomons-seal** abounds. Especial care should therefore be taken in gathering the latter to guard against including rootstocks of the **May-Apple**. The rootstock lacks the circular scars which characterize that of **Solomons-seal**; and its taste is~ said to be repugnant, strong and bitter, the rootstock of **Solomons-seal** being slightly acrid but not bitter. **BLOODROOT**, *Sanguinaria canadensis* **BLOODROOT** is too well known to all lovers of early spring flowers to need description, but a word of caution is wise lest some enthusiast should attempt to cook and eat its large, succulent root-stock. Few are likely to attempt this, however, for it is bitter and acrid. In small quantities it is said to stimulate gastric secretions and to aid digestion, but in large quantities it produces poisoning, with vomiting, dizziness and paralysis. **WATER-HEMLOCK** or **BEAVER-POISON**, *Cicuta maculata*. FIG. 3 **KEY-CHARACTERS**: plant somewhat resembling the carrot plant, but with much coarser leaves and thicker and taller stem (commonly several feet high); the lower leaves with the leaf-stalk 3-forked and bearing lance-shaped to egg-shaped, toothed leaflets 14 inches long; stem smooth, round and hollow, 25 ft. high, with alternate leaves having a broadly winged base; flowers in flat-topped umbrella-like clusters, white; the dry fruits plump, grooved on the surfaces, scarcely 1/8 inch long; root, when well filled from autumn to spring, consisting of a bunch of tuber-like branches 1 to 4 inches long, fleshy and with the odor of parsnips. **HABITAT**: meadows, swales and shallow water.

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FIG. 3, WATER-HEMLOCK or BEAVER-POISON (deadly, roots smelling and tasting like parsnips)

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OF EASTERN NORTH AMERICA RANGE: throughout temperate eastern America; related species westward and southward. The WATER-HEMLOCK is one of the most dangerous of our wild plants because from autumn to spring its roots, resembling dahlia-roots and smelling like parsnips, are by the untrained often mistaken for small, wild parsnips. Many cases of fatal poisoning of children and ignorant laborers who have indulged in these little parsnips are recorded. The roots are frequently thrown out of the ground by the action of frost or of water, and everyone who has children or who attempts to eat any wild roots should be thoroughly acquainted with the plant. BULB-BEARING WATER-HEMLOCK, *Cicuta bulbifera*. FIG. 4 KEY-CHARACTERS: plant somewhat resembling carrot or caraway, but with the stem taller; the lower leaves with 3 primary forkings and with numerous, very elongate and slender leaflets; the upper branches and the leaf-axils bearing numerous small bulblets; root similar to that of the last species but smaller. FIG. 4, BULB-BEARING WATER-HEMLOCK (deadly)

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48 EDIBLE WILD PLANTS HABITAT AND RANGE: Shallow water and swamps, throughout temperate eastern America. The root is presumably as poisonous as that of the larger Water-Hemlock. COWBANE, *Oxypolis rigidior*. FIG. 5 KEY-CHARACTERS: somewhat suggesting the parsnip plant, but the flowers white instead of yellow; leaves simply pinnate, with lance-shaped or more slender coarsely toothed leaflets 1 to 5 inches long; root a cluster of slender-stalked thickened fibers resembling small sweet potatoes in form but with the odor of parsnip. HABITAT: swamps, wet woods, springy meadows and sloughs. RANGE: New York to Minnesota and southward. COWBANE has a bad reputation, having been charged with the death of cattle. Its roots, from their resemblance to sweet potatoes with the odor of parsnips, are likely to prove

tempting to those unaware of the danger of eating them. BUTTERFLY-WEED, *Asclepias tuberosa*. See p. 325 2. PoISONOUS NEW SHOOTS AND YOUNG FOLIAGE RESEMBLING EDIBLE PLANTS This series contains the following some of which have been suggested as food and others sufficiently succulent or fragrant as to be tempting. Horsetail Velvet-grass Devils-bit Indian Poke Hemp Mexican Tea Marsh-Marigold Celandine Cherry and Plum leaves Wild Indigo Castor-bean Jewel-weed Poison Hemlock Fool s Parsley Pimpernel Yellow Jessamine Milkweeds Dogbanes Nightshades Jimson-weed, Thorn-Apple or Stramonium

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FIG. 5, COWBANE (deadly, roots smelling and tasting like jarsnips)

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50EDIBLE ~\TThD PLANTS HORSETAIL, *Equisetum* For discussion see p. 76. Since the HoRSETAILS contain aconitic acid and are known to poison grazing animals it is very unwise, if one could possibly be tempted to do so, to eat the new sprouts. VELVET-GRASS, *Holcus lanatus* The velvety grass of fields with leaves and culms tempt- ingly soft to the touch should not be chewed, as the young bases of some grass-joints are nibbled. Both in the fresh and dry condition it contains the poisonous hydrocyanic acid. DEVILS-BIT, *Chamaelirium luteum* DEvILs-BIT (because its short rootstock looks as if bit- ten off at one end by the Devil) is tender in the young condition and might be taken to be edible. Its stem arises from a short rootstock, is up to 2 feet high, with several flat and appressed, narrow, parallel-veined leaves, the lowest ones spatula-shaped and petioled; the inflorescence is a slender spike-like cluster of small yellow or greenish flowers with 6 segments, the male and female flowers on different plants. Growing in meadows and rich woods from Florida to Arkansas, north to western Massachusetts, New York and southern Ontario. If eaten it causes vomiting, itself not a recommendation; and it is closely related to many very poisonous genera. INDIAN POKE or WE[ITE HELLEBOItE, *Veratrum viride*. FIG. 6 KEY-CHARACTERS: leafy-stemmed plant with large, at first overlapping, oval or elliptic, alternate, longitudinally fluted or corrugated leaves con- spicuous in early spring and tempting on account of the succulence of the quickly heightening shoots which soon produce long and loosely branched,

OF EASTERN NORTH AMERICA 51 open-pyramidal inflorescences of greenish flowers with 6 perianth-segments. HABITAT AND RANGE: meadows, low woods, banks of streams, etc., from eastern Quebec to western Ontario and southward. INDIAN POKE, on account of its attractive appearance in early spring and its abundance in places where edible new shoots, such as those of Marsh-Marigold, Water-Cress and Skunk-Cabbage abound, should be known to every one, since it is so easy accidentally to include a bit of it in a hastily gathered basket of greens. The plant is violently narcotic, containing poisonous alkaloids, and in a few cases has been demonstrated as the source of death, although ordinarily quick treatment with cardiac and respiratory stimulants is likely to prove beneficial, especially since the poison is spontaneously vomited. FIG. 7, CELANDINE or SWALLOW-WORT (supposed to be poisonous to eat) FIG. 6, WHITE HELLEBORE or INDIAN POKE (violently poisonous, often mistaken for Skunk-Cabbage)

52 EDIBLE WILD PLANTS HEMP, *Cannabis sativa* The tall annual weed of rubbish-heaps, railroad-yards, etc., HEMP, should be known to all, for it is the source of the narcotic and deadly drug, marijuana. The plant contains a number of poisonous alkaloids. Its most legitimate use is as a source of strong fiber. After the fiber is removed the waste is used in packing bottled goods. Consequently, waste, carrying seeds, is swept into back-yards and waste lots, or from freight-cars to the freight-yards. Its presence about cities often causes consternation in police-forces, who build up hypothetical problems concerning drug-rackets. See p. 162. MEXICAN TEA, *Chenopodium ambrosioides* (including *antihelminthicum*). See p. 180 and FIG. 48 MARSH-MARIGOLD, *Caitha palustris* See p. 203 and FIG. 59. The boiled young plant is a wholesome and much appreciated potherb. The uncooked stems, leaves and flowers should not be eaten. They contain the deadly glucoside, helleborin, which is given off to the water in boiling. CELANDINE or SWALLOW-WOET, *Chelidonium majus*. FIG. 7 KEY-CHARACTERS: plant with a rosette of leaves developing in earliest spring or often over winter; the leaves somewhat resembling those of winter-cress but very pale in color, with midrib hairy beneath, and with a bright orange-colored milky juice; flowers yellow, like tiny poppies, followed by slender, elongate pods somewhat resembling those of a mustard. HABITAT: about old houses, cellar-holes, wood-roads, and other half-wild or neglected spots near towns. RANGE: throughout the eastern states. CELANDINE is not likely to be eaten by one who first tastes it, for it has a strong, bitter, yellow juice; but in

its vigorous early growth it so strongly resembles

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FIG. 8, WILD INDIGO (poisonous to browsing animals. Do not mistake it for asparagus)

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54 EDIBLE WILD PLANTS Winter-Cress, which often grows with it, that care should be taken by the beginner sharply to distinguish between the two. It is a member of the Poppy Family, in which toxic or narcotic properties are frequently present, and has long been viewed with suspicion. However, when young and inexperienced domestic rabbits, who instinctively turn away from leaves of Nicotiana, which many humans more and more consume, get into a patch of Celandine, they devour all within reach. Taking this hint, the senior author has eaten young Celandine-leaves, dressed with oil and vinegar, with some enjoyment; nor has he acquired a habit from so doing. Perhaps Chelidonium has been slandered. In many families which supply our most prized vegetables, the Umbelliferac, Solanaceae and Leguminosae, for instance, harmless and toxic genera both occur. Celandine should be checked. CHERRY, PLUM and PEACH, Prunus See p. 239. No one should attempt to make tea of the leaves. As soon as wilted they develop hydrocyanic acid and they have long been known to kill browsing animals. WILD INDIGO, Baptisia, several species. FIG. 8 The WILD INDIGOs, Baptisia tinctoria, leucantha, australis, etc., would never be tempting except before the sprouting stem has become tough and has branched. In the very young condition the shoots are thick and by some might be mistaken for asparagus. They are quickly told by having 3 leaflets which, not fully developed, will be found along the shoot. They grow chiefly in dry woods and clearings. They are reputed to poison browsing cattle.

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PLATE I POISON HEMLOCK (deadly to eat)

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OF EASTERN NORTH AMERICA⁵⁷ CASTOR-BEAN, CASTOR-OIL-PLANT, Ricinus communis See p. 62. Although Ochse states that the Javanese cook and eat the young foliage and inflorescence of CASTOR-BEAN, it is wise not to imitate them. All parts of the plant, but especially the raw seed, contain the blood-poison, ricin. The plant is known to poison domestic animals and three seeds have proved fatal to man. JEWEL-WEED, TOUCH-ME-NOT, Impatiens, four species The watery young stems and tender upper leaves of JEWEL-WEED might seem succulent enough to eat. It should be borne in mind that the plants have the reputation of being emetic and poisonous to stock. POISON HEMLOCK, Conium maculatum. PLATE I KEY-CHARACTERS: foliage finely dissected and fern-like, strongly suggesting carrot- or parsley-leaves; the stem coarse and cylindrical, heavily spotted with large and small purple, sticky blotches; flowers white, in flat-topped umbrella-like clusters. HABITAT: waste lands, dumping grounds, old lime-quarries, and roadsides about towns. RANGE: locally abundant about ports and occasionally inland throughout the eastern and central states. On account of the strong resemblance of its foliage to parsley and its odor suggestive of the cultivated members of the parsley family, POISON-HEMLOCK should be known to every person who attempts to gather wild plants for food. And never should the novice attempt to gather to eat any foliage of a wild plant which he supposes to be parsley nor seeds which he supposes to be anise or caraway! Since classical times Poison Hemlock has been famous as one of the deadliest of plants, being the basis of various suicidal cups recorded in literature. While the roots of the Water-Hemlock (Cicuta) produce violent convulsions, the Poison-Hemlock (either leaves or seeds)

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58 EDIBLE WILD PLANTS produces a paralysis which eventually results in death, although the mind is said to remain clear until the end. The toxic principle is the alkaloid, coniine. FOOLS PARSLEY, Aethusa Cynapium. FIG. 9 KEY-CHARACTERS: slender plant strongly resembling parsley; the leaves beautifully dissected and fern-like; the secondary clusters of the umbels bearing slender, spreading or reflexed leafy bracts.

HABITAT AND RANGE: waste grounds about towns, locally abundant in eastern Canada and the United States. FOOLS PARSLEY 50 strongly simulates carrots and the finer-leaved strains of parsley that it is very difficult to define difference~ which would be appreciated by the novice. Consequently, the strict rule must be adhered to: never pick to use as parsley the foliage of any wild plant. PIMPERNEL, *Anagallis arvensis* Although PIMPERNEL (see p. 318) has been advocated by some as a salad or potherd, it is sometimes said to be poisonous. We do not know. YELLOW JESSAMINE, *Gelsemium sempervirens* YELLOW JESSAMINE, climbing high in the trees, is in earliest spring one of the glories of the South, northward into Virginia, its superb funnel-shaped yellow flowers scenting the air with their delicious fragrance. They are so full of aroma that it is a temptation to let them wander to the mouth; but the distinguished botanist of North Carolina, Moses Ashley Curtis, recorded the deaths of children from sucking the corollas. MILKWEEDS, *Asclepias*. FIG. 104 See p. 323. Although several of the MILKWEEDS supply wholesome and delicious cooked sprouts, buds and flow-

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OF EASTERN NORTH AMERICA 59 ers, it should be kept constantly in mind that the RAW plants are somewhat poisonous, even the common and much cooked *Asclepias syriaca* in the raw condition known to poison stock. DOGBANES, *Apocynum androsaemifolium* and other species KEY-CHARACTERS: herbs with cylindric stems having a milky juice similar to that of Milkweed; and opposite, oblong to ovate, nearly sessile leaves; stem soon forking and bearing its bell-shaped flowers in loose, spreading clusters. HABITAT: thickets, borders of woods and banks of streams. RANGE: throughout temperate America. On account of their milky juice and opposite leaves the young sprouts of the DOGBANE 5 might be confused with the sprouts of the Milkweeds; but the young stems are usually tougher, entirely smooth, and quickly forking. The plants are emetic and cathartic and are sometimes held responsible for the poisoning of young cattle and FIG. 9, FOOLS PARSLEY (Do not be FIG. 10, HOARY PEA, GOATS RUE fooled and mistake it for Parsley; or CAT-GUT (poisonous to stock; note long, pendulous, slender leaves; juice of related species used as fish-poison)

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60 ED)~BLE WILD PLANTS sheep, even when dry. The name Dogbane was early

transferred from a related Old World genus. They are both related to the cultivated Oleander, well known to be poisonous if eaten. NIGHTSHADES, *Solanum Dulcamara*, *S. nigrum*, etc. FIGS. 14 and 110 See pp. 69 and 334. Although the natives of the Dutch East Indies are willing to cook and eat the foliage of the BLACK NIGHTSHADE it is well to be cautious. The foliage of these plants contains the poisonous glucoside, solanine. Muenscher, in his *Poisonous Plants of the United States*, is reassuring, however, for he states that Boiling apparently destroys the toxic principle. JIMSON-WEED or STRAMONIUM, *Datura Stramortium* (and others). FIG. 12. See p. 65 3. Poisonous DRY FRUITS OR SEEDS RESEMBLING EDIBLE SEEDS Arrow-grass Burning-bush and Strawberry-Rattle-box bush Lupines Buckeyes and Horse-Chestnut Hoary Pea Apple-of-Peru Locust Henbane Vetches Jimson-weed Castor-bean ARROW-GRASS, *Triglochin* See p. 86. Although the scale-like seeds of ARROW-GRASS have been parched and used as coffee, it should be remembered that the fresh plant contains hydrocyanic acid and is harmful to grazing animals. The fruit, however, contains little, probably less than the large seeds in peach-stones, and may be harmless if one is forced to use it.

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OF EASTERN NORTH AMERICA 61 RATTLE-BOX, *Crotalaria*, six species KEY-CHARACTERS: herbs with yellow pea-like flowers and simple, narrow to rounded, sessile leaves alternate on the stem, these often accompanied by inversely arrow-shaped stipules along the stem; pods like small pea-pods, inflated, the peas soon loosening and rattling when the plant is shaken. HABITAT AND RANGE: native species from Tropical America north to southern New England, New York, Ohio, Michigan, Wisconsin, Minnesota, etc.; cultivated species (for soil-renovation and forage) southward. The small pea-like seeds of RATTLE-Box have been recommended as substitutes for coffee, but caution should be exercised in using them. Muenscher states that recent experiments have demonstrated that the ground seeds are poisonous to pigs, whole seed to poultry, and the herbage to cattle. Roasting, of course, may dispose of the toxic alkaloid. LUPINES, *Lupinus perennis* and other species KEY-CHARACTERS: plants with erect or sprawling stems, bearing alternate long-stalked leaves with numerous elongate leaflets radiating from a common point; pods numerous, in long clusters, resembling pea-pods; peas somewhat flat. HABITAT AND RANGE: dry, open soils, common southward, extending northward to Minnesota and Prince Edward Island. The seeds of LUPINES have sometimes been recommended as substitutes for peas but they should be used with extreme caution or probably not at all. It has been fully demonstrated that the seeds of many species contain a powerful alkaloid and cause a disease of domestic animals, long known in Europe as lupinosis. HOARY PEA, GOATS RUE, CAT-GUT, *Tephrosia* (or *Cracca*) *virginiana* and several other species. FIG. 10 KEY-CHARACTERS: a silvery-hairy plant about a foot high, with numerous wiry stems from a stout root, bearing many

alternate leaves with numerous narrow leaflets; flowers like pea-blossoms, showy, clustered at the tops of the stems, variously colored with yellow, pink and purple; pods like long, flat and slender bean-pods; beans flat, like lentils.

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62EDIBLE WILD PLANTS HABITAT AND RANGE: dry sandy barrens or open, oak or pine woods, common in the southeastern states, extending north to Minnesota and southern New Hampshire. On account of its abundant, lentil-like seeds, the HOARY PEA (*Tephrosia virginiana*) is apt to be tempting; but it should be borne in mind that the juice of the plant was used by the Indians as a fish-poison, just as its close relative, *Tephrosia toxicaria*, is still used by the Mexican Indians. The roots fed to guinea pigs have proved highly poisonous. Locust, Robinia (various species) Although the flowers and roots of the Locust tree have been advocated by some as food (see p. 246), the bark and leaves of some species have proved fatal to people eating them, and it has sometimes been stated that the root is also a dangerous poison. The seeds, when eaten, cause violent poisoning. CASTOR-BEAN, *Ricinus communis* Everyone should be aware of the violently poisonous properties of the CASTOR-BEAN, one of the popular ornamental plants of gardens. Belonging to a family notorious for its poisonous properties, the plant is chiefly famous as the source of the well-remembered castor oil. The seeds contain a violently poisonous substance, so powerful that three seeds eaten by man have been known to cause death. See p. 57. BURNING-BUSH, *Euonymus atropurpureus*, and STRAWBERRY-BUSH, *E. americanus* The brilliantly colored fruits, especially of the STRAWBERRY-BUSH of woodlands, are likely to be tempting.

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OF EASTERN NORTH AMERICA⁶³ Muenscher states that children have been seriously poisoned by trying to eat the seeds of this genus. HORSE-CHESTNUT, BUCKEYE, *Aesculus* (various species) Although some authors advocate the use of HORSE-CHESTNUTS after thorough leaching (see p. 270), the nuts should be used with great caution, for the fresh seeds are notoriously poisonous, causing vertigo and coma. Children, who are so fond of collecting Horse-Chestnuts in the autumn, should be clearly instructed never to bite into them. APPLE-OF-PERU, *Nicandra* (or *Physalodes*) *physalodes* The old-fashioned garden plant, APPLE-OF-PERU, is now-a-days comparatively rare but it still persists in some country gardens, where it is allowed to

grow for its rather attractive, blue, petunia-like flowers and its curious fruits with dry, 5-angled, bladderly husk. It should be generally known, then, that the plant is so poisonous as sometimes to be used as a fly-poison. Children should be taught not to eat the seeds. HEYBAKE, *Hyoscyamus niger*. FIG. 11 KEY-CHARACTERS: annual weed, with the stem and sharply angled and cleft leaves covered with a slimy, foul-smelling hairiness; the flowers, borne from the upper leaf-axils, with lurid, buff or yellowish, flaring corolla (about an inch broad) strongly veined with black or dark purple; fruit urn-shaped, surrounded by the firm, 5-toothed dry calyx, about 1/2 inch long. HABITAT AND RANGE: roadsides and waste grounds, locally abundant in the province of Quebec and occasionally elsewhere, west to Michigan and south into the northern states. On account of its slimy hairs and disgusting odor HEN-BANE 15 not likely to tempt adults; but in many parts of Quebec (as, for instance, about the city of Quebec), it is so common that every one should be informed of its poisonous properties. The plant is the source of the

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FIG. 11, HENBANE (deadly poisonous to eat; see that children let it alone)

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OF EASTERN NORTH AMERICA⁶⁵ hypnotic poison, hyoscyamin, which in its action strongly resembles atropine. In case children are known to have eaten the seeds they should promptly be given a powerful purgative and the physician got with all speed. JIMSON-WEED or THORN-APPLE, STRAMONITJM, *Datura Stramonium* and other species. FIG. 12 KEY-CHARACTERS: coarse, loosely branched, annual herbs, commonly 2 to 4 feet high; with very coarsely toothed large leaves (often 46 inches long); flowers petunia- or nicotiana-like, white or violet, borne in the leaf-axils or forks of the stems; fruit an egg-shaped, usually soft-prickly capsule 1 1/2~3 inches long, with a conspicuous, reflexed papery disc at base, cracking into 4 valves; seeds lentil-like. HABITAT: waste lands, vacant lots, railroad-yards, roadsides, and occasionally in cultivated fields, about towns. RANGE: throughout temperate and tropical regions, often too abundant. JIMSON-WEED, which is one of the most dangerous weeds of vacant lots and rubbish-heaps about towns, should be known to every parent, since its fruits are interesting and attractive to children and its flowers suggest wild petunias. The whole plant, and particularly the seeds, is violently poisonous, containing the two powerful alkaloids, atropine and hyoscyamin. Many cases of poisoning of children by the seeds

have been reported, especially of youngsters playing Indian and attempting to eat wild things which attract them. The trumpet-shaped flowers are pretty, and children have been poisoned by sucking the trumpets; while the fresh, angular-toothed leaves have been mistaken for spinach and have been eaten with disastrous results. The plant rarely produces vomiting, so that, if a child is suspected to have eaten it, emetics should be given without delay. 4. Poisonous BERRIES Ground-Hemlock (stones) Baneberry Mistletoe Moonseed

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66 EDIBLE WILD PLANTS Pride-of-India, China-tree or Mahogany Buckthorn Mezereum English Ivy Privet Bittersweet Black-berried Nightshade Beauty-berry Melonette GROUND-HEMLOCK, *Taxus canadensis* See p. 77. The pulp of the bright red fruits is edible, but the stone is very poisonous, containing the toxic alkaloid, taxine. MISTLETOE, *Phoradendron flavescens* The white berries of the American MISTLETOE might prove tempting to children; but it should be known that, in the Southern States several deaths of children have been attributed to the eating of these berries. FIG. 12, JIMSON-WEED or THORN-APPLE (whole plant deadly to eat. See that children do not eat seeds or suck the flowers) FIG. 13, BUCKTHORN (black berries violently cathartic)

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OF EASTERN NORTH AMERICA 67 BANE BERRY, SNAKE BERRY, NECKLACE-BERRY, *Actaea rubra* and *A. pachypoda* (or *alba*) KEY-CHARACTERS: herbs with slender, erect stems; bearing compound leaves divided on the plan of 3 into numerous oval, sharply toothed leaflets; berries cherry-red or ivory-white, short-ellipsoid, $\frac{3}{8}$ to $\frac{1}{2}$ inch long, borne horizontally in elongate, loose clusters, in summer. HABITAT AND RANGE: rich woods and thickets, Newfoundland to British Columbia, south throughout the northern states and in upland woods southward. The BANE BERRY has such beautiful fruit that it should be known that the berries are somewhat poisonous. A few of them eaten by an experimenter caused dizziness and other symptoms which indicate their toxic power. MOONSEED, *Menispermum canadense* The twining shrub, MOONSEED, so strongly suggests a grape-vine that the unobservant might mistake it. Its stems do not become strongly woody nor covered with dark and shreddy bark; its leaves are attached to the footstalk a little way in from the margin, and the drupes have a single crescent-

shaped stone. They are bitter and unpalatable but have poisoned children eating them. PRIDE-OF-INDIA, CHINA-TREE, MAHOGANY, *Melia Azedcetrach* PRIDE-OF-INDIA or, as it is locally known, Mahogany, is very familiar, either planted or wild, in the South. No one who has tasted its large, thin-fleshed drupes is apt to do it again. They are wholly unpalatable, but children who do not discriminate are often poisoned by eating them. J3UCKTHORN, *Rhamnus* (various species). FIG. 13 KEY-CHARACTERS: shrubs or trees with alternate, finely toothed and strongly veined leaves somewhat resembling cherry-leaves; bearing clusters

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68EDIBLE WILD PLANTS of black, juicy berries along the branches and branchlets, the berries with 24 hard nutlets and persisting over winter. HANITAT: various species, indigenous or introduced, in swamps or rocky woods. RANGE: Newfoundland to British Columbia and southward. The BUCKTHORNS have handsome but often disagreeably bitter-sweet berries, which are not likely to be eaten in quantity. The berries of some are poisonous, though of others they are said to be palatable, but the juice of probably all members of the genus may be cathartic. One species, *Rhamnus Purshiana*, of the Pacific slope, is an important source of cascara; and the commonly introduced *R. cathartica*, which is abundantly naturalized in many parts of New England and other eastern states, was thus described by iDodoens in the 16th century: the berries be not meete to be ministered but to young and lustie people of the countrie which doe set more store of their money than their lives. In northern Maine and New Brunswick the country children look with well founded terror upon the berries of the native *if atrifolia* of the swamps, a small boy once pointing them out to one of the writers with the remark: Them is terrible things for the guts. MEZEREUM, DAPHNE, *Daphne Mezereum* The old-fashioned garden shrub, MEZEIREUM, often escapes from cultivation to rocky banks, particularly to abandoned lime-quarries and similar places, and on account of its handsome red berries, borne in dense masses along the branches, is apt to prove tempting. The berries of various members of the genus *Daphne*, however, are highly poisonous and Linnaeus records a case in which a girl died after eating only twelve berries. The fragrance of the flowers is said sometimes to produce headache.

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OF EASTERN NORTH AMERICA69 ENGLISH Ivy, *Hedera Helix* The generally

cultivated and sometimes naturalized ENGLISH IVY has attractive red berries. Children should be taught that they are poisonous. PRIVET, *Ligustrum vulgare* and other species. The PRIVETS, now naturalized in rocky woods of the eastern states, have pyramidal or roundish clusters of blackish berries, which are likely to be tasted by children. Several cases are definitely recorded of children being poisoned by eating the berries. BITTERSWEET or NIGHTSHADE, *Solanum Dulcamara*. FIG. 14 KEY-CHARACTERS: a climbing, vine-like shrub with the old branches woody; bearing alternate, irregularly lobed or cleft, or sometimes uncut, leaves, with the principal divisions oval and somewhat one-sided; producing from the stem, below or opposite the leaves, loose clusters of bright red, many-seeded, ovoid berries $\frac{1}{2}$ inch long, with a 5-toothed green calyx at base. HABITAT: rich thickets, especially in damp ground. RANGE: naturalized in most civilized regions of temperate America. The berries of BITTERSWEET (not to be confused with *Celastrus*, p. 265) have long been the subject of controversy, since by some people they have been thought poisonous, by others harmless. Experiments have shown that the juice fed to rabbits is fatal and, although there are evidently some people who can eat them (if they wish) without harmful results, it is wisest for most people, and especially children, to let them alone. BLACK-BERRIED NIGHTSHADE, *Solanum nigrum*. FIG. 110 The BLACK-BERRIED NIGHTSHADE is discussed under edible plants (p. 334). For several years a large-fruited strain of this affinity was exploited by Luther Burbank

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70 EDIBLE WILD PLANTS (as a substitute for Blueberries!). It should be stated, however, that the berries of this species, like those of the Bittersweet, are harmful to some people and have been demonstrated to poison sheep, goats and other domestic animals. It is wisest, then, to be cautious about eating the berries, and children should be taught to leave them alone. BEAUTY-BERRY or FRENCH MULBERRY, *Callicarpa*. See p. 328. The pinkish, pungent-flavored berries are in the doubtful class. MELOKETTE, *Melothria pendula*. FIG. 15 See p. 353. The berries are not likely to be eaten twice. They are said to be a drastic purgative. FIG. 14, BITTERSWEET or NIGHTSHADE (Red or orange berries per- FIG. 15, MELONETTE has poisonous. ~ Do not let children (blue-black berries) eat them) (slightly purgative)

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CHAPTER III DETAILED ENUMERATION OF EDIBLE WILD FLOWERING PLANTS AND FERNS OF NORTHEASTERN AMERICA IN THE FOLLOWING enumeration the plants are arranged in the systematic order familiar to most botanists the sequence of Grays Manual of Botany, ed. 7. Key-characters and other aids to identification are given in many cases, but in the cases of universally familiar plants or their fruits, such as Chickweed, Dandelion, Aetorns or Strawberries, and in those of unimportant plants they are often omitted. FERN FAMILY (Polypodiaceae) PASTURE-BRAKE, BRACKEN, *Pteridium aquilinum*, vars. *latiusculum* and *pseudocaudatum* (*Pteris aquilina* of many American botanists). FIG. 16 KEY-CHARACTERS: a coarse fern with solitary or scattered young stalks often 1/2 inch thick at base, nearly cylindrical and heavily covered with rusty felt; the uncoiling frond (crozier) distinctly 3-forked, usually with a purplish spot at the angles which secretes a sweetish juice; old fronds of last year coarse and conspicuously 3-forked; rootstock extensively creeping and branching, blackish and almost woody, about 1 1/2 inch thick. HABITAT: dry open woods, recently burned clearings, pastures, etc. RANGE: throughout America, from Newfoundland to the Rocky Mountains and southward; other closely related Brackens northwest to Alaska and southward into Mexico. SEASON OF AVAILABILITY: spring, before the croziers (young fronds) are unrolled. Usxs: cooked vegetable, substitute for asparagus, nibble, masticatory. The PASTURE-BRAKE is by all means the most widely known and generally the commonest of our ferns. Never- 71

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72 EDIBLE WILD PLANTS theless, it is surprising how very few people know of its value and unlimited availability as a green vegetable in early spring, before the garden asparagus and peas are ready to use. In some regions, as New Zealand and Japan, closely related varieties of Bracken have long been used and are highly valued; but in Europe and America the use of the new uncoiled fronds is decidedly modern and as yet only a few people appreciate them. Select the stouter stalks when very young and not more than 6 or 8 inches high; break as low down as tender, draw through the closed hand to remove the wool, wash and bunch like asparagus and boil in salted water or steam until tender (usually half-an-hour to an hour), season with salt and pepper and dress with melted butter or oil or with a cream sauce; serve with or without toast, as preferred. Or break or cut like string beans into short pieces, taking care to use only the tender, upper parts, cook in a little salted water, and season and dress as above, serving like string beans. The raw stalks have very mucilaginous juice, so that some people enjoy eating the uncooked stalks as a relish or a masticatory. The juice is somewhat altered in cooking, but the boiled vegetable retains some of the mucilaginous quality. On this account the Pasture-Brake is not attractive to some palates, but to most people who have tried it

properly prepared it has proved an interesting and palatable novelty. Surely there is an unlimited supply and until the Pasture-Brake becomes more generally used there is no danger of its extermination a danger the Japanese have found it necessary to forestall by drastic laws. The close relatives of our Bracken, in New Zealand, in the southwestern United States and in Europe, have a starchy layer in the rootstock, which is broken up by crushing, the starch being sufficiently abundant to be of economic importance. The rootstock of our plant has too little starch to be of value.

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OF EASTERN NORTH AMERICA⁷³ When the fronds of Bracken are full-grown and tough they develop toxic principles which sometimes poison grazing animals. No one in his right mind, however, would think of eating old, dry and hard Pasture-Brake any more than he would eat the foliage of his beans, squashes or tomatoes. When young and uncoiling the croziers seem to be wholesome. OSTRICH-FERN, *Pteris nodulosa* (*Onoclea Struthiopteris* and *Matteuccia Struthiopteris* of some American botanists). FIG. 17 KEY-CHARACTERS: young fronds forming dense, vase-like clumps borne from a long deep-creeping and freely forking rootstock; the old persistent remnants of last year's fruiting fronds resembling thick, dark-brown feathers, with numerous crowded, ascending, dry, necklace-like rows of rounded lobes; new fronds with stout stalks (stipes) bearing brown, papery, quickly deciduous, broad scales and with a feather-like leafy summit. FIG. 16, PASTURE-BRAKE FIG. 17, OSTRICH-FERN. Young croziers, ready or BRACKEN, a little too to eat, center; portion of old sterile frond, old for eating right; portion of old fertile frond, left

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⁷⁴EDIBLE WILD PLANTS HABITAT: rich alluvium of streams, or northward in rich woods or on fertile slopes. RANGE: Newfoundland to British Columbia, south to upland Virginia, the Great Lakes States, Missouri and South Dakota. SEASON OF AVAILABILITY: spring, just before the uncoiling of the frond. USES: as asparagus, scalloped vegetable. Few other substitutes for asparagus ever graced a slice of toast with as much promise of furnishing a substantial meal as lies in the thick, succulent, young unrolled fronds of the OSTRICH-FERN. Abounding in the alluvial woods of the northern states and Canada and following many of the fertile valleys from near their sources quite to the lower reaches, the plant is sufficiently abundant to be gathered without fear of

extirpation, especially if some fronds are left to develop on the depleted crown. On a fishing or tramping trip in May, or northward in June, or in the mountains of Gaspé or in Newfoundland even in July, it makes a readily available and satisfying vegetable, quickly gathered and prepared; while two or three of the vase-like young crowns, when carried home, furnish an abundant meal for an average family. The tender young croziers are of dryish texture ~as contrasted with the mucilaginous quality of the Pasture-Brake, although the flavor of the two is similar. It is probable that bleaching by covering the newly pushing crowns with lit- ter would render them of even better quality, but it would be an exceptional and squeamish individual who would object, at least when camping, to the well-cooked green croziers. The tall plume-like fronds of the Ostrich-Fern are familiar along rich valleys in midsummer, when they form almost impenetrable thickets from 1 to 3 yards in height; but at that season they are tough and quite inedible. They are, however, easiest detected when in full development and good foraging grounds for the spring harvest may then be advantageously noted. The young croziers should be washed thoroughly, removing the dry papery scales (including those in the

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OF EASTERN NORTH AMERICA⁷⁵ tightly coiled leafy tip) and the hard bases of the stalks, sprinkled with salt rather freely and boiled or steamed until tender (rarely more than half an hour), drained, seasoned with pepper (and salt if needed) and served in lengths with oil, butter, cream or a cream sauce, on toast or not as preferred. Or they may be cut or broken and treated like string beans. When thus prepared, a creamy sauce or straight cream or plenty of butter or oil is desirable, to counteract the dryish quality. Cut into small pieces, mixed with buttered (or oiled) bread- and cracker- crumbs, with milk, beaten egg and seasonings, and then baked until browned they make a superior scalloped dish. The vase-like crowns develop so early that crowns at the tips of the freely branching rootstocks can be brought, in the autumn, into the cellar after freezing in boxes of earth and forced for winter use. Canned Ostrich-Fern has recently come into the market. In one case, at least, a novice, eating the canned product, was somewhat poisoned. He suggests that some people may be sensitive to the protein in this unusual food. The senior author with eighteen students has eaten it freely on a long field-trip. All lived happily ever after. OTHER FERNS. Few of the ferns have poisonous young shoots and any which are sufficiently tender could be used as emergency-food, although the Pasture-Brake and the Ostrich-Fern have so much larger shoots and are so abundant where they occur that there is rarely any occasion to cook the smaller and inferior species, some of which are bitter or otherwise unpalatable. CAUTION. No one who is not perfectly sure that he knows a true fern from other delicately cut leaves should venture to eat the smaller ferns. Many plants, such as the notorious Poison Hemlock and the related Beaver-poison, both deadly poisonous, have delicately cut leaves which by the

untrained are often called ferns.

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76EDIBLE WILD PLANTS CINNAMON-FERN FAMILY (Osmundaceae)
CINNAMON-FERN, BUCKHORN, *Osmunda cinnamomea* HABITAT:wet woods and thickets. RANGE:throughout the eastern states, southeastern Canada and Newfoundland. SEASON OF AVAILABILITY: early spring, when beginning to sprout. USE:nibble. Every country boy in New England and eastern Canada knows and seeks for the heart of the newly unrolling crown of the CINNAMON-FERN. The Buckhorns or white, central, unexpanded fronds are crisp and tender, with a nutty flavor, but likewise with an acidity, overlooked by the small boy but usually detected by those who have left their boyhood behind. The stalks 68 inches high have been commended by some as a cooked vegetable. We have not found them attractive. HORSETAIL FAMILY (Equisetaceae) HORSETAIL, PIPES, JOINT-GRASS, *Equisetum limosum* (L7. fluviatile) Sturtevant states that this plant was eaten by the Romans, and he quotes Coles (17th century) as stating that the young heads are dressed by some like asparagus, or being boiled are often bestrewed with flower and fried to be eaten. Johnson ascribes the same use to the more highly silicious *E. hyemale* or SCOURING RUSH; but, were we forced to eat either, we should select *E. limosum* as the less gritty. It is better to avoid the group as food, for the plants, which develop a powerful nerve-poison (Ectonitic acid), are well known to poison grazing animals. See p. 50.

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OF EASTERN NORTH AMERICA77 YEW FAMILY (Taxaceae) GROUND-HEMLOCK, AMERICAN YEW, *Taxus canadensis* HABITAT:rich woods. RANGE:Newfoundland to Manitoba, southward into the northern States, and in the mountains to Virginia. SEASON OF AVAILABILITY: midsummer. USES:fresh fruit as a nibble, masticatory. The pulpy red portion of the berry is sweet and honey-like and perfectly edible. The nut-like seed is reputed to be poisonous, although we are unaware that any one has actually experimented with our species. It is well demonstrated, however, that the wilted foliage is poisonous to grazing animals, although the stiff and fresh foliage is harmless and often nibbled with relish by those who know it. The wilted leaves develop a heart-depressing alkaloid. See p. 66. PINE FAMILY (Pinaceae) PINES, *Pinus* (a dozen species) USES:bread, masticatory, nuts (seeds), emergency-food, cooked

veg- etable. The juicy inner bark (cambium) of the pines (with us especially of the White Pine) in spring has apparently been an emergency-food, as well as a popular morsel for most northern country boys, in all regions where the trees are known. The slivers or strips of succulent inner bark of WHITE PINE, gathered in May or early June, are well known to farmer-boys of the northern states; and the stripped young shoots of the White Pine were for- merly candied by the New Englanders. This inner bark has a more important food possibility, however, long recognized by Europeans as well as by the American Indians. The people of some portions of north- ern Europe early acquired the habit of laying aside a store of the Fir or SCOTCH PINE (*P. sylvestris*) against possible winter needs. Thus the immortal Linnaeus,

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78EDIBLE WILD PLANTS tramping in 1732 through Lapland, found the Laplanders largely subsisting on the inner bark of the Fir. Briefly, their method was as follows. In spring they cut strips of the inner bark, which were fastened on the barn to dry over summer, and then, as necessity demanded, this dried bark was ground and mixed with other flours as material for famine-bread. Linnaeus stated that the bread was nutritious and that the ground bark when fed to cattle and swine proved fattening; but to his taste the bread was not attractive! Doubtless the inner bark of other pines would be as good a source of meal and, although the gathering and preparation of the bark is, naturally, a disagreeable and sticky process which few will be tempted to undertake, the importance of pine-bread as an emer- gency-food should be kept in mind. Those who may care to try it will be interested in the directions given by Lin- naeus: Some people make bread of the bark of fir-trees. For this purpose they choose the bark of such trees as are of a large size, with but few branches, because the branches, as well as the younger trees, are more resinous, and therefore more strongly flavoured. The bark taken from the lower part of the tree is esteemed the best. The hard external coats require to be carefully removed.. Stores of this bark are often laid by for winter use. Previously to its being ground into flour, it is laid over a slow fire in order to be warmed through, and rendered more friable, for it becomes by this means much thickened and very porous. It is next ground and baked, in the same manner as the barley... The dough made of fir bark is more compact than barley dough, and almost as much so as that made of rye; but the bread has a bitterish taste. The use of Pine-bark by the American Indians was so extensive that early explorers frequently recorded large areas of trees stripped of their bark; and in this connec- tion it is interesting to note that the name Adirondack means tree-eaters. More attractive food is to be found in the seeds of the

OF EASTERN NORTH AMERICA⁷⁹ pines, although none of the eastern species bears seeds comparable with the delicious fruit of some of the Nut. Pines of the West. The seeds of the White and Norway Pines, are, however, sweet and nutritious, and Kephart suggests roasting to remove the resinous taste. The resin is less evident if the seeds are gathered in August, at about the time of the opening of the cone. The Ojibwe Indians, according to the distinguished student of American ethnology, the late Huron H. Smith, gathered the firm and unexpanded aments of White Pine and stewed them with their meats. The cooked aments are said to be sweet and not pitchy. LARCH, HACKMATAK, TAMARACK, JUNIPER, *Larix laricina* HANITAT:swamps and thin woods. RANGE:Labrador to Alaska, southward into the northern States. SEASON OF AVAILABILITY: spring and early summer. USE:emergency-food. Sturtevant states that the natives of northern Siberia grate the inner bark of a related species and from it make a broth with fish and milk. The young shoots are nutritious and may serve as a possible emergency-food. SPRUCE, *Picea* (3 or 4 species) KEY-CHARACTERS:bark flaky, becoming furrowed, branchlets more or less drooping, forming a dense crown; needles nearly square in cross-section, spirally arranged on the twigs; cones drooping, persisting over winter. USES:spruce-beer, spruce-gum, emergency-food. The inner bark may be used in spring and early summer as an emergency-food in the same manner as that of the pines. The young shoots, stripped, are nutritious and also serve in emergency. Spruce-gum is derived from the two BLACK SPRUCES (*P. rubens* and *P. mariana*), the WHITE SPRUCE (*P. glauca* or *P. canadensis*) forming inferior and usually brittle gum. The White Spruce is a de

80EDIBLE WILD PLANTS cidedly northern tree, abounding on the better soils of Labrador, Newfoundland and Canada, extending into the northern borders of the United States. It is quickly recognized by its whitish-brown bark, as contrasted with the darker bark of the Black Spruces; by the whitish- or bluish-green foliage, as contrasted with the warmer-green of the other species; the perfectly smooth bark of the young twigs, the Black Spruces having minute hairs on the new shoots; and by its cylindrical cones, the cones of the Black Spruces being egg-shaped to nearly globose. The bruised shoots and foliage of the White Spruce have a strongly disagreeable odor (whence the local names, Skunk- or Cat-Spruce) ; but the young shoots of the Black Spruces were the important ingredient in the formerly popular and still locally made spruce-beer. Fin, Fin BALSAM, BALSAM FIR, *Abies balsamea* KEY-CHARACTEREaS:bark smooth, furrowed only in age, bearing blisters filled with pitch (Canada balsam); branches nearly horizontal,

forming a rather open summit resembling a many-storied pagoda; leaves flat, spreading horizontally from the branchlets; cones erect, disintegrating in the autumn, leaving naked nail-like axes. HABITAT:woodlands. RANGE:Labrador, westward across eastern Canada and southward to the northernmost states and in the mountains to Virginia. USE:emergency-food. The inner bark, like that of the Pines, Spruces, etc., may be used in emergency. The balsam or pitch, in extreme emergency, forms a highly concentrated though disagreeable food. Presumably the southern *A. Fraseri* has similar possibilities. HEMLOCK, *Isuga canadensis* HABITAT:dry woods. RANGE:eastern states, north to Minnesota, Ontario and New Brunswick. Usxs:emergency-food, tea, beer, bread. The inner bark may be eaten in emergency; and the young tips were used by the Iroquois to make a tea and

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OF EASTERN NORTH AMERICA⁸¹ were one of the ingredients of old-fashioned root-beer. According to several writers, the inner bark of the western species of Hemlock was extensively used by the Indians for bread. NORTHERN WHITE CEDAR, ARBOR VITAE, *Thuja occidentalis* HABITAT:woods and swamps. RANGE:eastern Quebec to Manitoba, south into the northern states and along the mountains to North Carolina and Tennessee. UsEs:tea, soup. The twigs and chips of wood, bearing the familiar cedar-oil, furnish a camp-tea, by some considered palatable but not so by Thoreau, who, in *The Maine Woods*, wrote: This night we had a dish of arbor-vitae, or cedar-tea, which the lumberer sometimes uses when other herbs fail, A quart of arbor-vitae, To make him strong and mighty. but I had no wish to repeat the experiment. It had too medicinal a taste for my palate. In the northern forest the idea is general, that one who drinks cedar-tea will not have rheumatism. The late Cyrus G. Pringle, famous for his botanical explorations in Mexico and more recently through the publication of his diary, *The Record of a Quaker Conscience*, shortly before his death spoke in terms of envy to one of the writers, who was starting for the Canadian forests, saying: I wish I could go with you. If I could drink cedar-tea I should soon be rid of my rheumatism. Kephart states that the Ojibwe make a pleasantly sweet soup from the pith of the young shoots. GROUND-JUNIPER, *Juniperus communis* (including *J. sibirica*) HABITAT:open slopes., hilltops, pastures, etc. RANGE:Labrador to Alaska, southward into the northern states. USES:fruit (as a pleasant nibble), masticatory, coffee-substitute.

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82EDIBLE ~TILD PLANTS The berries of the common JUNIPER are well known as an essential ingredient of gin, but ordinarily they are quite inedible. A trailing variety, however, found in northeastern New Brunswick, on the Magdalen Islands, on Sable Island and in western Newfoundland, has an unusually large berry, about 1/2 inch in diameter, with a sweetish pulpy coat, which makes an attractive nibble. The juniper of northern Europe seems also to have edible pulp, as indicated in Bryant's Flora Diaetetica, in 1783, where we read: The Swedes make an extract from the berries of this tree, which they generally eat with their bread for breakfast as we do butter. The berries have sometimes been roasted and used as a poor substitute for coffee. CAT-TAIL FAMILY (Typhaceae) CAT-TAIL, CAT-0-NINE-TAIL, FLAG, Bulrush, Cocksfoot, ASPARAGUS, Typha latifolia, T. angustifolia and T. truxillensis KEY-CHARACTERS: tall plants with erect, stiff, tape-like pale-green leaves 1/4-1/2 inch broad, with a strongly developed rounded flange at the junction of the blade and the sheathing base; rootstock creeping and branching, 1/2-1 inch thick; flowers in dense terminal spikes, the lower part of the spike at first green, finally brown and producing cotton, the upper part yellow and, after shedding the pollen, shriveling. HABITAT: fresh or brackish water of marshes and borders of ponds and quiet streams, the last two species often in brackish marshes. RANGE: one or another throughout temperate North America, northward to southern Canada and western Newfoundland. SEASON OF AVAILABILITY: rootstocks, late autumn to spring; new shoots, spring and early summer; pollen and young flowering spikes, May (southward) to early August (northward). Uses: salad, starchy vegetable, bread, asparagus, cooked vegetable soup, pickle, jelly. In different regions the CAT-TAIL has won considerable attention as a food-plant, although it is noteworthy that its reputation varies in different areas. The short, thickened leading shoots of the rootstock, when well filled with starchy material late in the autumn

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OF EASTERN NORTH AMERICA⁸³ and through the winter to early spring, are said by Coville and other students of western Indians to be an important food, either as a salad or as a cooked vegetable; and in the 18th century Forster stated that the poorer whites of Virginia were very fond of the young rootstocks which have a sweetish taste. Prest, writing from Nova Scotia, states that, in order to secure the most nourishment, the roots should be grated, boiled, and then the starchy material strained off for use. The pithy core at the junction of the rootstock and the sprouting new stem is said by many writers to be edible, tasting like tapioca, and eaten either roasted or boiled. Some years ago the magazines contained somewhat detailed accounts, by the late Professor P. W. Claassen of Cornell University, of the preparation of a highly nutritious flour from the central core of the rootstocks. Those who are specially interested will find much detail in

Professor Claassen's account. In an analysis of the flour from Cat-tail roots, made during the first World War at the Sheffield Laboratory of Physiological Chemistry at Yale University, Jencks found that it corresponds with starch. Our flour indicated a carbohydrate content of 56.8 per cent. Mice were fed for a week on otherwise adequate diets containing 30 per cent of the flour without evident untoward results. The animals gained in weight upon the ration. Then, as a check, Yale students substituted for the mice. Porcher states that a jelly is extracted from the root, while by Waugh we are told that the Abenaki Indians used the juice from the root. It has often been stated by European writers that the Don Cossacks use the young stems starting in spring as a vegetable, but Cossack officers who have travelled extensively state that it is only fit for food when it grows in the marshes of the Don. The fondness of the people of the Don for this readily obtained vegetable is indicated by Sturtevant's extract from Clarke's Travels in Russia: He found the people devouring it raw; with a degree of

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EDIBLE WILD PLANTS avidity as though it had been a religious observance. It was to be seen in all the streets and in every house, bound into faggots. They peel off the outer rind and find a tender, white part of the stem, which, for about the length of 18 inches, affords a crisp, cooling, and very pleasant article of food. Cameron states, also, that the young shoots may be used for pickles. Dr. Edward Palmer, who for more than a quarter of a century explored the arid Southwest and adjacent Mexico, states that by the Pah-utes the young flowering spikes, before the pollen is developed, are considered a great delicacy, eaten either raw or boiled, steamed or made into a soup. It is also stated that the people of Bombay and other portions of India harvest the abundant pollen and make a bread from it. This, if palatable, as it should be, may prove to be a welcome new breadstuff. The pollen should, obviously, be beaten into a nearly closed container. From the above compilations it would seem that the Cat-tail is a worthy subject for careful investigations. We have personally investigated the young flowering spikes mentioned by Dr. Palmer and can say that the Pah-ute Indians had the satisfaction of discovering a remarkably palatable vegetable. The green flower-spikes should be gathered before the yellow pollen shows and boiled a few minutes in salted water and served. It will be found that the granular, cooked flower-buds have a flavor and consistency somewhat suggestive of both olives and French artichokes. The central axis of the spike is tough; consequently the pencil-like, green vegetable, if kept intact, must be nibbled by eating end-on, as one would eat stick-candy; only the wiry core is left. This may seem an undignified procedure at table, but certainly all children who have been introduced to cooked Cat-tails have found it no obstacle, and it is quite as becoming a table-procedure as our eating of olives, sweet corn on the cob, or lollipops. A better way is to scrape off the boiled

OF EASTERN NORTH AMERICA⁸⁵ or steamed flowers from the hard axis, then mix them with oiled or buttered crumbs, seasoning, beaten egg and a little milk, and then bake. As in all such dishes, cream, if available, gives the finishing touch. BUR-REED FAMILY (Sparganiaceae) BUR-REED, Sparganium (about 10 species) USE: starchy vegetable. Late in the autumn tubers are produced from the creeping rootstocks of these plants and, according to Coville, they have been used as food by the Klamath Indians. The tubers are small and far apart in marshy ground, and the difficulty of securing them in quantity is too great to make them an important wild food. PONDWEED FAMILY (Zosteraceae) PONDWEEDS, Potamogeton (various species, about 6 with fleshy rootstocks) USE:starchy vegetable. It is stated by Johnson that the rootstocks of Potamogeton natans are farinaceous and edible. The farinaceous, new branches of the rootstocks of any of the larger species might prove edible (certainly the water fowl are fond of them), but their habitat, at the bottoms of ponds and streams, makes them essentially inaccessible. EEL-GRASS, GRASS-WRACK, SEA-WRACK, Zostera marina HABITAT:sandy or muddy sea-margin; once commonly cast up by storms, but in recent years largely destroyed by some epidemic. RANGE:shores of the northern Atlantic and northern Pacific. SEASON OF AVAILABILITY: throughout the year. USE:nibble. Masters, in the Treasury of Botany, states that in the

86EDIBLE WILD PLANTS Hebrides the sweetish rootstocks and bases of the shoots are chewed for their palatable juice. ARROW-GRASS FAMILY (Juncaginaceae) ARROW-GRASS, Triglochin maritima HABITAT:swamps and sea-margins. RANGE:across the continent northward, along the coast southward to New Jersey. SEASON OF AVAILABILITY: late summer and autumn. USES:parched grain, coffee-substitute. Coville states that the dry, seed-like fruits of the ARROW-GRASS are parched and eaten by the Klamath Indians, or sometimes roasted and used as a substitute for coffee. The plant is abundant at the borders of salt marshes from southern Labrador to New Jersey, in saline or boggy spots across the continent northward, and southward in the saline areas of the Rocky Mountain region. It fruits very freely, bearing its flattish but strongly ridged, dry seeds in long spikes. The fresh seeds have a strong taste or odor suggesting watchmakers oil or turpentine. CAUTION: The leaves of Triglochin often contain hydrocyanic acid and are poisonous to browsing animals. The fruit contains so little that, when roasted, it is probably harmless. See p. 60. WATER-PLANTAIN FAMILY

(Alismataceae) ARROW-HEAD, ARROW-LEAF, DUCK-POTATO, SWAN-POTATO, *Sagittaria* (various species, about 7 with large tubers). FIG. 18 KEY-CHARACTERS: plants of pond- or river-margins, with rosettes of erect or rarely floating leaves with arrow-shaped blades; readily recognizable in flower by having circles of flowers (mostly in threes) near the summit of the flower-stalk, each with 3 filmy white petals; in fruit bearing near the summit of the flower-stalk circles (usually in threes) of rounded heads of flat seeds.

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OF EASTERN NORTH AMERICA 87 HABITAT: wet swamps or shallow waters. RANGE: eastern Quebec to British Columbia, south to the Gulf of Mexico. SEASON OF AVAILABILITY: late summer and autumn. LIKELY TO BE CONFUSED WITH: (1) ARROW-ARUM, GREEN ARUM or TUCKAHOE (*Peltandra*), having arrow-shaped leaves but a stout and deep vertical root, the Arrow-heads having the root fibres springing directly from the base of the tufts of leaves, without a strong deep rootstock. The fruits of the Arrow-Arum are rounded, bean-like seeds in masses within a leathery pouch (spathe). (2) WILD CALLA (*Calla palustris*), with heart-shaped or rounded leaves springing from stout, widely creeping and horizontal rootstocks, and bearing heads of red berries. (3) PICKEREL-WEED (*Pontederia cordata*), with leathery heart-shaped or arrow-shaped blades; the mature plant bearing one heart-shaped leaf high upon the flower-stalk; the flowers blue-purple spotted with yellow and borne in a dense spike; the dry fruits also in a dense spike. USE: starchy vegetable. FIG. 19, FLOATING MANNA-GRASS, inflorescence and single spikelet All our species of ARROW-HEAD produce late in the autumn hard, potato-like tubers at the ends of long subterranean runners, but those most available as food are, naturally, the larger species, *Sagittaria latifolia* and *S. cuneata* (or *S. arifolia*) and a few others. The tubers FIG. 15, ARROW-HEAD

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88 EDIBLE WILD PLANTS of these plants have been used by the native races of North America and of related species by those of Asia, and at the present day they form a food of some importance with the Chinese, cultivated at the borders of rice-fields and sometimes to be seen in the markets of San Francisco and New York. The tubers of our species were the WAPPATO of the northwestern Indians, referred to by Lewis and Clark and other explorers, and the KATNISS of the Algonquin. The tubers are borne often

several feet away from the parent plant and are available only after mid-summer, and chiefly in the autumn. The larger tubers are an inch or two in diameter, containing a somewhat milky juice which, when raw, is unpleasant to the taste, but which is said by many explorers to be dispelled on cooking, the tubers after roasting or boiling becoming sweetish and palatable. Kalms' account, written in New Jersey in 1749, was as good as any: KATNISS is another Indian name of a plant, the root of which they were likewise accustomed to eat. . . . The Indians either boiled this root or roasted it in hot ashes. Some of the Swedes likewise eat them with much appetite, . . . A man of ninety-one years of age, called Nils Gustafson, told me, that he had often eaten these roots when he was a boy, and that he liked them very well . . . I afterwards got some of these roots roasted, and in my opinion they tasted well, though they were rather dry: The taste was nearly the same with that of the potatoes. A more recent verdict is that of Professor Milton Hopkins: the tubers . . . are as toothsome a morsel as any one could hope to enjoy. I have eaten them baked and boiled, as one cooks potatoes, and found them eminently satisfactory. They should be cooked about 30 minutes and are best if they are peeled afterward. The mealy quality of the potato is not present, and the texture is somewhat more smooth. The arrowhead tuber makes a superb dish for picnic snappers and lunches, and if the

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OF EASTERN NORTH AMERICA 89 picnic grounds are not too far distant from a colony, one can make the event outstanding by asking the guests to dig their own tubers and roast them in a bed of hot smouldering coals. Professor Hopkins has the right idea. Ordinarily the tubers ~ are so remote from the parent-plant that the Indians depended largely upon the stores of them which they found already assembled by muskrats. One needs a bathing-suit if he goes for them. Some of the Indian tribes, after boiling the tubers, sliced them and strung them on strings (like dried apples) to dry for winter use. MUD-PLANTAIN, WATER-PLANTAIN, *Alisma* (2 species) KEY-CHARACTERS: plants of wet places, with rosettes of long-stalked erect and smooth leaves with round-based or heart-shaped, broad, pointed blades with 3 to 9 parallel ribs; the flowers with 3 small white petals and 3 green sepals, borne in compound, long-stalked, branching clusters, the smaller clusters with slender flower-stalks radiating like rays of an umbrella; flowers ripening into little disks of thin scale-like fruits. HABITAT: muddy shores and margins of ponds and streams. RANGE: southern Canada and southward throughout our area. SEASON OF AVAILABILITY: autumn to spring, when the roots are well filled. USE: starchy vegetable. The solid bulb-like bases of the plant are farinaceous and it is stated that after thorough drying, to rid them of an acrid taste, they are eaten by the Calmucks. The species are so closely allied that it is probable that any of them might be used. FLOWERING-RUSH FAMILY (But ornaceae) FLOWERING-RUSH, *Butomus*

umbellatus KEY-CHARACTERS: tall marsh plant with erect, sword-shaped leaves and flowering stem 3 feet or more high, the latter terminated by an umbrella-like cluster of showy rose-colored and green flowers, with 3 large purple-tinged bracts at base; the flowers with sepals and petals an inch long, 3 of each; fruit-pods inflated, with a long beak, about half an inch long; root-stock thick and fleshy, late in the season bearing many grain-like and promptly deciduous tubers.

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90 EDIBLE WILD PLANTS HABITAT: swampy shores and river-flats. RANGE: along the St. Lawrence from above Montreal to below Quebec and about Lake Champlain, thence westward to southern Michigan. SEASON OF AVAILABILITY: autumn to spring, when the rootstocks are well filled. USES: starchy vegetable, bread. Both Professor Balfour and Rev. C. A. Johns state in the Treasury of Botany, that in northern Asia the root-stock is roasted and eaten; and Unger adds that in Norway it often serves as material for bread. Others speak of the rootstocks as acrid and bitter. Drying or roasting may dispel the acidity as it does that of the Araceae. The plant has only recently naturalized itself along the St. Lawrence and about Lake Champlain but it has spread so rapidly that it has become something of a nuisance; under these circumstances it may be fortunate that it can be used as food. GRASS FAMILY (Gramineae) The Grass Family is the source of most of the important cereals as well as of sugar-cane and sorghum; and several of our wild grasses can be used as a source of grain-substitutes and sugar. Most of them, however, have too small grains or are too scattered to be of great practical value, especially since the separation of the husk from the grain is difficult without parching or soaking in lye. In recent years the use of fresh or dried grasses, finely ground, has been advocated for human foods; and all country boys (and some older ones) know the delight of nibbling the tender bases of the joints, freshly pulled off, of some grasses, or of nibbling the hard bulbous bases of Timothy. Before attempting to eat grasses on a large scale great care must be exercised to know the poisonous ones. For instance, one of the species of Darnel, *Lotium temulentum* has long been famous for its intoxicating grains (the specific name indicating this tendency); it is now believed that the intoxicating quality comes from

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OF EASTERN NORTH AMERICA 91 infection of the grain by a parasitic fungus. The

common Velvet-grass of fields, *Holcus lanatus*, either fresh or wilted, often contains enough hydrocyanic acid to make the foliage seriously poisonous. Similarly, fresh foliage of Sorghum, so much cultivated for fodder, has poisoned stock, again through the hydrocyanic acid contained in the fresh leaves, although, when thoroughly dry, it is harmless and highly nutritious. Most people who pick the common weedy Stink-grass, *Eragrostis megastachya*, will not be tempted to eat it; they should not yield to morbid curiosity to taste so foul-smelling a grass, for either fresh or dry it is toxic to browsing animals. Furthermore, if there is any virtue in names, the cautious eater of grass will think twice before introducing to the family a pud- ding of ground *Bromus catharticus* or its native relative, *B. purgans*. In the present work we have not evaluated as human food the fresh leaves or the dried hay from our many hundreds of different species of nonpoisonous grasses. CANE, *Arundinaria tecta* (SWITCH-C.) and *A. gigantea* (LARGE C.) USES: cereal and flour; cooked green vegetable. Everyone in the flatter lands of the Southern States, northward on and near the coastal plain into Maryland, and up the Mississippi Valley to southern Ohio, southern Indiana and Missouri, knows canebrakes, impenetrable jungles of closely crowded coarse grass, the SWITCH-CANE growing 2 to 15 feet high, the LARGE CANE more tree-like and commonly 6 to 20 feet or, farther south, up to 30 feet high. Switch-Cane fruits in the spring from low and fertile stems arising directly from the strong rootstock. Individual colonies usually fruit only every three or four years. The grains are abundant and large; they have been recommended as good food. Large Cane is much more fickle about fruiting, but when, at long intervals of

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92EDIBLE WILD PLANTS years, a colony does fruit, the crop of grains is tremendous. The following extract, based upon the life-long experience of the late Carl Mohr, distinguished student of the Alabama flora, are illuminating: *Arundinaria macrosperma* [i.e. *A. gigantea*] produces the panicles of its flowers in the axils of the branches at long and indefinite intervals of time. It is evident, therefore, that generations may pass by before the spectacle of such a canebrake in bloom is ever witnessed. For example, in the beginning of the summer of 1896 the inhabitants of Russell County were astonished suddenly to find the large canebrakes bending under the burden of their heavy, nutritious grains, which attracted large numbers of birds and beasts. The farmers regarded this as an entirely new plant, and, finding their stock grew fat upon the seed, stored away quantities of it, not only for future feeding, but under the delusion that if sown it would constitute a crop of small grain equal in value to any previously grown. But in the light of experience it is to be presumed that a period of not less than forty to fifty years has to pass before the propagation of this plant by sexual reproduction takes place. With the maturity of the seed the vitality of the plant is exhausted and the cane decays. In the succeeding season, from the spontaneous stocking of the ground with an abundance of seed, a new

crop springs up. The seedlings produce no branches during the first year. These simple sprouts which are known as mutton cane, are tender and sweet and afford the best of pasturage. The tender young shoots have been praised as human food, just as are young shoots of the closely related Bam-boos of other regions; and, when the heavy fruiting comes in any particular colony, the harvest of grain should not be despised.

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OF EASTERN NORTH AMERICA⁹³ FLOATING MANNA-GRASS, FLOATING MEADOW-GRASS, *Glyceria* (or *Panicularia*), several Species. FIG. 19 KEY-CHARACTERISTICS: leaves very narrow and elongate, often floating on the surface of shallow water; flower-cluster (inflorescence) long, with the many slender, flattened, finger-like spikes silvery green, 1~1 in. long, and closely ascending on the branches. HABITAT: margins of ponds, streams and pools, or in inundated swamps. RANGE: several species (*G. fluitans*, *G. borealis*, *C. septentrionalis*, etc.) throughout temperate America, from Newfoundland to British Columbia and southward. SEASON OF AVAILABILITY: summer, when the seeds are ripening, taking care to harvest them promptly since they fall quickly. USES: flour, thickening for soup. In various parts of Europe the seeds of the MANNA-GRASS have been considered a delicacy as a thickening for soups and gruels; and, according to Mrs. Lankester, the flour from these seeds makes a bread little inferior to wheaten bread. Our American representatives of the European species are very abundant, fruiting freely from June to August. Those who wish to gather the seeds will do well to profit by the Indians experience in gathering the seeds of wild rice, paddling among the plants and beating off the seeds. The following account by Bryant, in the 18th century, indicates the esteem in which Manna-grass has been held: These seeds are not regarded here [in England] as esculent grain, but in Poland they are yearly collected, and sent into Germany and Sweden, where they are sold by the name of Manna Seeds, for the use of the table of people of the first rank, and are much esteemed for their agreeable and nourishing quality. Linnæus affirms, that... the grain itself will fatten Geese sooner than any yet known.... The poorer sort of people too might collect the seeds for sale as they do in Poland, for if they are so pleasant and agreeable at the tables of the German and Swedish gentlemen, why should they not be so at those of the English? The plant grows prodigiously plentiful... and in the middle of a hot day, I have seen the spikes quite covered with a brown substance, as sweet as sugar.

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94 EDIBLE WILD PLANTS REED, *Phragmites communis* KEY-CHARACTERS: a very coarse grass, commonly growing 6 to 10 feet high, with strong, cylindrical, conspicuously jointed stem (reeds) about 1/4 in. in diameter; leaves about 1 in. broad, suggesting leaves of Indian-corn; flowers in a terminal, plume-like cluster, made up of innumerable small, bronzy flowering tufts (spikelets) which bear white hairs within. HABITAT: shallow water, ditches and wet bogs, either in fresh or brackish situations, or often at the borders of salt marshes; in the interior oftenest in limy regions. RANGE: Prince Edward Island and eastern Quebec, westward across the continent, and south to the Gulf of Mexico; rather local. SEASON OF AVAILABILITY: early spring, for the young shoots for pickling; late spring and early summer, before blooming, for the sweet flour. USES: pickle, meal, confection, root-vegetable, potherb. The English botanist, Mrs. Phoebe Lankester, stated that the young shoots cut from the roots, especially where not exposed to light, make an excellent pickle. Palmer, Coville and other students of Indian foods describe the preparation of the REED for a confection. The stems are gathered early in the summer, before the blooms appear, and at that time are succulent and rich in starch and sugar. They are dried in the sun and when brittle are ground or beaten into flour; the finer part sifted out, and moistened slightly to make a gummy mass, which is roasted before the fire until it swells and browns slightly, and then eaten like taffy or marshmallows. Early explorers in our Southwest also told of the Indians eating the strong rootstocks of the Reed just as they dug them from the ground, preferably roasted or boiled like potatoes. As Mr. and Mrs. Wittrock point out, an area of Reed, like the vast one seen from the trains in crossing northern New Jersey, could be a source of food throughout the year. During the winter the rhizomes can be dug and boiled as potatoes; in the early spring the shoots that push up from the marshland can be prepared as we cook asparagus; the partly unfolded leaves can be cooked as a pot herb; finally, the large panicle of grain can be harvested for seed. The kernel is small and is coated with a dull red hull which is most difficult to remove, but the seed

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OF EASTERN NORTH AMERICA⁹⁵ contains nutritious food materials rated between wheat and rice. The Indians did not remove the hull, but cooked the whole grain into a reddish gruel which was wholesome as a food, though not too appetizing in appearance. QUACK-GRASS, COUCH-GRASS, WITCH-GRASS, DOG-GRASS, QUICK-GRASS, *Agropyron repens* KEY-CHARACTERS: an extensively creeping grass, with slender, wiry, white rootstocks tenaciously rooting at the joints; leaves flat, dark green; the slender, erect stalks terminated by an erect, finger-like spike made up of smaller spikes (spikelets) about 1/2 inch long and set in alternate notches of the axis. HABITAT: fields, seashores and open ground, especially troublesome and vigorous as a weed in

cultivated ground. RANGE: too common in the Northern States, Canada and Newfoundland. SEASON OF AVAILABILITY: whenever it can be dug. USE: flour. The ubiquitous QUACK-GRASS or WITCH-GRASS (with scores of other colloquial names) is usually known merely as a persistent and obnoxious weed, most difficult to eradicate and completely eating up the good of the land; but it was shown in the 18th century that it might be eaten if one cared to utilize it. Thus the British botanist, Withering, wrote: The roots dried and ground to meal, have been used to make bread in years of scarcity. STRAND-WHEAT, SEA-LYME-GRASS, *Elymus arenarius*, var. *villosus*. FIG. 20 KEY-CHARACTERS: coarse, whitish grass of sea-beaches and lake-shores, with flat, whitish, stiff leaves becoming strongly inrolled at tip, and dense finger-like, coarse spikes 35 inches long; the husks (glumes) of the spike 1/2 inch long; grain resembling an oat, 1/2 inch long. HABITAT AND RANGE: sea-beaches and strands of northern regions, from Arctic America southward in abundance to the Gulf of St. Lawrence, thence locally to Penobscot Bay, Maine, and very locally to Cape Cod; on the Pacific coast to California; also about Lake Superior. SEASON OF AVAILABILITY: grain ripe in August and early September. USE: flour.

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96 EDIBLE WILD PLANTS Ever since the eleventh century the STRAND-WHEAT has formed a staple cereal of the Icelanders, one of their earliest sagas describing how they gathered the spikes (or ears) and loosened the grains by parching over a fire; and botanical travellers in Iceland a century ago described how the older inhabitants refused the imported wheat flour, preferring their own native Meir. About the shores of the Gulf of St. Lawrence and the Straits of Belle Isle the plant often occurs in such profusion that it might easily be gathered for use. The STRAND-WHEAT should not be confused with the superficially similar SAND-REED or PSAMMA-GRASS, *Ammophila*, which abounds on sand dunes, but rarely on beaches, of the Atlantic coast. The Sand-reed has more slender leaves, the summit of its flowering stem is perfectly smooth, the summit of the stem in the Strand-Wheat being velvety; and the glumes and seeds of the Sand-Reed are much smaller. Other species of Lyme-grass have been noted as used for bread-making by the Indians. They have the grain so hidden in long bristly glumes as to be not wholly available except in emergency. DROP-SEED GRASS, *Sporobolus cryptandrus* and other species USE: flour. The DROP-SEED GRASSES are nearly unique in having their tiny grains free from the adherent husks which make most wild grasses unattractive as sources of grain. According to Vestal and Schultes, the Kiowa Indians beat out the easily removed but tiny grains and, after parching them, grind them into flour. The grains are so small that ordinarily the return from a colony of the grass must be relatively scanty.

OF EASTERN NORTH AMERICA⁹⁷ SAND-REED or BEACH-GRASS, *Ammophila arenaria* (formerly confused with the European *A. arenaria*) KEY-CHARACTERS: the rigid or wiry grass of sand dunes, with long and arching, firm leaves which with their tips mark semicircles on the sand; the dense flowering spike whitish-brown, 310 inches long; the rootstocks rigid, very elongate and freely penetrating the sand. HABITAT AND RANGE: sand dunes, sand hills and other dry sandy areas along the coast from southern Labrador southward; and inland about the Great Lakes. USES: emergency-food, nibble. The wiry rootstocks of the SAND-REED are not likely to be sought for food; yet they would presumably serve in emergency. At least, Unger, after discussing the tropical Bread-fruit, said: How far removed from those happy lands, where each Bread fruit tree constantly represents a ripening field of grain, are those regions of the earth where the hungry man is obliged to resort to the scanty nutriment of the rootstocks of the ferns, or, as in Iceland, to the root-stock of the sand-reed. The leafy shoots of the Sand-reed are, when mature, so wiry and tough as to be uninviting; but note the following, from the account of Sable Island, far off the coast of Nova Scotia, by its botanical explorer, Dr. Harold St. John: Another equally important use of the Beach Grass is that of providing the fodder that supports the gang of wild and semi-domesticated ponies, as well as the cattle. To one familiar with it in other places the Beach Grass would seem like very poor fodder. On the sheltered slopes of many of the dunes it grows . . . juicy and succulent, so much so that I used to pull young shoots and chew them as I plodded over the sand. MOUNTAIN-RICE, *Oryzopsis asperifolia* KEY-CHARACTERS: tufted grass with many stiff, broad, evergreen, basal leaves about 1/2 inch wide and a foot or two long, usually dead and

98 EDIBLE WILD PLANTS dry toward the tip; fruiting culms ~1 1/2 feet high, rather stiff, terminated by a contracted cluster consisting of a few fruits, each ~2 inch long; one of the husks terminated by a long, deciduous bristle. HABITAT: dry woods and thickets. RANGE: western Newfoundland westward across Canada and south into the northern states. SEASON OF AVAILABILITY: late May to July. USE: flour. More than a century ago the botanical explorer, Pursh, was so impressed by the MOUNTAIN-RICE that he wrote: I . . . consider it worth the attention of farmers, as the considerable large seeds contain the finest flour of any grain I know! The grains fall very quickly and the plants are rarely abundant. SLOUGH-GRASS, *Beckmannia syzigachne* USE: grain. The

well known SLOUGH-GRASS of low grounds from western Quebec to Alaska, southward to Illinois, Iowa, Kansas, New Mexico, etc., has abundant small grains free from the husks. Coville and others enumerate it among the various pinoles or parched seeds used by northwest- ern Indians. CRowFoot-GRASS, *Dactyloctenium aegyptium* KEY-CHARACTERS:a weedy grass, with stems creeping at base and root- ing at the lower joints, and terminated by a cluster of 26 finger-like 1-sided spikes 12 inches long with little scaly sharp-pointed florets crowded in 2 rows; grain, when ripe, reddish brown, covered by a loose, wrinkled coat. HABITAT:door-yards, cultivated land and roadsides. RANGfi:common in the Southern States, extending north, rather locally, to Massachusetts and Illinois. SEASON OF AVAILABILITY: late summer and autumn. USE:flour. Various writers tell of the use of this diminutive grain by the Arabs, who gather the spikes or small ears, dry them thoroughly, beat out the grains and grind them for bread or porridge; and IDalziel, writing of the Useful

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100EDIBLE WILD PLANTS Plants of West Tropical Africa, says: The seeds are collected by nomads, and by others in scarcity, and ground up to make porridge. GOOSE-GRASS, YARD-GRASS, *Eleusine indica* USE:flour. The low tufted (not creeping) annual of door-yards and waste ground, from Massachusetts to South Dakota and south into the Tropics, with 1-sided finger-like spikes crowded at the summit of the culm and resembling those of the preceding but with blunt florets, is also said by Dalziel to furnish good seeds for a porridge in times of scarcity. CANARY- or BIRD-SEED-GRASS, *Phalaris canariensis* USES:flour, green vegetable. CANARY-GRASS, an erect annual, with a whitish-green to -drab, close ovoid head of flowers an inch or two long with grains nearly a quarter of an inch long, is familiar to all who have canaries. It was stated by Bryant that In its native country the inhabitants grind it into meal, and make a coarse sort of bread with it Canary-grass is common in waste places and about dumps, derived from sweepings. It should be easy to try it. Ochse states that in Java ~ the young tender plants . . . are very often gathered and eaten, raw or steamed, as lalab [mixed leaves, fruits, flowers or roots to be eaten] with rice. SWEET VERNAL-GRASS, *Anthoxanthum odoratum* USE:tea. The familiar SWEET VERNAL-GRASS of fields

and pastures, flowering in spring and early summer and giving off a delicious aroma when drying, is said to furnish a

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OF EASTERN NORTH AMERICA 101 decoction which is said to bear a considerable resemblance to tea. WATER-MILLET, *Zizaniopsis miliacea*. FIG. 21 KEY-CHARACTERS: Tall subaquatic perennial grass, with stout creeping rootstock and long flat leaves 1/2~1 1/2 inches wide; stout culm bent or knee-like at the nodes; panicle lax, 12 feet long, with staminate and pistillate flowers separate but borne on the same branches, otherwise similar to *Zizania*. HABITAT AND RANGE: swamps and margins of streams (often tidal), Texas to Florida, northward to southeastern Missouri and in tidal marshes to Maryland. SEASON OF AVAILABILITY: late autumn to early spring. USE: cooked vegetable. We have not found any record of the use of *Zizaniopsis*-rhizomes in America, but this perennial plant is so similar to the species of *Zizania* of China and Japan with stony rhizome that the difference is a technical one. The distinguished English student of Chinese plants, Dr. Hance, calling attention of the English and American gardeners to the use of the Chinese plant and admitting what every travelled American (including Mrs. Roosevelt) knows, that our American cousins are, as a rule, fonder, and I think better connoisseurs of vegetables than we English, and habitually like a larger choice of them at their meals, wrote of the Asiatic plant: Amongst the vegetables in esteem amongst the natives here is one called by them Kan-sun, and known to those Europeans who do not reject it, as some do, for the simple reason that it is Chinese, under the name of Cane-shoots. As brought to market, this occurs in cylindrical pieces, of a white colour, 2 1/2 to 3 1/2 inches long, and 1 to 1 1/2 inch in diameter, tapering upwards into a conical point, and surrounded and surmounted by the leaves and culm, from which they are readily detached. In taste the raw shoot is not unlike a half-ripe nut; but it is never eaten uncooked, but by the Chinese is stewed with meat, and by foreigners cut longitudinally into two

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102 EDIBLE WILD PLANTS or three pieces, well boiled and served with melted-butter. Prepared in this way, it is, to my taste, one of the most agreeable and nicest vegetables I am acquainted with. It is difficult to describe its exact flavour; but it is, perhaps, nearest to that of unripe maize, as boiled and eaten by Americans under the name of green corn,

though it possesses a peculiar richness and delicacy, to which I know no parallel in any other vegetable. It is certainly probable that the vigorous new tips of the rhizomes of *Zizaniopsis* will be worth trying. WILD RICE, WATER-RICE, INDIAN RICE, WATER-OATS, *Zizania aquatica* and varieties. FIG. 22 KEY-CHARACTERS: broad-leaved grass of pond-, lake-, or river-margins, with long, sprangling, broom-like flower-cluster, bearing staminate (pollen-bearing) flowers below, and pistillate (seed-bearing) flowers toward the summit of the cluster; fruits awl-shaped, nearly cylindrical, about half an inch long, with the loosely rolled husk bearing a long bristle at tip. RANGE: at low altitudes, New Brunswick to Manitoba and southward; especially abundant in the Great Lakes and upper Mississippi region. SEASON OF AVAILABILITY: mid-summer and early autumn; the fruits dropping very quickly so that the crop must be gathered without delay, the Indian method being to paddle among the plants, beating the seeds out into their canoe-bottoms. In Badisson's account in 1668 occurs the following picturesque description: Our songs being finished we began our teeth to worke. We had there a kinde of rice, much like oats. It growes in the watter in 3 or 4 foote deepe. There is a God that shews himselfe in every countrey, almighty, full of goodnesse and ye preservation of those poore people who knoweth him not. They have a particular way to gather up that graine. Two takes a boat and two sticks, by wch they gett ye eare downe and gett the come out of it. Their boat being full, they bring it to a fitt place to dry it; and that is their food for the most part of the winter, and doe dresse it thus: ifor each man a handfull of that they putt in the pott, that swells so much that it can suffice a man. Usns: cereal, flour, soup. Few American plants (except, of course, those which, like the potato and maize, have become staple crops) have

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OF EASTERN NORTH AMERICA¹⁰³ attracted more attention from the explorer and historian than WILD RICE, because of its conspicuous habit, its abundance, its peculiar use by the Indians, and its present use as a cereal. Some of the tribes of the Middle States and Canada depended through a great part of the year almost entirely on Wild Rice for food. More than once has extended effort been made to introduce this food into modern civilization, but owing to the great expense of harvesting the crop, as compared with the ordinary field-cereals, and because of the practical impossibility of any form of cultivation, the attempts have been futile. For a detailed discussion of the history, cultivation, and many other details concerning Wild Rice see the papers by Stickney, by Brown et Scofield, and, more recently the extended paper by Chambers. The grain now has considerable sale in the markets of the Great Lakes cities and occasionally, at an almost forbidding price, in the more eastern cities. The Indian method of preparation was to dry the seed for a time and then to parch for half an hour or an hour (some authors say for days) in a basket or other receptacle over a slow fire, stirring constantly to keep

the grain from burning; then cool, beat to remove the husks and winnow. Unless thoroughly washed before cooking, the grain carries a disagreeably smoky taste. The Indians used the grain for thickening soup, for bread-flour, and to cook with game; it is used today as a breakfast-food and as an accompaniment of meat. CRAB-GRASS, FINGER-GRASS, TWITCH-GRASS, Digitaria (or Syntherisma) sanguinalis USE: grain or cereal. The common and very troublesome weed of sandy garden soil throughout the southern and often in the northern states, known variously as FINGER-GRASS, CRAB-GRASS, TWITCH-GRASS, etc., is cultivated, according to

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104EDIBLE WILD PLANTS London, in the cottage gardens in Poland, the seeds being used as a substitute for rice. Unger states that these MANNA GRITS furnish a wholesome and palatable nutriment and that the plant is cultivated here and there on poor, sandy soils. Surely, if the ubiquitous Crab-grass, which is so unwelcome on poor, sandy soil, can be made to yield a novel breakfast-food, many a discouraged farmer will become happy. MILLET, Panicum miliaceum USE: grain or cereal. The oriental MILLET is so unimportant an element in our flora as to be almost negligible. The grains, often sold as Canary-seed, are frequently swept up and carried to town dumps where a few plants can generally be found. The Millet has not been an important food of Europeans in recent times; but it supports vast populations of India and southern China, especially when the rice crop fails, and in ancient times it was an important cereal of the Mediterranean region. BARNYARD-GRASS, Cockspur-Grass, Echinochloa (about 6 species) KEY-CHARACTERS: coarse annual grasses, with the leaf broad and ribbon-like and having a prominent pale midrib; cluster of fruits rather dense, made up of finger-like spikes and usually bearing long bristles (awns) from the tips of the husks (glumes). HABITAT: E. crusgalli in barnyards and manured soils, a weed in cultivated fields; E. pungens chiefly on shores and in sloughs; E. Watteria on the upper borders of salt marshes or in brackish ditches or sloughs. RANGE: E. crusgalli, a cosmopolitan weed; E. pungens, Maine to Minnesota and southward; E. Walteri, Atlantic coast north to Massachusetts and locally inland; other species westward to the Great Plains and southward into Mexico. SEASON OF AVAILABILITY: mid-summer to autumn, the seeds falling promptly, so that care must be taken to catch the crop before it is overripe. USE: meal.

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OF EASTERN NORTH AMERICA¹⁰⁵ The seeds of the COCKSPUR-GRASSES are half as large as Canary-seed, of a similar flattened egg-shape and instre, readily separating from the hnsk by battering or winnow- ing. According to Kephart the western Indians nse these seeds in quantities, parching them and grinding them to meal which has a good flavor. The plants are so abnndant and the seeds so easily obtained that they are worth at- tention. A closely related species, *E. frumentacea*, is cnl- tivated for food in the East Indies. FOX-TAIL GRASSes, *Setaria* (or *Chaetochloa*), about 6 species KEY- CHARACTERS:fruits in dense, finger-like, fox-tail spikes, with long, stiff bristles projecting beyond the seeds. HABITAT:the commonest species are weeds of barnyards, roadsides and cultivated fields (*S. glauca*, *S. viridis*, etc.), one of the species (*S. italica*) being the common fodder plant known as Hungarian Grass, German Millet, etc.; some native species along borders of salt marshes from Massachusetts southward and inland in low ground. RANGE:the common species cosmopolitan weeds. SEASON OF AVAILABILITY: late summer and early autumn, the seeds fall- ing easily so that care must be taken to gather them promptly. USES:meal, c onserver of other foods. The abnndance of these grasses and the ease with which their frnit is gathered make them available for food, although the seeds are rather small and need to be parched to separate the hnsk. According to Bryant, in 1783, *S. italica* is mnch cultivated in Italy, and some parts of Germany, where they make pnddings of the seeds, and also boil them in most of their sonps and sances. The spikes of FOX-TAIL GRASSes have long and persist- ant bristles which, on drying, become somewhat stiff and scratchy. The following item from the Kew Bulletin of 1928 indicates a novel nse for them: *Setaria verticillata* as a preventative of rats.The fol- lowing interesting note, on the method adapted by the Wasaknma tribe of the Shinyanga District to protect

106EDIBLE WILD PLANTS their corn-stores from rats has been communicated to us by the Director of Agriculture, Tanganyika Territory, who received it from the District Agricultural Officer, Shinyanga. The native food stuffs such as millet and maize are stored in large Lindos or circular grain stores made from mtama stalks or long grass, plastered with cow-dung, and built either inside the houses or under a separate roof. The Lindos are raised 2 to 3 ft. from the ground on stones and vary in size according to the wealth in grain of the owner. Over the top of the grain in the open mouths of the Lindos, the Wasakuma place the dried spikes of a grass called by them Makalamatta, or in Swahili, Marramatta. The bristly spikes wrap themselves around the fur of the rats and make themselves so unpleasant to the rats that they do not attempt to get at the grain below. Specimens of this grass accompanying the above note have been determined as *Setaria verticillata* P. Beauv. It is the reversedly barbed bristles which become rigid at

maturity that serve to fix the spikes to the fur of the rats. SANDBUR or Bun-GRASS, *Cenchrus*, 4 species Usns: breadstuff, cool drink. The universally despised SANDBUR, grasses of warm and temperate regions (especially in sand), with a finger-like spike of very prickly burs from a quarter of an inch to nearly an inch in diameter, are familiar to all who have got the burs stuck in their clothes or working into flesh or fiercely clinging to the fingers. They are the last thing one would think of as human food, and with us are considered very dangerous for grazing animals. It is, therefore, at least startling to read in Dalziel's account of Nigeria and Senegal, that *Cenchrus biflorus*, with inflorescence with hard bristles, forming burs, which stick

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OF EASTERN NORTH AMERICA to clothing and to animals and which in West Africa, like its allies everywhere else, is classed as a pest, can be eaten: An excellent fodder grass, eaten by all stock at all stages, even when seeding, in spite of the prickly involucre, and when dry. The seeds are edible and are collected by the Tuaregs, etc., for use as food; a cooling drink is also made of them. Elsewhere in scarcity, they are pounded and eaten raw, made into porridge . . . or mixed and cooked with other foods. Dalziel does not tell how to handle the burs; the enthusiast might try singeing them in hot ashes before grinding. As compared with most of our species the burs of the African *C. biflorus* are not very fierce. It would surely be surprising if the insinuating ways of Bur-grass were its innocent method of inviting us to eat it! JOB S-TEARS, *Coix Lachrima-Jobi* USE: breadstuff. The old fashioned garden plant, JOB S-TEARS, a broad-leaved annual grass with long inflorescences consisting of long-stalked, globose to ovoid, whitish bead-like fruits, with tufts of sterile scales, spreads to waste ground southward. In 1783 Bryant wrote of it: This plant is cultivated in Spain and Portugal, for the use of the poor inhabitants in the time of scarcity, the seeds being then ground, and made into a sort of bread. SEDGE FAMILY (Cyperaceae) CHUFA, NUT-GRASS, EARTH-ALMOND, ZULU-NUTS, *Cyperus esculentus*. FIG. 23 KEY-CHARACTERS: grass-like plants with leaves all basal, except for a circle of similar long leaves at the base of the inflorescence; the latter with widely spreading rays, like the rays of an umbrella, and bearing numerous yellowish spikelets with saw-tooth edges; the base of the plant sending out long runners terminated by nut-like tubers 1 1/2 inch in diameter. HABITAT: alluvial soils or rich, cultivated or waste lands.

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108EDIBLE WILD PLANTS RANGE:St. John valley, New Brunswick, to the Pacific, and southward to the Tropics. SEASON OF AVAILABILITY: late autumn or early spring, the tubers keep- ing over winter. USES:farinaceous vegetable, flour, drink, coffee-substitute. CHUFA has long been a popular food with the Ethio- pians and a cultivated strain of *Cyperus esculentus*, brought from Africa, is now somewhat cultivated in the Southern States. Experiment has shown, however, that the cultivated strain, derived from tropical or subtropical Africa, cannot be cultivated with success in the Northern States, although we have a native plant which seems to differ only in its smaller tubers, which are borne farther from the parent plant and not in such abundance as in the cultivated variety. The tubers are slightly sweetish and nutty, but with a tough, dry rind which is not readily masticated; they are commonly boiled, sometimes can- died, or they may be ground and made into a palatable and wholesome flour. Chufa, as indicated by Sturtevant, was so valued in ancient times that its tubers were placed in Egyptian tombs dating back to more than 2000 years before Christ. In other parts of the Mediterranean region and north- ward as far as England they are sent to market, to be nibbled as dainties or prepared as a conserve; and Unger states that, in the 18th century, it was employed as a substitute for coffee in the whole of Germany; while London speaks of it as grown in Hungary for this purpose. A Spanish recipe for a refreshing drink from Chufa is to soak for 48 hours a half-pound of the tubers, mash, add 1 quart of water, 13 pound of sugar and then put the liquid through a sieve and serve as a drink or use to make ices.

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FIG. 23, CHUFA

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110EDIBLE WILD PLANTS NUT-GRASS, *Cyperus rotundus* USE:farinaceous vegetable. *Cyperus rotundus* differs from *C. esculentus* in having reddish-purple spikelets and firmer runners. It is a weed of the Southern States, coming north to Virginia and rarely to New York. Its small tubers have been used like those of Chuf a. NUT-GRASSs, BULRUSH, *Scirpus maritimus*, *S. robustus* and *S. paludosus* USES:farinaceous roots, flour. The large BULRUSHES of saline habitats and brackish, wet places along the coast and locally in the interior with long rope-like rootstocks bearing tuberous enlargements at intervals, are said by Blankinship to furnish food to some of the western Indians; and the

rootstocks of closely related species are said by Royle to be ground ~nd used for flour in India. The tubers of ours are as large as chestnuts or larger, and, upon grinding, may be found to furnish flour as good as that from Chufa. TULE, TALL BULRUSH, *Scirpus validus*, *S. acutus* (or *occidentalis*), etc. KEY-CHARACTERS and HABITAT: tall plants of pond-margins or marshes, with naked, flexible stems several feet high, the larger stems 1/2 to 1 inch in diameter at base; terminated by a loose or dense cluster of small brown spikes (borne just below the tip of the stem). RANGE: one species or another from Newfoundland to British Columbia and Mexico. SEASON OF AVAILABILITY: rootstock, autumn and early spring, when the rootstock is filled with starch and sugar; pollen, June to September; seeds, July to winter. USES: masticatory, breadstuff, syrup. The rootstock of TULE has been in high repute among American Indians as a source of food; the young, leading tip in the autumn, from which next years shoot will arise,

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OF EASTERN NORTH AMERICA 111 is eatable and reputed to relieve thirst. It is tender, slightly sweetish, and crisp, but the labor of digging it precludes its becoming a popular food for those whose squaws are not inclined to gather it. In regions of alkaline waters it is said to be of importance as a thirst- quencher. The dried rootstocks, when beaten, furnish a meal which was used by the Indians as a breadstuff; and the bruised young roots, boiled in water, furnish a sweet syrup. Some writers on American Indian foods state that the pollen, gathered in a cloth, is used for making cakes, and that the seeds are gathered for food. ARUM FAMILY (Araceae) All the members of this family contain acrid and usually peppery principles which reside in minute crystals (raphides) of calcium oxalate scattered through the fresh tissue. The peppery and puckering qualities of these crystals are familiar to all country boys of eastern America in the rounded rootstock of the Indian Turnip or Jack-in-the-Pulpit. These properties are dispelled by heat and drying through the breaking up of the crystals, although it is doubtful if the crystals are much, if at all, affected by boiling. After thorough and prolonged drying the plants become mild and pleasant to the taste. It is surprising to find that quite independently the native peoples of remote parts of the world have discovered this fact and have come to rely upon members of the Arum family as sources of food. JACK-IN-THE-PULPIT, INDIAN-TURNIP, *Arisaema triphyllum*, etc. (3 species) KEY-CHARACTERS: familiar at its flowering season in spring and early summer on account of the Jack; recognizable in the autumn, when the root is well filled, by the 3-parted old leaves on succulent leaf-stalks, by the fruit consisting of scarlet berries borne in a dense egg-shaped cluster;

112EDIBLE WILD PLANTS and by the round root, varying in size from that of a small nut to a diameter of 2 or 3 inches. HABITAT:rich, low woods, chiefly near streams. RANGE:eastern Quebec to Manitoba and southward. SEASON OF AVAILABILITY: early spring and late autumn, when the plant is resting. USE:breadstuff. The root of JACK-IN-THE-PULPIT seems to have been much used by the Indians as a source of flour. Jacob Bigelow, one of the pioneers in New England botany and a conspicuous figure in American medical history, was much interested in the use of these roots; and he stated that the acrid principle has no affinity for water. Consequently, as many experiments have shown, the acidity is not dispelled by boiling, although dry heat or prolonged exposure to the air breaks up the crystals. After experimenting with the roots, Bigelow concluded that, when properly dried, they furnished a great store of fine white starch. The root, according to him, should be peeled, mashed, grated or pulverized, put into a strainer, and repeatedly washed to take out the starch. These washings, thoroughly pulverized, contain, according to Bigelow, approximately one-quarter of the weight of the original root and are a wholesome and palatable flour. Kephart's recipe differs from Bigelow's only slightly, Kephart first roasting the roots, then powdering, heating again and letting stand a few days until it becomes bland. The native treatment of the roots of related Himalayan species is still different, for Masters tells us that in the Himalayas the roots are beaten into a pulp with water, and allowed to ferment, a process which destroys their acidity. The Fernald family has secured a very palatable cake, biscuit or bread from the fleshy roots of Jack-in-the-Pulpit without this washing-out of the starch. By cutting the roots into very thin slices and then forgetting about them they have been found after some weeks to be crisply dry

OF EASTERN NORTH AMERICA¹¹³ and wholly mild. Then ground to flour they have a mild suggestion of cocoa-flavor. It is stated by some authors that the berries were eaten by the Indians; but this statement should be taken with caution (or with a good deal of salt to overcome the pepperiness of the berries). After prolonged drying, however, the berries may prove to be as palatable as those of the Arrow-Arrow, discussed below. GREEN DRAGON, *Arisaema Dracontium* The GREEN DRAGON is related to Jack-in-the-Pulpit, but has the leaves cut into several leaflets. The root has undoubtedly similar properties. ARROW-ARROW, GREEN ARROW, TIJOKAHOR, *Peltandra virginica*. FIG. 24 KEY-CHARACTERS and HABITAT: plant of pond-margins, quaking bogs and boggy thickets, with rosettes of ascending leaves with succulent long stalks and arrow-shaped blades; readily recognizable in flower and fruit by its leathery green to whitish

cup or spathe (suggesting that of the calla lily), which surrounds the dense spike of minute flowers, or in fruit a mass of slightly pulpy, green to dark-brown globular berries; root large and perpendicular, difficult to dig. RANGE:southern Maine to the Great Lakes, south to the Gulf; a related species, *P. sagittifolia*, with broader white spathe and crimson berries, in the Southern States. SEASON OF AVAILABILITY: root, in spring or autumn, while stored with food; seeds in autumn or spring (in the spring found floating as slightly gelatinous, globular, amber-colored berries about half-an-inch in diameter, with the hard seed inside). USES: breadstuff, starchy vegetable. In historical writings and in the literature of Indian foods, the GREEN ARROW has received a large share of attention, chiefly on account of the discussion by Captain John Smith. Whether Captain Smith based his observations on the root of Green Arrow or upon the related Golden-clover, *Orontium*, is not clear; for both plants have similar roots and similar seeds and both were apparently

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114 EDIBLE WILD PLANTS used indiscriminately by the Indians. In his *Historie of Virginia*, Captain Smith wrote in 1626: We had more Sturgeon, than could be devoured by Dog and Man, of which the industrious by drying and pounding, mingled with Caviare, Sorrell and other wholesome hearbes would make bread and good meate: others would gather as much Tockwhogh roots, in a day as would make them bread a weeke, so that of those wilde fruites, and what we caught, we lived very well in regard of such a diet. But such was the strange condition of 150, that had they not beene forced notens, volens, perforce to gather and prepare their victuall they would all have starved or have eaten one another. The chiefe root they have for food is called Tockawhough. It groweth like a fiagge in Marishes. In one day a Salvage will gather sufficient for a weeke. These roots are much of the great- nesse and taste of Potatoes. They vse to cover a great many of them with Oke leaucs and Ferne, and then cover all with earth in the manner of a Colepit; over it, on each side, they continue a great fire 24 houres before they dare eat it. Raw it is no better than poyson, and being rosted, except it be tender and the heat abated, or sliced and dryed in the Sunne, mixed with sorrell and meale or such like, it will prickle and torment the throat extremely, and yet in sommer they vse this ordinarily for bread. Although Captain Smith found that the root being roasted, . . . will prickle and torment the throat extremely, Pehr Kalm, the Swedish traveler, writing from New Jersey in 1749, gave it a more favorable estimate: Taw-Ho and Taw-him was the Indian name of another plant, the root of which they eat. Some of them likewise call it Tuckah; but most of the Swedes still knew it by the name of Taw-ho. . . . Hogs are very greedy of the roots, and grow very fat by feeding on them.... When they are fresh, they have a pungent taste, and are reckoned a poyson in that fresh state. Nor did the Indians ever venture to eat them raw, but prepared them in the following manner: They gathered a great heap of

these roots, dug a great long hole, . . . into which they put the roots, and covered them with the earth. . . ; they made a great fire

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OF EASTERN NORTH AMERICA 115 above it, . . . and then they dug up the roots, and consumed them with great avidity. These roots, when prepared in this manner, I am told, taste like potatoes. Later writers seem to have depended very largely upon Smith's account; but in a manuscript letter preserved at the Gray Herbarium, the late Albert Commons, who during his long life of active botanizing was recognized as the leading field-botanist of Delaware, presents a different story. Mr. Commons states that, although the fresh seeds are slightly acrid, the roots and leaves are not so. This divergence from the account by Smith would indicate that occasionally the roots lack the peppery quality which is generally found in the family. The root contains a large amount of starchy matter and when thoroughly dried it quite lacks the pungent taste. The root should be FIG. 24, ARI-GW-ARUM FIG. 25, WILD CALLA in fruit

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116 EDIBLE WILD PLANTS carefully experimented with, for, if it proves to be a source of palatable meal, its abundance and size would make it of considerable importance. The seeds were stated by Rafinesque, one of the most picturesque and erratic writers on natural history and every other field of learning, to be used as a substitute for pepper; but other observers have stated that by the Indians the boiled berries were considered a great dainty. It is noteworthy that seeds which have been kept for several years are perfectly palatable, slightly sweetish, suggesting in taste parched Indian corn; and seeds which have soaked over winter in the water of ponds have only the slightest suggestion of pepperiness, which is readily dispelled by heat or prolonged drying. From these seeds a palatable but unsightly bread can be made, blackish-brown in color, and tasting like corucake with a strong flavor of cocoa. In our experiment one-and-a-half quarts of the water-soaked berries, when dried and ground, furnished only one gill of meal. WILD CALLA, WATER-ARITM, WATER-DRAGONS, *Calla palustris*. FIG. 25 KEY-CHARACTERS: stems trailing and rooting freely in shallow water or muck, 1/21 inch in diameter, greenish and succulent, terminated by tufts of heart-shaped leaves on long stalks; the flowers forming an egg-shaped mass in the axil of an open, greenish-white bract or spathe, suggesting a miniature calla lily; berries scarlet, in a head.

HABITAT: quagmires, quaking bogs and edges of swamps. RANGE: across the cooler parts of temperate North America, extending locally south to New Jersey, Pennsylvania and the Great Lakes region. SEASON OF AVAILABILITY: late autumn and early spring while the root-stocks are filled. USE: breadstuff. The fame of WILD CALLA as a bread-food seems to have originated with Linnaeus's account of its use in Scandinavia. The original account was in the Flora Lapponica, but many years later there was published a more available English account from which we quote:

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OF EASTERN NORTH AMERICA 117 Missen bread is made of Water Dragons (Calicut palus-Iris). The roots of this plant are taken up in spring, before the leaves come forth, and, after being extremely well washed, are dried either in the sun or in the house. The fibrous parts are then taken away, and the remainder dried in an oven. Afterwards it is bruised in a hollow vessel or tub, made of fir wood, about three feet deep; as is also practised occasionally with the fir bark. The dried roots are chopped in this vessel, with a kind of spade, like cabbage for making sour kale (sour crout), till they become as small as peas or oatmeal, when they acquire a pleasant sweetish smell; after which they are ground. The meal is boiled slowly in water, being continually kept stirring, till it grows as thick as flammery. In this state it is left standing in the pot for three or four days and nights. Some persons let it remain but twenty-four hours; but the longer the better, for if used immediately it is bitter and acrid; both which qualities go off by keeping. It is mixed for use, either with the meal made of fir bark, or with some other kind of flour, not being usually to be had in sufficient quantity by itself; for the plant is, in many places, very scarce, though here in such abundance that cart loads of it are collected at a time. This kind of flammery, being mixed with flour, as I have just mentioned, is baked into bread, which proves as tough as rye-bread, but is perfectly sweet and white. It is really, when new, extremely well-flavoured. The seeds of Wild Calla may likewise be ground into flour, but the meal should be dried for a long time to rid it of the acrid and biting pepperiness. SKUNK-CABBAGE, SWAMP-CABBAGE, *Symplocarpus foetidus* (*Spathyema foetida*). FIG. 26 KEY-CHARACTERS: familiar to most people on account of the peculiar mottled and striped, leathery, shell-shaped spathe in the early spring, surrounding a globular mass of insignificant flowers, and from its skunk-like odor when bruised; after flowering the leaves developing rapidly into a

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118EDIBLE WILD PLANTS clump slightly suggesting a cabbage, the individual leaves having an out-line suggesting the familiar burdock leaf, but smooth and moist to the touch; the root often as large as the human fore-arm, perpendicular, and strongly anchored by pale, cord-like fibres. HABITAT:swampy woods. RANGE:Quebec to western Ontario, south to Georgia and Missouri. SEASON OF AVAILABILITY: roots in late autumn and early spring while well filled; leaves in the spring while tender. Usns:breadstuff, potherb. The roots of the SKIJTK-CABBAGE have had repute among the eastern Indians as a source of bread. In re- FIG. 26, SKUNK-CABBAGE, fruiting head and root, cut longitudinally gions where the plant thrives the roots are abundant but difficult to dig; and obviously, for many reasons, only an enthusiast will try to secure them. It is probable that dry- ing or baking before final use will dispel the acrid properties, as in Pelt andra and Arisaeina, but our own experience shows that three weeks of drying is insufficient to dispel the peppery quality. The bread made from the flour dried for three weeks is palatable, having a sugges FIG. 29, DAY-FLOWEa, CommeUnct communis

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OF EASTERN NORTH AMERICA119 tion of cocoa-flavor, but a few minutes after it has been eaten the mouth stings with the peculiar burning and puckering sensation familiar to all who have tasted the fresh root of Jack-in-the-Pulpit. One average root gives about half a cup of flour. A more available food is found in the cabbage or young tuft of leaves, which, in spite of inevitable prej- udice on account of the odor of the bruised plant, makes a not wholly unpalatable vegetable. During boiling no trace of the characteristic, disagreeable odor is given off, but the cabbage should be cooked in several waters to which has been added a pinch of baking soda. Serve with vinegar and butter or other sauce. Our Italian immi- grants often make use of these greens which, if prejudice were forgotten, might abundantly serve a large popula- tion. Our experience indicates that the plants vary, some- times being quite mild, sometimes peppery. If one is in luck he will cook only the former. CAUTION:In gathering the young cabbages extreme caution must be taken not to include the WHITE HELLE- BORE or INDIAN POKE (*Veratrum viride*) which grows with the Skunk-Cabbage and is a violent poison. Vera- trum (see p. 50) has an upright, elongating stem becom- ing several feet high; and the elliptic, sessile leaves are strongly pleated or fluted; the Skunk-Cabbage has the leaves all from the top of the root, with no elongate stem, and the leaves are rounded at base, on definite leaf- stalks, and not pleated. GOLDEN-CLUB, TUCKAHOE, *Orontium aquaticum*. FIG. 27 KEY-CIIARACTER~S and HABITAT: an aquatic plant with long-stalked ob- long leaves in rosettes at the summit of the large rootstock, bearing in spring finger-like, spongy, yellow spikes on naked fleshy stalks, afterward followed by bean-like greenish

seeds. RANGE: southeastern and central Massachusetts to Florida, chiefly on the coastal plain. SEASON OF AVAILABILITY: roots, autumn and spring when well filled; seeds in summer. UsEs: breadstuff, starchy vegetable.

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OF EASTERN NORTH AMERICA¹²¹ The GOLDEN-CLUB was used by the American Indians somewhat interchangeably with the Green Arum (*Peltandra*) under the name Tawkee or Tuckahoe, the roots and seeds being prepared in the same way and apparently having similar properties. (See discussion of Green Arum, p. 113). As enthusiastic an account as any was that of the Swedish botanist, Pehr Kalm, in his journal of March 17th, 1749: TAW-KEE is another plant, so called by the Indians, who eat it. Some of them call it Taw-kim, and others Tackvim. . . The cattle, hogs and stags, are very fond of the leaves in spring; . . . The Indians pluck the seeds, and keep them for eating. They cannot be eaten fresh or raw, but must be dried. The Indians were forced to boil them repeatedly in water, before they were fit for use; and then they ate them like pease. . . . Sometimes they employ these seeds instead of bread. Some of the Swedes likewise ate them; and the old men among them told me, they liked this food better than any of the other plants which the Indians formerly made use of. This Taw-kee was the *Orontium aquaticum*. SWEET FLAG, CALAMUS, *Acorus Calamus*. FIG. 28 KEY-CHARACTERS: leaves resembling Iris, but yellowish-green in tone, and when bruised giving off an aromatic fragrance; flowers minute, borne in a dense, drab, dryish, finger-like spike from the side of a leaf-like stalk; root stout, horizontal, covered with shreddy bases of old leaves; with a gingery odor and taste. HABITAT: shallow water of river- and pond-margins or inundated meadows and swamps. RANGE: Prince Edward Island to the Great Lakes Region, locally to Idaho, south to Florida and Texas. SEASON OF AVAILABILITY: spring. UsEs: confection, salad. Candied SWEET FLAG roots have long been popular both in Europe and America as an aromatic confection; and the making of candied flag-root was one of the few frivolities of our great-great-grandmothers. The candied

122EDIBLE WILD PLANTS roots have been much sold by the Shakers and others in New England. The fresh root is gingery or peppery and with a peculiar, distinctive soapy taste unpleasant to some, and the confection is too strong for wholesale consumption, though forming a pleasant and tempting nibble. To candy the root, give it two or three days of continuous boiling, cut it into small pieces and finally boil a few minutes in sugar with only enough water to make a rich syrup. The young shoots in the spring have a very delicate and tender inner portion (the innermost partly developed leaves surrounded by the tough bases of the outer leaves) which forms a pleasant nibble on a tramping trip and an unusually palatable salad for an out-of-door lunch. SPIDERWORT FAMILY (Commelinaceae) DAY-FLOWER, *Commelina diffusa* (*nudiflora*), *communis*, etc. FIG. 29 Us~:pothrb. The familiar succulent IDAY-FLOWERS with creeping annual stems, alternate and long-sheathed narrowly ovate fleshy leaves, and evanescent blue flowers borne from semi-heartshaped sheaths, are eaten in the East Indies as steamed vegetables, very fit on account of succulence. The weedy *C. communis* which is too aggressive in door-yards, gardens; ditches, etc., may prove palatable to some. If the large-leaved perennial *C. virginica* (or *hirtella*) with creeping rhizomes and leaf-blades up to 8 inches long and 2 inches broad can thus be used it would be easy to gather a good kettle-full from low woods and thickets, from Florida to Texas, north to southern New Jersey, southern Pennsylvania, Maryland, Kentucky, Missouri and eastern Kansas. The group is not considered poisonous and experiments are in order,

FIG. 28, SWEET FLAG, the root cut longitudinally

124EDIBLE WILD PLANTS ERECT DAY-FLOWER, *Commelina erecta* (including *angustifolia*) USE:starchy root-vegetable. Lindley, writing from the viewpoint of medicine, states in his Vegetable Kingdom that The fleshy rhizomes of *Commelina angustifolia* ... contain a good deal of starch mixed with mucilage, and are therefore fit for food when cooked. We do not know of the fleshy roots of *C. erecta* (*angustifolia*) actually being used. The plant occurs from Florida to northern Mexico, north to south-

eastern New York, Pennsylvania, West Virginia, northern Indiana, Illinois, Missouri and Nebraska, usually in sands or sandy loam. It should be investigated. ANEILEMA, *Aneilema Keisak* USE:potherb. *Aneilema Keisak* resembles the creeping species of *Commelina* but does not have the semi-heartshaped spathe, the pink axillary flowers borne in autumn in leafy-bracted racemes, the fleshy stems becoming greatly elongate (up to 6 feet long) and loosely ascending. It is primarily Asiatic, where it (and other species) is eaten as a potherb. With us it abounds in fresh tidal marshes of tidewater Virginia. SPIDERWORT, *Tradescantia* (several species) USEs:salad, potherb. The several species of *Tradescantia* have succulent stems and leaves. They are familiar in our Southern and Central States and spread from cultivation northward. The commonly cultivated Wandering Jew belongs to the group. The late Dr. Carver of Tuskegee Institute highly commended them as rich flavored, the one most highly prized . . . is *T. virginica*.

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OF EASTERN NORTH AMERICA 125 PICKEREL-WEED FAMILY (Pontederiaceae)
 PICKEREL-WEED, *Pontederia cordata*. FIG. 30 KEY-CHARACTERS: R soft-stemmed herb of muddy or sandy margins of ponds and quiet streams, with a heart-shaped to arrow-shaped leaf borne near the summit of each of the thick flowering stems; flowers violet-blue, flecked with yellow, in a dense spike; fruits in a dense spike, each fruit wing-margined, about 1/3 inch long and consisting of a loose, baggy outer coat surrounding a solid starchy seed. HABITAT: margins or shores of muddy or sandy streams or ponds. RANGE: throughout eastern America, northward into southern Canada. SEASON OF AVAILABILITY: late summer and early autumn, when the fruit is ripe. USES: starchy nut-like seeds, ~potherb. The fruits of PICKEREL-WEED, stripped off the mature spikes are a pleasant and hearty food. When tramping or camping in the early autumn one can secure much nutriment from them; and it is wholly reasonable to suppose that the dried fruits, stored for winter, could be used as an acceptable and novel cereal or bread-stuff. The young, unrolling leaves of the very similar *Monochoria* of southeastern Asia are there a popular raw or cooked vegetable. Everything but the root is used. On the markets there is a lively trade in this vegetable. Certainly the succulent stems and the young leaves of Pickerel-weed should be tried. WATER-HYACINTH, *Eichornia* (or *Piaropus*) *crassipes* USE: potherb. WATER-HYACINTH, originally introduced from South America, has so multiplied in sluggish streams of the South, from Florida to Texas, north to North Carolina (rarely Virginia) and Missouri, that it often seriously clogs waterways. Every one where it abounds knows it. Introduced into the Dutch East Indies it found a people who eat almost anything from beggar-ticks to castor-beans. They promptly welcomed Water-Hyacinth. Ochse

126EDIBLE WILD PLANTS tells us that This beautiful plant, a native of Brazil, has . . . become a serious water-pest. In Java it was imported in 1894; out of the Botanical Garden of Buitenzorg it has begun its victorious march through the East-Indian Archipelago. The young leaves, petioles and inflorescences are eaten, steamed or cooked. . . . When eaten raw this plant causes itching. This property disappears by cooking, though not entirely. Since the plant could well be called victorious Water-Hyacinth in the South, it will be a great advantage if it can be eaten. LILY FAMILY (Liliaceae) BELLWOET, WILD OATS, Uvularia, including Qakesia (4 species) USES: as asparagus, starchy vegetable. Porcher states that the fleshy but small roots are edible when cooked. In 1785 Manasseh Cutler stated that the young shoots of the BELLWORT5 might be eaten as asparagus and that the roots are nutritious and sometimes used in diet drinks. Cutler's statements have been quoted in various forms by others, who have extended his words to cover all the species of the genus. Cutler was originally referring to Uvularia sessilifolia, but there is presumably no difference in the qualities of the species. The plants are so small that they can have no extensive use without danger of exterminating them. They should be used only in emergency. I-NTILD ONIONS, GAELIC, LEEK, CHIVES, Ailium (8 or more species). FIG. 31 KEY-CHARACTERS: readily recognized by the characteristic odor, the bulbs, and the slender, quill-like leaves, only the wild Leek, A. tricoccum, having broad tongue-shaped leaves. HABITATS AND RANGES: A. canadense, the native wild Garlic, with small bulbs borne among the greenish-white flowers, in rich meadows and alluvial woods and thickets from New Brunswick to Ontario, Florida and Texas;

FIG. 30, PICKEREL-WED in fruit; single fruit enlarged

128EDIBLE WILD PLANTS A. tricoccum, the Wild Leek, with flat leaves 13 inches broad, in rich or alluvial woods and thickets from New Brunswick to Minnesota and Iowa, south to North Carolina; A. cernuum, the Wild Onion, with nodding, loose clusters

of pink flowers, from New York to South Carolina and westward; and *A. Schocaoprasum* or *A. sibiricum*, the Chives, with stiffly erect, dense pink heads resembling pink clover, on ledgy or gravelly river-banks of Canada and the northern states. SEASON OF AVAILABILITY: bulbs, late autumn or early spring; bulblets of Wild Garlic, May or June; young leaves for seasoning, late spring or early summer. UsEs:vegetable, seasoning, pickles. FIG. 31, WILD LEEKFIG. 32, doan-Liny The WILD ONIONS may be used as substitutes for the cultivated species, but the bulbs are usually very small, so that the supply is limited. The bulbs of *A. canctdense*, Wild Garlic, are sweet aud very palatable, aud Porcher and others state that the top bulbs are superior to the common onion for pickling. This species treated like leeks is a delicious vegetable; the whole plant, before flow- ering, merely stripped of the shriveled outer coats of the

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OF EASTERN NORTH AMERICA129 bulbs and trimmed to remove the wilted tips of leaves and then boiled in salted water. The water is the base for a delicate cream-of-onion soup. Various students of culti- vated plants have surmised that the Tree Onion of the garden was derived from our Am~rican *A. canadense* or from a hybrid of it and some Old World species. Rusby speaks of the large, clustered bulbs of the Wild Leek, *A. tricocum*, as one of the best, mildest and sweetest; and we are told that, in their journey in 1674 from Green Bay to the present site of Chicago, Marquette and his party subsisted largely on *A. tricocum* and *A. canadense*. The late Dr. Huron H. Smith tells us that in the lan- guage of the Menomoni Indians Wild Leek (*A ilium tricoc- cum*), is pikwutic sikakushia (the skuuk) and that The word shikako or skunk place is the origin of the word Chicago, which in aboriginal times was the lo- cality of an abundance of these wild leeks. Field Garlic, *Allium vineale*, the tough and very rank species which infests fields, pastures and roadsides of the Atlantic states and from New York southward so often flavors the late-winter and early-spring milk with garlic oil, is apparently not valued as human food. It belongs in the excessively strong-flavored series of species which were so feelingly characterized two centuries and a half ago by that learned and delightfully intelligent English- man, John Evelyn: Garlick... and tho both by Spaniards and Italians, and the more Southern People, familiarly eaten, with al- most every thing..., we yet think it more proper for our Northern Rustics . . . : Whilst we absolutely forbid it entrance into our Salleting, by reason of its intolerable rankness, and which made it so detested of old, that the eating of it was (as we read) part of the Punishment for such as had committed the horridst Crimes. To be sure, tis not fit for Ladies Palates, nor those who court them, farther than to permit a light touch on the Dish with ~ Clove thereof... f

130EDIBLE WILD PLANTS Note, That in Spain they sometimes eat Garlick boild, which taming its Fierceness turns it into Nourishment, or rather Medicine. Although Field Garlic is not used as human food but highly appreciated, when young, by cattle, another intro- duced species, A ilium Ampeloprasum, the tall purple- flowered leek which is becoming dominant in fields about Yorktown, Virginia, is a perfectly possible food for man. If the people of Yorktown learn to eat it, it may be kept in restraint, for it now acts like an aggressive weed. DAY-LILY, *Hemerocallis fulva* and *H. flava* USES:soup, cooked vegetable, root-vegetable. The old fashioned DAY-LILIES of the gardens differ from the true lilies in having long and broad grass-like or iris- like leaves arising from the crowns of the rootstocks and in having the closely clustered and erect brownish-orange or yellow flowers borne at the summit of a naked stalk; the large flowers shriveling and decaying after being open for a day. Both species, and especially the orange- flowered *H. fulva*, are naturalized by roadsides and in thickets near old houses. Their availability for food is evident. Penhallow, writing of the superior quality of lily bulbs, universally used in Japan, says: It is some- what more difficult, however, to give testimony bearing upon the flavor and desirable qualities of flowers and buds from various species of *Hemerocallis*. . . . at the time of blossoming . . the Aino women may be seen busily gathering the flowers which they take home and dry, or pickle in salt. They are afterwards used in soups. *H. graminea* is, perhaps, the most generally gathered species in Japan; the dried flowers come regu larly to the Chinese markets in this country. Penhallow missed a good thing. The fully grown buds or the freshly expanded flowers of *Hemerocallis fulva* immersed in a batter of beaten egg, milk, flour and sea-

OF EASTERN NORTH AMERICA131 soning and browned like fritters in oil or butter are a delicious and quickly prepared vegetable. They require only five minutes (long enough to brown, turned twice, on each side). The fleshy tuber-like roots, borne in clusters like dahlia-roots, boiled in salted water, taste like a blend of sweet corn and salsify. In a detailed article on gum-jum or gum-tsoy, the dried perianths of Day-Lilies, the great authority on the genus, Dr. A. B. Stout, writes: In culinary uses the flowers of daylilies are employed chiefly in soups, in various meat dishes, and with noodles. In preparation the basal end of the dried flowers, consist- ing of the ovary, is removed and the rest is cut into several segments. Enough water is added to the quantity desired to insure complete soaking, which soon makes the parts become soft, pliable, and somewhat gelatinous. In this condition the material is added to soups that are already cooked, and when the whole is brought to a boil again, a matter of a few minutes, the dish is ready to be served. To

various dishes of meats and noodles the soaked flowers are added during the final stages of cooking, or the flowers may be cooked separately for a few minutes and added as a garnish somewhat as mushrooms are often employed. To these various dishes the flowers add substance of individual consistency and they supply a distinct and pleasing flavor that is best appreciated and realized by the eating. Flowers that are freshly collected may be used in quite the same way, but the flavor is somewhat different from that when dried flowers are used. Dr. Albert N. Steward of the University of Nanking states that in his experience in east central China the flowers may be collected for use as food after they have closed and begun to wither. A recipe which he reports is the following: Fry small pieces of pork until they are brown, then

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132EDIBLE WILD PLANTS add a little soy-bean oil and water. After cooking for an hour add the flowers and cook until they are tender. The addition of a little salt improves the flavor.~ LILIES, *Lilium* (8 species) Use:starchy vegetable. The scaly bulbs of various species of the LinEs were eaten by the Indians and the bulbs of certain species are regularly cultivated by the Japanese and Chinese for table-use. Our native species all have edible bulbs, when cooked, starchy and slightly sweetish; but owing to the beauty of the flowering plants and their comparative scarcity, the digging of the bulbs is to be discouraged. DOG-TOOTH VIOLET, YELLOW ADDER S-TONGUE, TROUT-LILY, *Erythronium americanum* (and 3 other species) KEY-CHARACTERISTICS:readily distinguished by the two or three mottled, oblong-elliptic leaves, among which arises a single flower-stalk bearing a yellow, bell-shaped nodding lily; root bulbous, deep in the ground. HABITAT:alluvial woods and rich terrace-lands, chiefly near streams. RANGE:New Brunswick to western Ontario and southward; other species westward. SEASON OF AVAILABILITY: for greens, early spring; for bulbs, early spring or late summer and autumn. USES:potherb, cooked vegetable. The leaves are occasionally used as a potherb, and where the plant is very abundant there can be no harm in occasionally gathering a mess. The small bulbs, shaped like slender tulip-bulbs, are untritons and sweet but difficult to dig. Jacob Lsigelow, who viewed plants from the standpoint of the physician, stated that the bulbs are emetic. Our limited tests of them raw have shown no such property, but before using the bulbs for food care should be taken to try them in small quantity. Gilmore states that among the Winnebago the bulbs of more western species are eaten by the children with avidity when

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OF EASTERN NORTH AMERICA¹³³ freshly dug in springtime~~ and two centuries ago the great traveller across Russia and Siberia, Gmelin, stated that the Tartars regularly use the bulbs of the Eurasian species for food. CAMASS, WILD HYACINTH, *Camassia scilijoides* (or *C. esculenta*) The eastern species was long confused with the western *Camassia quamash*, which was recorded by nearly all the early explorers in the Northwest as an important article of food among the Indians. It is possible that the more eastern species is edible, but we have found no evidence of its being eaten. STAR-OF-BETHLEHEM, DOVES DUNG of the Old Testament, *Ornithogalum umbellatum* USE:roasted or boiled bulbs. This familiar bulbous plant of old-fashioned gardens is introduced from Europe and is occasionally naturalized about door-yards and fields. European authors state that the bulbs are palatable and nutritious and that, when boiled or roasted, they form an important oriental food. This is supposed to be the bulb of ancient Scripture called Doves Dung. Its importance is attested by the following passage: And there was a great famine in Samaria; and, behold, they besieged it, until an ass's head was sold for fourscore pieces of silver, and the fourth part of a cab of doves dung for five pieces of silver. 2 Kings, Chap. VI, verse 25. Star-of-Bethlehem, however, should be looked upon askance. All parts of the plant are poisonous to grazing animals. It is to be noted that the time of its great value in Samaria was during a great famine.

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134EDIBLE WILD PLANTS YUCCA, various species, both native and cultivated USE:Salad. It is frequently stated that fresh flowers of YUCCA, properly dressed, are a good salad. ASPARAGUS, *Asparagus officinalis* ASPARAGUS occasionally spreads by seed to wild spots, but in the wild condition is not, naturally, so succulent as the cultivated plant. Its seeds, roasted and ground, have sometimes been advocated as a substitute for coffee. They are, however, often said to be poisonous. CORN-LILY, STRAW-LILY, Cow-TONGUE, *Clintonia borealis*. FIG. 32 KEY-CHARACTERS:leaves 24, usually 3, in a basal rosette, oblong, fleshy and shiny, becoming 6-10 inches long, bordered with fine silky hairs; root-stock slender and extensively creeping; flower-stem (scape) rising a few inches to a foot, from among the leaves, bearing a terminal cluster of straw-colored, lily-like flowers from May to July, followed in late summer or autumn by livid-blue, globose berries. HABITAT:cool woods northward, wet or swampy woods southward. RANGE:Newfoundland and southern Labrador to Lake Winnipeg, south across the northern states, and along the mountains to North Carolina. SEASON OF AVAILABILITY: spring, while the leaves are unrolling. USES:potherb, salad. The very young leaves of this plant are extensively used as a potherb by country people in parts of Maine under the name COW-TONGUE; and the youngest leaves make a palatable salad, with a slightly sweetish, cucumber-flavor.

Northward, where the plant abounds, it may well be used without danger of extermination; southward, where it is local, its use should be limited by discretion. The leaves must be gathered when just unrolling, for they quickly become tough and leathery. The peculiar steel-blue berries are reputed to be poison-

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ous, but so far as we can learn, no actual trials of them have been made. The very similar Alleghenian species, *C. umbellulata*, can presumably be used in a similar way. FALSE SPIKENARD, FALSE SOLOMON S-SEAL, SOLOMONS- ZIG-ZAG, SCURVY-BERRIES, *Smilacina* (or *Vagnera*) *racemosa* Usus:starchy vegetable, pickle, asparagus, berries. The starchy and aromatic rootstocks make a pleasant pickle and we are told that the Ojibwe Indians cooked them like potatoes, first soaking the strong rootstocks in lye to free them of their disagreeable taste, then parboiling them to get rid of the lye. The young shoots make a possible asparagus. The comparative scarcity of the plant in most regions, however, makes it unwise to draw upon it when other Vegetable food is available. The juicy red berries, borne in large, rhombic or pyramidal, terminal clusters, are somewhat palatable, bitter-sweet, suggesting bitter molasses, but they are cathartic and should be eaten with caution. John Josselyn, one of the earliest of New England chroniclers, said that they were called treacle-berries, having the perfect taste of treacle when they are ripe, and will keep good a long while. Certainly a very wholesome berry, and medicinal. The related *S. stellata*, with shorter stems and smaller leaves and shorter, simpler flower- and fruit-clusters, occurs in river-silts and on sandy shores and could be used when young as asparagus. The boiled young stems and leaves (before flowering-time) of the latter species are quite as palatable as dandelion-greens.

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136 EDIBLE WILD PLANTS TWO-LEAVED SOLOMON S-SEAL, WILD LILY-OF-THE- VALLEY, SCURVY-BERRIES, *Maj ant hemum* (or USE:berries. *Unifolium*) *canadense* The cherry-red berries in small, terminal clusters last over winter and have a not unpalatable bitter-sweet taste, but being somewhat cathartic, like the berries of *Smilacina*, should be eaten with caution. TWISTED-STALK, LIVER-BERRY, *Streptopus* (2 species) USE:berries. The pulpy, pendulous, red or scarlet berries are eaten by the country people of northern Maine under the appropriate name of LIVER-BERRY, and

for similar reasons they are known to country boys in other parts of northern New England as SCOOT-BERRIES. Since the berries are cathartic they should be partaken of with caution. In taste they are somewhat insipid, with a cucumber-flavor. SOLOMON S-SEAL, Polygonatum (3 species) USES: as asparagus, breadstuff. The SOLOMON S-SEALS, characterized by the stout, fleshy rootstock with large circular scars or seals, and the tubular, straw-colored bells hanging in spring from the leaf-axils and followed by drooping, blue, globular berries, have had some repute as a source of bread from the dried roots; while the larger, new shoots are sometimes gathered, when very young, as a substitute for asparagus. The scarcity of the plant makes it important that it should not be used except in emergency. CAUTION: If the roots are gathered great care should be taken not to confuse them with the rootstocks of Man-drake or May-Apple, Podophyllum, which often grows in similar rich woods and which has an elongate rootstock

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OF EASTERN NORTH AMERICA 137 with enlarged nodes, but without the large, circular scars. The latter plant is reputed to be poisonous (see p. 45 and FIG. 60). ThDTAN CUCUMBER, CUCUMBER-ROOT, *Medeola virginiana*. FIG. 33 KEY-CHARACTERS: stems solitary, slender and erect, covered with cobwebby hairs, bearing near the summit a circle of 5-7 elongate leaves and often above that a smaller circle of 3 (rarely 4 or 5) leaves, from the axils of which are borne somewhat spider-like flowers with recurving straw-colored petals, the leaves in autumn becoming strongly suffused with purple; berries black or purplish; root a horizontal, white tuber-like rootstock the size of a small thumb. HABITAT: rich woods. RANGE: New Brunswick to western Ontario, south to Florida and the Great Lakes states. SEASON OF AVAILABILITY: throughout spring, summer and autumn. USES: salad, pickle. FIG. 33, INDIAN CUCUMBER FIG. 35, CAT-BRIER

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138 EDIBLE WILD PLANTS The rootstock is crisp and starchy, with a delicate taste of cucumber, and forms a pleasant nibble in the woods, or, when dressed with vinegar or vinegar and oil, a pleasant salad or pickle. According to Manasseh Cutler, in the 18th century, the Indians ate the roots, but, in view of the attractive appearance of the root, it is surprising that it is not mentioned by other students of Indian foods. WAKE-ROBIN,

TRILLIUM, BENJAMIN, Trillium (6 or more species) Use: potherb. The young, unfolding plants of TRILLIUMs are eaten as greens by country people in Franklin County, Maine, under the name of MUCH-HUNGER; but on account of the scarcity and great beauty of the plants it is certainly to be hoped that, except in cases of much hunger, they will not be gathered for food purposes. Trillium-roots are highly emetic. Their berries are open to suspicion. CARRION-FLOWER, JACOB S-LADDER, Smilax (or Nernexia) herbacea. FIG. 34 KEY-CHARACTERS: high-climbing vine with long curling tendrils; Stems comparatively soft and without prickles; the leaves thin; oval or roundish, pale beneath, with conspicuous parallel-arching veins; the flower-stalks 3 to 10 inches long, bearing nearly globular, loose clusters of slender-stalked, greenish, foul-smelling flowers and blue-black berries. HABITAT: alluvial thickets and rich clearings. RANGE: western New Brunswick to Manitoba and southward. Other closely related species in the Central and Southern States. SEASON OF AVAILABILITY: spring, before the new shoots have hardened. USE: as asparagus. The name CARRION-FLOWER IS applied to this plant on account of the very disagreeable odor of the flowers, which are pollinated by carrion-flies, but the carrion-odor is present only in the flowers. The young shoots, which are readily recognized in rich thickets by their asparagus-like appearance and their curling tendrils, are gathered

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140 EDIBLE WILD PLANTS and used like asparagus by nature-lovers in central Connecticut, and are reported to be a delicate and palatable vegetable. The shoots grow very rapidly and should be watched that they may be gathered while they are still tender. The roots are tuberous, resembling the rootstock of Solomons-seal, and, presumably have the properties of the Green-briers discussed below. BRYONY-LEAVED JACOB S-LADDER, Smilax tamnifolia KEY-CHARACTERS: In habit like Smilax herbacea, climbing by tendrils, but with the leaves more elongate and slightly fiddle-shaped at base; clusters of berries nearly globular, on long axillary foot-stalks; the blue-black berries on individual slender stalks, holding on all winter and with a sweet pulp containing 2 or 3 seeds. HABITAT: low thickets and swamps. RANGE: on and near the coastal plain from Mississippi to southern New York. SEASON OF AVAILABILITY: late autumn to spring.

USE: berry, as a pleasant nibble. Whereas the conspicuous over-wintering long-stalked globes of blue-black berries of the wide-ranging CARRION- FLOWER are disagreeable in taste and very rubbery, the very similar ones of BRYONY-LEAVED JACOB 5-LADDER are delicious sweet and date-like. On a winter tramp in pine barrens and other flat areas of the coastal plain they are a worth-while nibble, and, when found in abundance, really help out on lunch. CAT-BRIER, BULL-BRIER, GREEN-BRIER, SAW-BRIER, *Smilax rotundifolia*, *S. glauca*, *S. Bona-nox*, *S. pseudo-china*. BAMBOO-VINE or BLAs- PHEME-vINE, *S. laurifolia*, and 4 other species. FIG. 35 KEY-CHARACTERS: stems woody and green but slender and freely branching, usually bearing stiff prickles, climbing by tendrils; leaves becoming leathery, round, oval or fiddle-shaped or oblong; main flower-stalk rarely equaling the leaves; berries blackish, in small, umbrella-like clusters. The commoner species may be recognized by the following key.

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OF EASTERN NORTH AMERICA 141 Leaves green on both sides. Stems and branches armed with strong prickles. Leaves oval to round; main flower-stalk barely as long as the leaf-stalk. *S. rotundifolia*. Leaves mostly fiddle-shaped; main flower-stalk distinctly longer than the leaf-stalk. *S. Bona-nox*. Leaves oblong or nearly so, very thick and hard; main flower-stalk very short. *S. laurifolia*. Stems and branches unarmed or rarely with a few weak prickles at base. *S. pseudo-china*. Leaves white or whitish beneath; stems prickly. *S. glauca*. HABITAT AND RANGE: damp or sometimes dry thickets and open woods, rather generally through the southeastern United States; *S. rotundifolia* extending north to Minnesota and Nova Scotia, *S. Bona-nox* to Illinois and New Jersey, *S. pseudo-china* to Indiana and New Jersey, and *S. glauca* to Massachusetts. SEASON OF AVAILABILITY: roots, spring and autumn (or winter) when well filled; new shoots May to August. USES: breadstuff, soup, cooling drink, jelly, as asparagus, salad. The chief fame of the GREEN-BRIERS is due to the use of the tuberous rootstocks of *S. pseudo-china* by the southern Indians and after them by the whites. Early travellers in the South describe the reddish flour prepared from the rootstocks and the cooling drink and attractive jelly derived from them. The dried roots are chopped, pounded and strained, the powdery sediment dried in the open air when it forms a fine reddish flour. This is mixed with hot water and sweetened with honey or sugar, and when it cools becomes a delicious and nourishing jelly. One of the first accounts of this jelly was Captain John Smith's in 1626: Gronndnuts, Tiswaw we call China roots; they grow in clusters, and bring forth a bryer stalke, but the leafe is far vnlike, which will climbe vp to the top of the highest tree: the vse knowne is to cut it in small peeces, then stampe et straine it with water, and boyled makes a gelly good to eate. But the famous traveller, William Bartram, who voyaged through the Southern States in the 18th century, seems to have been the chief source

of information from

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142EDIBLE WILD PLANTS whom others have drawn, and he states that the flour was also used in the preparation of bread or soup. Porcher stated that, in the Confederate States and by the Confederate soldiers it was much used in the preparation of a drink resembling sarsaparilla (true Sarsaparilla is a tropical species of Smilax): The root is mixed with molasses and water in an open tub, a few seeds of parched corn or rice are added, and after a slight fermentation it is seasoned with sassafras. Porcher also states that the young shoots are used as asparagus and impart the same odor to the urine. The other species apparently were used somewhat indiscriminately with *S. pseudo-china*, and in Catesbys Natural History of Carolina, Florida, and the Bahama Islands, one of the rarest and most famous books on the birds and plants of North America, there is a good illustration of *S. Bona-nox*, while the accompanying text is essentially like those of Bartrams and of Porcher 5 accounts of the use of the roots and of the new shoots of *S. pseudo-china*. It is obvious that, owing to its essential lack of prickles, the latter species is more inviting to the digger than the excessively prickly species, but the prickly species have perfectly good rootstocks, easily dug. The widely distributed Cat-briers, *S. rotundifolia* and *S. glauca*, have long, whitish, cord-like rootstocks becoming several feet in length and on open sandy pond-shores they are readily secured. Soon after exposure to the air they become by oxidation a reddish color, like the flour described by Bartram. It is not absolutely necessary to powder the roots in order to make jelly from them. In our own experiments we simply cut the rootstocks into fine pieces, covered them with cold water and boiled for an hour, the water becoming dark-colored. This colored water was strained off, boiled again for a few minutes with sugar, when the syrup jelled. With an equal bulk of sugar the jelly on cooling became a firm sugary paste

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OF EASTERN NORTH AMERICA¹⁴³ resembling gumdrops, while half the bulk of sugar gave a soft jelly. The jelly is of good flavor, somewhat flat but slightly bitter-aromatic and intensely sweet, that from *S. rot undifolia* tea-colored, from *S. glauca* honey-colored. Mixed with water the jelly makes a palatable, sweet drink. The tender young shoots and unrolling leaves of the Cat-briers are slightly acid and the young leaves of *S. rotundifolia* are a familiar nibble among children under the name BREAD-AND-

BUTTER. The vigorous, leading shoots, which abound in spring and early summer and may be gathered in decreasing quantity throughout the summer, make a delicious vegetable. Care should be taken to pick only the stronger shoots, which are tender for a length of 3 to 6 inches. These eaten raw, taking care to use only the very tender tips, or boiled in salted water, drained and allowed to cool and then dressed with a French dressing make a tempting salad. The salad prepared from the shoots of *S. rotundifolia* strongly suggests in flavor Alligator Pear; that from *S. glauca* is less attractive, having a mild bitter-aromatic flavor. The new shoots of other species are worth trying. *Smilax laurifolia*, BAMBOO-VINE, often in the South most appropriately called BLASPHEME-VINE, forms impenetrable and fiercely prickly tangles. Porcher says that the new shoots are eaten by Indians and Negroes. We have not tried them; but if, by eating every new shoot we could discourage this obstructing and fierce species, we would gladly do our share. YAM FAMILY (Dioscoreaceae) CINNAMON-VINE or CHINESE YAM, *Dioscorea opposita* (or Batatas). FIG. 36 USE:root-vegetable. The CINNAMON-VINE, so much cultivated as an ornamental in the South and northward as far as New Eng

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144EDIBLE WILD PLANTS land, climbs high by twining, and has attractive, strongly ribbed, rounded-triangular and long-pointed opposite leaves with small whitish bulb-like tubers borne in the axils. As far north as Pennsylvania it escapes and in waste lots, as about Richmond, Virginia, is often very abundant. Its deep subterranean potato-like tubers are I FIG. 36, CINNAMON-VINE or CHINESE YAM, flowering sprig and axillary tubers said to become 2 or 3 feet long. Cooked like potatoes they are reputed to be excellent. They are extensively cultivated in southeastern Asia and when they were first brought to Europe nearly a century ago Decaisne and other French botanists and agriculturalists, as quoted in *The Gardeners Chronicle* for July 22, 1854, commended the giant roots as rich in nutritive matter, eatable when raw, easily cooked either by boiling or roasting . . . in cooking . . . it acquires the taste and quality of a Potato, FIG. 37, SWEET GALE

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OF EASTERN NORTH AMERICA 145 for which it might be mistaken. The vigorous new shoots should not be eaten; they are purgative. CANNA FAMILY (Cannaceae) GOLDEN CANNA, INDIAN SHOT, *Canna flaccida* Usa: starchy rootstock 6 The

beautiful yellow-flowered GOLDEN CANNA of swamps from Florida to South Carolina (casually escaped northward) presumably has edible young corms. The new corms of some tropical species, developed on the rootstock, are cooked and eaten as starchy food. Porcher thought it probable that a good arrowroot -starch would be found in the root. We have seen no verification of this. ORCHID FAMILY (Orchidaceae) Several of the orchids have bulbous or thick tuberlike roots and are said to have proved nutritious emergency foods. Owing, however, to the great rarity of most of the species, already fast becoming exterminated, it is hoped that no one will experiment with these plants as food. In mediaeval times and even later the roots of most orchids were used medicinally, and at the present time in remote districts of the United States and Canada the roots, as NERVE-ROOTS, have a large reputation as nerve-tonics and heal~alls. WILLOW FAMILY (Salicaceae) WILLOW, *Salix* (many species) *lisa*: emergency-food. The bast of willows has sometimes been used dried and ground into flour as an emergency food. It is bitter and no one is apt to try it except in dire emergency.

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146EDIBLE WILD PLANTS POPLAR, *Populus* (many species) USE:emergency-food. The bast can be used in emergency. SWEET GALE FAMILY (Myricaceae) SWEET GALE, BOG-MYRTLE, *Myrica Gale*. FIG. 37 KEY-CHARACTERS AND HABITAT: low shrub of swamps and boggy shores, with slender bronze branches; leaves alternate, strongly ascending, an inch or two long, narrowly wedge-shaped, grayish-green, with yellow resin-dots especially beneath, slightly toothed above the middle; fruiting branches bearing compact cones about half an inch long, made up of little yellow-green nutlets covered with granules of resin. RANGE: throughout the colder temperate regions of North America, extending south to New Jersey and the Great Lakes States, and in the mountains to Virginia. SEASON OF AVAILABILITY: leaves, late spring to autumn; nutlets, late summer to winter. USES: condiment, tea. The nutlets of SWEET GALE have been used in France and certainly should be used elsewhere, as an aromatic spice, having a delicious fragrance suggestive of sage. The leaves, when cured, make a delicate and palatable tea and are in much repute in country districts in northern Maine (under the name MEADOW-FERN as a cure for colds and catarrh, popular with the children if not always efficacious. WAX-MYRTLE, BAYBERRY, *Myrica pensylvanica* (or *carolinensis*), *M. cerifera*, *M. heterophylla*, *M. pusilla* and other species southward KEY-CHARACTERS: stocky shrubs or small trees with grayish bark and stiff branches, bearing oblong or narrower, entire or slightly toothed leaves 14 inches long; the fruiting branches covered with bunches of globular berries (nutlets), which are white or gray with waxy atoms; the leaves and wax of the fruit strongly aromatic. HABITAT: sterile soils near the coast, extending locally inland on rocky barrens and plains or sometimes on bogs. In country districts in Maine there are two Ferns: the shrubs, Meadow Fern and Sweet Fern;

all members of the Filicales are Brakes.

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OF EASTERN NORTH AMERICA RANGE: *M. pensylvanica*, eastern North Carolina, north along the coast to the Gulf of St. Lawrence and southern Newfoundland, rarely inland to Lake Erie; *M. cerifera*, Gulf States north to Arkansas and around the coastal plain to Cape May, New Jersey; other species southward. SEASON OF AVAILABILITY: leaves, summer and autumn; berries, late summer to spring. USE: condiment. The WAX-MYRTLES are, of course, famous chiefly on account of the granular wax which is melted off to make the familiar, green BAYBERRY-candles. The leaves and berries form an attractive and agreeable substitute for the tropical Bay-leaves for use in flavoring soups, etc. They are really good! SWEET FERN, *Comptonia* (or *Myrica*) *peregrina*, including *asplenifolia* KEY-CHARACTERS: small shrub with slender grayish branches, and elongate, deliciously fragrant, dryish leaves cut nearly to the midrib into roundish segments (hence the name Sweet Fern); the fruit forming bristly, globular burs with hard, glossy, olive-brown nutlets $\frac{1}{4}$ inch long. HABITAT: sterile pasture-lands and open sterile woods. RANGE: Prince Edward Island to Manitoba, south to northern Georgia and upland of Tennessee. SEASON OF AVAILABILITY: late spring, summer and autumn. USES: tea, nibble. The aromatic leaves of SWEET FERN make a palatable tea, and the young nutlets are a popular nibble with country children, especially during June and early July, while the small nutlets are still tender. The method of extracting the nutlet from the bur is the simple, childish device of inserting the thumbnail under the nutlet, thus always staining the nail yellowish with the nearly insoluble resinous oil. WALNUT FAMILY (*Juglandaceae*) Well known trees of temperate North America, being our only nut-bearing trees with long, pinnate leaves having numerous leaflets. The family includes Walnuts, the Butternut, the Pecan, Hickory-nuts and Pig-nuts. The nuts of many species are familiar in the markets and formed one of the most important foods of the Indians. USES: fresh or dried nuts, bread, gravies, soups, butter, syrup, sugar.

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148 EDIBLE WILD PLANTS The most obvious uses of the nuts are those at present practiced, the fresh or dried nuts eaten raw or ground into flour and used in nut-bread or -cake; but the Indians had other important uses for them, which were carefully worked up

by Waugh, from whom we freely extract. In the preparation of gravies, soups and butter the nuts were pounded (shells and all, shells subsequently separating and precipitating to the bottom of the kettle), boiled slowly in water, the oil skimmed from the surface, seasoned with salt, and used like butter on bread, potatoes and vegetables, or preserved for future use as food; or, the highest compliment in Indian practice, used as hair oil. In the boiling the fragments of shell sink to the bottom and the meats rise to the top or swim slightly above the shells; and after skimming off the precious oil the Indians next skimmed off the meats which were seasoned and mixed with potatoes or meal. This mashed nut-meat was also often dried in cakes and preserved for winter use; and when needed the cakes were soaked in warm water and cooked. Some of the earlier observers of Indians give such quaint and graphic accounts that they are well worth quoting. Thus Strachey, in *The Historie of Travaile into Virginia Britannia*, writes: This last kind the Indians beat into pieces with stones, and putting them, shells and all, into mortars mingling water with them, with long wooden pestles pound them so long together until they make a kind of mylke, or oylie liquor, which they call poweohicora [whence our name hickory]. Lawson, in his *History of Carolina*, states that one of their dishes was a soup made of the powdered nuts mixed with the broth, which dissolves the Nut, and thickens, whilst the Shell precipitates, and remains at the bottom, naively adding, this Broth tastes very rich. Thomas Ash, in his *Description of Carolina*, stated that the colonists kitchens were frequently supplied with oil secured

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OF EASTERN NORTH AMERICA 149 from the Indians, and that whilst new it has a pleasant Taste; but after six Months, it decays and grows acid; I believe it might make a good Oil, and of as general an use as that of the Olive, if it were better purified and rectified. William Bartram, speaking of the vast quantities of nuts gathered by the Creeks, stated that he had seen more than a hundred bushels of the hickory-nuts belonging to a single family. The sap of the Walnuts and Hickories is sweet, and when boiled down makes a syrup or sugar as delicious as that of the Maple. The trees should be tapped in early spring just before the unfolding of the leaves. It is definitely recorded that the Indians used the sap of both the Black Walnut and the Butternut, and practical experience of the writers has shown that at least the Shell-bark Hickory furnishes a delicious sugar. Besides the general uses, discussed above, there are special uses and qualities belonging to the different species, which are enumerated below. **BLACK WALNUT** and **BUTTERNUT**, *Juglans nigra* and *cinerea* **KEY-CHARACTERS**: distinguished from the Hickories by having the husk, which covers the nut-shell, close and tight and not cracking away from the nut. The fruit of the **BUTTERNUT** is elongate (ellipsoid) and the husk is covered with clammy or viscid short hairs; the fruit of the **BLACK WALNUT** is spherical and without the viscid hairs.

HABITAT and RANGE: the BLACK WALNUT in rich woods from the Missis- sippi basin eastward to New York and, south ward, to the coast, the BUTTER- NUT running farther northward and northeastward, extending in rich soil into southern Canada and eastward across New England to the St. John valley in New Brunswick. USES (in addition to those enumerated on p. 147): pickles. The yonng frnits are pickled by honsewives in regions where they abonnd. The practice, dating back to colonial days and, obvionsly, brought from England, where pickled walnnts are still popnlar, is to take the half- grown frnits, including the husks, plunge them into boil-

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150EDIBLE WILD PLANTS ing, salted water; thoroughly wipe to clean off the down; then preserve in boiling vinegar spiced to taste. Evelyn, in 1706, gave the following very detailed recipe for the preparation of pickled walnuts, so much used in England: Gather the Nuts young, before they begin to harden, but not before the Kernel is pretty white: Steep them in as much Water as will more than cover them. Then set them on the Fire, and when the Water boils, and grows black, pour it off, and supply it with fresh, boiling it as before, and continuing to shift it till it become clear, and the Nuts pretty tender: Then let them be put into clean Spring-Water for two Days, changing it as before, with fresh, two or three times within this space: Then lay them to drain and dry on a clean coarse Cloth, and put them in a Glass Jarr, with a few Walnut Leaves, Dill, Cloves, Pepper, whole Mace and Salt; strewing. them under every Layer of Nuts, till the Vessel be Three quarters full; and lastly, replenishing it with the best Vinegar, keep it well covered; and so they will be fit to spend within Three Months. The husks of walnuts indelibly stain the fingers and clothes. Those who are experienced with them do not at- tempt to remove the fresh husks. Instead, the crop is put in piles to ferment. After fermentation has proceeded far enough the soft and brittle husks are easily removed. The nuts are then spread to dry very thoroughly before at- tempting to remove the deeply corrugated meat. HICKORY, PECAK, *Carya* (or *Hicoria*), various species KEY-CHARACTERS:distinguished from Juglams, the true walnuts, by having the husk, when mature, crack into 4 valves, thus exposing the smooth-shelled nut. we have 3 groups of Hickories: (1) the familiar PECAN, with an olive- shaped, thin-shelled nut, found in river-bottoms through the Mississippi valley; (2) the SWEET HICKORIES, including the Shell-bark or Shag-bark, Mocker-nut, etc., in which the 4 valves of the thick husk promptly split apart when the fruit is ripe, and in which the flesh of the nut is sweet and delicious; and (3) the BITTER- NUTS or PIG-NUTS, in which the thinnish husk cracks only above the middle, or very tardily to the base, and in

OF EASTERN NORTH AMERICA¹⁵¹ which the flesh is often bitter, though sometimes (in *Carya glabra*) of good quality. RANGE: Pecan, southern Indiana to Iowa, and southward; the other species rather generally throughout the Eastern States, northward into southern Ontario, southern Quebec, and southwestern Maine. The Shell-bark is the familiar white-shelled Hickory- nut of the markets, having a comparatively thin shell. The Mocker-nut has a much thicker, harder and darker shell and is not highly valued. The late W. R. Gerard offered an ingenious explanation of its name, saying: The c in the word mocker is epenthetic, and the name mocker-nut stands for (New York) Dutch moker-noot, heavy-hammer nut, i.e., one which, owing to the thickness of its shell, it takes more than a light hammer to crack. BIRCH FAMILY (Betulaceae) HAZEL, FILBERT, *Corylus* (two species). FIG. 38 KEY-CHARACTERS: shrubs with leaves somewhat suggesting those of Yellow Birch or Alder, with filbert-like nuts borne in a leafy husk. Two species in eastern America: *C. americana*, with the husk open and somewhat flaring at the summit and usually bearing stalked glands on its surface, the nut-shell brown and generally thick and hard; and *C. cornuta* (or *rostrata*), the BEAKED HAZEL-NUT, with the very bristly husk conspicuously contracted above into a long neck, the bristles making the fruit difficult to gather; the shell of the nut whitish-brown, comparatively thin and usually easily cracked between the back teeth. HABITATS AND RANGES: *C. americana*, in thickets, common southward, extending north into southern Ontario and Quebec and central New Hampshire and central Maine; *C. cornuta*, thickets, borders of woods and banks of streams, Newfoundland to British Columbia, and generally through the northern states, south, chiefly in the mountains, to Georgia and Missouri. SEASON OF AVAILABILITY: late summer and early autumn. USES: fresh nuts, bread and cake. The nuts of both species are sweet and similar in quality to the European filbert, and are popular with children and adult residents of country districts, where the nuts are gathered for winter use. When ground into meal they make a delicious cake-like bread comparable only to filbert bread.

152 EDIBLE WILD PLANTS IRONWOOD, HORNBEAM, WATER-BEECH, *Carpinus*
USE: emergency-food. *caroliniana* Kephart states that the nuts are edible, but they are so very small, rarely ~ inch long, that only in emergency would they be gathered for food. Birch, *Betula* (various species) We have two distinct groups of Birch trees. The most important are distinguished by the following key. Leaves rounded or heart-shaped at base, with 5 or more pairs of veins furrow-like or impressed into the upper surface; the cone-like fruiting catkins 1/9 inch thick, of a short, cylindrical form, with scales which

persist over winter; bark not white. Bark dark brown and close, resembling that of a cherry-tree; scales of the cones not hairy on the margins ~. . . SwEiT, CHERRY or BLACK BIRCH, *Betula lenta*. Bark yellowish-gray, with a lustre, very shaggy ;.. scales of cones finely hairy on the margins . . . YELLOW or BLACK BIRCH, *B. lutea*. Leaves rarely heart-shaped, those of the fruiting branches with 7 or fewer pairs of veins prominent or standing out ahoje; the slender, linger-like fruiting catkins with quickly falling scales; bark white, creamy or pinkish (sometimes brown in young or exposed trees). Bark dull, chalky-white or dirty-white, close, the layers not readily sep- arating; leaves smooth and shining on both sides, with very slender, elongated tips . . . WHITE, GRAY, wian- or OLD-FIELD BIRCH, *B. populifolia*. Bark somewhat lustrous, creamy- or pinkish-white or brown, freely splitting into papery layers; leaves with hairy tufts beneath in the axils of the veins, not very slender-tipped ... PAPER-, CANOE- or WHITE BIRCH, *B. papyrifera* (or *athabasca*). There are other species but these are the most widely distributed, except for the relatively southern RED or RIVER-BIRCH, *B. nigra*, which is a Black birch with shaggy, terra-cotta, thin bark, downy new growth, and somewhat rhombic leaves pale beneath. HABITATS AND RANGES SWEET BIRCH (*B. lenta*), dry woods of the Alleghenian region, extending from the mountains of Tennessee to south- western Maine and northern New York; YELLOW BIRCH (*B. lutea*), rich woods, Newfoundland to Manitoba, south into the northern states and locally to the mountains of Tennessee and North Carolina; RED or RIVER-

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OF EASTERN NORTH AMERICA 153 BIRCH, river-swamps and lowlands of the South, north to New Jersey (lo- cally to southeastern New Hampshire) and up the Mississippi Valley; the small WHITE or GRAY BIRCH (*B. populifolia*), sterile soils, either wet or dry, Prince Edward Island to Delaware and the Thousand Islands; PAPER- or CANOE-BIRCH (*B. papyrifera*), Labrador to Alaska, south into the north- ern states and locally to the Carolina mountains. USES: tea, cooling drink, syrup, sugar, oil of wintergreen, vinegar, bread, beer. The bark, young buds, leaves and twigs of the SWEET BIRCH and the YELLOW BIRCH contain an aromatic oil which is essentially v]. identical with the oil found in the Checkerberry plant and some others of the Heath family. When not prepared syntheti- cally, oil of wintergreen of commerce is extracted from these birches, espe- cially from the Sweet Birch which is the more aromatic of the two. The oil-bearing twigs, leaves, etc., make a pleasant fla- voring and the dried leaves, especially of the Yellow Birch, were com- mended by Michaux and others for tea. The sap is said to make a pleasant drink, and, when boiled down, to furnish sugar. Birch beer, made by fer- menting the sap, is made chiefly from Sweet Birch. The WHITE BIRCHES lack the aromatic oil found in the Sweet Birches, but Pro. 39, HACEBERRY FIG. 35,

BEAKED HAZEL

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154EDIBLE WILD PLANTS their sap, secured in early spring before the unfolding of the leaves, was prized by the northern Indians and travellers as a pleasant, sweet drink, and by boiling it can be reduced to syrup or, finally, sugar; it is also sometimes used in making vinegar. Although in North America birch beer is usually made from the Black Birches, it is probable that the sap of the Paper- or Canoe-Birch could be used. Our species is so close to the White Birches of Europe that the following recipe of a Fair Lady of the 17th century in England may interest those who desire their beer: To every Gallon of Birch-water put a quart of Honey, well stirred together; then boil it almost an hour with a few Cloves, and a little Limon-peel, keeping it well scummed. When it is sufficiently boiled, and become cold, add to it three or four Spoonfuls of good Ale to make it work . . . and when the Test begins to settle, bottle it up . . . it is gentle, and very harmless in operation within the body, and exceedingly sharpens the Appetite, being drunk ante pastum. The inner bark of various White Birches, ground to flour, has often been used as emergency bread-stuff. ALDER, *Alnus* (various species) USES:emergency-food, nibble. According to Kephart, the inner bark is a possible emergency food. The young bark and winter-buds are popular nibbles with country boys, not alone for their tolerable flavor, but particularly for the beautiful, olive-brown saliva produced, which makes very emphatic spots on the lingering snow of early spring. BEECH FAMILY (Fagaceae) BEECH, *Fagus grandifolia* USES:nuts, table-oil, coffee-substitute, potherb, bread. The triangular, thin-shelled BEECHNUTs are familiar to every country boy in our northernmost states and south-

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OF EASTERN NORTH AMERICA155 em Canada, although south of our northern borders beechnuts do not seem to mature with regularity, while in many regions where the trees abound the nuts are almost unknown. A few generations ago in central Maine, and presumably elsewhere, the gathering of beechnuts was a regularly awaited event of October, the boys watching anxiously for the clear, cold night which presaged a black frost. Then all was bustle to get out blankets, spreads, old sheets and other large cloths to spread carefully beneath the heaviest-fruited trees to catch the abundant harvest of nuts which fell from the opening burs. The nut, readily opened by the thumb-nail, is one of the

sweetest, most delicious products of the northern forests, and although, as a result of modern sophistication, it is rarely if ever seen in our markets, it is not many years since it was regularly brought in large quantities to the country grocery and even to the Boston market. The American Beech is so similar to the European that by many competent botanists the two have been treated as one species, yet in Europe the beechnuts seem never to have been especially popular as human food. In fact, the following extract from quaint John Gerarde, of the 16th century, would lead one to suppose that only swine and invalids resort to this nut: The kernels or mast within are reported to ease the paine of the kidneies proceeding of the stone if they be eaten, and to cause the gravell and sand the easier to come forth: with these mice and squirrels be greatly delighted, who do mightily increase by feeding thereon; swine also be fattened herewith, and certaine other beasts; also deere do feede thereon very greedily. They be likewise pleasant to thrushes and pigeons. Unger, likewise writing from the European viewpoint, classifies Beechnuts among the vegetable products which would be eaten by man only when driven by extreme hunger. In the early summer, in areas where the Beech fruits freely, the germinating nuts are abundant in the woods

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156EDIBLE WILD PLANTS and these sweetish, nutty seedlings are sought by children. The young expanding leaves may also be cooked as a potherb. The important use of Beechnuts in Europe is not one which has won much notice in America. In France, however, the preparation of Beech-oil has been so important that, according to Michaux (early in the last century), in some districts the Beech forests have yielded in a season more than 2,000,000 bushels of nuts, and from these nuts, when properly treated, oil equal to [the bulk of the original fruit can be extracted. The accounts of the preparation of Beech-oil for table-use are given by various European authors and we extract freely from the texts of London and of Michaux. When prepared for table-use the oil is treated with great care and by European writers, especially the French, it is said to be equal in delicacy to olive-oil. The nuts are separated from the burs by shaking in sieves and then winnowing; they are then dried in an airy place to avoid possible mustiness or sprouting; and during the winter, whenever it is convenient to extract the oil, the nuts are heated in an oven to crack the thin brown shells which are then removed by beating or rubbing in the hands and winnowing. If labour is cheap, they may also be deprived of their inner skin, a very thin pellicle, which is very acrid. When blanched, they should, as soon as possible, be reduced into a paste by pounding them in a mortar, or by grinding them in a mill made on the principle of a coffee-mill. The implements employed should be kept scrupulously clean, in order to avoid making the oil rancid, cleaning them with alkaline ashes or lye and then thoroughly rinsing. The paste quickly dries, consequently water is added in the proportion of one pound to fifteen pounds of fruit. As soon as oil can be

extracted from the paste by pressure of the hand it is sufficiently pulverized to go into the

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OF EASTERN NORTH AMERICA¹⁵⁷ final press. It is then placed in perfectly clean linen bags or bags of wool or hair.~~ The bags of paste are put under pressure, the force gradually applied, and continued for three hours or more, when most of the oil will have been pressed out. The paste is then prepared for a second squeezing by pulverizing, adding less water than at first, and warming carefully in a gentle heat, after which it is again pressed. The oil is stored in casks or unglazed earthen vessels in a cool cellar; at the end of two or three months it is drawn off into fresh vessels, leaving the mucilaginous residue at the bottom of the first casks. This process is repeated three times during the first year; after which the oil is put into Florence oil flasks, and buried in sand in a cellar. The flasks should be always kept upright, and the oil drawn off from the mucilage which it will deposit into fresh flasks every year. Thus treated, it will keep 10 years, and improves by keeping, at least during the first 5 or 6 years; beech oil above 6 years old being reckoned the best. In regions where Beechnuts can be gathered in abundance, it would certainly be an interesting experiment to prepare table-oil, although, from the preceding account, its preparation, like that of wines and brandies made from innumerable wild fruits, is to be regarded as a long-time investment, rather than as an emergency transaction. In view of the vast havoc wrought by the first World War in the Department of the Somme, it is interesting to find Michaux stating, that in 1779 the forests of Compiègne afforded oil enough to supply all the needs of that district for more than half a century! Whether in heavily fruitful areas our American Beechnuts would yield such supplies of oil has not been tested. A secondary use of Beechnuts is as a substitute for coffee, after being roasted; and in times of scarcity the inner bark has been used in Europe for bread-making.

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158EDIBLE WILD PLANTS CHESTNUT, *Castanea dentata* and *pumila* and other species KEY-CHARACTERS:*C. dentata*, originally the common American CHESTNUT, with leaves green on both sides, tapering to long slender tips; fruiting bur 2-3 inches in diameter; nut 1.4-1.8 inch broad. *C. vuilana*, the CHINQUAPIN, with leaves whitened beneath with down, merely acutish or blunt; mature bur 1-1 1/2 inches in diameter; nut

1./s inch broad. HABITAT AND IRANGE: *C. dentata*, originally common in sterile soils (though in recent years nearly exterminated by the ravages of the chestnut- bark disease) throughout eastern America, north to Ontario, central Ver- mont, north-central New Hampshire, and southwestern Maine; *C. pumila*, more southern, north to Indiana and New Jersey. USES: nut, starchy vegetable, soup, breadstuff, confection, sugar, coff cc- substitute, chocolate-substitute. The CHESTNUT was a very important food of the Amer- ican Indians, and like the species of western Asia (long ago brought into Enrope) served in scores of prepara- tions nnknown to the modern American, who, when they were common, ate chestnnts chiefly as a relish or as the accompaniment of a holiday. In Enrope and Asia the Chestnt has from earliest times been an important sonrce of bread, especially in southern Enrope, where, among the peasants, chestnt-bread serves as a snbstitute for potatoes and wheat. Cooked in other ways, as roast- ing or boiling, it is eaten as a vegetable, or cooked with stewed meats, or in the form of flonr made into a thick porridge. The French usnally boil the nuts with salt, and often with the leaves of celery, sage or other savory herbs, he- f ore cooking taking off the shells of all the nuts but one; when the shell of this odd one cracks it is known that all the nnts are cooked. The boiled chestnnts are mashed and eaten like mashed potatoes, and fritters made from chest- nut-flour are considered a great delicacy. The French marrons glac6s are boiled chestnnts dipped in clarified sngar and then dried. In France, too, sngar is extracted from chestnuts, the nuts yielding 14% of sugar. Owing to the ravages of the chestnut-bark disease, the

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OF EASTERN NORTH AMERICA¹⁵⁹ possibility of extensively utilizing the American Chestnut is, temporarily at least, out of the question; but, should our Chestnut forests come back, they might easily afford great stores of now unappreciated food. The early set- tlers followed the European uses, and the American In- dians had several uses which were distinctive. The nuts were cooked in their corn-bread or, when roasted, were used as coffee; and Thomas Ash, in his Description of Carolina, said of the Chinquapin: Of the Kernel is made Chocolate, not much inferiour to that made of the Cacao. ACORNS, OAKS, *Quercus* (many species) USES: nuts, breadstuff. we have many species of OAK in eastern America belonging to the well marked groups, with acorns of different quality: (1) the white Oaks, with the bark of the trunk usually scaly, the tips and lobes of the leaves with- out bristly elongations, the scales of the cup woody or corky, the inside of the nut-shell smooth, and the kernel usually sweetish; this group including the White Oaks, Post Oak, Bur Oak, and the Chestnut Oaks (about 10 species). (2) the Black Oaks or Red Oaks and the willow Oaks, distin- guished by darker, more furrowed and harder bark, bristle-points to the tips of the leaves (and in lobed leaves at the tips of the lobes), thin scales of the cup, downy inner surface of the nut-shell, and very bitter kernel; this

group including the various trees known as Black, Red, Yellow, and Scarlet Oak, the willow Oaks and several others (about 15 species). Acorns formed a very important portion of the bread-stuffs of American Indians, some of the tribes of the arid regions of the Southwest depending largely on acorn-flour. Although bitter and somewhat astringent when raw, acorns lose these properties by being leached, and there is left a nutty meat rich in oil and starch, which is as nutritious as the meat of other nuts and thoroughly palatable. In preparing acorns for bread-purposes, the Indians mixed the meats with hard-wood ashes and water, thus removing the bitter and astringent properties, or powdered the dried kernels and either poured boiling water through the flour, thus removing the tannin, or placed the powdered mass in a basket or in a hollow pocket of sand

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160EDIBLE WILD PLANTS and allowed running water to trickle through the mass. So general was this latter method among some of the southwestern tribes, who afterward ate the meal mixed with sand, that Dr. Valery Havard quoted a medical officer as stating that he has seen an Indian 45 years old with the crowns of his otherwise healthy teeth half gone, while in Indians 60 years old, it is not uncommon to see all the teeth worn down even with the gums.~~ It is entirely unnecessary to mix sand with acorn-flour and thus to sandpaper the teeth. In our own experience we have found that the thoroughly dried kernels may be rid of the tannin by boiling for two hours, pouring off the darkened water, and then allowing the conunonly black-ened kernels to soak in cold water, with occasional changes, until it is convenient to grind them into a paste (preferably within 3 or 4 days). The dried paste, powdered and treated according to conventional recipes for corn-cake (fifty-fifty) makes a thoroughly palatable, dark bread or muffin, quite as good as any of the substitutes for all wheat to which, during the last war, we became accustomed. The Indians, having no yeast nor baking powders, made an unleavened, pasty bread which was unattractive to the whites, but there is no reason why, when properly prepared, acorn-bread may not become a cheap and wholesome food throughout temperate America. Although the sweet acorns of the White Oaks have less tannin than the acorns of the Black Oak series, the latter were used extensively by the Indians and their tannin is as readily removed. In some accounts it is stated that the acorns were boiled in ash-lye to remove the tannin and then boiled in several pure waters. In boiling or in long soaking much of the sugar is necessarily extracted from the acorn-flour. It has been suggested that this difficulty may be overcome by adding a small amount of gelatine (powdered) to the ground acorns, the gelatine removing the bitter taste without affecting the sugar. It is and was not only the American Indians who used

OF EASTERN NORTH AMERICA acorns for bread. Witness this from an English chronicler of the 17th century: Acorns . . . (before the use of Wheat-Corn was found out) were heretofore the Food of Men, nay of Jupiter himself . . . till their Luxurious Palats were debauched... And Men had indeed Hearts of Oak; I mean, not so hard, but health, and strength, and lived naturally, and with things easily parable and plain. The tender young oak-apples or oak-galls, produced by gall-wasps on the leaves of Red, Black and Scarlet Oaks in spring, contain a sweet juice which is often sucked out of the opened apple by children. ELM FAMILY (Ulmaceae) ELM, *Ulmus* (various species) USES:emergency-food, masticatory, tea, cooked vegetable. The chief food-value of the ELM lies in the mucilaginous inner bark of the SLIPPERY ELM, *U. ~fulva*, a tree characteristic of rich soils from the Great Lakes region southward and locally eastward to New England and the other coastal states. The inner bark was used by the Indians both as a masticatory and as a food, cooked with fat; and by many authors it is spoken of as a good emergency-food. According to Seton the half-grown seeds are edible, but we find no other authority for this statement. Kephart states that the inner bark of the common American Elm is also available as emergency-food; and Vestal and Schultes state that by the Kiowa Indians it is brewed as a tea. HACKBERRY, SITGAEBERRY, NETTLE-TREE, *Celtis occidentalis* and three or four other species. FIG. 39 KEY-CHARACTERS:trees or shrubs with a gray bark covered with prominent slender ridges and knobs of cork; branches forming a fine and wide-spreading spray; leaves alternate, somewhat suggesting elm leaves, narrowed to base, with unequal sides and 3 main veins; fruit scattered,

162EDIBLE WILD PLANTS reddish-purple or yellowish-brown berries (drupes) with a large stone and thin sweet pulp. HABITAT:rocky woods and river-banks. RANGE:western Quebec to Manitoba and southward; related species southward and southwestward. SEASON OF AVAILABILITY: late autumn, after several frosts, to spring. Usns:a sweet nibble or masticatory, condiment. The drupes, the size of bird-cherries, hang on the trees all winter, and have an extremely thin pulp and dry skin, both in taste and texture strongly suggestive of dates, especially after hard frost has sweetened the pulp. According to Gilmore, the Dakota Indians use the dried pits, pounded fine, as a seasoning in cooking meats. The white kernel inside the hard shell is soft and sweetish, resembling in taste the outer pulp. The Ancients were amazingly fond of the thin pulp of the Mediterranean species, *Celtis australis*, which, according to students of the

Mediterranean flora, was the Lotus, the food of the Lotophagi, which Herodotus, Dioscorides, and Theophrastus describe as sweet, pleasant and wholesome, and which Homer says was so delicious as to make those who ate it forget their native country (Johns in Treas. of Bot.). HEMP FAMILY (Cannabaceae) HEMP, Cannabis sativa USE: parched seeds eaten. The HEMP is an occasional weed about rubbish of towns. In eastern and southern Europe its seeds are much eaten after being parched or, according to some authors, they are made into cakes and fried. The seeds contain much oil and are nutritious or even stimulating. A famous oriental intoxicant is derived from the resin of the plant, the dangerous narcotic and deadly marijuana, which, like all evil, has rapidly spread to the New World. See p. 52.

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OF EASTERN NORTH AMERICA Hop, Humulus Lupulus USES: potherb, asparagus. The young shoots of Hop, especially if blanched, have been somewhat popular as a substitute for asparagus. Only very young shoots should be gathered, the older ones being tough and bitter. The flavor is unique and to many tastes delicious; the texture dry and slightly gritty. Chopped very fine and well dressed with butter or cream the young shoots are excellent. Hops are raised chiefly for their fruit, used in brewing beer and ale. During the temporary period of national prohibition the inimitable Clute remarked of the delicious nutty flavor of the boiled shoots, that Further experiments will doubtless be necessary before hop growers turn from brewing to boiling. MULBERRY FAMILY (Moraceae) RED or BLACK MULBERRY, Morus rubra; WHITE MULBERRY, M. alba USES: fresh fruit, pies, jellies etc., cooked vegetable. No real out-of-door person living where the RED or BLACK MULBERRY is found will fail to know the fruit, which is borne in an abundance allowing long and repeated feasting. The Indians and the early explorers west and southwest of New England counted the fruit of this native one of their most important berries. The perishable nature of the berries keeps them out of modern markets and the presence of an axis extending well into the fruit prevents its use fresh on the table. But neither disadvantage prevents its extensive use in regions where it abounds, either fresh from the tree or for pies, jellies (made from either immature or mature fruit), jams, marmalades, summer drinks, etc. The sugar contained in the fruit is said to be especially pure. The

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164EDIBLE WILD PLANTS trees might well be cultivated over a wide area to serve for domestic uses. The WHITE MULBERRY of Asia was extensively planted about a century ago as food for silk-worms. In favorable localities it has persisted and spread but, ripening at the time of larger and somewhat more preferred fruits of cultivation, its berries are largely ignored. As compared with those of the native Red Mulberry they are insipid. Asiatic writers, where *M. alba* is native, speak of the cooked young shoots as a very good vegetable. FIG, *Ficus Carica* The FIG is persistent about deserted old houses and in their neighborhood through the Southern States, northward into eastern Virginia. A fruiting colony of it in the borders of woods is often a godsend in late summer and autumn. NETTLE FAMILY (Urticaceae) NETTLES, *Urtica* (about 6 species) FIG. 40 KEY-CHARACTERISTICS: mostly erect herbs with opposite, coarsely toothed, oblong to egg-shaped, strongly ribbed leaves; the stems, leaf-stalks and lower surfaces of the leaves more or less covered with fine stinging bristles; flower-clusters slender and forking, borne in the upper axils in summer, bearing minute, greenish flowers. HABITAT: rich thickets, roadsides, rubbish-heaps, etc. RANGE: several species, both native and introduced, throughout temperate America. SEASON OF AVAILABILITY: late April and May, before the leaves become tough. USES: potherb, rennet. The young leaves of NETTLES have a fine reputation as a substitute for spinach, especially among the Scotch and Irish and on the continent of Europe; although, perhaps through prejudice, they have not become popular with the English stocks. The poet Campbell, wrote: In Scotland I have eaten nettles, I have slept in nettle-sheets, and I have dined off a nettle-tablecloth. The young and tender

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OF EASTERN NORTH AMERICA 165 nettle is an excellent potherb. The stalks of the old nettle are as good as flax for making cloth. I have heard my mother say, that she thought nettle-cloth more durable than any other species of linen. The roots of most species are perennial and produce many shoots, so that the plant has been advocated in Scotland as desirable for winter use, the roots brought into the cellar promptly sending up shoots which are blanched as they come up through the earth or rubbish. The stinging propensities of the Nettle, the result of which Threlkeld naively said may be felt everywhere, will deter all but the enthusiast from attempting to gather the greens. Lightfoot, one of the earliest writers on Scotch natural history, says: In Arrctn, and other islands, a rennet is made of a strong decoction of nettles: a quart of salt is put to three pints of the FIG. 40, NETTLE FIG. 41, BASTARD TOADFLAX

166 EDIBLE WILD PLANTS decoction and bottled up for use. A common spoonfull of this liquor will coagulate a large bowl of milk very readily and agreeably, as we saw and experienced. RICHWEED, CLEARWEED, *Pilea pumila* USE: potherb. It has been suggested that the common RIOHWEED may be an available potherb, this suggestion evidently based on the use of tropical species in this way. The plant is an easy one to try: a watery-stemmed and very smooth annual resembling nettles 3 inches to 2 feet high, with the minute green flowers in branching axillary clusters, growing in cool or moist and shaded places from Prince Edward Island to southern Ontario and southward, well developed in summer. SANDALWOOD FAMILY (*Santalaceae*) BASTARD TOADFLAX, *Comandra umbellata* and *C. Richardsiana*. FIG. 41 KEY-CHARACTERS: plants with slender, creeping, slightly woody stems from which arise the leafy branches, a few inches high, bearing many alternate, thin, dry, pale, oblong leaves about an inch long; flowers greenish and white, erect, bell-shaped, with 5 lobes, borne in terminal clusters; the fruit an urn-shaped green, finally drab-brown nut about 1/4 inch long, crowned by the 5-lobed calyx. HABITAT: dry, open woods, clearings and barrens. RANGE: Newfoundland to Manitoba and southward; other species west to the Pacific. SEASON OF AVAILABILITY: June (southward) August (northward), as the nuts become fully grown but scarcely ripe. USE: nuts as nibbles. The little urn-shaped nuts of western species of BASTARD TOADFLAX have been popular with the Indians on account of their sweet taste. It is, therefore, gratifying to find that in our eastern species the fully grown but hardly ripe nuts are sweet and oily, a delicious nibble, but rarely found in sufficient quantity for more than a pleasant tid-bit.

OF EASTERN NORTH AMERICA 167 BIRTHWORT FAMILY (*Aristolochiaceae*) Wm. GINGER, *Asarum canadense*, etc. USES: nibble, condiment, substitute for preserved ginger. The rootstock has a fragrance and taste suggestive of ginger and is an agreeable nibble. It may be used either fresh or dried as a substitute for ginger in seasoning. The long and nearly superficial rootstocks of WILD GINGER, cut into short pieces, boiled until tender and then cooked in a rich sugar-syrup and canned or not (as preferred) make a palatable substitute for preserved ginger. Although the rootstocks are reputed to be somewhat medicinal, no discomfort has been experienced from using this substitute in moderate quantity. Inordinate eating of it might be detrimental, a point which those who are sufficiently inquisitive might well determine. BUCKWHEAT FAMILY (*Polygonaceae*) The Buckwheat itself, *Fagopyrum esculentum*, and the India-Wheat, *F.*

tataricum, are extensively cultivated in northern states and Canada, and occasionally persist about old fields and rubbish-heaps. They are not especially available, however, as wild foods since their occurrence is entirely sporadic. MOUNTAIN-SORREL, SCURVY-GRASS, *Oxyria digyna*. FIG. 42 KEY-CHARACTERS: a succulent herb with tufts of long-stalked, round or kidney-shaped, acid leaves rising from a deep perennial root; the succulent stem a few inches to a foot high, bearing spire-like clusters of insignificant, reddish and green flowers, followed by thin-winged, reddish, round fruits 1/~ inch broad. HABITAT: crevices of damp ledges. RANGE: from the alpine districts of the White Mountains northward, descending in western Newfoundland and Labrador to lower altitudes, and widely distributed in Arctic regions; also on the Rocky Mountains. SEASON OF AVAILABILITY: summer, while the leaves and stems are still tender. USES: salad, potherb, purée.

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168 EDIBLE WILD PLANTS The MOUNTAIN-SORREL, which resembles a miniature rhubarb, with small rounded leaves, has always been highly esteemed in the Arctic regions as a scurvy-grass, the new growth up to flowering time being eaten raw, when it tastes like a mild rhubarb and is a valuable addition to the diet. Cooked as a green the plant, we have found, is quite as good as the French Sorrel, *Rumex Acetosa*, and, like the latter plant, is especially attractive for a thick soup or purée. It is especially desirable as an ingredient of mixed alpine or arctic salads or potherbs, giving a pungent flavor. The northern peoples have used the plant in still other ways: the Alaskan Indians are said to chop it with peppery cresses, while other tribes allow it to ferment as a sauerkraut. Kjellman tells of the Siberian Eskimo storing the fermented Sorrel for winter use. FIG. 42, MOUNTAIN-SORREL FIG. 43, BITTER or YELLOW DOCK

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OF EASTERN NORTH AMERICA 169 Docks, *Rumex* (various species). FIGS. 43 and 44 KEY-CHARACTERS: stout plants; the leaves chiefly basal, commonly six inches to a foot or more in length and tapering or rounded to stoutish leaf-stalks; the point of attachment to the stem bearing a thin, papery and somewhat slimy, cuff-like membrane which, before becoming bruised, wraps around the stem; inflorescence a tall, wand-like cluster of tiny, insignificant green to purplish flowers, followed by fruits consisting of small seeds surrounded by thin, veiny wings. These wand-like inflorescences, the

sheathing membranous base of the leaf-stalk, and the smooth lower surfaces of the elongate leaves quickly distinguish the Docks from the common weed, Burdock, which has quite different uses. The Burdock has a large, heart-shaped leaf, which is downy beneath, a rank odor when bruised, and its inflorescence is a loose open mass of bur-like heads. HABITATS AND RANGES: several species both native in swamps and introduced into fields and roadsides, throughout temperate America, north to southern Labrador. SEASON OF AVAILABILITY: spring and summer until tough (see below). USES: potherb, purde, breadstuff. The new leaves of all the DOCKS (about 15 species with us) are wholesome greens, cooking into a very soft mass and losing practically nothing in bulk, so that a small gathering makes a larger meal than most other greens. In order to take away the strong taste, the first one or two waters should be thrown off, and in order to prevent the greens being too watery, the final cooking should be done with as little water as possible. The common species with the leaves narrowed at base remain tender until the flowers are well formed, but the common roadside- and garden-weed, *R. obtusifolius*, with the very veiny leaves round or heart-shaped at base, becomes very bitter after early summer. The use of Docks as potherbs is very old among European peoples, and some tribes of American Indians used them. The Docks are gathered extensively by our Italian populace, but comparatively few of the other European stocks in America appreciate them. It is possible that they share the squeamishness of English women of the 17th century, described by Culpepper:

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170EDIBLE WILD PLANTS Yet such is the nicety of our times (forsooth) that Women will not put it in the Pot because it makes the Pottage black; Pride and Ignorance (a couple of Monsters in the Creation) preferring Nicety before Health. The largest of our Docks, the PATIENCE-DOCK or PATIENCE, *R. Patientia*, was long a popular garden vegetable in Europe and has been occasionally cultivated in this country as one of the French Sorrels. The plant is thoroughly naturalized from eastern Maine to Newfoundland, but elsewhere it is less abundant than desirable. From its leaves a delicious purée is prepared. The American Indians, especially in the West, used the seeds of various Docks in preparing meal; this would seem an eminently practical and sensible use, since the plant is very closely allied to buckwheat and it fruits in *Fig. 44, BLUNTCLEAVED DOCK*

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OF EASTERN NORTH AMERICA 171 the greatest profusion. Meal prepared from Dock-seed should certainly be carefully tested. SORRELS, Rumex (a few species). FIG. 45 KEY-CHARACTERS: similar to the Docks but smaller; many of the basal leaves with blades like an arrow-head or spear-head, smaller than in the Docks, containing a sour juice. The Sorrels should not be confused with the Wood-Sorrels, Oxalis, which have clover-like leaves, with three leaflets. HABITAT AND RANGE: SHEEP-SORREL, *R. Acetosella*, with the basal lobes of the leaves usually wide-spreading and with slender, freely forking roots, common in dry, sterile fields and worn-out gardens; GARDEN S. or FRENCH S., *R. acetosa*, a stouter plant with stout rootstock and with the basal lobes of the leaves pointing back, thoroughly naturalized in fields, Newfoundland, Nova Scotia and eastern Quebec, locally elsewhere, especially northward. SEASON OF AVAILABILITY: spring and summer. USES: salad, potherb, purgative, seasoning, rennet, masticatory, acid drink. The larger SORREL, *R. Acetosella*, has long been in repute in Europe as a salad, potherb or seasoning, and as a rennet to curdle milk. In the French market the plant is abundant, although it is not now popular in England. Where abundant, the French Sorrel makes a desirable winter salad, the roots being boxed in the cellar, kept in a dark situation (the darker the better), watered and allowed to sprout. The self-bleached new growth of varying shades from white to pink makes a beautiful and delicious addition to salads. In his Tour in Iceland, Sir William Hooker says of this species: A beverage is made by the common people, by steeping the plant in water till all the juice is extracted. This drink is kept some time; but soon becomes bad and putrid in warm weather. The SHEEP-SORREL, *R. Acetosella*, is a popular nibble with children and is familiar to most trampers as a practical thirst-quencher. It is a readily available and attractive base for a purgative, a small amount of the tender growth, after boiling, being mashed through a strainer, and added to a rice stock, milk or other stock, thickened

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172 EDIBLE WILD PLANTS 45, FRENCH SORREL with flour and butter, and seasoned to taste with salt and pepper. A small amount of the fresh leaves makes an unusual seasoning for fish, rice, or potatoes, or mixed with other salads. The acidity is due to the presence of potassium oxalate, which, if eaten in excess, may be detrimental. Ordinary small nibblings of the fresh plant are quite safe and, as everyone knows, refreshing. When boiled the sorrels seem to be harmless. The recipe below has recently appeared in *The Herbarist* (no. 1, p. 29). It sounds attractive, and it is certainly easy to find the Sorrel. SORREL SOUP (for 6) Wash Sorrel and put in sauce pan with a little water (not covered). Cook slowly for about 12 hour. Put 4 cups of milk with small white onion (whole) in double boiler. Add 2 teaspoonfuls

OF EASTERN NORTH AMERICA 173 of butter and 2 tablespoonfuls of flour [thoroughly blended to avoid lumps] to the hot milk. Let stand, and add Sorrel and strain. Season. Use about a handful [whose?] of the Sorrel. KNOTGRASS, *Polygonum aviculare* and many allies Usn:grain. The common weedy annuals of dooryards, shores, waste-places, alkaline depressions, etc., with freely branching stems, small narrow leaves, knee-like joints bearing thin, membrane-like and soon disintegrating sheaths and insignificant axillary flowers with small tri- angular or biconvex little nuts or seeds surrounded by th~ green to rose-tinged calyx, have supplied pinole or parched grain to various tribes of Indians. Not only the loosely spreading or depressed carpet-like species yield possible grains. Those from the erect *Polygonum Douglasii* and other such species have been used. On account of its lowly habit, with tough stems and its ability to withstand abuse, Knotgrass in Merry England was used as a starvation-diet. Thus, Dr. Prior says: The hindering knotgrass of Shakespeare, (M. N. D. in. 2), was probably so called from the belief that it would stop the growth of children, as in Beaumont and Fletcher's *Coxcomb*, A. iii. s.2: We want a boy Kept under for a year with milk and knotgrass. No one seeking food is likely to eat it. SMARTWEEDS, *Polygonum* (or *Persicaria*), many species USES:seasoning, flour. The leaves of the common SMARTWEEDS are usually very peppery and make a quickly available seasoning in camp cooking. They should be used, however, with caution since they are very pungent and are apt to draw tears as

174 EDIBLE WILD PLANTS quickly as cayenne pepper. Some species (including the BLACK BINDWEED and CLIMBING FALSE BUCKWHEAT) have mild leaves and seeds, and the seeds of these species have sometimes been used by primitive races for making meal, which has the qualities of buckwheat flour. The grains are hard-shelled and with only a small amount of starchy matter. ALPINE BISTORTA, *Polygonum* (or *Bistorta viviparum*). FIG. 46 Usns:nut-like vegetable. A small perennial abundant in Arctic regions, and extending south to Newfoundland and to the mountains of I FIG. 47, JAPANESE KNOEED New England and Colorado, with a thick tuber-like root-stock, which is in great demand among northern peoples for the almond-flavored nibble it furnishes. Kjellman states that by the natives of northeastern Siberia these roots are eaten

as we would eat nuts and raisins; and the FIG. 46, ALPINE BISTORT

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OF EASTERN NORTH AMERICA 175 women while at work will have at hand a bowl of the roots of which they partake at frequent intervals. The spike has flowers at the summit but at the base bears quantities of small bulbs. The latter become purplish or reddish and, when ripe, fall off and take root, eventually producing the tuber-like rootstocks. Stripped from the spike they make a very attractive nibble, sweet, nutty and wholesome. Mr. Erling Porsild, who has lived much in northern lands, states that the rootstocks are very starchy but slightly astringent; they are best when cooked.

JAPANESE KNOTWEED, *Polygonum ensipidatum* (or *Sieboldi*). FIG. 47 KEY-CHARACTERS: erect shrub-like perennial herb 45 feet high, usually spreading underground and forming thickets of coarse smooth stems with widely spreading branches; nodes enlarged, sheathed by a papery cuff-like membrane; leaves stalked, rounded-eggshaped, squared at base but abruptly pointed; flowers greenish-white, very numerous in branching axillary clusters, the calyx 5-parted. HABITAT AND RANGE: door-yards, neglected gardens, waste places and roadsides, Newfoundland and southern Canada, south to North Carolina and Missouri. SEASON OF AVAILABILITY: autumn to spring. USES: root-vegetable, cooked green vegetable, salad. When *Polygonum cuspidatum* first reached Europe from Japan a Belgian botanist in 1864, desiring to see if it had culinary value, dug some of the young rhizomes two or three centimeters [an inch or two] under ground ... we found them to have an agreeable flavor, not at all bitter; as to the young stems, at a height of only 10 or 12 cm., a flavor approaching that of sorrel but much less acid... cutting a quantity of the largest young stems, of a length of 15 to 20 cm. (half underground, half above) we prepared them in the ordinary way for vegetables (boiled and dressed with butter, etc.) and we are able to affirm de gustis: that a plate of young stems of *Polygonum cuspidatum* is a DELICIOUS ARTICLE~ as good at least as

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176 EDIBLE WILD PLANTS asparagus, preferable to chicory, and, above all, than sorrel. Since we read this passage the young stems (up to a foot or more high) have been freely used. Steamed or boiled for four minutes they became as soft as cooked rhubarb and are delicious, especially when chilled and dressed as a salad. *Polygonum cuspidatum* so rapidly monopolizes ground where it has got a start that it should certainly be made to

recompense us by gracing the dinner-table. Another gigantic Asiatic species GIANT KNOTWEED or SACHALINE, *Polygonum sachalinense*, is superior to the other. It is even taller and coarser than *P. cuspidatum*, up to 12 feet high, the stem angular-striate, the large heart-shaped leaves up to a foot long, not abruptly pointed, the flowers greenish. It was first cultivated in England about 1870 and in America is rapidly spreading as does *P. ensipidatum*. Sir Joseph Hooker, when the plant was first cultivated in Europe, called it by far the noblest species of *Polygonum* known but he added that it has perhaps no rival for vigor of growth and rapid multiplication by the root, which last quality has its drawbacks, for it spreads widely, and obtrudes itself where not wanted, to the destruction of its neighbours. In view of the present-day obtrusion and destruction of neighbors by vigorous and rapidly reproducing types of man it is questionable whether Sir Joseph's term noblest was well chosen! The leafy summits of young stems of Sachaline up to 2 feet high, cooked as a potherb (boiled only a few minutes) are as good as or superior to French Sorrel. As soon as the leaves become older they become unpalatable. Rhubarb-sauce made from the peeled young stems, sweetened, is of superior quality, with a suggestion of lemon-flavor. It should first be eaten in moderation until the user is sure of its effect. Some people find it, like Rhubarb, slightly laxative.

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OF EASTERN NORTH AMERICA 177 GOOSEFOOT FAMILY (*Chenopodiaceae*) This family gives us beets and spinach and in many parts of the world is represented by esculent wild species. In our own flora the following are the most important. PIGWEED, Goosefoot, Lamb's-Quarters, *Chenopodium album* and 14 other species. FIG. 48 KEY-CHARACTERS: annual herbs, the young growth whitened with a close mealiness; the alternate long-stalked leaves more or less angulate-toothed, especially near the base, somewhat fleshy, 14 inches long; the older plants bearing many insignificant scalloped green flowers in clusters forming spire-like inflorescences; seeds black, rarely 1/8 inch broad, shaped like a biconvex lens. HABITAT: several closely related species so similar as to be separated only with difficulty; some native along seashores, others abundant as garden weeds, or about rubbish, in roadside ditches, and other disturbed soils. RANGE: throughout temperate North America. SEASON OF AVAILABILITY: for potherb, early summer, and the young tips to midsummer; seeds in autumn and early winter, the fruiting plants usually holding the seeds until after heavy frosts. USES: potherb, breadstuff. The common PIGWEED, so familiar in rich garden soil, in barnyards, and similar habitats, has always been a popular potherb; under the more appetizing name, Lamb's-Quarters, highly prized by European peoples. In spite of a spendthrift American prejudice against it because it is so common, the Pigweed, which annually appears in all good garden soils, is really one of the most valuable, though promptly destroyed crops of the garden before the planted vegetables are in season.

Cooked and eaten like spinach, the tender shoots and leaves are often called delicious, and nearly every one who tries it, unprejudiced by the knowledge that it is an every-day weed, is enthusiastic. Some years ago one of the writers planted the garden at his summer home in early May, and when in June he moved his family to the country, he found the garden full of Pigweed. For two weeks before the peas were ready, and for a month before the New Zealand

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178EDIBLE WILD PLANTS spinach could be used, the family enjoyed the abundant Pigweed, and under the sophisticated name spinach, presented pans of it to the local residents, who returned with the suggestion that if the crop was abundant they would like another mess, little guessing that they had been enjoying despised Pigweed, which grew even more luxuriantly in their own barnyards. In cooking, Pigweed reduces considerably in bulk and it is necessary to gather two or three times the bulk that is wanted when cooked. The fresh leaves readily shed water but, as soon as steamed, lose this peculiarity. The boiled Pigweed is a comparatively dry potherb and it is particularly good if mixed with Dock-greens which are unusually wet or mucilaginous. The seeds of the Pigweeds can be gathered in great quantities and they were largely used by the American Indians as a source of bread or in gruel. They are very hard and slippery, inclined to jump and bounce while be-

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OP EASTERN NORTH AMERICA179 ing ground; and, although they may be ground dry, we have found it advantageous to boil them for a couple of hours, then to mash, and then dry the mass before grinding. The flour and bread are very dark-colored on account of the black seed-coats but of good flavor and highly nutritious, tasting somewhat like buckwheat but with the characteristic mousey flavor distinctive of this group of plants. Another incident in the experience of the senior author illustrates the prejudice against not too attractive or conventional foods. Planning for a meeting of botanists in his study, he set to work on the menu to follow the business meeting: purée of dried Fairy-ring mushrooms, escalloped canned Purslane, salad of cooked blanched Pokeweed and Sorrel from the cellar, etc. A bread of Pigweed-seeds was decided upon. Proceeding in January to the border of a frozen truck-farm, a peck of seeds with husks and other fragments was quickly gathered. Wonowed by pouring back and forth from containers out-of-doors,

so that the lighter husks and debris blew away, a yield of a full quart of the black and drab fruits was left. When supper was served, Mrs. Fernald brought in the soup which found favor, with thin biscuits of Jack-in-the-Pulpit flour, then the Purslane and salad, with a plate of intensely black muffins. I explained that, having no cook, I had volunteered to make the muffins. The plate went around the table, regularly to receive a polite, No, I thank you~, until it reached the late Emile Williams, half-French and with more than usual Yankee consideration for others. Everyone else having declined my black muffins, Williams took one, put on his eye-glasses and inspected it, then sniffed at it. Ah, Chenopodium album was his immediate diagnosis. Asked how he guessed, he replied: I've just been reading Napoleons Memoirs. Napoleon at times had to live on ~ The plate was promptly cleared and returned to the kitchen for more, to nibble with the Beach-Plum preserve.

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180EDIBLE WILD PLANTS CAUTION:certain species of Chenopodium, notably C. ambrosioides, MEXICAN TEA or WORM-SEED (FIG. 48) and C.Botrys, JERUSALEM OAK or FEATHER-GERANIUM, the former a common weed of waste or cultivated ground, the latter often grown in herb-gardens for its aroma, should not be used as potherbs. They are covered with glandular or oily atoms, have a pungent odor, and are regularly avoided by grazing animals. In cases of fodder-shortage animals have been poisoned by them. A strong aromatic tea can be made from them by those who want it; it is popular in Mexico and parts of South America, where regularly raised for tea. For some centuries the oil of C. ambrosioides has had repute in killing intestinal worms and it is now much used for hook-worm. Its connotation is not attractive but it might be advisable in some regions to use it regularly. STRAWBERRY-BLITE, STRAWBERRY-SPINACH, Chenopodium capitatum KEY-CHARACTERS:similar to Pigweed, but with the mature flowers becoming fleshy and bright red. HABITAT:recently burned clearings and borders of sandy fields. RANGE:across Canada to Alaska and locally southward into the northern states. SEASON OF AVAILABILITY: early summer (potherb); late summer (fruit). USES:potherb, fruit. The STRAWBERRY-BLITE, one of the most striking plants of Canadian clearings, on account of its masses of brilliant red pulpy fruits, may be used as a potherb like spinach; or the succulent fruits, although insipid, may be eaten either raw or cooked. They are highly nutritious. ORACH, Atriplex patula (including A. hastata) and A. glabriuscula. FIG. 49 KEY-CHARACTERS:resembling the Pigweeds and differing from them only in technical characters of the flowers and fruits: the flowers being imperfect or unisexual and the fruits having two large, wing-like sepals

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182EDIBLE WILD PLANTS HABITAT AND RANGE: seashores from Labrador to Virginia and rich open soil across the continent. SEASON OF AvMn~.nILITY: late spring and summer (sometimes autumn). USE:potherb. As a potherb A triplex is superior to Lambs-Quarters or Pigweed. The succulent leaves or young tips, especially when the plant grows along the seashore, are jucier and somewhat impregnated with salt. The plant is often so abundant on seashores that it might supply many families throughout the season. Another personal experience shows the importance of ORACH where fresh vegetables are scarce. Entertained at one of the great cod-fishing rooms on the coast of Lab- rador, where vegetables are the products of tin-cans, a party of botanists, delighted with the thickets of A triplex glabriuscula growing 6 feet high and freely branching on the refuse from the fish-cleaning sheds, brought in a large bundle of leafy tips and Pequested to have them cooked. After the meal the genial host, native of southern New- foundland, said to his daughter, This is a godsend. Now we can induce Mother to come down to the Labrador if she can have fresh vegetables. Similarly, the fisher-folk on the Newfoundland coast have evinced their delight when shown how to recognize Orach, Goose-tongue, Scurvy-grass, and other neglected foods which surround them. Even in October, when Harvard or Radcliffe classes in taxonomy make their trips to Cape Cod, enough young tips of A triplex patula are found regularly to fur- nish the vegetable for dinner. SUMMER-CYPRESS, Kochia scoparia USE:potherb, cereal. The familiar annual SUMMER-CYPRESS, popular with us as a bedding-plant with rich purple coloring in autumn, was introduced from Asia. It spreads freely from cultiva- tion. In China and Japan its young tips are used as a

OF EASTERN NORTH AMERICA 183 potherb; but it is there raised chiefly for its abundant seeds, used by themselves or in bread, and for the dried bushy-branched plant for broomssential for clearing up after a meal. SAMPIIRE, GLASSWOET, CHICKEN-

CLAWS, *Salicornia* (various species). FIG. 50 KEY-CHARACTERISTICS: fleshy herbs of the salt marshes and sea-strands, with leafless, conspicuously jointed, juicy stems bearing inconspicuous flowers hidden under closely appressed scales; plants bright green in summer, becoming red in autumn. HABITAT AND RANGE: three species: one a tough-stemmed perennial of sea-shores from Massachusetts southward (*S. ambigua*); the others annual, with soft stems usually branching from near the base, *S. europaea* and *S. Bigelovii* (or *mucronata*), occurring northward to the Maritime Provinces or Newfoundland, chiefly on salt marshes. SEASON OF AVAILABILITY: summer and early autumn. Uses: pickles and salad. The name SAMPHIRE is in colloquial use in America for these plants, but they should not be confused with the FIG. 50, SAMPHIRE or CHICKEN-CLAWS FIG. 52, GREEN AMARANTH

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184 EDIBLE WILD PLANTS quite different samphire of Europe. The CHICKEN-CLAWS, being succulent and filled with brine, form a pleasant salty salad (especially while the plant is young), and have long been popular as a source of pickles, the tender stems and branches being first boiled in their own salted-water before being put into the spiced oil or vinegar. Of the confusion of *Salicornia* with the true Samphire of Europe Bryant, in his *Flora Dietetica*, says: This plant is gathered by the country people, and sold about for the true Samphire, but it is very different from that plant (. . . *Crithmum maritimum*). This, however, makes an excellent good pickle, which renders the cheat the less to be regretted. London, too, thought so favorably of it that he suggested that it might be cultivated in the garden, by imitating a small portion of salt-marsh. SEA-BLITE, *Suaeda* (5 species). FIG. 51 Use: potherb. The SEA-BLITES, succulent plants of saline soil from Labrador to Florida and Texas, and inland in salt-licks, differs from the pigweeds in having the fleshy leaves slenderly cylindrical or thick-linear. The tender branches and leaves may be boiled but they are so full of salt as to need two or three waters. AMARANTH FAMILY (Amaranthaceae) AMARANTH, PIGWEED, WILD BEET, *Amaranthus* (about 10 species). FIG. 52 USES: potherb, breadstuff. The AMARANTHS are very similar to the Pigweeds, *Chenopodium*, and are often called Pigweed; they differ in having scaly inflorescences and more veiny, often hairy leaves and stems. The young plants are sometimes used as a potherb, and the seeds as a breadstuff, these

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OF EASTERN NORTH AMERICA¹⁸⁵ uses having been especially practiced by the southwestern Indians. In the North their use has not been general; but as potherbs we can thoroughly commend the larger species. They are often very common as garden-weeds and, gathered young, are as good as spinach. **POKEWEED FAMILY** (Phytolaccaceae) **POKEWEED**, **PTGEO1~BEERY**, **GARGET**, *Phytolacca americana* (*P. decandra*). **FIGs. 53 and 54** **KEY-CHARACTERS**: tall, coarse herb, with large, alternate, entire, elliptic, pointed leaves, the principal ones often 6-10 inches long; the tall stems becoming purple and bearing opposite the leaves long-stalked, slender clusters of blackish-purple, 10-scalloped, flat berries. **HABITAT**: rich, open soil of recent clearings, roadsides, and borders of cultivated fields. **RANGE**: common southward, extending north to the Great Lakes region and southern Maine. **SEASON OF AVAILABILITY**: young shoots, April (southward) to early June (and, when brought into the cellar, throughout the winter); berries, autumn. **USES**: potherb, asparagus, pickle, coloring. Considering the availability of the **POKEWEED** and its popularity in southern Europe and in our own Southern States as a cultivated vegetable, it is remarkable how few people in the North are familiar with the plant. The new shoots when about six inches high are a desirable substitute for asparagus or spinach. Nearly all the earlier writers, as Manasseh Cutler, Jacob Bigelow, and the recorders of Indian food-plants, speak with enthusiasm of the Pokeweed. The peoples of southern Europe long ago imported the plant from America and have cultivated it as a garden vegetable; while in our own southern cities and in Philadelphia or in Chester County, Pennsylvania, the shoots are regularly displayed in the spring market. The only precautions necessary in using Pokeweed shoots are due to the facts that the large root (often as large as the fore-arm or shin) is poisonous, being highly purgative and sometimes used in medicine as a substitute for

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¹⁸⁶ **EDIBLE WILD PLANTS** ipecac, and that the handsome, purple bark or rind of the mature stem, late in the season, is also poisonous. The young shoots do not have this purple coloring and are a perfectly wholesome and palatable vegetable. In cooking, however, it is a wise precaution to boil in two waters, throwing off the first water in order to dispose of any possible extract from the developing bark. One boiling **FIG. 53**, **POKEWEED**, young **FIG. 54**, **POKEWEED**, fruit-sprouts ready to gather; top is sufficient if only young sprouts are used. In the South the young shoots are made into pickles, very highly recommended. One of the most practical uses of Pokeweed is as a winter vegetable or substitute for asparagus, since large roots of the plant supply a phenomenally continuous crop of sprouts. In our experience we have found that twenty medium-sized roots (3 or 4 inches across) dug after the first heavy freezes of the autumn and chopped off to a length of 5 or 6 inches, then planted in a deep box of earth in a dark

cellar, supply a family of six for three months with a weekly mess of asparagus.~~ The crowns bear a

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OF EASTERN NORTH AMERICA 187 circle of almost innumerable incipient buds, and after the first shoots have been cut they are quickly replaced by a continuous series of new and equally strong shoots. By frequently watering the plants a succession of shoots is assured and these may be allowed to grow a foot or two high without developing the purple coloring. Peeled of their tough rind, cut into lengths and cooked and served as asparagus, these shoots are a decidedly welcome addition to the mid-winter diet. It is noteworthy that in France, where our species is cultivated, and in China, where a related species, *P. edulis*, is used, the shoots are blanched before using. The juice of the handsome 10-scalloped berries is a concentrated purple and is used for coloring frostings and candies; and some writers state that the berries are used in making pies and tarts. Others, however, state that the seeds are poisonous. The berries should, therefore, be used with caution. The purple juice has in the past been guilty of coloring other things than frosting and candy. Thus, in 1783 Bryant wrote: The Portugueze had formerly a trick of mixing the juice of the berries with their red wines, in order to give them a deeper colour; but as it was found to debase the flavour, the matter was represented to his Portugueze Majesty, who ordered all the stems to be cut down yearly before they produced flowers, thereby to prevent any further adulteration. CARPET-WEED FAMILY (Aizoaceae) SEA-PURSLANE, *Sesuvium maritimum* KEY-CHARACTERS: an annual, freely forking, mostly prostrate, fleshy herb, with opposite, round-tipped slender-stalked leaves (mostly 14..5/4 inch long) and short, strongly divergent, axillary branches crowded with flowers; flowers greenish, sessile in the leaf-axils, less than 14 inch long, with 5 erect, ovate, pml-margined sepals and a capsule opening by a circular slit near the base. HABITAT AND RANGE: Sea-beaches of the Atlantic, north to Long Island, local. SEASON OF AVAIL~ILITY: early summer. UsEs: potherb, pickles.

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188 EDIBLE WILD PLANTS The SEA-PURSLANE may be eaten as a potherb, though it is said to be pretty salty; and its succulent stems are sometimes pickled like Samphire. It is so local, however, that it is relatively unimportant. SEA-PUESLANE, *Sesuvium Port*

utacast rum USE:potherb, pickles. A coarser species than the preceding, differing chiefly in size of parts and numerous (instead of 5) stamens, following seashores from the Tropics northward to North Carolina. It is pantropical in range. In eastern Asia it is raised as a garden vegetable, said to be regularly sold in the markets of China and the Dutch East Indies. NEW ZEALAND SPINACH, *Tetragonia expansa* USE: potherb. NEW ZEALAND SPINACH, now so familiar as a summer spinach, is becoming naturalized as a weed southward. It is one of the weeds to be encouraged. CARPET-WEED, INDIAN CHICKWEED, *Mollugo verticillata*. FIG. 55 USE:potherb. The familiar CARPET-WEED, with depressed, branching, slender stems and whorls of narrow leaves, with insignificant axillary flowers and 3-celled capsules, may be cooked and eaten. It is too small for most people to gather, except when very hungry. PINK FAMILY (Caryophyllaceae) SPURREY, CORN-SPURREY, *Spergula arvensis* USE: breadstuff. The only use of CORN-SPURREY seems to have been as a source of famine-bread in Scandinavia, and all the ac

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OF EASTERN NORTH AMERICA 189 4 counts are obviously derived from the original one of Linnaeus who, toward two centuries ago, wrote: In times of great scarcity, when nothing better is to be had than seeds of Spurrey (*Spergula arvensis*) from the fields, these seeds, after being dried, are ground and baked, along with a small proportion of corn [wheat]. The bread thus made proves blackish, but not bad. Spurrey is such an abundant weed of grain-fields and of sandy open soil throughout the Northern States and Canada, that it should be a very simple experiment to try the quality of this Norwegian famine-bread. All the members of its group contain saponin, a bitter and somewhat poisonous principle, so that only under stress is it desirable to use the seeds. SEA-PURSLANE, SEABEACH SANDWORT, *Arenaria* (or *Ammodenia*) peploides. PLATE II and FIG. 56 USE:salad, potherb, pickle, drink. This fleshy, coarse chickweed-like plant of sea-strands from Virginia northward is very succulent when young and, according to some European writers, may be made into pickles which are said to have a pleasant pungent taste. In Iceland the plant is steeped in sour whey and allowed to ferment; the liquor is then strained off and fresh water added to it, when it is said to taste like olive-oil and is used as a beverage. As a salad or relish it may be eaten, picked fresh as one follows the shore; and it is also a very tolerable potherb if gathered before it is too old and stringy. In his account of Sable Island, off Nova Scotia, Dr. Harold St. John said: This succulent, free-growing plant is the choicest fodder of the gangs of wild ponies that roam the island. . . . Taking the hint from the ponies, I myself tried munching a sprig of the *Arenaria*, and found it of good texture, juicy and with a strong but not unpleasant taste resembling that of cabbage.

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190EDIBLE WILD PLANTS CHICKWEED, *Stellaria* (or *Alsine*) *media* UsE:potherb. The common CHICKWEED of gardens and damp, shaded dooryards is not to be despised as a mere weed, for many European authors are enthusiastic in their praises of it as a substitute for spinach. Thus Mrs. Lankester went so far as to say: When boiled, it forms an excellent green vegetable resembling spinach in flavour, and is very wholesome. Others speak of it as having little taste (as we have found out), but as being a good padding to add bulk to other spinaches. Only the young, vigorously growing tips should be used, since the older bases of the plant become stringy in age. MOUSE-EAR CHICKWEED, *Cerastium semidecandrum* UsE:potherb. The MOUSE-EAR CHICKWEEDS are chiefly weeds of cultivated land, and differ from the true Chickweeds in FIG. 55, CARPET-WEED or INDIAN CHICKWEED Pro. 56, SEA-PURSLANE or SEABEACH SANDWORT

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SEA-PURSLANE or SEABEACH SANDWORT Forming carpets on sea-beaches
UILO-O. Vy J. ji (Jott~ns)

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ALPINE CTHESS Photo. by J. F. Collins

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OF EASTERN NORTH AMERICA193 having oblong, finely hairy leaves of thick texture. Most of them are too hairy and tough to be attractive, but the small, annual species, *C. semidecandrum*, which abounds in early spring as a weed on Cape Cod,

thence locally southward, grows very rapidly and, gathered before flowering, makes a thoroughly palatable potherb. BLADDEE-CAMPION, MAIDENS TEAES, SNAPPERY, Silene Cucubalus (or latifolia). FIG. 57 USES:potherb, soup. The BLADDER-CAMPION, so named from its inflated, thin-textured calices, is one of the commonest roadside- and railroad-weeds in some regions of northern New England, eastern Canada and Newfoundland, thence west to British Columbia and rather locally southward to Virginia, Tennessee, etc. The young shoots when about two inches long are a palatable cooked green, having a flavor suggestive of green peas, but with a slight bitter taste. This bitter is due to saponin, a bitter principle present in many members of the Pink family and in large quantity poisonous. The amount present in the young shoots of Bladder-Campion is not harmful, and some English authors have suggested the cultivation of the plant as a garden vegetable, the bitter of the new shoots being checked by blanching with licker. A purée made from the boiled shoots is nearly equal to the best purée of spinach. Bryant, in the 18th century, was so enthusiastic about this plant, that he wrote: Our kitchen-gardens scarcely furnish a better flavoured sallad than the young, tender shoots of this plant, when boiled. . . . If the plant were under cultivation, no doubt but it would be improved, and would well reward the gardeners labour.

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Fm. 57, BLADDEE-CAMPION

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OF EASTERN NORTH AMERICA 195 Moss-CAMPION, Silene acaulis USE:cooked vegetable. This densely-tufted moss-like pink of the arctic realm abounds on the barrens of Newfoundland and eastern Quebec and is found on Mt. Washington, New Hampshire; and, with its tough, closely forking stems and masses of persistent dead leaves, it hardly suggests culinary possibilities. Nevertheless, in his Tour in Iceland, Sir William Hooker states that the plant is boiled and eaten with butter by the Icelanders.~ The great profusion of the plant in some areas suggests the desirability of testing it as a cooked vegetable; but its habitat in gravels and its habit of retaining for years the half-decayed old branches and leaves indicate that, in order to render it acceptable to a fastidious palate, considerable preparation is necessary. PURSLANE FAMILY (Portulacaceae) PURSLANE, PUSLEY, Portulaca oleracea KEY-CHARACTERS AND HABITAT: a depressed or matted, creeping annual herb of light soils, chiefly of gardens, with fleshy,

jointed, freely forking, reddish-green or purplish stems; and very fleshy, narrowly wedge-shaped, reddish-green almost opposite leaves 1/2.2 inches in length; flowers sessile at the forkings of the stem, opening only in bright sunshine, with yellow petals; top of the seed-pod lifting off like a cap. RANGE:a common, though sometimes localized, weed throughout the United States and warmer parts of Canada. SEASON OF AVAILABILITY: summer and early autumn. USES:potherb, salad, pickle, breadstuff. The common PURSLANE or Pusley, made famous by Charles Dudley Warner, is so familiar that most people despise it as a mere weed. As a matter of fact, however, in many victory-gardens the crop of Purslane has more potential value for food than the ignorantly nursed or neglected planted crops. When cooked and seasoned like spinach, the tender young branches make one of the most

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196EDIBLE WILD PLANTS palatable of potherbs, with little loss of bulk in cooking, so that a small patch of vigorous plants clipped of their new tips and allowed to sprout again is sufficient to supply a table throughout the summer. The fatty or slimy quality of Purslane is sometimes objectionable, but by chopping the cooked tips and then baking with bread-crumbs and a beaten egg this disagreeable quality is entirely disguised. It is truly surprising how few sophisticated Americans appreciate the esculent qualities of Purslane, since our ancestors, both in America and in Europe, were fully cognizant of them. Thus we find the distinguished Manasseh Cutler, in the 18th century, stating that, as a potherb it is little inferior to asparagus, while in the 16th century John Gerarde wrote that Rawe Purslane is much used in sallads with oile, salt, and vinegar. Others speak of it as a palatable and easily procured pickle. Thus the always delightfully concrete John Evelyn in 1706 gave these detailed directions: Lay the Stalks in an Earthen-Pan; then cover them with Beer-Vinegar and Water, keeping them down with a competent Weight, to imbibe, three Days: Being taken out, put them into a Pot with as much White-wine Vinegar as will cover them again; and close the Lid with Paste, to keep in the Steam: Then set them on the Fire for three or four Hours, often shaking and stirring them: Then open the Cover, and turn and remove those Stalks which lie at the Bottom, to the Top, and boil them as before, till they are all of a Colour. When all is cold, Pot them with Fresh White-wine Vinegar, and so you may preserve them the whole Year round. According to Dr. Edward Palmer, the seeds of this and related species are used by the southwestern Indians for making mush or bread, the plants being placed in large piles, dried, and then pounded to free the seeds. Be sure first to wash off all mud and sand.

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OF EASTERN NORTH AMERICA 197 SPRING-BEAUTY, FAIRY-SPUDS, *Claytonia caroliniana* and *C. virginiana* USES: starchy vegetable, potherb. The roundish, irregular roots of the SPRING-BEAUTY, varying from $\frac{1}{2}$ to 2 inches in diameter, when boiled in salted water, are palatable and nutritious, having the flavor of chestnuts. The succulent, opposite-leaved young plants, which often abound in spring in rich woods and open glades, are a possible potherb. Only in regions where the plants are superabundant, however, would the quantity be sufficient to repay digging for the deeply buried roots. In some regions the plants cover many acres of wooded slopes or meadows and there in a few minutes it is possible to dig enough roots to furnish a pleasant change in the spring diet. WATER-LILY FAMILY (Nymphaeaceae) COW-LILY, SPATTER-DOCK, YELLOW WATER-LILY, POND-COLLARD, Nuphar, 7 species. KEY-CHARACTERS: leaves borne from the summits of a thick spongy rootstock, the blade elliptic to rounded, mostly 3-10 inches long, with a deep basal cleft or sinus, the leaf-stalk thick and spongy; flower nearly globular, yellow, or tinged with green or purple, with convex, leathery sepals and petals; fruit urn-shaped, an inch or two long, filled with seeds resembling kernels of popcorn. HABITAT AND RANGE: ponds, pools, quiet streams and bogholes; one species or another from southern Labrador to British Columbia, south to the Gulf of Mexico. SEASON OF AVAILABILITY: rootstocks, autumn to early spring while well filled; seeds, late summer and autumn. US B: rootstocks as a starchy vegetable, seeds for bread, soups, and popped like corn. To some of the northwestern Indians the seeds of the Cow-LILIES are a very important food and they spend several weeks each year in harvesting them. The north-western species, *Nuphar polysepalum*, is so important to the Klamath Indians, that a detailed bulletin on their use of the seeds and the preparation of the food Wokas

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198 EDIBLE WILD PLANTS was prepared by Coville. Very briefly: the seeds are extracted after the pods have thoroughly dried and have been pounded to loosen the seeds; although the pods which have thoroughly ripened in the water and have begun to disintegrate contain more valuable seeds. The seeds are parched for ten minutes to loosen the kernel contained within, then pounded or lightly ground and winnowed to get rid of the hard, firm shell. The remaining white kernels, after the hard shells of the seeds have been removed, may be parched, when they swell considerably but do not crack like popcorn. Thus prepared they are said to be a delicious food, particularly if slightly salted and eaten with cream. The white kernels are also ground into flour for bread-making or the dried seeds with their shells on may be stored for winter use, to be parched and ground as needed. Although the seeds of this genus which have become most famous are those of

the western *N. polysepalum*, the large-flowered species of eastern America are so similar that it is highly probable that our eastern species would furnish as valuable seeds. In this connection it is noteworthy that the closely related European *N. luteum* has had a similar use. Thus, we find Mrs. Lankester stating that in England some persons boil the seeds, when they are said to have a pleasant nutty flavour.~~ The chief use of the eastern species by the Indians seems to have been of the rootstocks. These, like the rootstocks of the western species, contain considerable starch, in spite of their spongy texture, and were boiled or roasted as a vegetable. Quaint old John Josselyn, one of the first chroniclers of New England natural history, said The Indians Eat the Roots, which are long a boiling, they taste like the Liver of a Sheep; while Dr. Edward Palmer stated that, although the squaws often dove for these rootstocks, they found it simpler to steal them from muskrat-houses in which they were stored.

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OF EASTERN NORTH AMERICA 199 WHITE WATER-LILY, *Nymphaea* (or *Castalia*~) *odorata* USE:cooked vegetable. Dr. Eluron Smith stated that the flowerbuds of the common fragrant WATER-LILY, which abounds from Labrador to Manitoba, south to Florida and Texas, are cooked and relished by the Ojibwa Indians. TUBEROUS WATER-LILY, *Nymphaea* (or *Castalia*) *tuberosa* USE:starchy vegetable. The large white-flowered WATER-LILY, with the flowers nearly odorless, the petals broadly rounded at tip, occurs in pond-margins and slow streams from southwestern Quebec to northern Ontario, thence southward to Maryland, Ohio, Indiana, Illinois, and Arkansas. Along its rootstock it bears egg-shaped or rhomboid brown tubers up to 3 or 4 inches long. These are freely broken off by wading among the plants late in the season and come to the surface in great quantity. In view of the general use of tubers and seeds of African members of this genus those of our own should be investigated. In his great volume, *The Waterlilies*, Conard summarizes the uses as follows: The use of waterlilies for food and ornament among the ancient Egyptians has already been referred to. This still continues to some extent in Egypt, but, on the West Coast of Africa, *Nymphaea* seeds constitute an important article of food. Travelers describe seeing the native women and children coming in at evening to the villages laden with the ripening fruits. These are laid in heaps until all of the soft parts decay. The seeds are then easily washed out clean, and are dried and stored away. They contain so much starch, oil, and proteid that they should form a very nutritious diet. When dry the seed coat is brittle and the kernel slightly shrunken, so that Carnegie Inst. Wash. 1905.

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200EDIBLE WILD PLANTS the two are easily separated. The kernels may be ground into a kind of flour or may be boiled whole. The resting tubers, in the dry season, are almost solid starch, and are eaten boiled or roasted like potatoes. The species used in West Africa are *N. caerulea* and *lotus*. In Madagascar, *N. lotus* and *capensis* are similarly used, and the seeds of *N. gigantea* are eaten by the Australians. In Central America also waterlily seeds are used for food. WATER~CHLNQUAPIN, NELUMBO, *Nelumbo lutea*. FIG. 58 KnY-CHARACTERS: our largest Water-Lily, with large circular or shield-shaped leaves 12 feet across, usually raised above the surface of the water and with the center somewhat depressed or cup-like; the flower resembling that of the pond-lily, pale-yellow, 410 inches broad; the fruit-pod top-shaped, perforated at the flat summit like a giant pepper-shaker, with the large nut-like seeds showing at the perforations. HABITAT AND RANGE: ponds and lake-margins from tropical America and the Gulf States northward locally to the Great Lakes region, and very locally in the coastal region to southeastern Massachusetts. SEASON ~F AvAILABILITY: tuberous rootstock, spring and autumn whlie well filled; seeds, summer and autumn; young leafstalks, early summer. USES: tubers as a starchy vegetable; seeds as starchy vegetable and as breadstuff; young leaf-stalks and unrolling leaves as potherb. *Nelumbo*, the WATERCHINQUAPIN, has always been famous as an Indian food, and the whites who have tried it in its various preparations are enthusiastic about it. The very long rootstocks, often becoming 50 feet long, bear tuberous enlargements which become filled in autumn with starch; and these tubers or the crisp growing tips of the branches of the rootstock, when baked, are said to have a pleasant mealy quality suggestive of sweet potatoes. The seeds, which are as large as small acorns or marbles, have a hard, thick shell when ripe, but in their immature, half-ripe condition are said to be delicious either raw or cooked, in flavor like chestnuts. The ripe seeds have to be thoroughly parched to loosen the inner kernel. Then, after crushing and winnowing to dispose of the loosened hard shells, they may be again parched and eaten dry, or baked, boiled, or ground and used for bread.

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OF EASTERN NORTIT AMERICA201 The young leaf-stalks and unrolling leaves are said to form a palatable potherb. The Omaha Indians are reported to gather the seeds in winter when the ice is firm. They also dry the tubers for winter use. FIG. 58, WATER-CHINQUAPIN, fruits

202EDIBLE WILD PLANTS CAUTION: The extreme rarity of the localities where Water-Chinquapin occurs in the North makes it inad- visable to raid the colonies for food. Farther south, how- ever, where the plant is more abundant, little harm will be done, especially since the rootstocks are beyond the reach of all but the most enthusiastic. The related oriental Lotus is extensively cultivated in southern China for its seeds, which are a regular food, and for the rootstocks, which are secured by draining the artificial ponds. Our own plant might similarly be propa- gated. WATER-SHIELD, *Brasenia Schreberi* KEY-CHARACTERS:a branching aquatic with the stems, leaf-stalks and under surfaces of the leaves slippery with a colorless gelatinous coat; leaves oval, attached at the middle to the stalk; flowers about 1 inch across, with 3 or 4 narrow mauve-purple petals; fruits a cluster of club-shaped small pods inclosed in the calyx. HABITAT:ponds, quiet streams, etc. RANG : general at low altitudes northward into southern Canada. SEASON OF AVAILABILITY: autumn to spring. * USES:starchy tuberous roots, salad. We have never dug the roots, but it is stated on good authority that the ~California Indians ate the tuberous roots. Professor Georgeson stated that in Japan The leaf- stems and young leaves, before they expand, with the ad- herent mucilage or slime, are eaten as a salad with vinegar. CROWFOOT FAMILY (Ranunculaceae) BULBOUS CROWFOOT or BUTTERCUP, *Ranunculus bulb osus* USES:starchy vegetable, relish. Like other members of the genus, the BULBOUS CRow- FOOT has a strongly acrid juice which is apt to cause blistering; but, as stated by Lightfoot, not withstanding this corossive quality, the roots when boiled become so mild as to become eatable-

OF EASTERN NORTH AMERICA203 The round bulbs which have wintered over are in the spring surprisingly mild and sweet, with no more pungency than a somewhat strong radish, and when thoroughly dried they lose essentially all their acidity and become very sweet. As an emergency food they are worth remembering. CURSED CROWFOOT, *Ranunculus sceleratus* USE:potherb. In spite of its name and its strongly acrid fresh juice, the CURSED CRowFooT is said by European authors to have been used in emergency, the boiled plant being eaten as a spinach, care being taken to pour off the water by which the acrid principle, anemonol, has been extracted. Only in emergency would one trY? it. MARSH-MARIGOLD, *CowsLip*, *CaUha palustris*. FIG. 59 KEY-CITARACTERS:a marsh plant of early spring, with round or kidney- shaped, succulent, green leaves closely scalloped around the margin, the leaf-stalks dilated at the base into a papery, sheathing portion (stipule) flowers orange-yellow, resembling buttercups, borne in leafy clusters on

hollow stems which arise from among the leaves. HABITAT: They grow in moist and marshy grounds, and in watery meadows Gerard. Especially in clay or limestone regions. RANGE: Newfoundland and southern Labrador to Alaska, south to South Carolina, Tennessee and Nebraska. SEASON OF AVAILABILITY: early spring (southward), summer (northward). Uses: potherb, pickle. The MARSH-MARIGOLD, or as it is more familiarly known in America, the COWSLIP (not to be confused with the European Cowslip) has long been one of the most popular spring greens of New England. As early as 1784, the Massachusetts botanist, Manasseh Cutler, spoke of it as an esteemed potherb, and among New Englanders and in eastern Pennsylvania, at least, this verdict has been generally approved. In gathering the plant great care should

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204 EDIBLE WILD PLANTS be taken to include none of the poisonous species which occur in the same habitat, for the rich meadows where Marsh-Marigold abounds are the homes of the WHITE HELLEBORE, *Veratrum viride* (see p. 50) and some of the deadly poisonous WATER-HEMLOCKS, *Cicuta* (see pp. 45-47), all of which, with ordinary care, are easily distinguished. The new leaves and stems of the Marsh-Marigold should be carefully picked over to exclude the stipules and mucilaginous bases, then boiled thoroughly for an hour or more, changing the water at least once and, if a mild potherb is desired, twice, since the first water extracts only part of the acrid principle which pervades the plant. It is singular that the Europeans have so regularly looked upon the Marsh-Marigold as poisonous. Thus we find Johnson saying, Turner, the old herbalist, recommends it for the toothache, but I would not advise anyone FIG. 59, MARSH-MARIGOLD FIG. 61, SPICE-Bush

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OF EASTERN NORTH AMERICA 205 to apply it to that use who does not wish to blister his mouth, a result that would certainly follow; and Henslow, writing on useful plants of Great Britain, states that several people have been poisoned by eating it. This dread of the European plant would naturally suggest that our American *Caitha* is distinct from the European species, but no distinctive characters between the two have been discovered. In order to test the question, Dr. Sidney F. Blake, while in England, secured a quantity of young Marsh-Marigold which was cooked at the house of the late Dr. Moss, the distinguished botanist of Cambridge, and subsequently Dr. Blake wrote home: While

visit- ing Dr. Moss at Easter I collected some *Gaitha palustris* and had it cooked and then ate it. It certainly had no ill effects. The only general use of the Marsh-Marigold in Europe is one that is also somewhat popular in America, the mak- ing of pickles from the flowerbuds. First soaked in salt water, then cooked in spiced vinegar, they are said to make a good substitute for capers. CAUTION:do not eat Marsh-Marigold raw. The fresh plant contains the poisonous glucoside, helleborin, which is expelled in boiling. CUSTARD-APPLE FAMILY (Annonaceae) PAWPAW, *Asimina triloba* (other species from south- eastern Virginia southward) HABITAT AND RANGE: shrub or small tree of rich woods and banks of streams in the Southern and central States, extending locally northeastward into western New Jersey and New York. SEASON OF AVAILABILITY: autumn, in the North usually after light freez. ing. USE:fruit (raw or cooked). The fully ripe fruit of the American PAWPAW has long been famous among those who have the fortune to live where it occurs, the fruit when fully ripe (northward

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206EDIBLE WILD PLANTS often after slight freezing) being sweet and inscious. It is eaten either raw or baked or as a filling for pies, or is combined with eggs, cornstarch and gelatine for a dessert. Some Enropean writers, presnmably not knowing paw- paws at their best, have said, the frnit is relished by few except negroes; bnt Timothy Flint knew better: The pnlp of the frnit resembles egg~cnstard in consistence and appearance. It has the same creamy feeling in the month and nnites the taste of eggs, cream, sngar and spice. It is a natrnal cnstard, too Inscious for the relish of most peo- ple. The fruits nsnally fall while green, hard and acrid. They mnst be harvested (mostly from the gronnd) and kept nntil ripe. BARBERRY FAMILY (Berberidaceae) MAY-APPLE, HOG-APPLE, WILD LEMON, MANDRAKE, *Podophyllum pelt atum*. FIG. 60 HABITAT AND RANGE: rich woods of the Central States, eastward to western Quebec and western New England and southward. SEASON OF AVAILABILITY: late summer. Usus:fruit, marmalade, summer drink. The fnlly ripe frnit of the MAY-APPLE (becanse flower- ing in May) is familiar to every conuntry boy of the re- gions where the plant abonnds and, although Asa Gray described it as mawkish, eaten by pigs and boys, in its fresh state it has a pecnliar flavor very agreeable to most hnman grown-nps. It makes a Inscious marmalade and a beautiful jelly, and, being abnndant where it grows, should be experimented with cooked in other ways. In the Sonth a drink is prepared from the jnice of the frnit with Madeira and sngar, and a less ardent beverage may be prepared by sqeezing the jnice into lemonade or other frnit-drinks. The foliage and root of the plant are poisonons to eat (see p. 45).

208 EDIBLE WILD PLANTS BARBERRY, *Berberis vulgctris* HABITAT AND RANGE: dry thickets, fence-rows, rocky pastures and rocky borders of woods, especially abundant in southern New England and adjacent New York, and occasional elsewhere. Originally introduced from Europe, but now thoroughly naturalized. This species is at once distinguished from the recently introduced *B. Thunbergii* by its forking spines and long cluster of very juicy berries, *B. Thunbergii* having simple spines and the dry, inedible berries few in a cluster. SEASON 01 AVAILABILITY: fruit, autumn and winter; leaves, spring. USES:cooked fruit, jelly, jam, pies, drink, nibble or masticatory. In the regions where it abounds the BARBERRY has always been a favorite fruit for spiced preserves, jellies and other similar preparations. The juice should be extracted without the addition of water (when there are plenty of berries) or water may be added, and with an equal bulk of sugar it makes a very tart, distinctly flavored jelly. When water is used it is necessary to add apple to make the juice jell. Barberry-juice is especially desirable to mix with sweet or insipid fruits in preserves or jellies. The berries are also used like cranberries as an acid sauce of fine flavor, but full of shoe pegs, or in tarts or pies, or cooked in a spiced syrup. New England housewives often put Barberries into the cans of other preserved fruits to which they lend a tart flavor. The syrup from the barberry mixed with water and other juices, makes a pleasant, cooling drink. The young leaves in spring make a palatable acid nibble; and the berries are boiled in soups to give them a tart flavour. The native Barberry, *Berberis canctdensis*, occurring in dry woods and on bluffs from western Virginia to Georgia and Missouri, has equally good fruit, which is used like that of the introduced species.

OF EASTERN NORTH AMERICA209 LARDIZABALACEAE AKEBJA QTJII{ATA USE:sweetish fruit. *Akebia quinata*, a twining shrub with 5 digitate leaflets, purple flowers with 6 petal-like sepals and 3 or more ovaries, 1 or 2 of which ripen late in the autumn into oblong purple berry-like fruits 3 or 4 inches long, is commonly cultivated and tends to stray to roadside-thickets. Its ripe fruit cracks open and exposes the yellowish-green pulp with many black seeds. The pulp is sweetish and edible, appreciated by the natives of its home-region, China and Japan. LAUREL FAMILY (Lauraceae) *Sassafras*, *Sassafras albidum* (or officinale or varii-folium) KEY-

CHARACTERS: tree or shrub with greenish branchlets; the leaves oval to fan-shaped, many of them often mitten-shaped or with two thumbs; berries blue, on thick, club-shaped, red fruit-stalks. HABITAT AND RANGE: dry woods and thickets, southern Maine to southern Ontario, Iowa, and south to the Gulf. SEASON OF AVAILABILITY: roots, throughout the year; leaves, and pith, early summer. Uses: tea, soup, condiment. Very soon after the discovery of America, Sassafras became famous for its supposed medicinal virtues and it was one of the lures which led many fortune-hunting and colonizing parties from Europe to America. As a source of great fortunes Sassafras proved a disappointment, but in the regions where it occurs it has always had a sort of popularity on account of its aromatic odor and flavor and its use as a tea and, in the South especially, as gumbo filee. The tea is made by brewing the roots (some say the young shoots also), the brew being a deep red color. To many people this drink, served with cream and sugar, is decidedly palatable, though to others it is quite dis-

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210 EDIBLE WILD PLANTS tasteful perhaps as too suggestive of tooth-powder. The same roots may be brewed several times before the flavor is all extracted. If any one doubts the appreciation of Sassafras-tea in the South he should note the following, sent by Dr. E. L. Lee of Bridgeport, Alabama, in 1907, to the American Botanist: We were a little amused by the statement in a recent number, that sassafras tea was used during the Civil War by the people of the South. So it was, but it was used from choice and a taste long cultivated. Long before the war, both whites and Indians made sassafras tea during the spring when the sap of the sugar maples was running. They boiled the sap a while then added the sassafras roots and boiled them a while longer and the tea was finished and a drink fit for the gods was the result. Was this fact alone not the cause of drinking sassafras tea in the spring of the year? The most common substitute for tea during the war was the leaves of *flex opaca*. It makes a very good tea. The bark of the root is often dried and kept (the longer the better) to furnish an occasional nibble. This dried bark may be made into a strong-flavored condiment by grating it into boiling sugar and then cooling. The young leaves and young pith are highly mucilaginous and, when dried and powdered, form the famous gumbo filee of the South, where the whites early learned the preparation from the Choctaw Indians. This powder is used like gumbo to thicken soups. Dr. Carver gave the following directions: The young, tender stems and leaves . . . are cut, dried, and ground to a fine powder and used in soups, broths. . . . It is especially useful in the preparation of gumbo of various kinds. It can be cooked with the soup, etc.; or put in a salt shaker and placed on the table to be used at will, like salt and pepper. It is most wholesome and appetizing. CAUTION: remember that, although in moderation Sas-

OF EASTERN NORTH AMERICA 211 safras-tea is wholesome, an overdose of the oil may be narcotic in action. SPICE-BUSH, BENJAMIN-BUSH, WILD ALLSPICE, *Lindera Benzoin* (or *Benzoin aestivale*). FIG. 61 KEY-CHARACTERS: shrub with slender, grayish branches covered in early spring by dense sessile clusters of yellow flowers, later bearing elongate, bright-red berries and narrowly obovate, entire leaves; twigs, foliage and berries fragrant when bruised. HABITAT AND RANGE: swampy woods and brooksides, southern Maine to southern Ontario and southward; a similar species, differing by having downy branchlets and leaves, found in the Southern States. SEASON OF AVAILABILITY: spring to autumn. Uses: tea, condiment. The young twigs, broken or cut, the leaves and the fruits all contain aromatic oil and make a very fragrant tea which is appreciated by some people. The new bark is pleasant to chew. The berries, dried and powdered, have been used as a substitute for allspice. RED-BAY, *Persea palustris* (or *pubescens*) USE: condiment. The familiar and handsome RED-BAY of the coastal plain from Texas to Florida, thence north in swamps and low, sandy woods to the lower James River, has firm ever-green leaves with the delightful odor of tropical bay. It is quite as good for seasoning soups and savory dishes. POPPY FAMILY (Papaveraceae) The poppies are unimportant in our wild flora. The European species, cultivated as ornamental plants, rarely become naturalized and the native yellow-flowered Arctic Poppy, *Papaver radicum*, is unknown south of Labrador. The seeds of various garden poppies are used in Europe and Asia sprinkled on rice, cakes, etc.; and the seeds are now familiar, similarly used on pastries in this

212 EDIBLE WILD PLANTS country. They are palatable and said to be important as a preventive of scurvy. MUSTARD FAMILY (Cruciferae) To this family belong many of the cultivated vegetables; the so-called brassicaceous crops (turnips, cauliflower, Brussels-sprouts, cabbage, etc.), the mustards, radish and various cresses. Practically all the members of the group have qualities suggestive of the crops, but the following are the most important of the wild species to use as food. PENNY-CRESS, MITHEIDATE-MUSTARD, *Thlaspi arvense*. FIG. 62 KEY-CHARACTERS: a common annual weed with oblong, pale leaves along the stem; white flowers with 4 petals a third of an inch long, and deeply notched flat, roundish many-seeded pods about half an inch long, these in simple elongate clusters, each pod on a slender, spreading stalk and, when FIG. 62, PENNY-CRESS FIG. 63, WILD PEPPERGRASS

OF EASTERN NORTH AMERICA²¹³ ripe, with the 2 flat valves falling away from a thin membrane which separates them. HABITAT and RANGE: a common roadside- and field-weed from Labrador to Alaska, south through the Northern States and locally in the South. UsEs: salad, condiment. The young leaves are edible, tasting somewhat mustard-like, with a suggestion of onion. The seeds can be eaten as a mustard-like condiment. The name Mithridate, long applied to this and some other possibly medicinal plants, comes from an ancient physician, Mithridate, who tried his concoctions on himself. PEPPKRGRA5S, *Lepidium* (about 6 species). FIG. 63 KEY-CHARACTERS: leaves in spring forming rosettes, the individual leaves deeply cut or toothed and with the characteristic cress-flavor; flowers minute, white or whitish, in elongating slender spike-like clusters, with 4 petals (these sometimes wanting) in opposite pairs; seed-pod flat, circular or nearly so, notched at the summit. HABITAT: roadsides or dry, open soils. RANGE: temperate regions generally. Usna: salad, condiment. The vigorously growing young shoots in spring make a good substitute for water-cress or garden-cress, and the peppery pods or seeds through the summer are an excellent seasoning for salads or soups. These seeds mixed with vinegar and salt (very little) make a tasty dressing for meats. SHEPHERD 5-PuRsE, PICK-POCKET, *Capsella* (or *Bursa*) *Bursa-pcsstoris* KEY-CHARACTERS: familiar garden weed, with the elongate leaves of the basal rosette varying from entire to coarsely toothed; the white flowers forming elongating clusters, with 2 pairs of opposite petals; seed-pod flat, forming an inverted triangle (broad base up). HABITAT AND RANGE: gardens, lawns, paths and waste places, in all civilized regions. SEASON OF AVAILABILITY: leaves, late winter and early spring, before becoming tough; seeds, summer and autumn. USES: potherb and salad, breadstuff.

~i4EDIBLE WILD PLANTS The vigorously growing new foliage is sometimes cooked like spinach and, although its turnip-like odor and flavor are disagreeable to some, it is relished by many people. Barton, in 1818, writing from Philadelphia, said: The young radical leaves are brought to market and sold for greens, in the spring of the year and Correa de Serra in 1821 wrote to the Horticultural Society of London: The *Capsella bursa past oris*, or common Shepherds purse . . . is an esculent plant in Philadelphia, brought to market in large quantities in the early season. The taste, when boiled, approaches that of Cabbage, but is softer and milder. This plant varies wonderfully in size and succulence of leaves, according to the nature and state of the soil where it grows. Those from the

gardens and highly cultivated spots near Philadelphia come to a size and succulence of leaf scarcely to be believed without seeing them. They may be easily bleached by the common method, and certainly in that state would be a valuable addition to the list of delicate culinary vegetables. By 1837 Darlington, writing from neighboring West Chester with special emphasis on domestic and rural economy, did not seem to know of the phenomenal plant of the Philadelphia market and spoke of Shepherd's-purse, as others have ever since, merely as a troublesome weed. Chestnut states that by California Indians the seeds are sometimes gathered and ground into meal. *Scurvy-Grass*, *Cocklearia* (3 species). FIG. 64 KEY-CHARACTERS: leaves slender-stalked, forming a circular rosette a few inches across; the roundish blades more or less coarsely angled, fleshy and almost veinless, with a strong odor or taste of cress or horseradish; flowering stems branching, arising from the old rosettes, a few inches high, bearing elongate clusters of small white flowers with 4 petals, followed by flattened, roundish seed-pods. HABITAT AND RANGE: seashores and sea-cliffs from the Magdalen Islands, Anticosti and the Mingan Islands in the Gulf of St. Lawrence around the coasts of Newfoundland and outer Labrador.

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OF EASTERN NORTH AMERICA SEASON OF AVAILABILITY: throughout the open season, while the leaves and stems are tender. USES: salad, potherb. SCURVY-GRASS has very palatable, crisp foliage and forms one of the most agreeable of salads, suggesting water-cress. It is an important addition to the diet of northern peoples, and in the early days of navigation was much sought as a preventive of scurvy. Bryant says that the best way of eating them [the leaves] is between bread and butter. SEA-ROCKET, *Cakile edentula*. FIG. 65 KEY-CHARACTERS: a succulent-stemmed and fleshy-leaved annual of sea-strands, with the fleshy, somewhat wedge-shaped leaves wavy-margined; the flowers lavender, with 2 pairs of opposite petals; the seed-pods plump, consisting of 2 joints, the upper joint beaked. HABITAT: sandy and gravelly seashores and lake-strands. RANGE: Atlantic coast, northward to southern Labrador, and locally on the strands of the Great Lakes. FIG. 64, *Scurvy-Grass* FIG. 66, WATER-CRESS

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216 EDIBLE WILD PLANTS SEASON OF AVAILABILITY: early summer to autumn. USES: potherb and salad. According to Dr. Harold St. John, one of the few botanists

familiar with southern Labrador, the fisherman of that Coast gather great quantities of young SEA-ROCKET to cook as a green. The cooked plants are of good quality, but without a very distinctive taste, although when cooking they give off a strong odor as of turnip. The succulent young foliage and young capsules are palatable when mixed as a salad with other milder leaves or, when eaten raw by themselves, have a flavor of horseradish. MUSTARD, *Brassica* (about 10 species) and HEDGE-MUSTARD, *Sisymbrium officinale* USES: potherb, salad. The MUSTARDS are familiar weeds of cultivated ground or waste land and the young plants are popular as potherbs. The leaves of the smoother-leaved species are sometimes used in salads. The powdered mustard of the table comes from seeds of this genus. The HEDGE-MUSTARD, *Sisymbrium ollicinate*, or its var. *leiocarpum*, one of the commonest weeds of manured lands, barn-yards, etc., makes a particularly good potherb, if gathered young. GARLIC-MUSTARD, *Altiaria officinalis* The old-fashioned garden plant, GARLIC-MUSTARD, a tall biennial with heart-shaped or somewhat triangular stem-leaves smelling like garlic, and with white flowers with 4 petals, borne in a simple terminal cluster, has spread somewhat to roadsides and borders of groves. It is available for those who like the combination. Evelyn, hiding the identity under the old English names, JACK-BY-THE-HEDGE and SAUCE-ALONE, said, eaten, as other Sallets, by all Lovers of Garlick; and Bryant, nearly a

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OF EASTERN NORTH AMERICA 217 century later, said: The poor people in the country [England] eat the leaves of this plant with their bread, and on account of the relish they give, call them Sauce-alone. They also mix them with Lettuce, use them as a stuffing herb to pork, and eat them with salt-fish. AMPHIBIOUS YELLOW CRESS, *Rorippa amphibia* USES: salad and potherb. This coarse perennial species, with elongate rooting branches and entire or shallowly toothed to jagged oblanceolate leaves, small yellow flowers and ellipsoid pods, is naturalized in wet places in Quebec, New England and New York. In Europe and Asia the young shoots are eaten either raw or cooked. Doubtless other species could be similarly used. FIG. 68, two species of CRINKLE-ROOT FIG. 65, SEA-ROCKET

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218 EDIBLE WILD PLANTS WATER-CRESS, *Nasturtium* (or *Rorippa* or *Radicula*)

Nasturtium-aquaticum (N. officinale). FIG. 66 USE: salad. The familiar WATER-CRESS of the markets is naturalized in America, in clear streams or pools or about springs, rarely far from the haunts of man. As a salad it needs no discussion here, but certain cautions should be emphasized. In gathering Water-Cress great care should be taken not to confuse other plants with it, since the deadly WATER-HEMLOCKS (see p. 45) grow in habitats where the cress is often found. Beware also of contaminated water, too near farms or towns, or, in the woods, flowing by remote piggeries. In using Water-Cress it is safest always to disinfect it by using some harmless, disinfecting wash, such as chlorazene (see p. 17). One cannot be sure of the water in which it grew. Those who make wry faces when they taste mustard-oil or Water-Cress should appreciate the generic name Nasturtium, from the Latin *nasus tortus*, a convulsed nose. This generic name, for centuries belonging to Water-Cress, has, in popular usage, been transferred to the wholly different South American *Tropaeolum*, so popular in the flower-gardens. The transfer came about through the similar taste of the centrally attached round leaves, the showy flowers and the plump fruits of the latter. Ask any non-botanical seedsman for Nasturtium; you will surely get *Tropaeolum*! One who uses the latter name is a prig. HORSERADISH, *Armoracia lappathifolia* or *Rorippa* (or *Radicula*) *Armoracia* USES: condiment, potherb. The familiar HORSERADISH is abundantly naturalized in the northeastern United States and southern Canada, especially in ditches and other damp open spots, but like

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OF EASTERN NORTH AMERICA 219 the Water-Cress it is not found in more primitive districts. The use of its root as a condiment is familiar, and it has been stated that the young foliage makes a palatable potherb. WINTER-CRESS, YELLOW IROOKET, *Barbarea vulgaris* and *B. verna* (BELLE-ISLE CRESS). FIG. 67 KEY-CHARACTERS: perennial mustards, with large clumps of bright-green and glossy leaves remaining fresh all winter; the terminal lobe of the leaf rounded, the lateral 14 pairs similar, but much smaller; stem stoutish, angled, shooting up early in the spring and bearing elongating clusters of golden-yellow flowers with 2 pairs of opposite petals. HABITAT: *B. vulgaris* in rich low grounds, especially near streams and barn-yards; *B. verna* in fallow fields. RANGE: throughout temperate eastern America. SEASON OF AVAILABILITY: late autumn, winter and early spring. USES: potherb, salad. The WINTER-CRESS has the unusual habit of growing vigorously during warm periods in winter and it derived its Latin name *Barbarea* from the fact that its young leaves are green and can be eaten on St. Barbaras day, in early December. The young foliage and new young stems, while still tender, are quite as good a potherb as dandelion-greens, having a similar bitter quality. They should be cooked in two or more waters, the first water removing the strongest bitter. In French Canada the young leaves are eaten as a

salad, but they are too bitter for the average palate. The closely related *B. verna* is the cultivated Scurvy- Grass, Belle-Isle Cress or Winter-Cress of the market, especially in the Southern States. It is an abundant weed of fields and roadsides in early Spring, but, although readily available, is mostly unknown to or ignored by the people who might use it. CRINKLE-ROOT, PEPPER-ROOT, *Dentaria* (5 or 6 species). FIG. 68 KEY-CHARACTERS: plants of early spring, bearing stalked, hand-shaped leaves midway on the stem; the leaves 2 or 3, with 35 toothed, finger-like

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220 EDIBLE WILD PLANTS divisions; inflorescence a loose, elongating cluster of white or pink flowers about 1/2 inch long; rootstock crisp and fleshy, whitish, elongate, peppery. HABITAT: rich woods. RANGE: various species throughout the deciduous forest region of eastern America, from eastern Quebec to western Ontario and southward. USES: salad, condiment. The crisp, white rootstock is a popular nibble with children and makes a palatable ingredient in salads or a pleasant radish-like relish when eaten with salt. Its flavor suggests horseradish and the grated rootstock, when mixed with vinegar, makes a satisfactory camp-horse-radish. SPRING-CRESS, *Cardamine bulbosa* KEY-CHARACTERS: an early spring plant, with bulbous or tuberous, thickened white rootstock, and upright stem with scattered, alternate oval leaves; the upper leaves sessile, the lower slender-stalked and more rounded; flower-cluster elongating, with the 4 white petals 1/3 1/2 inch long. HABITAT: wet or springy woods. RANGE: southern New Hampshire to Minnesota and southward. FIG. 67, WINTER-CRESS or YELLOW ROCKET FIG. 69, NATIVE WATER-CRESS

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OF EASTERN NORTH AMERICA 221 SEASON OF AVAILABILITY: as salad, early spring; rootstocks, throughout the year. USES: salad, condiment. The tender young plants have the flavor of horseradish and make a very pleasant salad. The bulbous rootstock has a similar flavor and when grated and mixed with vinegar makes a good substitute for horseradish, as do the tender young leaves and stems, chopped fine and mixed with vinegar. LADY-SMUCK is equally good. NATIVE WATER-CRESS, *Cardamine pennsylvanica*. FIG. 69 KEY-CHARACTERS: resembling Water-Cress, but without the creeping or prostrate stems; the leaves forming circular, basal rosettes, and the flowering stem upright; divisions of the leaves usually more numerous or narrower than in the

true Water-Cress, and flowers smaller. HABITAT: wet or springy places or in shallow water. RANGE: throughout temperate North America from southern Labrador to British Columbia, south to northern Florida and Texas. SEASON OF AVAILABILITY: spring and early summer and sometimes through the winter (young rosettes). USE: salad. Our NATIVE WATER-CRESS so closely resembles the market plant that by many people it is not readily distinguished from it, and it makes almost as good a salad or ingredient of a salad. The stems and leaves are, however, less succulent. It is safest to disinfect the plants before eating raw. (See note under Water-Cress.) Other species of Cardamine, of which there are several, doubtless have similar qualities. ALPINE CRESS, *Arabis alpina*. PLATE III and FIG. 70 KEY-CHARACTERS: R matted perennial with slender and branching crowns, which bear loose rosettes of fleshy but hairy coarsely toothed, inversely egg-shaped leaves about an inch long; loose flowering stems with a few somewhat clasping leaves, the stems with a loose elongating cluster of pretty white flowers of 4 petals a third of an inch long. HABITAT: cool rocks, gravelly shores, borders of rills. RANGE: eastern Arctic America, south to western Newfoundland and the Gaspé Peninsula, Quebec; often cultivated in rockeries.

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222 EDIBLE WILD PLANTS SEASON OF AVAILABILITY: spring and summer. USES: salad and potherb. The fresh foliage and flowers are as agreeable to eat as any of the wild cresses. MIGNONETTE FAMILY (Resedaceae) WILD MIGNONETTE, YELLOW MIGNONETTE, *Reseda lutea* USE: salad. This rather rare weed, introduced from Europe and occurring occasionally on waste ground or by roadsides in the Eastern States, may be eaten when young as a salad, having the taste of cabbage. SUNDEW FAMILY (Droseraceae) SUNDEW, *Drosera* (7 species). Fig. 71 USE: substitute for rennet. According to Linnaeus and other European authors, the leaves of the Sundews have the power, like rennet, of curdling milk. In the words of our own Manasseh Cutler: If the juice be put into a strainer, through which the warm milk from the cow is poured, and the milk set by for a day or two to become acescent it acquires a consistency and tenacity neither the whey nor the cream will separate. In this state it is used by the inhabitants in the north of Sweden, and called an extremely grateful food. ORPINE FAMILY (Crassulaceae) LIVE-FOR-EVER, FROG-PLANT, AARON S-ROD, *Sedum triphyllum* (or *purpureum*) KEY-CHARACTERS: a familiar, fleshy weed 12 ft. high, with the fleshy, cool, oblong, very succulent leaves, crowded but spirally arranged on the stem; in midsummer bearing a round-topped, broad cluster of crimson or magenta (sometimes whitish) small flowers; root stoutish, bearing numerous finger-shaped, crisp tubers.

OF EASTERN NORTH AMERICA HABITAT: damp fields, roadsides and creeks, rocky banks, often a too abundant weed. RANGE: eastern Quebec to Maryland and Wisconsin. SEASON OF AVAILABILITY: as salad and potherb, late spring and early summer; tubers, spring to midsummer, again in autumn. USES: salad, potherb, pickle. LIVE-FOREVER or FROG-PLANT is familiar to most children in regions where it occurs on account of the readily loosened epidermis of the leaf, loosened by holding the leaf between the tongue and the roof of the mouth; after which, by blowing into the opening, the loosened epidermis may be distended like a frog's throat. It is, therefore, surprising how few people are familiar with the delicious quality of the tender, young leaves and stems as a salad. If the plant is to be used as salad, it should be gathered very young, but as a potherb (of indifferent quality) it may be used until July. The rounded or finger-like tuberous roots are crisp and succulent and after some days pickling in a salted vinegar, best put on the tubers while FIG. 70, ALPINE CRESS FIG. 71, two species of SIBDEW

EDIBLE WILD PLANTS boiling hot, they form a tasty relish. After midsummer the tubers become stringy and tough, but again in late autumn crisp tubers may be found. They often occur in enormous masses and then furnish an abundant and easily obtained food. ROSE ROOT, SCURVY-GRASS, Sedum Rosea (Rhodiola Rosea). FIG. 72 KEY-CHARACTERS: a tufted, succulent plant, with a large rough root which, when bruised, gives off a fragrance like attar-of-roses; stems 6 to 10 inches high, with crowded, fleshy, pinkish- or whitish-green, oblong, toothed leaves; flowers pale-yellow, in a dense terminal cluster, followed by reddish or purplish, 4- or 5-pronged capsules. HABITAT AND RANGE: ledges, rocky banks and cliffs, especially near the sea, rarely inland, abundant in the polar region and southward, especially on the coast of Labrador, frequent on the coast of Newfoundland, local on the outer coast of Maine, as far southwest as Monhegan Island, rare southward to northeastern Pennsylvania and the Carolina Mountains. SEASON OF AVAILABILITY: early summer to autumn. USES: salad, potherb. FIG. 73, SWAMP-SAXIFEAGE FIG. 72, ROSE-ROOT

OF EASTERN NORTH AMERICA²²⁵ The succulent young leaves and stems of the
 Ro5ERooT are an important salad in northern regions, and the stems and leaves up to the
 time of young fruit are cooked as greens. Where abundant the plant is of great
 importance, owing to the scarcity of green vegetables in northern countries. Presumably
 other species of *Sedum* when tried will prove to be good salads and potherbs, since
 various Eu- ropean species are thus eaten, but the creeping *S. acre*, as its name implies, is
 too pungent. SAXIFRAGE FAMILY (*Saxifragaceae*) LETTUCE-SAXIFRAGE,
Saxifraga (or *Micranthes*) *micranthidifolia* KEY-CHARACTERS: a tall herb, with a
 rosette of large, thin, narrowly obovate, coarsely toothed basal leaves 4-10 inches long,
 and a tall, nearly naked flowering stem, bearing a loose, open cluster of small, white
 flowers on long, slender flower-stalks, followed by a 2-pronged capsule. HABITAT
 AND RANGE: wet rocks and banks of streams, mountains of Pennsylvania to the
 mountains of west Virginia, south to Georgia and Tennessee. SEASON OF
 AVAILABILITY: spring. USE: salad. According to Asa Gray, Under the name of
 Lettuce, the leaves are eaten by the inhabitants [of the Carolina mountains] as salad.
 SWAMP-SAXIFRAGE, *Saxifraga pennsylvanica* and related species. FIG. 73 KEY-
 CHARACTERS: similar to Lettuce-Saxifrage but with the leaves entire or only
 obscurely toothed. HABITAT AND RANGE: swampy meadows and thickets of the
 eastern United States, northeastward to southern Maine, northwestward to Minne-
 sota. SEASON OF AVAILABILITY: spring. USE: salad. The young leaves, just unrolling, are
 tender and not un

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226 EDIBLE WILD PLANTS attractive as a salad. Doubtless other species of the genus,
 with tender unrolling rosette-leaves could be eaten. GOLDEN SAXIFRAGE,
Chrysosplenium americanum KEY-CHARACTERS: succulent matted or creeping plant
 of brooks, rills and springs, with crisp, roundish, mostly opposite leaves about 1/2 inch
 across; the forking tips of the branches bearing at the forks tiny green saucer-shaped
 flowers flecked above with red or orange. HABITAT AND RANGE: brooks, rills and
 wet moss, Quebec to Minnesota and southward through the northern states, and along the
 mountains to Georgia. SEASON OF AVAILABILITY: throughout the year. USE: salad.
 We have not tried our American species, but European authors are so generally agreed
 that their species makes a good salad, that it will be quite safe to use our own, which
 often abounds and makes rapid growth in early spring. One should be certain, of course,
 that it is growing in uncontaminated water. Use disinfectant in wash- ing it (see p. 17).
 GOOSEBERRIES and CURRANTS, *Ribes*, numerous species (including *Grossularia*)
 We have many species of wild GOOSEBERRIES and CUR- RANTS, the former

abounding from Newfoundland across the continent, the latter extending into Labrador. The three commoner GOOSEBERRIES of the Northeast are: (1) *R. cynosbati*, with bristly or prickly fruits, found from western Maine to Manitoba and southward, with the prickly berries thoroughly palatable when cooked; and (2) *R. hirtellum* and (3) *R. oxycanthoides*, which occur in southern Canada and the northern States, with smooth berries palatable when ripe and for preserves and jams considered superior to the cultivated species. The most abundant CURRANTS are four species, two black, two red. The common BLACK CURRANT, *R. americanum*

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OF EASTERN NORTH AMERICA *R. canadense* (or *R. floridum*), through the eastern States (from western New Brunswick to Alberta, south to western Virginia, Illinois, Missouri and Nebraska), has smooth branches and smooth, thick-skinned berries in long drooping clusters, the skin covered with minute resinous atoms. The fruit of this species is somewhat like the black currant of the garden, musky in flavor and palatable only when cooked. The second Black Currant is a northern species, *R. lacustre*, which abounds in damp woods from Newfoundland to Alaska, south into the northernmost states. This shrub is bristly, and the black, thin-skinned currants are covered with minute long bristles. The berries are very juicy and tart, with an odor, when crushed, suggesting the pole-cat, but when the berries are eaten by the handful the odor is inoffensive, and when cooked they make a good sauce. The two native RED CURRANTS are both northern, one with smooth berries, *R. triste*, the other with bristly fruit, *R. glandulosum* (or *R. prostratum*). The smooth berries of *R. triste*, which occurs in cool woods from Labrador to Alaska, south to New England, New York, Michigan and Wisconsin, are in appearance and flavor like the Red Currant of the garden, but they are inclined to drop before maturing. The bristly fruit of *R. glandulosum*, which occurs in rocky woods and swamps from Labrador to the extreme Northwest, south to New England, and along the mountains to North Carolina, and to Ohio, Michigan, Wisconsin and Minnesota, is known as SKUNK-CURRANT, but, although the bruised shrub and berries have the pole-cat odor, the berries are juicy and palatable. The bristliness and the odor are repulsive to novices, but those who have lived in the northern woods have learned to eat the berries with relish. Some other species, both of Gooseberries and Currants, are more localized. They all supply good fruit.

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228 EDIBLE WILD PLANTS WITCH-HAZEL FAMILY (Hamamelidaceae) WITCH-HAZEL, *Hamamelis virginiana* USE:tea. The familiar WITCH-HAZEL, which abounds in sterile woods through much of eastern America, depends for its reputation as an economic plant chiefly on its use in liniments, ointments, etc. But, according to Waugh, the Iroquois use a decoction of the leaves, sweetened with maple sugar, as a tea with their meals. It is probably quite as harmless to drink as to use as a medicinal lotion. Its action in the latter case is due to the tannin contained. SWEET GUM, *Liquidambar styraciflua* USE:chewing gum. The fragrant gum, which exudes from cracks and bruises in the bark, tastes somewhat like spruce-gum and is enjoyed in our southernmost states. The gum is scarce as far north as North Carolina, but is occasionally found in Virginia. From one of the once popular books of Maurice Thompson, Clute dug out the statement that he once went to school where everybody chewed sweet gum, except the teacher, who chewed tobacco. PLANE-TREE FAMILY (Platanaceae) PLANE-TREE, COTTONWOOD, SYCAMORE, BUTTONWOOD, *Platanus occidentalis* USES:sugar, syrup. Waugh stated that the Abenaki used the sweet sap for preparing syrup and sugar.

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OF EASTERN NORTH AMERICA 229 ROSE FAMILY (Rosaceae) CRAB-APPLES, *Pyrus*, subgenus *Malus* or *Malus* (as a genus) of some botanists, about 8 species USES:marmalade, jelly. The native CRABS, of which there are a number of species occurring from New York westward and southward, have a quality quite distinct from the European Crab-Apples and the true apples, the fruit being somewhat gummy and with a distinctive odor and flavor. Although intensely sour when raw, the fruit of *P. coronaria*, at least, makes a delicious marmalade or jelly, the juice being more tart than that of the cultivated Crab-Apple and the skin containing an abundance of pectin. CHOKEBERRIES, *Pyrus*, subgenus *Aronia* or *Aronia* (as a genus) of some botanists, 3 species. FIG. 74 KEY-CHARACTERS:slender, freely branching shrubs with alternate, oblanceolate leaves; the red, purple or blackish berries having the form of tiny apples about 1/3 inch in diameter, with the blossom (calyx-lobes) borne at the summit, the berries in flat-topped clusters, puckery. HABITAT:sterile, dry or boggy places or in sterile thickets. RANGE:one species or another from Newfoundland to western Ontario and southward. SEASON OF AVAILABILITY: late summer and autumn. USE:jelly. The raw berries have a good flavor but are very puckery, much as choke-cherries. It is stated, however, that the Indians used these fruits, destroying the puckery quality by cooking. They certainly yield a splendid, heavy and sweet jelly, dark-carmine and very solid. The berries are so very abundant and contain so much juice and such an abundance of pectin that it is pathetic to see the thousands of bushels of them go, every autumn, completely to waste. They could certainly be used to supply pectin which is often

deficient in some fruits.

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230EDIBLE WILD PLANTS MOUNTAIN-ASH, *Pyrus*, subgenus *Sorbus* or *Sorbus* (as a genus), 3 species USES: breadstuff, acid drink. The species of MOUNTAIN-ASH are so closely related that by some authors they have been considered to be one circumpolar species with geographic varieties. It is probable, at any rate, that they have similar qualities. The unripe fruit is very austere and has an unpleasant flavor, but when thoroughly ripe and mellowed by frost it becomes palatable. In some European countries the berries have been dried and ground into flour, and Kephart states that an infusion from the berries is sometimes used for a drink. SERVICE-BERRIES, JUNE-BERRIES, SHAD-BUSH, SUGAR-PEAR, INDIAN PEAR, *Amelanchier* (about 20 species). FIG. 75 KEY-CHARACTERS: trees or shrubs, with oblong or roundish, sharply or coarsely toothed, slender-stalked, alternate leaves, and smooth grayish bark; flowers and fruits mostly in elongate, drooping clusters (racemes), solitary in a northern species; the berries on slender stalks, round to pear-shaped, red, becoming purplish or blue-black, with the conspicuous 5-toothed boss (calyx-lobes) at the summit, the pulp juicy and sweetish, with 10 comparatively large seeds. HABITAT: open situations or borders of woods, some species on rocks or gravels, others in swamps. RANGE: Newfoundland and southern Labrador across the continent. south to the Gulf of Mexico. SEASON OF AVAILABILITY: July, August, northward; May or June southward; the fruit in some areas not well developed or else blasted by a fungus, in others plump and juicy. USES: fruit raw, cooked as sauce or in pies, or dried for winter use. Few wild fruits of such excellent quality as the SERVICE-BERRIES are less known to the modern American, although by the Indians and the early European explorers of the continent the berries were among the most esteemed of our native fruits. In many localities the trees and shrubs

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OF EASTERN NORTH AMERICA²³¹ do not fruit heavily or the fruits are distorted and spoiled by fungous diseases and insects; in other regions, however, the berries are abundant and should become well known. To the European taste the berries are best when made into puddings or pies, the thoroughly cooked seeds giving a flavor suggesting sweet cherry pie. The berries, especially if cooked first, are splendid for berry-muffins,

yielding a rich almond flavor. By the Indians the fruit was much used in the making of bread, being gathered in large quantities, beaten into a paste and then dried in cakes. This dried fruit was afterward mixed with the corn-meal or the pemican and, according to northern travellers, Sir John Richardson, Bourgeau, and others, the dried berries were used in puddings, for which use they nearly equal Zante currants. FIG. 74, CuOI~i~IUIyFIG. 75, 5~vIc~-BERRY

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232EDIBLE WILD PLANTS RAW, THORN, THORN-PLUM, HAWTHORN, Grataegus (many species) USES:jelly, marmalade. (The species of Haw are very numerousperhaps 100300and, because of our present very inadequate understanding of them, it is not yet possible so to define them as to make the distinctions clear to the amateur certainly no professional understands them.) The fruits of several species have a juicy pulp from which a delicious marmalade or jelly can be made. The quality of the fruit of the different species can, however, be determined only by experimentation, for all the fruits have large stones and only a minimum of pulp. The planted English Hawthorn has an inferior fruit, and the superior quality of some of the native American Haws was early recognized by Europeans, John Josselyn, as early as 1672, writing of The Haws . . . very good to eat, and not so astringent as the Haws in England; and Wood in his New Englands Prospect going so far as to state that the white thorne affords hawes as bigge as an English Cherrie, which is esteemed above a Cherrie for his goodnesse and pleasautnesse to the taste. The jelly from the better species of Raw requires comparatively little sugar. STRAWBERRY, Fragctria virginiana and, less desirable, F. vesca USES:fruit, tea, short-cake. The wild Strawberries and their uses are so well known that they need no special discussion. The wild berries of Fragaricet virginiana are vastly superior in flavor and richness to the cultivated berries. When people were not so much in a hurry the wild fruit was gathered in tremendous quantities for the table and for preserving. When the mother of the family was ready for the latter delicate process, the whole family took to the fields and clearings. The berries being small and readily crushed, great care

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OF EASTERN NORTH AMERICA233 was necessary not to include sticks, straws, leaves and buttercup-petals, for picking over was too difficult. The berries had to be

picked free from the hull (calyx), and if the children all faithfully followed instructions, few hulls would get into the pails. Encouraged by pay of 3~ a quart and the joy of a picnic-dinner out-of-doors, the picking went merrily, and it was a pretty poor family of pickers (at least in central or northern Maine) who could not return in late June or early July with half a bushel to a bushel of luscious berries ready for the kettle. The few vagrant hulls, leaves and straws quickly floated to the top of the kettle, and the family, after two days of such outing and the mothers long vigils in the kitchen, had a years supply of the most delicious preserve and jam ever put up. Such picking and preserving of wild Strawberries still prevails in less sophisticated regions. It is wise, however, to be a little cautious about eating, unwashed, the berries so often urged upon the tourist by little French-Canadian children when, for example, one is driving around the Gasp~ Peninsula. On one occasion, tempted by the dish of freshly picked berries offered by a little bronzed girl, the tourist protested the price, to receive the prompt explanation: Its hard work. You see the little berry in the grass, you stoop down, pick the little berry, then bite off his tail, then put him in the cup. Then you see another, stoop down, pick the little berry, bite off his tail, etc. Cooking is a great purifier. Mother did not always know the intimate history of each small berry which went into the kettle. To her it was a fine picking, the preserve and jam were perfect, and she was proud of the children. SILVERWEED, ARGENTINE, Potentilla (or Argentina) Anserina USES:sweet root-vegetable, emergency-food. The SILVERWEED, or ARGENTINE as it is called in French

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234EDIBLE WILD PLANTS Canada, is characteristic of cool regions, extending south on gravelly or sandy shores to the northern States and the Rocky Mountain region. It is conspicuous on account of its long, feather-like leaves with many oblanceolate, toothed leaflets, green above and silvery-white beneath. Its long-stalked flowers resemble small yellow, single roses and are followed by fruits suggesting dry straw-berries. Many of the root-fibres are thickened and fleshy, and northern peoples as well as the American Indians are very fond of them, raw or cooked. They are said to taste in the early spring like sweet potatoes or parsnips. The northwestern Indians make regular pilgrimages to gather the Potentilla roots, and many European authors (Light-foot, Mrs. Lankester and others) state that in the Hebrides and other Scotch islands the population has been often supported for weeks or months together by these roots! The roots of this plant taste like parsnips, and are frequently eaten in Scotland either roasted or boiled. In the islands of Jura and Col they are much esteemed, as answering in some measure the purposes of bread, they having been known to support the inhabitants for months together during a scarcity of other provisions. A closely related species, P. Egedei (or pacifica), with the under side of the leaf dull, rather than lustrous, is common on the seacoasts of the Pacific, and of the Atlantic as far south as New Jersey. SHMTBBY CINQUEFOIL, WIDDY,~

Pot entilla (or Dasiphora) fruticosa UsE:tea. It is stated that the leaves of SHEUBBY CINQUEFOIL may be used as a substitute for tea. Those of some other species are brewed in country districts as a cure for diarrhoea.

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OF EASTERN NORTH AMERICA 235 PURPLE AVENS, WATER-AVENS, CHOCOLATE-ROOT, Geum r~ vale. FIG. 76 KEY-CHARACTERS: erect herb, with slender but stiffish, purplish stems 1 or 2 feet high; the basal leaves coarsely divided, pinnate; the stem terminated by nodding flowers, with purple, triangular sepals 1/2 inch long, and buff to cream-colored veiny, wedge-shaped petals a little longer; the fruit a bristly bead 3/4 inch in diameter. HABITAT and RANGE: meadows and boggy spots throughout Canada and the northern states. SEASON OF AVAILABILITY: throughout the year, but probably best in autumn or early spring. USE:chocolate-substitute. Mrs. II. K. Morrell, writing upon edible wild plants of Maine, states that the root when boiled makes a drink like chocolate and Prest, writing from Nova Scotia, makes a similar statement, adding that, although the drink has a chocolate-taste, it is astringent, with a slight addition of acid. The root should be well boiled and sugar added. In our own experiments we have as yet found no reason to be enthusiastic about this drink. If, however, the root were used in the fashion of the 16th century, there might be enthusiasm about it; for Parkinson tells us that Some use in the Spring time to put the roote to steepe for a time in wine, which giveth unto it a delicate flavour and taste, FIG. 76, PURPLE AvnNs

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236 EDIBLE WILD PLANTS which they drinke fasting every morning, to comfort the heart, and to preserve it from noysome and infectious vapours of the plague, or any poison that may annoy it. RASPBERRIES, BLACKBERRIES, DEWBERRIES, CLOIJBERRY, etc., Rubus (many species). FIG. 77 Usns:fruit, fresh, cooked or preserved, jelly, drinks, tea, nibble. The genus Rubus furnishes many of the most familiar wild berries, all of them with pulpy fruits consisting of many small, mostly juicy drupelets, each containing a hard seed. The plants and their fruits are so familiar that for the most part they need no special discussion. Besides the RASPBERRIES (3 species), BLACKBERRIES (100200 or more species), Dewberries (two dozen or more), etc., the most famous of the genus is the CLOUD-BERRY or BAKED-APPLE BERRY, Rubus

Chamaemorus (FIG. 77). This species abounds in boreal regions, in acid peats, extending south to Nova Scotia and eastern Maine and, locally, to alpine regions of New England. Southward it rarely fruits, but northward its berries are among the staple articles of food. Its erect stems are rarely a foot high, bearing a few simple and rounded, scalloped leaves, and terminated by a beautiful white flower (resembling a solitary blackberry-flower), followed by a large raspberry, pink when immature, then amber, and finally yellow and very juicy and soft. The berries have a flavor strongly suggestive of insipid baked apples; but their juice is rather mucilaginous, so that the taste for them usually has to be acquired by southern peoples, who at first incline disrespectfully to call them rotten-apple berries. After the taste for them is once acquired, however, Baked-Apples or Bake-apples become one of the delights of northern travel. The ripe, fresh berries of Baked-Apple eaten without sugar or cream are delicious, but with the addition of these dressings are positively luscious; the cooked berries

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 berries are a poor article, mostly hard seeds and insipid juice. Sir John Richardson, travelling in the Arctic, well describes the fresh berry, saying: It is perhaps the most delicious of the arctic berries, when in perfection, but cloy if eaten in quantity. The ripe berries are so soft and juicy that it is difficult to transport them, but in the North they are kept in snow which renders them firm. They can also be preserved whole in jars of cold water; and, of course, preserved after cooking. Another species, the *PLUMBAGO* or ARCTIC RASPBERRY, *Rubus acaulis* (FIG. 77), is related to the European *R. arcticus*, which was ranked by Linnaeus as the choicest of all European berries both for smell and taste; its odour is of the most grateful kind, and as to its flavour, it has such a delicate mixture of the sweet and acid, as is not equalled by the best of our cultivated Strawberries. *R. acaulis*, as its name implies, is a very low species, coming south in peaty soils to Newfoundland, the Gaspe Peninsula and northern Minnesota. The fruiting stems, with glossy 3-divided leaves, rise only an inch or two above the moss and bear relatively large red berries. We have had the satisfaction of eating our fill only in Labrador and Newfoundland and there the berry justifies the enthusiasm of Linnaeus over its European cousin. The native RASPBERRIES are familiar to all in the regions where they abound and have always been picked by those who are fortunate enough to be near them and preserved in quantity for winter use. The DEWBERRIES or Trailing Blackberries, growing close to the ground, are often overlooked or neglected, but many of them have superior fruit. In fact, in all the series of Blackberries (the High-bush, Low-bush and Dewberries) some species stand out as having rich, juicy and large berries, while in others the berries are inferior. In a group of species in which the distinguishing characters are very technical, experience is the best

teacher. The name THIMBLEBERRY is variously used, sometimes

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238EDIBLE WILD PLANTS for an elongate Blackberry, sometimes for the Black Raspberry, but the famous Thimbleberry of the upper Great Lakes region, from Lake Huron in Ontario and Michigan to the Lake Superior region of Minnesota, is a very different plant, *Rubus parviflorus*, a handsome shrub, with large leaves resembling glorified maple-leaves, large flowers like single white roses and big juicy and luscious berries. The leaves of Blackberries and Raspberries are sometimes used as substitutes for tea; and the young, tender sprouts, when peeled, make a pleasant nibble. Cheney states, however, that the tea from leaves of Black Raspberry, *Rubus occidentalis*, may be physiologically harmful. BURNET, *Sanguisorba* (various species) USE: salad. The Old World *Sanguisorba minor* once had a period of popularity as a salad, the young leaves said to taste like cucumber. This species is casually introduced into FIG. 77, CLOUDBERRY or BARED-APPLE BERRY (left) and PLUMBOY (right) FIG. 75, BROOM

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OP EASTERN NORTH AMERICA 239 America but is not common. We have a coarser, native species, *S. canadensis*, locally abundant in boggy meadows and shores from Labrador to Alaska, extending south to Georgia. This plant apparently has no special repute but it should be tested as a possible salad. WILD ROSE, *Rosa* (various species) USES: salad, nibble, jelly, confection. The petals of Roses are pleasant to nibble and are sometimes prepared as a salad, or candied. A few species have pulpy fruits which can be made into jelly. The best of these in our eastern flora is the JAPANESE ROSE, *Rosa rugosa*, the large-flowered, very prickly species now so generally planted as a hedge-shrub and rapidly becoming naturalized along the sandy coast. PLUMS, *Prunus* (various species) USES: fresh fruit, sauce, pies, preserves, jams, jellies. The plums are somewhat arbitrarily separated from the cherries, but in general they have fleshier fruit and more flattened stones. There are several (about a dozen) wild species in eastern America, some of which have long been in repute. Such species as the BEACH PLUM, *P. marilima*, of coastal sands and rocks from southern Maine to Virginia, the WILD RED or YELLOW PLUMS, *P. americana* and *P. nigra*, of rich thickets and borders of woods from New Brunswick westward, the CHICKASAW PLUM, *P. angustifolia* of the South, and the

WILD-GOOSE PLUM, *P. hortulana* of Illinois and Missouri, are usually well known where they grow and are used for sauces, pies, preserves, jams and jellies. Each has its enthusiastic booster. We refrain from umpiring. They are all most desirable and when our country people become sufficiently interested they will spray the shrubs and trees to prevent

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240EDIBLE WILD PLANTS the fungus-infections and to keep off the tent-caterpillars which so greatly reduce the wild crops. For directions for drying plums see p. 34. BLACK or RUM-CHERRY, *Prunus serotina* (or *Padus virginiana*) KEY-CHARACTERS: fruit in long or grape-like clusters, purplish-black; leaves with blunt or rounded marginal teeth. HABITAT AND RANGE: borders of dry woods, Nova Scotia and southern New Brunswick to the Dakotas and southward. SEASON OF AVAILABILITY: late summer and early autumn. USE: jelly. RUM-CHERRIES have a slightly bitter, but rich, winey flavor and in early days of New England were in high repute for Cherry Bounce, the recipe for which is not within the scope of this book. Jelly prepared from Rum-Cherries, with the addition of sour apple-juice (approximately half-and-half), is rich in flavor and dark in color and by many people is considered one of the best of jellies, in quality somewhat suggesting guava-jelly. CHOKE-CHERRY, *Prunus virginiana* (or *Padus nana*) KEY-CHARACTERS: similar to the Rum-Cherry, but usually with shorter clusters of cherries, with a strong acid and puckering quality and without the winey flavor; the leaves with fine, bristle-like teeth. HABITAT AND RANGE: banks of streams, rich thickets and fence-rows, Newfoundland to Manitoba and southward, abundantly through the northern states, becoming local southward to Georgia and Texas. SEASON OF AVAILABILITY: late summer and autumn. USES: jelly, pemican, drink. The CHOKE-CHERRY naturally attracted the attention of the early colonists, in 1634 William Wood reported that they so furred the mouth that the tongue will cleave to the roof, and the throat wax horse with swallowing those red Bullies (as I may call them,) being little better in taste. English ordering may bring them to be an English Cherrie, but yet they are as wilde as the Indians.

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OF EASTERN NORTH AMERICA 241 With Woods account practically all Americans have agreed, so much so that most people look upon the Choke-Cherry as a negligible

fruit, occasionally to be tasted or to be tried upon the unwary. A delicious jelly, however, is prepared from the juice, mixed with apple-juice; and the northern Indians gathered the fruits and after thorough drying pounded them (stones and all), leached out the harmful hydrocyanic acid from the kernels of the stones and used the dried paste as an addition to pemican or soaked out and sweetened in the winter. BIRD-, FIRE- or PIN-CHERRY, *Prunus pensylvanica* KEY-CHARACTERS: fruits borne in loose tufts along the branches, the bright red cherries on elongate stalks, very sour and with only a thin pulp. HABITAT AND RANGE: Dry borders of woods and especially in recently burned areas, Newfoundland to British Columbia, south through the Northern States and in the uplands to North Carolina, Tennessee and Colorado. SEASON OF AVAILABILITY: early summer. USES: jelly, gum, masticatory. The familiar BIRD-CHERRY, the only wild light-red and early cherry in the northern states and Canada, is known to every country-bred person for its pleasantly sour fruit, which may be eaten raw, although the pulp is thin compared with the large stone. Mixed with currants or apple to make it jelly it furnishes a delicious jelly. The gum exuded from the trunk of the Bird-Cherry is similar to that produced from the trunks of cultivated species and is sought by some people as a chewing-gum. SAND-CHERRY, *Prunus pumila* or *P. depressa* KEY-CHARACTERS: a low or prostrate shrub of river-gravels and sand-bars, with willowy branches and elongate foliage; bearing axillary, claret-red cherries half an inch in diameter, usually somewhat hidden in the gravel. HABITAT: river-gravels and sands and lake-shores. RANGE: eastern Quebec to Manitoba, south to Pennsylvania and the Great Lakes States. SEASON OF AVAILABILITY: midsummer. USES: fresh fruit, jelly.

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242 EDIBLE WILD PLANTS The SAND-CHERRY has the largest fruit of any of our native cherries. The ripe fruit is of a rich, slightly bitter flavor, palatable to many people, and the juice, mixed with sour apple-juice, makes a rich jelly. A large proportion of apple-juice must be used or the jelly will be nearly liquid. A few other native Cherries, more local than the above, have similar uses. PULSE FAMILY (Leguminosae) The young pods, young seeds and new herbage of many members of this family are succulent and so closely resemble similar parts in cultivated beans and peas, that it is a natural inference that they are all safe wild foods. Many species, however, contain actively poisonous principles, and in Europe the eating of various wild peas has caused serious nervous disorders. In our own country, the eating of the various loco-weeds, members of this family, causes similar nervous upheavals in browsing animals. The eastern American species of the family which furnish safe foods are enumerated below. KENTUCKY COFFEE-TREE, *Gymnocladus dioica* USES: coffee-substitute, nut, pickle. The seeds of the KENTUCKY COFFEE-TREE were said by Michaux to have been used by the early emigrants to Kentucky and Tennessee, who hoped to find in its seeds a

substitute for coffee; but the small number of persons who made the experiment abandoned it, as soon as it became easy to obtain from the seaports the coffee of the West Indies. Gilmore states that the Pawnee Indians roast the seeds and then eat them like chestnuts; H. H. Smith found the Meskwaki Indians doing the same. London states that the pods, preserved like those of

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OP EASTERN NORTH AMERICA²⁴³ the tamarind (to which this genus is nearly allied), are said to be wholesome, and slightly aperient. HONEY-LOCUST, *Gleditsia triacanthos* USES: nibble, sugar, beer. The hard seeds in the long twisting pods of HONEY-Locust are surrounded by a thin pulp which remains sweet for some time after the ripening of the pod, and wherever the tree is native or planted is a well known pleasant nibble. London states that sugar was formerly extracted from this pulp, but the amount secured would be very limited. Porcher stated that a beer is made in the South by fermenting the fresh sugary pods. WILD SENNA, COFFEE-SENNA, *Cassia* (or *Ditremexa*) *occidentalis* USE: coffee-substitute, potherb, salad. *Cassia occidentalis* is a weedy tropical species of WILD SENNA, naturalized in the South, northward to Virginia, Indiana and Iowa. Other species (natives) extend northward to New England and Wisconsin. The seeds of *C. occidentalis* have been roasted and used as coffee, Porcher, writing in 1869, calling it FLORIDA COFFEE and saying Once thought to be very valuable as a substitute for coffee, Vestal and Schultes reported it, in 1939, as Coffee Senna, Nigger Coffee, . . . Coffee Weed, saying The Kiowa formerly ground the seeds which were then boiled to make a coffee-like beverage. It is striking that in both these records the use as coffee was in the past. In the Dutch East Indies the young leaves and immature pods are cooked as a potherb or the young pods eaten as a salad. Our native species, *Cassia marilandica* and *C. Jtebe*

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244EDIBLE WILD PLANTS *carpa*, occurring northward to New England, New York, Ohio, Michigan and Wisconsin, might be tried. SICKLE-POD, FETID CASSIA, COFFEE-WEED, *Gassia* (or *Emelista*) *Tora* A pantropical weed, extending northward in waste or cultivated ground to Virginia (rarely to Pennsylvania), Indiana, Michigan and Missouri, an annual with 2 or 3 pairs of obtuse, obovate leaflets with a long gland between the two lower leaflets, large yellow petals and slender sickle-like but 4-sided pods

up to 6 inches long. Usns:potherb, cooked vegetable, coffee. The old name in the South, COFFEE-WEED, indicates a former use. The English name FETID CASSIA appropriately describes its odor. Nevertheless in the Dutch East Indies, according to Ochse, The young leaves and young shoots are eaten, steamed . . . or cooked. . . . By heating, the rather disagreeable smell becomes less offensive. The seeds, roasted . . . or cooked . . . in the pod, are, notwithstanding their smell, often eaten as a side-dish with the rice. BROOM, *Cytisus scoparius*. FIG. 78 Usns:coffee-substitute, pickle. BROOM, a stiffly green-branched shrub with handsome pea-like yellow flowers is abundantly naturalized in Shelburne County, Nova Scotia, and locally (often abundantly) from southern Maine to West Virginia and Georgia. Many European writers state that the roasted seeds are a good substitute for coffee (in view of what is so often served in Europe as coffee it is well to try a little before stocking up too heavily with it). The fresh seed-pods are poisonous (intoxicating) but the flower-buds and pods, pickled, have a good reputation. Here is Evelyn's recipe: Broom-Buds and Pods. Make a strong Pickle, as above [Put

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OF EASTERN NO-TIT AMEPJOA245 them into a strong Brine of White-wine Vinegar and Salt able to bear an egg] ; stir it very well, till the Salt be quite dissolved, clearing off the Dregs and Scum. The next Day pour it from the bottom; and having rubbed the Buds dry, put them up in a Pickle-Glass, which should be frequently shaken, till they sink under it, and keep it well stopp'd and cover'd. Thus may you pickle any other Buds. IRED-BUD, JUDAS-TREE, *Cercis canadensis* USES: salad, pickle, cooked vegetable. The brilliant pink flowers of the RED-BUD are acid and are said to have been used by the French Canadians for salads and pickles. This statement, made by Torrey, has been repeated by London and others, although the range of the tree is almost entirely south of the region of the French Canadians. It is probable that the idea was borrowed from European writers, for Bryant, in 1783, said of the related species of France, Spain and Italy: The flowers have a sharp, acid flavour, and are not only mixed with salads to render them more grateful, but are also pickled in the bud, in the manner of Capers.~ Kephart states that the buds, flowers and young pods are good fried in butter or made into fritters and at least the junior author can vouch for their goodness. LUPINE, *Lupinus perennis* and other species USES:cooked vegetable? It has been stated that the seeds of the LUPINES may be used as a substitute for peas, but owing to the presence in the seeds of many lupines of a well recognized alkaloid, lupinine, it is wisest to avoid eating the seeds of our Wild Lupine. Many cases of poisoning (in pinosis) have been recorded from eating the pods and seeds.

246EDIBL~ WILD PLANTS CLOVER, *Trifolium* (various species) USES: breadstuff, salad, potherb, tea. The seeds and dried flowers of various CLOVERs have been used in times of famine as a bread-food; and Light-foot, writing of the use of the common WHITE CLOVER, *T. repens*, in Scotland, says that the bread made from it is very nutritious and wholesome. In western America the Indians have used the young herbage of various species as either a salad or potherb, and, among the eastern whites, clover-tea, made by brewing the dried flower-heads, is esteemed a wholesome and supposedly medicinal drink. It is stated that excessive eating of clover is likely to produce bloating. PRAIRIE-TURNIP, WILD POTATO, INDIAN BREAD-ROOT, POMME BLANCHE, *Psoralea esculenta*. FIG. 79 USE: farinaceous vegetable. The famous PRAIRIE-TURNIP or POMME BLANCHE of the Great Plains extends only locally into the western edge of our range, but in the West it has always been well known because of its starchy root. The chronicles of early explorers are full of references to its use by the Indians, and attempts were even made to cultivate it as a substitute for the potato. Because of its wholesome, toothsome, and nutritious qualities and its peculiar adaptability to arid regions, its improvement by cultivation is desirable. The roots are used in as many ways as potatoes, the raw root having a somewhat starchy and sweetish turnip-like taste. LOCUST, *Robinia Pseudacacia* USES: emergency-food, cooked vegetable, drink (doubtful, somewhat poisonous). Kephart states that the inner bark can be used as an

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248EDIBLE WILD PLANTS emergency-food; and other writers, London, M6rat, et al., have stated that the flowers may be fried or a pleasant drink made by infusing them. London also states that the roots are sweet and licorice-like. The bark and roots, however, should be used with extreme caution since they are reported to be somewhat poisonous (see p. 62). Children have been made seriously ill by chewing the cambium. WISTERIA, *Wisteria* Native species from Florida to Texas, north to Virginia, Kentucky and Missouri; cultivated species often escaped and naturalized. Usus: salad and fritters. It

is frequently stated that the fresh flowers, properly dressed, make a good salad, and that mixed in batter they make good fritters. GROUND-PLUM, INDIAN PEA, *Astragalus* (or *Ceanothus*) *caryocarpus* and *A. mexicanus* and related species Usxs.:fruit, raw or cooked. The GROUND-PLUMS are well known plants of the western prairies, extending eastward to Illinois and Missouri. They were formerly in much demand for the young plum-like fruits which were eaten either raw or cooked. CAUTION: Other species of *Astragalus* have been recommended on account of their abundant pea-like seeds, but they should be eaten with great caution, since several of the western species are known to be loco-weeds, poisonous to browsing animals. WILD LICORICE, *Glycyrrhiza lepidota* Usus.:root, raw or cooked. The WILD LICORICE of the prairies is well known on account of its sweet, licorice-like root. This was popular with the Indians either raw or roasted in ashes and all

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OF EASTERN NORTH AMERICA²⁴⁹ but the latest generations of Whites have chewed the roots. LICORICE-ROOT, *Hedysarum alpinum*, vars. *americanum* and *grandiflorum* (the plants previously misidentified as *H. boreale*). FIG. 80 KEY-CHARACTERS: handsome bushy-tufted herb with numerous upright, smooth stems 13 feet high, bearing many spreading, pinnate, green leaves with numerous small leaflets; flowers lilac to flesh-pink, pea-like, in long, one-sided clusters, followed by drooping pods made up of several flat, roundish segments. HABITAT AND RANGE: limy gravels and damp ledges, Newfoundland and Labrador to Alaska, extending south in abundance to eastern Quebec, New Brunswick and Aroostook Co., Maine, and locally to northern Vermont, and the north shore of Lake Superior. SEASON or AVAILABILITY: autumn to early summer. USES:sweetish root-vegetable. Sir John Richardson, writing of his experiences in northern Canada, while searching for signs of the ill-fated John Franklin, said: *Hedysarum boreale* furnishes long flexible roots, which taste sweet like the liquorice, and are much eaten in the spring by the natives, but become woody and lose their juiciness and crispness as the season advances. The root of the hoary, decumbent, and less elegant, but larger-flowered *Hedysarum Mackenzii* is poisonous, and nearly killed an old Indian woman at Fort Simpson, who had mistaken it for that of the preceding species. Richardson further stated that Sir William Hooker had been in error when, apparently on Richardson's authority, he had previously stated that the root of *H. Mackenzii* was edible and that of *H. boreale* poisonous. Our North American varieties of *H. alpinum* (formerly called *H. boreale*) are so abundant in sections of Newfoundland and Canada that the verdict of the very experienced explorer of northern Canada, Mr. Erling Porsild, is significant: *Hedysarum boreale* is widely distributed throughout north-

250EDIBLE WILD PLANTS em Canada, and is found as far north as the shores of the Arctic ocean. The root is mature in August and may be gathered in quantities with very little trouble until the ground freezes. In the spring before the new growth has started the roots are even better than in the autumn. During summer the roots become tough and woody. The root when cooked, in taste resembles that of young carrots, but is more nourishing. This root during early summer forms the principal food of the barren ground brown bears. Several species of meadow mice and lemmings in the autumn harvest the roots and place them en cache for the winter. The caches are found in subterranean runways near the surface. The Eskimo, with the aid of a dog, has no difficulty locating these mouse caches, and frequently obtains his own supply for the winter in this manner. PEANUT, *Arachis hypogaea* The familiar and in the South extensively cultivated PEANUT spreads from cultivation or sprouts spontaneously from waste or rejected seed and is found wild by roadsides and in waste places northward to Virginia, Tennessee, Missouri and Kansas. Its many uses are familiar. VETCH, *Vicia* (many species) USE:emergency-food. The seeds (peas) of Vetch (*V. sativa*, etc.) have been tried as human food. They are asserted to be not palatable and rather indigestible. As food for domestic animals they, like hay, are invaluable; that does not, as some think, demonstrate them good food for man. BROAD- or WINDSOR-BEAN, *Vicia faba*, popular in Eurasia and in Newfoundland and eastern Canada, often occurs on rubbish and in waste-lots northward but is not really naturalized with us.

OF EASTERN NORTH AMERICA251 TUBEROUS VETCH, EARTH-NUT, *Lathyrus tuberosus* USE:tubers. TUBEROUS VETCH is a European species beginning to appear as an introduced plant in America. In Europe the tubers are gathered from the wild plant, or in some cases the plant is cultivated for them. Bryant stated that: This plant, though a weed in France, is cultivated in Holland for the roots, which are carried to the markets there for sale. They have an agreeable pleasant taste, much resembling that of the Sweet Chestnut. BEACH-PEA, *Lathyrus japonicus* or *inartimus*. FIG. 81 USES:young peas, salad. The tender young seeds of the BEACH-PEA used like green peas are a tolerable vegetable, although the peas FIG. 50, LICOICE-ROOTFIG. si, BEACH-PEA

252EDIBLE WILD PLANTS are dry and have a slightly disagreeable taste. In various northern regions the ripe peas have served as a famine-food; but they are said to be almost indigestible and they are supposed to contain the poisonous alkaloid which characterizes the seeds of various species of this and related genera. In England, in the year 1555, being a year of great dearth, the people collected large quantities of these peas between Orford and Aldborough, in Suffolk, upon a barren heath, where even grass would not grow; and as they never had observed any such plant as this there in the time of their fullness, when the eye is careless, they attributed their springing up then as a pure miracle, to keep the poor from starving, though in all probability they had been growing thereabouts for centuries before. Dr. Harold St. John, returning from a summer on the Labrador coast, stated that there the pips or young shoots coming through the sand and looking like the shoots of garden peas, (but often red or purple); are gathered and boiled and after cooking are made into salads. Since the herbage of many species of *Lathyrus* is poisonous, care should be taken carefully to test this food before extensively using it. GROUNDNUT, INDIAN POTATO, WILD BEAN, HoPNIss, *Apios americana* (*A. tuberosa* or *Glycine Apios*). FIG. 82 KEY-CHARACTERS: a twining vine with very slender, rather soft stems, which become whitish and dry over winter; leaves alternate, with 5 or 9 narrowly ovate, slightly stalked leaflets; flowers in dense clusters from the leaf-axils, in late summer, chocolate-brown and paler, deliciously fragrant; pods resembling bean-pods, borne (rather infrequently) in clusters; root an elongate chain of tuber-like enlargements (the nuts) which become 13 inches long. HABITAT: rich thickets, chiefly in low grounds or along streams. RANGE: New Brunswick to western Ontario, south to the Gulf of Mexico. SEASON OF AVAILABILITY: throughout the year, but best from late summer to spring. USES: substitute for potato, seeds for beans.

FIG. 82, GROUNDNUT

254EDIBLE WILD PLANTS Probably no wild food-plant of temperate eastern America so soon attracted the attention of the European colonist as the GROUNDNUT. It was one

of the few eastern plants held in highest repute by the Indians, and the earliest European chroniclers in America wrote with enthusiasm of its virtues and possibilities. Thus Gosnold in 1602 recorded the great store of ground-nuts on the Elizabeth Islands and in Smiths Virginia the author tells of Grounds nut as big as Egges, and as good as Potatoes, and 40 on a string not two inches under ground. We are told by Young in his Chronicles, that during their first winter in New England the Pilgrims were forced to live upon Groundnuts. The great value to the colonists of this ready food is further indicated by a reputed town law, which in 1654 ordered that, if an Indian dug Groundnuts on English land he was to be set in stocks, and for a second offense to be whipped. As early as 1635 the plant was cultivated in France but it was soon forgotten. In 1845, however, it was re-introduced into Europe, this time as a possible substitute for the potato, which was becoming subject to diseases. But attempts at cultivation were soon abandoned, since the plant proved to be an impracticable crop. For the roots to reach a size fit for use requires two or three years at least, and its habit of producing the strings of nuts just beneath the surface of the soil renders cultivation of ground about the plant impossible. The raw tubers are somewhat tough, with a very viscid, milky juice, but of a pleasant sweetish, turnip-like taste. The young tubers may be eaten raw, but the viscid juice leaves an unpleasant rubber-like coating on the teeth and lips. This disagreeable quality is removed by roasting or by parboiling, with salt, and then roasting for a few minutes; but a satisfactory method of preparation is to cut the tubers (skin and all) into thin slices and fry and season like fried potatoes. These fried slices should be eaten hot for on cooling they become tough and uninteresting.

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OF EASTERN NORTH AMERICA²⁵⁵ Or, better still, slice the nuts and simmer with butter, pork or bacon in a sauce-pan until tender; then dry off rapidly, cooking in such salt and pepper as is desired in the last few minutes. Various Indian tribes are said to have used the seeds as beans; but ordinarily they are too scarce to supply much food. A very local relative of our groundnut, *Apios Priceana*, known only from Kentucky, has a single irregularly turnip-shaped root 6 inches or so in diameter. WILD BEAN, *Phaseolus polystachios* KEY-CHARACTERS: a slender twining perennial of thickets and woods with 3 rounded-ovate leaflets 2-4 inches long, small purplish flowers numerous in slender racemes, the keel-petal spirally coiled, the style bearded along the upper side, the drooping pods 2-3 1/2 inches long and containing 4 or 5 blackish kidney-shaped beans less than half an inch long. HABITAT AND RANGE: dry pine or oak woods and sandy thickets, Florida to Texas, north, rather locally, to southern Connecticut, southeastern New York, Pennsylvania, west Virginia, Ohio, Indiana, Illinois, southern Minnesota and Nebraska. SEASON OF AVAILABILITY: late summer and autumn. USE: as beans. Our native WILD BEAN, belonging in a group with many species cultivated for their beans,

can be used, although the crop, in the native habitat, is usually limited. Cow-PEA, BLACK-EYED PEA, *Vigna sinensis* Usxs: beans or peas~~, young pods. The Asiatic COW-PEA, 50 much cultivated, has become naturalized by roadsides, in old fields or in thickets in the Southern States, northward into Virginia, Indiana and Missouri. The value as food and inevitableness of the peas~~ on menus in the South is quite familiar. The young pods may be cooked as snap-beans.

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256 EDIBLE WILD PLANTS WILD BEAN, *Srophostyles*, 3 species KEY-CHARACTERS: Native annual or perennial herbs, resembling cultivated beans, distinguished by having the few flowers crowded, the keel-petal merely incurved and not spiraling, the beans with squared ends and angled back. HABITAT AND RANGE: Damp or wet thickets, gravelly or sandy shores or open sands, one or more species from Florida to Texas, north to southern Quebec, southern Ontario, Michigan, Wisconsin, Minnesota, South Dakota and Colorado. SEASON OF AVAILABILITY: late summer and autumn. USE: beans. The beans of *Srophostyles* are often abundant enough to gather. Their quality we have not tried. HYACINTH-BEAN, *Dolichos Lablab* USES: as beans, potherb, salad. The ornamental HYACINTH-BEAN, with showy purple or white flowers in long and interrupted spike-like clusters and large pods about 1 inch broad, is cultivated chiefly for ornament southward and has escaped to roadsides and thickets northward to the District of Columbia and Ohio. In the Far East, where it is native, the young foliage, tender young pods and fresh inflorescences are eaten either raw or steamed, while the beans are cooked. SOY-BEAN, *Glycine Soja* (or *Max*) SOY-BEAN, now recognized as indispensable in the arts as well as in the diet, is becoming naturalized along roadsides, in old fields, etc., in the South. Its virtues are too well known to need recapitulation here. HOG-PEANUT, *Amphicarpa bracteata* (including *A. monoica* and *A. Pitcheri* or cornosa). FIG. 83 KEY-CHARACTERS: a twining vine with delicate, thread-like stems and branches; leaves alternate, with 3 ovate leaflets resembling those of a bean;

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OF EASTERN NORTH AMERICA 257 flowers pea-like, whitish or lilac, in axillary clusters, succeeded by small bean-pods; producing from the lower axils slender runners which bear round, somewhat flattened, bean-like fruits 1,4 to = inch in diameter. HABITAT: rich, moist thickets and woods, especially near streams. RANGE: New

Brunswick to Manitoba, south to the Gulf States. SEASON OF AVAILABILITY: late autumn and early spring. Usn:subterranean fruits like shelled beans. FIG. 54, Onow-]3EaaY The subterranean fruits of the HOG-PEANUT were well known to the Indians, particularly of the Central States; and, when boiled and properly seasoned with salt and pepper and dressed with butter or cream, they are not unlike the shelled beans of the garden, though of a rather dry quality. The skin or shell of the 1-seeded subter- ranean pod is somewhat leathery, but cracks off in boil- ing. The fruit is sufficiently abundant to repay the time spent in dig- ging, especially when one is camping in the autumn and time is not highly valued. Voles or field-mice gather the fruit in quantities and their nests often con- tain several quarts of the beans. The canny Indian pro- cedure was to depend upon these stores but, although it FIG. 53, HOG-P EANUT

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258EDIBLE WILD PLANTS is commonly said that the Indians stole the stores from the voles, Gilmore comes to their defense and states that when they removed the beans from the nests the Dakota Indians, at least, always replaced them by an equivalent amount of corn or other food for the rodents. The skins of the beans were removed by rubbing, after the beans had been soaked in warm water or lye. KUDZU-vINE, Pueraria Thunbergiana USE:edible starch. The rapidly growing KUDZU-YTNE of eastern Asia, f a- miliar as an ornamental vine with grape-scented purple flowers is much planted in the Southern and Eastern States and has become naturalized, often in abundance, as far north as Pennsylvania and Tennessee. The root usually forks into several branches with a tough outer coat but fleshy within; the fleshy portion of each of the main branches being from four to five feet long, as thick as a mans arm. In Japan The wild plants are dug for these roots, and often with great difficulty. When a suffi- cient quantity of them has been gathered, they are cleaned, cut in pieces, crushed, and the starch washed out and allowed to settle to the bottom of the tub. The starch is then purified by repeated washings and when dried is a fine, pure white article, which is much esteemed for food. WOOD-SORREL FAMILY (Oxalidaceae) WOOD-SORREL, SouR-GRAss, Oxalis (a dozen species) KEY-CHARACTEaS:plants with clover-like leaves, having the 3 somewhat rounded leaflets notched at summit; the flowers with 5 spreading petals, whitish, pink, lilac or yellow; whole plant acid to the taste. HABITAT AND RANGE: in various habitats; the northern species, (O. montana, or O. Acetoselta of American authors) with pink and white striped petals, in cool woods across eastern canada and south into the northern states; the lilac-flowered species (O. violacea) in open, rocky woods from Massachusetts to Minnesota and southward; the yellow-flowered,

OF EASTERN NORTH AMERICA leafy-stemmed species (*O. stricta*, etc.) in open soils throughout temperate North America. SEASON OF AVAILABILITY: late spring to autumn. USES: salad, masticatory. The familiar acid of the WOOD-SORRELS is refreshing in warm weather and the leaves have long been popular with trampers and mountain climbers for their mildly tonic and refreshing properties. In small quantities the foliage is a wholesome addition to a salad, but, on account of the abundance of oxalic acid contained in the plant, it is unwise to eat the foliage in very large quantity. The woodland species is one of the several plants usually identified as the SHAMROCK and it was doubtless the European *Oxalis Acetosella* to which Spenser referred when he wrote in the View of the State of Ireland during a Earn-tne: Out of every corner of the wods and glynnis they come creeping forth upon their hands, for their legs could not bear them; they looked like anatomies of death; they spoke like ghosts crying out of their graves; they did eat the dead carrions; and if they found a plot of water cresse~ or shamrocks they flocked as to a feast. GERANIUM FAMILY (Geraniaceae) STORKSBILL, PIN-GRASS, *Erodium cicutarium* USES: salad, potherb. The STORKSBILL is an occasional weed around towns and especially in the neighborhood of woolen-mills, whence its seeds have been brought from the Southwest entangled in wool. The plant is extensively naturalized in the southwestern states and several writers say that the young foliage is eaten raw or cooked by the Indians. In our Southwest it is raised as an important winter-forage under the name Alfileria.

260 EDIBLE WILD PLANTS RUE FAMILY (Rutaceae) HOP-TREE, WAFER-ASH, *Ptelea trifoliata* Use: substitute for Hops in making yeast or in brewing. The small tree or large shrub, known as HOP-TREE and found in alluvial thickets and on shores from New York to Minnesota, south to our southernmost states, was once in great repute as a substitute for hops. The circular and flattened fruits used like hops (i.e. a decoction of them added to yeast) produced a rapid increase of the latter indispensable concoction so much used in raising bread. They were also, like the hops, used in making beer. CROWBERRY FAMILY (Empetraceae) CROWBERRY, CURLEWBERRY, *Empetrum nigrum* and two other species. FIG. 84 KEY-CHARACTERS: matted, evergreen shrubs, with slender, trailing branches covered with short needles, suggesting those of spruce or juniper; bearing on the branchlets black, purple or pink, very juicy round berries with 69 hard seeds. HABITAT AND RANGE: three species: the BLACK CROWBERRY (or BLACK-nenny of Newfoundland), *E. nigrum*, with branchlets smooth, the old leaves reflexed, and the small berries black, abundant on peaty, sterile soils throughout the

Arctic regions and south to the coast of Maine, the higher mountain-summits of New England, Pictured Rocks, Michigan, and the mountains of Alberta, British Columbia and Washington; PURPLE ONO-BERRY, *B. atropurpureum*, with the young branchlets white with down, the old leaves spreading but not reflexed, and the large fruit purple or plum-colored, on sand hills about the Gulf of St. Lawrence and on granite gravels and ledges of the lower mountains of Maine and New Hampshire; PINK CROWBERRY or ROCKBERRY, *B. Eamesii*, with young branchlets covered with white wool, leaves scarcely spreading, and small berries bright coral-pink, on exposed sands, gravels and ledges, southern Labrador, Newfoundland and adjacent islands and Cape Breton. SEASON OF AVAILABILITY: midsummer to early spring. USES: berries, fresh or cooked, beer. The CURLEWBERRIES or CROWBERRIES form an important fruit in northern regions for, although to a sophisticated taste they are slightly unpalatable, their disagreeable

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OF EASTERN NORTH AMERICA 261 qualities are soon forgotten under the pressure of thirst and hunger. The berries are extremely watery, with a mildly medicinal flavor which is improved by freezing, and may be gathered from midsummer throughout the winter. The berries of the purple- and pink-fruited species are superior to those of the Black Crowberry or Blackberry but of more limited distribution. To some palates the flavor of the cooked berries is greatly improved by the addition of some tart berry and plenty of sugar. In puddings they make a good substitute for currants. In his account of Sable Island, off Nova Scotia, Dr. Harold St. John says: They are sometimes used by the residents of the island in the manufacture of a slightly alcoholic drink. The berries are crushed, then after the addition of sugar or molasses the juice is put in a dark airtight receptacle until the fermentation takes place. FALSE MERMAID FAMILY (Limnanthaceae) FALSE MERMAID, *Floerkea proserpinacoides* USE: salad. This weak annual herb of marshes and wooded river-banks from western Quebec to Delaware and westward has a pleasant pungent flavor and is very tender. It may be eaten either as a nibble or dressed as a salad. It is so inconspicuous that only the technical botanist is apt to notice it. CASHEW FAMILY (Anacardiaceae) STJMACH, *Rhus* (various species) KEY-CHARACTERS: shrubs or small trees with coarse, soft branches and feather-like leaves with numerous pointed leaflets, and bearing somewhat pyramidal or rhomboidal terminal clusters of red, berry-like hard fruits. HABITAT AND RANGE: dry open soil; the STAGHORN *SuMACH*, *B. typhina* (or *B. hirta*), with the branches covered with long, velvety hairs and the

262EDIBLE WILD PLANTS berries with long, acid red hairs, occurring from Rimouski Co., to western Ontario, south to Georgia, the Great Lakes States and Iowa; SMOOTH SUMACH, *B. glabra*, with smooth branchlets and with the leaf-stalks not winged, from central Maine to Manitoba and southward; DwAaF SUMACH, *B. copaUina*, with minutely downy branchlets and with a broad wing extending between the leaflets and down the leaf-stalk, from southern Maine to southern Ontario and southward. SEASOH OF AVAILASILITY: throughout the year, but chiefly from mid-summer to early winter. USE:a cool, acid drink. The hairs on the surface of the SUMACH berries contain malic acid and, on account of their pleasant acid taste, the berries are familiar to most children. The Indians, and after them the Europeans, used the fruit as the source of a cool, summer drink, which is prepared by bruising the fruit in water, thus freeing the acid, then straining off the acidulated water through cloth, to remove the hairs, and adding sugar. This drink in color resembles the familiar pink lemonade and in flavor is quite as palatable~ The fruiting heads are likely to be inhabited by numerous insects and care should be taken to select the heads which are not disagreeably worm-eaten. By various tribes of Indians the dried berries are stored to supply an acid drink in winter. In some statements we find the boiling of the berries recommended, but boiling is to be avoided, since the hard seeds contain abundant tannin, which is extracted by boiling and which renders the rhusade astringent and somewhat unwholesome. In fact, in many country districts the brew from boiled Sumach berries is a familiar cure for sore throats. The berries of Staghorn Sumach are less acid than those of the other species.

OF EASTERN NORTH AMERICA263 HOLLY FAMILY (Aquifoliaceae) CASSINA (or CASSENA) or YAUPON, hex vomitorict; GALL-BERRY or INKEERRY, *I. glabra*; BLACK ALDER, *I. verticillata* and *I. laeviga*[a; HOLLY, *I. opaca*. FIGS. 85 and 86 USE:tea. Without question CASSINA or YAIJPON is the most desirable substitute we have for tea; it is, therefore, most unfortunate that it should be handicapped by the technical name flex vomitoria. Fortunately, however, the country people of the southern coastal plain, from Texas to Florida, thence northward into the flat part of Arkansas and around the coast eastward to the region of Cape Henry and the lower James River, know it only by its old Indian names and harvest it, unprejudiced, as a delicious and slightly tonic tea. The offensive name came from the old custom of southern Indians of drinking a very strong brew, supposed by some to be of Cassina, in ceremonial assemblies until it produced results never thought of in ordinary and temperate use of properly made tea. The invidious charges against Cassina which resulted in an uninviting specific name may,

after all, have been too hastily made. At least, Porcher, who intimately knew Cassina, published the following defense of it, written by his correspondent, Sirmues, in 1863: I think there is some mistake among the authorities you quote when they assert this to be the material out of which the Indians manufacture the famous Black Drink used at their most solemn festivals, and which I have always understood, while travelling among them forty years ago, to be compounded of various roots, by decoction, and acting as a powerful emetic. The leaves used moderately as tea have never, as I believe, acted thus upon the system.~~ The leaves, like those of oriental tea, contain an appreciable amount of caffeine, this rendering the decoction

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264EDIBLE WILD PLANTS from them mildly stimulating. I. vomitoria is a stiffly branched shrub or small tree with close whitish-gray bark and small, leathery and evergreen bluntly scalloped leaves, and black, seedy berries along the branchlets. Every one in the Southeast knows it. The leaves are not simply harvested and brewed; if they were they would make an unpalatable drink, with strong herby taste. They must, like oriental tea-leaves, be properly prepared. Here are Porcher's directions, based in part on the preparation of the related South American MATE or PARAGUAY TEA, hex paraguayensis: FIG. 55, CASSINA or YAU- It can be gathered during the whole year. It is collected in the woods a process of kiln-drying is resorted to upon the spot, and afterward the branches and leaves are transported to some crude mill and powdered in mortars. The substance, after this operation, is almost a powder, though small stems, denuded of their bark, are always permitted to remain. A small quantity of the leaf, either with or without sugar, is placed in a common bowl, upon which cold water is poured; after standing a short time, boiling water is added, and it is at once ready for use. It must be imbibed through a tube on account of the particles of FIG. 86, GALLBERRY or INKBERRY

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OF EASTERN NORTH AMERICA265 leaf and stem which float upon the surface of the liquid. In practice, however, a simple strainer, bit of fine cheese-cloth or a filter-paper have been found perfectly practicable! hex Cassine, a more southern evergreen with much larger and entire leaves, may be similarly used, as are some other evergreen-leaved species of the South. The common INKBERRY or GALLBERRY, hex glabra, a low

evergreen shrub of peaty or sandy soils from Louisiana to Florida, thence north on the coastal plain to Massachusetts, and common in bogs or on pond-margins of western Nova Scotia, has shining oblong to narrowly wedge-shaped leaves an inch or two long, and hard black berries along the branchlets. Its leaves also contain caffeine and are said to yield a good tea. Other species of hex, the evergreen HOLLY, hex opacct, a tree with spiny-margined and very stiff evergreen leaves and red berries, and BLACK ALDER or WINTERBERRY, flex verticillata, a shrub of swamps with deciduous toothed leaves and with red berries persisting into winter along the branches, have often been commended for tea-making, doubtless chiefly because of their generic affinity to Cassia and Inkberry, but the note by Dr. Lee, quoted under Sassafras (p.), states that the leaves of I. opaca were in the South the most common substitute for tea during the Civil War. Neither of these species contains caffeine, which gives the others their tea-like quality. STAFF-TREE FAMILY (Celastraceae) SHRUBBY BITTERSWEET, WAXWORK, Celastrus scandens ITsn:emergency-food. Dr. Edward Palmer and some other writers on Indian foods state that the tender branches and the sweetish bark of BITTERSWEET or WAXWORK were used by the Chipewas as food, the poisonous saponin which is contained

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266EDIBLE WILD PLANTS in the bark being dispelled by cooking; the boiled bark being sweet and palatable. BLADDER-NUT FAMILY (Staphyleaceae) BLADDER-NUT, Staphylea trifolia KEY-CHARACTERS: small tree or large shrub, with opposite, stalked leaves having 3 ovate, pointed leaflets; flowers in grape-like clusters, whitish, with 5 erect, narrow petals; fruit a large, inflated or bladder-like pouch, with 3 lobes, each lobe containing 14 bony seeds. HABITAT AND RANGE: rich thickets, borders of woods and banks of streams, western New England to Minnesota and southward. SEASON OF AVAILABILITY: late summer and autumn. USE: nut-like seed. It is often stated that the seeds of Old World species are in quality similar to pistachios; and the comparison has been transferred by some authors to the seeds of our species. We have not tried them. MAPLE FAMILY (Aceraceae) MAPLE, Acer (various species) USES: drink, syrup, sugar, breadstuff, cooked vegetable. From the earliest times the Indians of the northern United States and southeastern Canada depended upon the sap of the Maples as a source of drink, syrup and sugar, and to some extent as a source of bread. Naturally enough, the SUGAR-MAPLE, A. saccharum, has won most distinction, because by the whites it is the tree most depended upon for syrup and sugar; but many other species have sap from which good sugar may be made. In fact, Michaux considered the sap of the RIVER- or SILVER MAPLE, A. saccharinum or A. dasycarpum, sweeter and whiter, although the yield of sugar from a tree was only about one-half that of the Sugar-Maple. Other explorers too, for instance Sir John Richardson, were emphatic in their praises of the

sugar made from sap of the River-

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OF EASTERN NORTH AMERICA²⁶⁷ Maple; and in the South the pale-barked SUGARTREE, *A. floridanum*, was a regular source of sugar until sugar-cane and sorghum were extensively grown. The RED MAPLE, too, *A. rubrum*, furnishes a good sap and sugar, although the sugar is inferior to that of Sugar-Maple and the yield is comparatively small; and the Box-ELDER or ASH-LEAVED MAPLE, *A. Negundo* (or *Negundo fraxinifolium*) has been highly valued as a source of sugar. Michaux stated that Box-Elder will not furnish good sugar; but many competent botanists, exploring in central Canada, have been very definite in their references to Box-Elder as a sugar-tree. Thus Richardson, who for years had no equal in his knowledge of our northern regions, writing from the Saskatchewan in 1840, said, under date of April 26: The sugar harvest, which is collected in this district from the *Negundo fraxinifolium*, commenced in 1820, on the 20th of this month, and lasted till the 10th of May. The flow of the sap is greatly influenced by the direct action of the sun, and is greatest when a smart night's frost is succeeded by a warm, sun-shining day. Similarly, in the report of Palliser's Exploring Expedition along the boundary between Canada and the United States, we find the following memorandum, under date of April 10, 1857: Everything is commencing to wear a spring aspect; the women of the fort are scattered along the banks of the river, busy gleaning their annual harvest of maple sugar. The tree from which they obtain sugar is not the true maple. It is the *Negundo fraxinifolium*. The sugar, according to Richardson, is generally of a darker color than that from the Sugar-Maple. During the past two generations the arts of tapping the Maples and of preparing syrup and sugar have been largely forgotten, except by the few who follow syrup- and sugar-making as a trade. Earlier generations of Americans, when our ways were healthily simple, an-

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²⁶⁸EDIII³LE WILD PLANTS usually looked forward to the early spring days when the sap would begin to flow and when they and their neighbors would gather for the sugaring. New England and Canadian literature is replete with references to these happy days, which, unfortunately, the majority of the present generation little comprehend, preferring, even when they have plenty of Maple-trees on their own land, to rely upon imported cane-sugar or, now and then as a special treat, to pay an enormous price for a

bit of Maple- sugar. Bnt who can read this passage from long-f orgot- ten Sylvester Jndd without a wish to take part himself in a real sugaring~~ It is spring; Hash is about beginning his annual labor of making maple sugar and burning coal; Margaret has promised him her aid, and then she is to have her own time. She carries the alder spouts to the Maples, rights the troughs that have been lying overturned under the trees, and kindles a fire beneath the large iron kettle that hangs from a pole supported between two rocks. Wreathing the trailing arbutus in her hair and making a baldric of the ground-laurel, with a wooden yoke stretched across her shoulders she carries two pails full of sap from the trees to the boiler. With a stick having a bit of pork on the end, she graduates the walloping sirup when it is likely to overflow, while her brother brings more sap from the remote and less accessible part of the camp. The neighbors, boys and girls, come in at the sugaring off; the wax is freely distributed to be cooled on lumps of snow or the axe-head; some toss it about in long, flex- ible, fantastic lines, some get their mouths burnt, all are merry. Her mother stirs it off, and a due quantity of the quick and alive crystal sweet is the result. The Indian methods of -preparing the sugar were nniqne: drawing the sap into bark or wooden vessels and boiling it down by throwing into it hot stones from the fire or allowing the sap to freeze over night, in the morn- ing throwing off the ice and leaving the thickened sirup at the bottom of the vessel. Nowadays we meekly pay the price (60 cents to \$1.25 a pound) for maple-sugar as a confection; but note the

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OF EASTERN NORTH AMERICA²⁶⁹ following, from a description of the Gasp~ Peninsula be- fore it was discovered by the tourist: Supper, lodging, and breakfast for three and bedding and feed for the horse came to \$2.56. Handing our host \$2.75, with an effort to say politely in French, Keep the change, please, I was met by firm refusal. But the necessary change could not be found. So our host, climbing on a chair, took down from the pantry-shelf one of those enormous French Canadian bread-pans, turned out its contents and, with an axe, chopped off five pounds of maple-sugar, for change. I wish I had handed him a five- dollar bill. That was before the new automobile road was finished and American tourists had changed the point of view. M.L.F. in Harvard Alumni Bulletin, xxxiv. 422 (Jan. 8, 1932). The sap from all the Maples as well as from other trees (hickory, birch, ash, etc.) is secured by tapping the tree, i.e., by boring a shallow hole into the sap-wood with an augur and inserting a wooden or metal spigot perf- orated at the base and cut or moulded at the outlet into a channel. Pails or troughs are hung or set under the spigot and the sap, which usually flows best after a frosty night, secured and carried to larger receptacles for boil- ing. On a camping trip in early spring it is not only a pleasure but a decidedly practical matter to know how to tap a tree, for the sap is quickly evaporated over the fire and a good supply of sirup may be readily obtained. For making maple-beer, Michaux gave the following directions: Upon 4 gallons of boiling water,

pour 1 quart of Maple molasses [syrup]; add a little yeast or leaven to excite the fermentation, and a spoonful of the essence of spruce: a very pleasant and salutary drink is thus obtained. Other uses of the Maples are less inviting, for instance the sap-wood or inner bark gathered in the spring and dried has been used by various Indian tribes as a source of bread, the dried bark being pounded in a mortar and sifted before cooking; and the Calmucks, we are told, re- move the wings and then boil the large seeds of the

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270EDIBLE WILD PLANTS maples, afterward dressing them with butter and milk as a food. SOAPBERRY FAMILY (Sapindaceae) HORSE-CHESTNUT, BUCKEYE, Aesculus (5 or 6 species) USE: breadstuff. The large nuts of the HORSE-CHESTNUT and BUCKEYES contain a bitter, poisonous principle, the glucoside aesculin, so that the raw nuts, although usually abundant and full of starch, are dangerous to eat. It has been stated by some European writers, as well as by students of the American Indians, that this bitter principle is readily re- moved by leaching, and that after its removal a whole- some and highly nutritious meal is left. The Indians roasted the nuts among hot stones, thus loosening the shells, peeled and mashed them, and then leached the meal with water for several days. According to the pharma- ceutical authority, Dr. Heber W. Youngken, in a note in The Herbarist for 1939, This glucoside, called aesculin is very sparingly soluble in water, forming a faintly blue fluorescing solution. If the old statements in the South of the properties of powdered Buckeye-seeds are sustained, it is evident that not even fish can drink like a fish, if they are given aesculin. The scholarly and very acute botanist, Rev. M. A. Curtis, wrote in 1860 of RED BUCKEYE, Aesculus Pavia: The powdered seeds and bruised branches, if thrown into small ponds and stirred a while, will so in- toxicate fish that they rise to the surface and may be taken by hand. The Indians were wise in leaching the meal for several days. BALLOON-VINE, Cardiospermum Halicacabum USE: potherb. The tropical BALLOON-VINE, a climber with numerous

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OF EASTERN NORTH AMERICA 271 leaflets and with tendrils, and large bladderly fruits, is sometimes cultivated and is inclined to become spontan- eous in our warmer states. In tropical countries l its young foliage is frequently cooked as a spinach. BUCKTHORN FAMILY (Rhamnaceae) NEW JERSEY TEA, Ceano thus amerqcanus

(and other species). FIG. 87 KEY-CHARACTERS: low, straggling shrub, woody only at base, the branches dying back at the tips; leaves alternate, oval, on short stalks, very closely bordered with line, bluntish teeth, pale below, dark-green above, having 3 strong ribs running from base nearly to apex; upper axils bearing long-stalked clusters of delicate, white flowers, the clusters in outline suggesting a bunch of grapes; fruit a 3-lobed pod inserted on a thin-edged disk. HABITAT AND RANGE: dry, open woods and rocky banks, central Maine to western Ontario, south to the Gulf. SEASON OF AVAILABILITY: summer. USE: tea. NEW JERSEY TEA is probably one of our most famous of the native substitutes for oriental tea, and many writers speak of it as admirable, while others find it inferior. It contains no caffeine and is, therefore, not bracing. According to a tradition at least, this tea was in great demand during the American Revolution. The learned Manasseh Cutler, writing in 1774, said: The leaves of this shrub have been much used by the common people, in some parts of the country, in the room of India tea; and is, perhaps, the best substitute the country affords. They immerse the fresh leaves in a boiling decoction of the leaves and branches of the same shrub, and then dry them with a gentle heat. The tea, when the leaves are cured in this way, has an agreeable taste, and leaves a roughness on the tongue somewhat resembling that of the bohea tea. Porcher, writing from the South, speaks of this tea as admirable and says that the leaves must be dried in the shade.

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272 EDIBLE WILD PLANTS The very similar *C. ovatus*, with leaves narrower and more elliptical, has presumably similar properties. VINE FAMILY (Vitaceae) GRAPES, *Vitis* (a dozen species) Uses: jelly, marmalade, preserves, cold drink, the smaller and more acid fruits as masticatories. The various WILD GRAPES which occur from New Brunswick westward and southward are too well known to need special definition, and their fruits are in large demand for the making of jellies, marmalades and preserves. The best species northward is undoubtedly the Fox GRAPE, *V. Labrusca*, with large fruits, but some of the other northern species have fruits which, though small, are highly valued in the making of jelly. Of some of the sweeter-fruited species the Indians formerly gathered a great store, drying the fruit for winter use. South FIG. 87, NEW JERSEY TEA FIG. 89, RIVER-BEAUTY

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OF EASTERN NORTH AMERICA²⁷³ ward a different series of species has its enthusiastic gatherers, the MuscADINE, *V. rotundifolia*, being every- where sought for its big, aromatic, sweet fruit which, as soon as fully ripe, drops to the ground and becomes hid- den among fallen leaves. The form with amber-colored to cream-colored fruit, the SCUPPEENONG, is generally grown in back-yards of the South. Not only is the Muscadine everywhere sought for its fresh fruit and for preserves and jellies, but Dr. Carver enthusiastically recommended the preparation of Muscadine leather (delicious): Gather when ripe, wash, put in a porcelain or granite pre- serving kettle, cover with boiling water, let simmer until the berries are hot through and the hulls have turned a reddish color, now stir in a scant tablespoon of baking soda to the gal- lon of fruit, stir well for three minutes, but do not mash the fruit; drain off this water, wash in three more waters, being careful each time not to mash the berries. They may now be dried whole or made into a leather the same as recommended for strawberries [see directions on p. 34]. I much prefer the leather, the hulls will be very tender and the fruit of a fine flavor. The seeds may be removed by passing through a colander. I wish every housewife would try this. LINDEN FAMILY (Tiliaceae) BAsswood, LINDEN, *Tilia americana* and three other species Usus:sugar, chocolate-substitute, tea, masticatory, emergency-food. The sap of the LINDENs is said to contain a considerable amount of sugar, but the most striking use of these trees is in the preparation of a substitute for chocolate. It has long been known in Europe, where it was first discovered by a French chemist, Missa, that the fruits of the Linden ground with some of the flowers furnish a paste which in texture and taste perfectly resembles chocolate. Var- ious attempts have been made in Europe to produce this chocolate-substitute on a commercial scale but, owing to

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²⁷⁴EDIBLE WILD PLANTS the liability of the paste to decomposition, all have proved impracticable. The most conspicuous case was in the time of Frederick the Great, when that monarch engaged a German chemist to check the work of Missa. The results were entirely satisfactory but, as above stated, it was found that the new chocolate would not keep. On this Ventenat [a distinguished French botanist of the time] remarks, that, if the subject had been pursued a little further, and the fruits of some of the American species of limes [Lindens] taken, the success would probably have been complete. Here is a great opportunity for some enterprising Yankee! According to Waugh and some other writers on Indian foods, the Iroquois chewed the bast in the spring as a masticatory, and also the young buds in the spring as a thirst-quencher. The bast has also been recommended as a possible emergency-food. The deliciously fragrant flowers of the Lindens have been popular in many countries as a substitute for tea, the tea prepared from them being soft, well-flavoured, and sweet, so much so that Porcher, writing for the Southern Confederate

families, said: I would particularly recommend a larger use of these flowers in the Confederate States. It can be used wherever tea is required. MALLOW FAMILY (Malvaceae) MALLOWs, Malva, Althaea, etc. (a dozen species) USES: potherbs, mucilaginous juice, soup. The MALLOWs have mild, mucilaginous juices and throughout regions where they are found the smooth species have often been used as potherbs. In our own flora we have chiefly introduced species, which occur as weeds about barn-yards or on roadsides and in fields and, although these may be used as potherbs, they are chiefly known through their scalloped fruits, familiar to children

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OF EASTERN NORTH AMERICA²⁷⁵ as a nibble under the name of CHEESEs. Of more importance is the Marsh-Mallow, *Althaea officinalis*, a European species rarely found in America, the root of which supplies the juice used as the basis of the well known confection. VIOLET FAMILY (Violaceae) VIOLETs, *Viola* (various species) USES: confection, thickening for soup. The fragrant ENGLISH VIOLET is, of course, familiar with us only as a cultivated plant which occasionally escapes to grassland; its flowers, candied, have long been popular, chiefly on account of their delicate fragrance. The great botanist of South Carolina, Stephen Elliott, treating the violets with palmately dissected leaves as one variable species, but incidentally calling one of them *Viola esculenta*, said This Violet is very mucilaginous and much used by negroes in their soup. Porcher, somewhat later, called it WILD OKRA and said of the species of blue violets with unclift leaves (his inclusive *V. cucullata*): This plant has been used in making soup during war times. To it may be added the wild okra, the dock and the lambs quarter. Since the roots of violets are sometimes emetic, only the herbage and flowers should be used. Probably any of the blue violets might be used. PASSION-FLOWER FAMILY (Passifloraceae) MAYPOPS, *Passiflora incarnata* Usn: fruit. The MAYPOPS of the Southern States are familiar to the children of that region, the fruits, from midsummer to autumn, as large as a hens egg and somewhat suggesting

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²⁷⁶EDIBLE WILD PLANTS a lemon but with little nutriment. They are mildly sweet and acid, more eatable than edible. CACTUS FAMILY (Cactaceae) PRICKLY-PEAR, INDIAN FIG, *Opuntia* (several species) Usus: fruit, soup-thickening, cooked vegetable. The fruit of the PRICKLY-PEAR is familiar to all who live within the range of these

plants and some of the better fruits of southwestern or Mexican species occasionally come to the eastern market. They have a sweet and succulent pulp and in the Southwest are highly valued. Unfortunately the surface is covered with tufts of deciduous, extremely irritating bristles. Nevertheless, the Indians and many whites in the Southwest and in Mexico have conquered this difficulty. They prize them not only as fruit but as a thirst-quencher; and the parched seeds, after being pulverized, are used as a thickening for soup. Even the thick, leaf-like branches supply food, being roasted in hot ashes and peeled, leaving a palatable but slimy pulp. Our own species are relatively unimportant and practically never used. OLEASTER FAMILY. (Elaeagnaceae) SILVERBERRY, *Elaeagnus commutata* (or *argentea*) KEY-CHARACTERS: a shrub with alternate-silvery, scurfy entire leaves and scurfy branches; and roundish, dry and mealy berries about 1/2 inch in diameter, covered with silvery scales. HABITAT AND RANGE: dry rocky, mostly limestone slopes, in the North-western States and western Canada, extending locally east to eastern Quebec. SEASON OF AVAILABILITY: late summer and autumn. USE: fruit. The SILVERBERRIES, although rather dry and mealy, are said to be edible but not of the best quality. Some of the Asiatic species in cultivation have more juicy fruit.

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OF EASTERN NORTH AMERICA 277 SOAPBERRY, *Shepherdia* (or *Lepargyrea*) *canadensis* KEY-CHARACTERS: low shrub with opposite, oval leaves green above but silvery or rusty beneath with scurf or scales; branches rusty with scales; berries small, oblong, axillary, orange or reddish, disagreeable to the taste. HABITAT AND RANGE: dry, limy rocks and slopes, Newfoundland to Alaska, south to the northernmost states and along the Rocky Mountains. SEASON OF AVAILABILITY: summer and early autumn. USE: source of a creamy food. SOAPBERRIES, though disagreeable to the white man's palate, furnished a very popular food to the Indians. They contain a bitter principle, saponin, which foams in water. The thick, cream-like suds is tinged with red and, when sweetened, was held as a great delicacy by the Indians. BUFFALO-BERRY, BULL-BERRY, *Shepherdia argentea* KEY-CHARACTERS: tall shrub with somewhat thorny, scurf-covered branches; the opposite leaves narrowly wedge-shaped, silvery on both sides with scales or scurf; axillary berries scarlet, pleasantly acid before frosts, afterward becoming sweet. HABITAT AND RANGE: banks of streams, Manitoba and northern Minnesota to Kansas and westward. SEASON OF AVAILABILITY: late summer and autumn. USES: fruit, jelly, drink. BUFFALO-BERRIES are a staple wild fruit of the North-west. After frosts they become sweet and are then eaten, raw or cooked. By the whites the sour berries, gathered before the frosts, are used to make a most delicious jelly, said to be preferred to currant jelly, the berries containing a considerable amount of pectin. The juice is also used in preparing a delicious summer drink. MELASTOMA

FAMILY (Melastomaceae) DEERGEASS, MEADOW-BEAUTY, *Ilhexics virginica* (and 5 other species). FIG. 88 USES:salad, nibble. The handsome PEERGEASS is too beautiful and local a

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FIG. 88, DE~GRASS

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OF EASTERN NORTH AMERICA²⁷⁹ plant to recommend for general use as a food, bnt in re- gions where it abounds it furnishes a pleasant salad, the leaves having a sweetish and slightly acid taste, while the tnbers are pleasantly nntty in quality. It is probable that other species of the genus have simi- larly palatable qualities. EVENING-PRIMROSE FAMILY (Onagraceae) FIREwEED, GREAT WILLOW-HERB, *Epilobium* (*Chamaenerion*) *angustifolium* Usns:potlierb, asparagus, thickening for soup, tea. The familiar FIREWEED of the northern clearings has won some repute, especially in northern Europe and in western America, as a food plant. Various European writers speak with some enthusiasm of the use of the vigorous new shoots as a substitute for asparagus, and all agree that the leafy new stems make a wholesome and palatable potherb. In this connection it is interesting to note that the ~colloquial name of the plant among the French Canadians, at least of the Gasp6 Peninsula, is asp~rge. Dawson states that the Indians of the Northwest scoop out the pith from the large stalks and cook this as a thick soup; and both Lankester and Johnson state that in Eng- land the leaves are used as an adulterant in tea. RIVER-BEAUTY or PROSTRATE WILLOW-HERB, *Epilobium* (*Chamaenerion*) *latifolium*. FIG. 89 USES:asparagus and potherb. RIVER-BEAUTY, forming extensive carpets on the slaty or limy gravels of Labrador, Newfoundland and the Gasp6 Peninsula, thence interruptedly across the conti- nent and north to the Arctic, is closely related to the Fire- weed, but has depressed, tufted stems, with whitish,

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280EDIBLE WILD PLANTS fleshy, short and broad foliage and few terminal, very large

and handsome rosy flowers. The new shoots are much more succulent than in the Fireweed and, although Unger, whose Germanic descendants are now thankful for much poorer fare, said that it makes indifferent greens . . . , although sufficing for Northern Asia and Iceland, Mr. Erling Porsild, who knows Iceland, has long lived in Greenland and is familiar with other high- northern regions, finds it not indifferent. He says The fleshy leaves are edible when cooked and in taste resemble spinach; and the specialists on vitamins have recently discovered that spinach is wholesome food! EVENING-PRIMROSE, *Oenothera biennis* and 4 or 5 related species. FIG. 90 KEY-CHARACTERS: forming broad rosettes with many elongate, lanceolate or oblanceolate, entire or somewhat wavy-toothed, thickish leaves lying flat on the ground; the midrib conspicuous, whitish or reddish; root stout and fleshy, somewhat parsnip-like but more branching; flowering stems springing in summer from the winter-rosettes, becoming 14 feet high, bearing many crowded, alternate, entire leaves and showy yellow 4-petaled flowers followed by thickish horn-like, erect capsules. HABITAT AND RANGE: dry, chiefly gravelly open soils, Newfoundland to British Columbia and southward. SEASON OF AVAILABILITY: roots, late autumn, winter and very early spring. USE: root-vegetable. The EVENING-PRIMROSE very early attracted attention in Europe, where it was introduced from North America and where it has been cultivated. The new plants produce rosettes and strong roots the first year, the flowering stems springing from the rosette the following summer and the fruiting plant dying in the autumn. Consequently, only the newly grown roots are available for food. The root is often disappointing to those who cook it, for if gathered too early in the autumn or too late in the spring it has a peppery, biting quality; but if caught

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OF EASTERN NORTH AMERICA²⁸¹ at just the right stage of development, which has to be learned by experience in each locality, and cooked in two waters, it has a taste similar to that of salsify or oyster-plant, or some say like parsnip. European authors state that the roots are used as salad, but the roots of our ordinary wild plants need cooking. It has also been stated that the young sprouts make a good salad but in our own experience they are altogether too puckery. WATER-CHESTNUT FAMILY (Trapaceae) WATER-CHESTNUT, WATER-CALTROP, *Trapa natans* Usus: nut, flour, cooked vegetable, confection. The WATER-CHESTNUT, which has been introduced at a few points in the eastern United States and which is now somewhat naturalized, often crowding out other plants, in ponds and slow streams, has the submersed leaves divided into thread-like segments but the floating leaves forming a rosette on the surface of the water, with coarsely toothed, rounded blades and inflated leaf-stalks. The nuts are an inch or two broad and usually armed with four strong spines. The seed inside has sometimes been used in Europe and Asia to make a coarse flour or as a coarse, roasted vegetable. It

is said by Paillieux, how- FIG. 90, EVENING-PRIMROSE

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282EDIBLE WILD PLANTS ever, to be very indigestible. In some European communities the nuts are candied much as are true chestnuts. GINSENG FAMILY (Araliaceae) ANGELICA-TREE, HERCULES -CLUB, *Aralia spinosa* USE:potherb. Our very prickly shrub or low tree, ANGELICA-TREE, growing up to 30 feet high in borders of woods or on river-banks of the Gulf States, north to New Jersey, Pennsylvania, western New York, Ohio, Indiana, Illinois and Iowa, with very large and very compound leaves and umbels of whitish flowers forming a gigantic panicle, may have some use after all. In Japan their representative of our species furnishes a secondary food. The young ex- panding leaves, before their prickles become hard, are gathered and cooked as a green, served with vinegar. SPIKENARD, LIFE-OF-MAN, PETTYMORREL, *Aralia racemosa*. FIG. 91 USES:root-vegetable, cooked green vegetable, ingredient in root beer, jelly. The familiar American SPIKENARD, found in rich woods from eastern Quebec to Manitoba, south to Virginia, in the upland to Georgia and Alabama, and to Missouri and eastern Kansas, has long, cylindric, often branching clus- ters of purplish berries which have a pleasant aromatic flavor, but are not considered edible. The stout root is pleasantly aromatic and in the northern states is one of the popular ingredients of root-beer. Dr. Huron H. Smith told of the Menomini Indians cook- ing the Indian Spikenard roots. An aboriginal Menomini dish was spikenard root, wild onion, wild goose- berry and sugar. This is described as being very fine. Mrs. Morrell, writing from Maine, says: Each year I

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OF EASTERN NORTH AMERICA283 make jelly with berries of Life-of-Man, a great favorite. The closely similar *Aralia cordata* of Japan is there very important. Seeds are sown in any unused and fertile corner. When the plants are three or four years old the roots are covered with soil or litter and the blanched new stems, like asparagus, are harvested and sold in the market. Stewed and served with sauce... an agreeable and palatable dish. Our common Spikenard has great possibilities. FIG. 91, SPIKENARD; root cut longitu- dinally and showing pockets of nutri- tion WILD SATISAPARILLA, *Aralia nudicaulis* Usns:ingredient in root-beer, emergency-food. The long rootstock of the common WILD SARSAPARILLA of dry woods is often used as an ingredient of

root-beer. We FIG. 92, DWARF GINSENG

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284EDIBLE WILD PLANTS have the statement of the pioneer New England botanist, Manasseh Cutler, that during their wars or hunting expeditions, the Indians subsisted for long periods of time on these roots. GINSENG, *Panax quinquefolium* USES: emergency-food, tea. GINSENG, long famous as the great Chinese panacea, has, on account of the Chinese demand for the roots, become nearly exterminated as a wild plant in eastern America where it formerly abounded in rich woods. Its deep, parsnip-like root is aromatic and, like the other members of the family, may be used as an emergency-food, while an infusion of the leaves is stated by several authors to make a palatable tea. DWARF GINSENG, GROUNDNUT, *Panax trifolium*. FIG. 92 USE: starchy vegetable, eaten like nuts. The globular, bulb-like root of the DWARF GINSENG, which occurs in rich, deciduous woods throughout the northeastern United States and adjacent Canada, is familiar to most children on account of its starchy and somewhat nutty quality. Eaten raw it is disagreeably starchy, but when boiled a few minutes in salted water it becomes very palatable, either as a hot vegetable or eaten cold like salted nuts. Ordinarily the plant is too scattered or too deep-rooted among strong fibres for the roots to be secured in abundance. PARSLEY FAMILY (Umbelliferae) CAUTION: This family contains many of our well known garden vegetables, such as carrot, parsnip, celery, fennel, parsley, etc.~ but unfortunately many members of the

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OF EASTERN NORTH AMERICA 285 family are among the most notorious of poisons: POISON HEMLOCK, WATER-HEMLOCK or BEAVER-POISON, and several others. The genera of the family so closely resemble one another that it is entirely unsafe for any but the most expert botanist or those who, through training or special experience, are absolutely familiar with the plants, to experiment with the wild species. Among the wild members of the family there are several which make possible or even desirable food. The more important of these are enumerated below. See Chapter on Poisonous Plants. WATER-PENNYWORT, *Hydrocotyle*, 6 species. FIG. 93 The WATER-PENNYWORT, small, soft-stemmed creeping herbs with round, scallop-edged leaves half an inch to 4 inches across, either with a deep sinus at the junction with the leaf-stalk or centrally attached; flowers small, greenish-white in umbels or clusters or sometimes in small

bunches along a slender axis, maturing into 2-parted ribbed fruits. USES: salad and potherb? We know nothing of the desirability of the WATER-PEN- NYWORT5 for food. Ochse states that in Java the native species, very similar to ours, are eaten whole, raw or steamed . . . They are frequently sold in the markets. It should be easy to test our species. CENTELLA, *Centelics erecta* (or *repanda*). FIG. 94 CENTELLA, like the Water-Pennywort, is a low creeping herb. It differs in having the erect long-stalked ovate leaf with a broad open sinus and the 24-flowered basal umbels subtended by 2 conspicuous bracts. It abounds in low meadows or wet sands of the coastal plain from Mexico and Texas to Florida, thence north to Virginia and more locally to Delaware. It has often been mistaken for the tropical and subtropical Asiatic *C. asiatica*. USES: salad and potherb? The Asiatic species, according to Ochse, is sold in the markets of Java as raw salad or to be steamed. Ours should be tried; the succulence of the leaves is inviting.

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FIG. 95, SWEET CICELY FIG. 93, three species of WATER-PEN- NYWORT FIG. 94, CENTELLA

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OF EASTERN NORTH AMERICA 287 SWEET CICELY, *Osmorrhiza* (or *Washingtonia*), 4 species. FIG. 95 KEY-CHARACTERS: leaves fern-like, very delicately dissected, with 3 primary forkings to the leaf-stalk; fruits borne in umbels (the branches or rays of the cluster spreading like the rays of an umbrella), elongate, seed-like, becoming 1/224 inch long, and covered with strong, stiff hairs by which the 2 halves of the fruit readily catch upon the clothes. HABITAT AND RANGE: rich woods, various species from southern Labrador and Newfoundland across the continent, south through the eastern and central states. SEASON OF AVAILABILITY: throughout the year. USE: anise-flavoring. The stout, fleshy and forking roots of these plants have a considerable amount of anise-oil, some species more than others, and for those who care for that flavor make a readily available camp-seasoning. HARBINGER-OF-SPRING or PEPPER-AND-SALT, *Erigenia bulbosa* USE: edible root. The tiny HARBINGER-OF-SPRING growing in rich hardwood from southern Ontario and western New York to Minnesota and southward, is familiar to all lovers of Nature where it grows. Its small bulb-like root is edible. HONEWORT, WILD CHERVIL, *Cryptotaenia* (or *Deringa*) *canadensis*. FIG. 96 KEY-CHARACTERS: stem becoming 13 feet tall, with remote,

alternate, long-stalked, 3-parted leaves, the leaf-stalks dilated at base and somewhat clasping the stem, the leaflets oval, with a double tothing of rather coarse and broad teeth bordered by much finer slender teeth; flowers tiny, white, borne in slender-stalked irregular umbels from the summit of the plant and the upper axils; mature fruits spindle-shaped, about a third of an inch long, dry and seed-like, splitting lengthwise into halves. HABITAT and RANGE: rich woods, and thickets or banks of streams, western New Brunswick to western Ontario, south to Georgia and Texas. SEASON OF AVAILABILITY: late spring and early summer, while young and tender. USES: soup, potherb, salad, root-vegetable, seasoning.

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FIG. 96, HONEWORT

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OF EASTERN NORTH AMERICA²⁸⁹ The discerning Swedish explorer, Pehr Kalm, who was sent to North America by his government during the first half of the 18th century, to discover useful plants, wrote in his journal of 1749 from Fort St. Frederic (Crown Point), that this plant abounds in the woods of all North America. The French call it *cerfeuji sauvage*, and make use of it in spring, in green soups, like chervil. It is universally praised here as a wholesome, anti-scorbutic plant, and as one of the best that can be had here in spring. We find few if any modern references to the use of Honewort in America except such as bear the earmarks of derivation from Kalm's statement. How different, however, is the situation in Japan where the identical species occurs. It is there an important vegetable: It prefers a moist, loamy soil. The seed is sown in May between the rows of ripening grain, and covered with straw for mulch. When the grain is removed it becomes the sole occupant of the ground, and is manured and cultivated during the summer. The next following January it is usually manured with rice bran, and the earth is hilled-up over the roots so the leaves can bleach when they shoot through. The leaves appear in March, when they are pulled off at the roots, tied in bundles, and marketed. The tops are used for greens and to flavor soups, and the blanched stems are used both as a salad and boiled, and they are really a very desirable vegetable. Old plants are often lifted in the fall, and placed on gentle hot-beds made of rubbish, where they produce leaf stems for early use. These are some seven or eight inches long and quite slender. The root is also eaten when boiled and dressed with oil. CARAWAY, *Carum Carvi*. FIG. 97

USES:seasoning, salad, potherb, root-vegetable. The familiar CARAWAY, now thoroughly naturalized in Newfoundland, eastern Canada, and many parts of the northern United States, has many uses available to those

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290EDIBLE WILD PLANTS FIG. 97, CARAWAY who are perfectly familiar with the plant but unsafe for those uncertain of its identity. The seeds are familiar seasoning, either in cookies and bread or sometimes with cheese or, after the German method, mixed with ginger, salt and butter and spread on bread. But the other uses are less familiar in America. The tender, new leaves are highly recommended by European writers as a salad, while the slightly more mature foliage is said to make a good potherb (presumably by cooking in two waters). The plant, like the carrot or parsnip, is a biennial, making a vigorous tuft of leaves and a well-filled root the first year; and upon the authority of the seventeenth century apothecary, John Parkinson, the roote thereof is better foode then of the Parsnep, and is pleasant and comfortable to the stomacke helping digestion. Parkinson further informs us that the seede is conducing to all the cold greefes both of the head and stomacke; the seede is much used in Bread, Cakes, etc. to give a relish and warming quality to

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OF EASTERN NORTH AMERICA²⁹¹ them as of a spice, and in Comfits, to eat with fruit to breake the windinesse of them. In Parkinsons time, as above noted, the root of Caraway was fully appreciated. A century later it had already become neglected, as indicated by Bryants statement in 1783: The roots of the cultivated Caraways were formerly in great esteem when boiled; how they have fallen into neglect is not easy to guess, as they certainly merit a place at table, as much as some that come there. WATER-PARSNIP, 5mm suave (or *cicutae*folium). PLATE IV Usas: root-vegetable, relish. The WATER-PARSNIP grows in habitats similar to those occupied by WATER-HEMLOCK or BEAVER-POISON (*Cicuta*); and since the roots of the latter plant are deadly poisonous to eat, only those who are thoroughly familiar with the two plants at all stages of development should venture to try the roots of Siumand then first on a rabbit or guinea-pig. Our authority for the use of roots of our Water-Parsnip (*Sium*) as food by the Indians is Sir John Richardson, who certainly knew his plants and who wrote: From a party of Chepewyans who were encamped on the Otter Lake, we procured a quantity of a small

white root, about the thickness of a goose quill, which had an agreeable nutty flavor. I ascertained that it was the root of the *Sium tincinense* [pure synonym of *S. suave* or *S. cicutae-folium*]. The poisonous roots of *Cicuta virosa*, *maculata*, and *bulbifera*, are often mistaken for the edible one, and have proved fatal to several laborers in the Company's [Hudson Bay Cos.] service. The natives distinguish the proper kind by the last year's stem, which has the rays of its umbel ribbed or angled, while the *Cicutae* have round and smooth flower-stalks. When the plant has put out its leaves by which it is most easily identified, the roots lose their crispness and become woody. The edible root is named *ilskotaslc* by the Crees, and *queue de rat* by the Canadians. The poisonous kinds are called

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292 EDIBLE WILD PLANTS *manito-skataslc*, and by the voyageurs *carrotte de Moreau*, after a man who died from eating them. It is interesting that the Chippewayans should independently have discovered the food-value of *Sium* roots, for the closest relative of our plant is the Old World SKIRRET, *Sium Sisarum*. The Skirret has had some popularity as a garden vegetable, especially in Europe, where it has been called the sweetest, whitest, and most pleasant of roots. Bryant compares it to parsnip and gives a detailed account of extraction of sugar from the roots. By Coville it is stated that the Klamath Indians eat the aromatic foliage of our plant as a relish. The white man's taste is hardly up to that. FENNEL, *Foeniculum vulgare*. PLATE V KEY-CHARACTER: tall, smooth perennial herb with pale and very smooth cylindrical stems; leaves with foot-stalk embraced by a large pair of sheaths (stipules) 15 inches long, the leaf itself dissected into innumerable thread-like segments; the yellow flowers in large umbrella-like clusters, suggesting those of parsnip, but more open; whole plant strongly aromatic. USES: seasoning, condiment. FENNEL, originally cultivated in this country, is abundantly naturalized in waste lands, on roadsides, etc., in the Southern States, and more locally northward to southern New England, New York, Michigan, etc. It is not greatly appreciated with us but with peoples of southern European stocks is a favorite seasoning. This has long been so. Thus, Parkinson (1640) wrote: the Italians especially do much delight in the use thereof, and therefore . . . transplant it and whiten it, to make it more tender to please the taste, which being sweet and somewhat hot and comforting the stomach, helpeth to digest the crude flegmatic quality of Fish, and other viscous meats which they much inure themselves unto. We use it to lay upon Fish or to boyle it therewith and with divers other things, as also the seed in breads and other things.

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PLATE IV WATER-PARSNIP

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PLATE V FENNEL

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OF EASTERN NORTH AMERICA²⁹⁵ Evelyn, in his *Acetarict* (1706), stated that it recreates the Brain; especially the tender Umbrella, and young Seeds annexd to them. The Stalks, white, plump, and soft, are to be peel d, and then dressed like Sellery. The early tender Tufts of the emerging Leaves, being minc d, are eaten alone with Vinegar, or Oyl and Pepper, and to correct the cooler Materials, enter properly in Composition [of Sallets]. When one contemplates the vast wastes of Fennel about some of our more southern cities and recollects that it recreates the Brain, it seems a pity that it is not more often used. SCOTCH LOvAGE, ALEXANDERS (Newfoundland), Ligusti- cum scoticum KEY-CHARACTERS: a rather stout plant of sea-shores, with long-stalked leaves in basal clusters; the leaf-stalk crimson or purple at the broad, sheathing base, with 3 forks bearing ovate, rather coarsely toothed, glossy leaflets 13 inches long; the flowering stems arching, bearing flat-topped, somewhat umbrella-shaped clusters of white flowers, followed by pale- brown, dry, oblong fruits nearly half an inch in length. HABITAT AND RANGE: ledgy, gravelly or sandy sea-shores, Labrador to New York, common northward, becoming rare southward. SEASON OF AVAILABILITY: early summer. USES: potherb, celery-substitute, confection. In America SCOTCH LOvAGE has never come into gen- eral favor, but in the Hebrides and other maritime sec- tions of Scotland it has long been used, either as a cooked potherb or, when blanched by covering with litter, the leaf-stalks have found use as a substitute for celery. The whole plant has an aromatic odor, but when raw a strong flavor, and it is probable that to most palates it would be acceptable only by cooking in two or more waters. The young shoots are sometimes candied like Angelica.

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296 EDIBLE WILD PLANTS SEACOAST ANGELICA, *Coelopleurum lucidum* (or *actacifolium*) KEY-CHARACTERS: a coarse plant from 14 feet high, with large leaves having a conspicuously inflated base, the blade green and 3-forked, these sections again divided on a plan of 3, the leaflets ovate, green on both sides, coarsely toothed, from 13 inches long; stem coarse and green, often dotted with sticky spots, bearing round-topped umbels 35 inches broad, with small, white flowers followed by squarish, oblong, scale-like, ribbed dry fruits about 1,4 inch long. HABITAT and RANGE: sandy, gravelly or ledgy sea-shores or seaside thickets, Labrador and the lower St. Lawrence to Long Island Sound. SEASON OF AVAILABILITY: early summer, while tender. USE: like stewed celery. The young stems and tender stalks of the young leaves, when peeled, are very juicy and with the characteristic odor and flavor of unbleached celery, although rather too strong for the European palate. When cooked like celery in two waters the young stems and leaf-stalks make a palatable and wholesome vegetable and on the shores of the Gulf of St. Lawrence and of Newfoundland Labrador might become an important food. In his notes from the Aleutian Islands Dr. E. C. Van Dyke of the University of California made the significant entry on the labels of the closely related *Coelopleurum Omelini* of the North Pacific: Natives eat the leafstalks of this raw.~~ ANGELICA, PURPLE ANGELICA, *Angelica atropurpurea* KEY-CHARACTERS: a tall and stout, purple-stemmed plant often 6 or 8 feet tall, the stems smooth; the leaves divided on a plan of 3, having a broad and leathery, sheathing base, the leaflets ovate to rhombic, coarsely toothed, 13 inches long; flowers greenish-white and small, borne in nearly globular umbels 36 inches in diameter; whole plant pleasantly aromatic. HABITAT and RANGE: rich, low grounds, oftenest in the alluvium or terraces of streams or in limy swamps, southern Labrador to western Ontario and Wisconsin, south to Delaware, Pennsylvania, West Virginia, Ohio, Indiana and Illinois; ascending along mountain-brooks in Quebec and northern New England. SEASON OF AVAILABILITY: leaf-stalks and young stems, late spring and early summer; roots, autumn and early spring. USES: salad, cooked vegetable, confection.

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OF EASTERN NORTH AMERICA 297 The common northern ANGELICA has the same uses as the Old World species and from colonial days has been popular, especially through its candied roots and young shoots, which, after thorough boiling, are again boiled in sugar and allowed to cool. The tender, new stems and leaf-stalks when peeled are relished by many as a salad, but they have a rather strong flavor which is removed by boiling in two waters, when the cooked vegetable strongly suggests stewed celery. The very similar European species has long had the same uses. WILD PARSNIP, *Pastinaca*

sativa USE:cooked vegetable. There is a current impression that the roots of the WILD PARsNIP are poisonous but, as Halsted has well said, it is probable that all cases of poisoning by Wild Parsnip are due to the mistaking for it of other plants such as Water-Hemlock (*Cicuta*), which has large roots smelling like parsnips. The true Wild Parsnip is a common weed of rubbish heaps, waste lands and rich roadsides, where it has been introduced by seed from the cultivated strains of the species. When these wild plants grow in sufficiently rich soil outside the garden, there should be no reason why the roots should not be used by those who are absolutely certain of the identity of the plant. COW-PARsNIP, MASTERWORT, *Heracleum lanatum*. PLATE VI and FIG. 98 KEY-CHARACTERS:one of the coarsest of the family, with stout stems, 3-10 feet high, covered at least when young with dense whitish wool; leaves as large as those of burdock or rhubarb, divided into 3 main divisions, the leaf-stalk with a conspicuously inflated and clasping base, the coarse and irregularly toothed leaflets suggesting large maple leaves, whitened with wool on the under surface; flower-clusters umbrella-like, very large, often 6 inches to a foot across, flat-topped, with many of the uneven, white, marginal flowers = inch broad.

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298EDIBLE WILD PLANTS HABITAT AND RANGE: rich ground, alluvial thickets and seashores, Newfoundland to Alaska, south to upland North Carolina, Kentucky, Kansas, and in the western mountains. SEASON OF AVAILABILITY: late spring and early summer. USES: salad, cooked vegetable (as stewed celery), root-vegetable, substitute for salt. Although the Cow-PARsNIP is a picturesque but coarse and ill-smelling plant not generally recognized among the whites as a food-plant, its young leaf-stalks and young stems, before the expanding of the flowers, when properly prepared are quite as wholesome and almost as palatable as stewed celery. The tender stalks are as coarse as large stalks of celery, of an aromatic and sweetish flavor, though when green with a strong and disagreeable taste. Among the northern Indians, who eat the peeled stalks either raw or cooked, they have always been in high repute. In our own experience, the raw stalks, on account of the disagreeable odor and taste, are not attractive, but when boiled in two waters (the first water thrown off) they are an agreeable or even delicious vegetable. Chestnut, writing of the food-plants of the Indians of Mendocino County, California, says: Mr. George Grist who has had an extended experience with the Indians of Round Valley, and who in 1892 was the Government farmer for the reservation, informed me that he had seen the hollow basal portion of the plant used as a substitute for salt. It was dried in short cylinders and eaten either in the dry state with other food or placed in the frying pan and cooked into the substance to be eaten. Some Indians also cooked the large root. Dr. H. H. Smith wrote: This is another of the Meskwaki potatoes, of which there is an unlimited supply on the reservation. It is cooked like the rutabaga

and tastes somewhat like it. We had always supposed the root to be poisonous, but they experience no ill effect from its use. The Meskwaki called our attention to the resemblance of the side roots to the ginseng root, and also to the fact that it smells the same as ginseng when fresh or dried. The white man so

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FIG. 98, COW-PARSNIP

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300EDIBLE WILD PLANTS often muicts the Indian that it seems poetic justice when the tables are turned. Many of the Meskwaki sold these side roots dried and tied like ginseng for ginseng to a white buyer who used to visit the reservation buying gin- seng, and he never discovered the difference. Doubtless the Chinese, the ultimate consumers, never found out the difference, either. The first Meskwaki name given is the one used when mentioning it for medicinal use, and for the table the name skipwaok is given. They say the roots are like sweet potatoes. EUROPEAN COW-PARSNIP, HOGWEED, ELTROT, *Heracleum Sphondylium* KEY-CHARACTERS:similar to the native *IT erac7eum 7anatum*, but greener and with harsh hairiness; the leaves with 37 bluntly toothed leaflets only 25 inches long. A. weed of fields and roadsides in southeastern Newfound- land, and locally from Cape Breton to northern New York and southern New England (naturalized from Eurasia). Usn:cooked vegetable, beer. In Eurasia their Cow-PARSNIP i5 used, by those who un- derstand its value, as a vegetable. Thus we find the Eng- lish student of plant-lore, Phoebe Lankester, saying: This is one of our common wayside plants, which might really be usefully employed, if our peasantry were better informed as to the nature and properties of the wild vegetation surrounding them. It is generally looked upon merely as a noxious weed, though in some districts where it grows, the leaves are collected and given to pigs, who quickly fatten upon them; hence the plant is called Ilogweed. The stalks when stripped of their rind, which is somewhat acrid, are edible, and are used as food in some parts of Asiatic Russia. In Siberia and Russia the stalks are dried in the sun, when a sweet substance exudes from them, which re- sembles sugar, and is eaten as a great delicacy. A spirit is dis- tilled from the stalks thus prepared, by first fermenting them with water and either mingling bilberries with them or not. Gmelin says this spirit is more agreeable to the taste than spirit distilled from corn. The young shoots and leaves may be boiled and eaten as a green vegetable, and

when just sprouting from the

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OF EASTERN NORTH AMERICA 301 ground resemble asparagus in flavour. This experiment is, however, seldom tried, owing to the ignorance of those to whom such an addition to the table would be a benefit and luxury. Where it abounds, as near Trepassy in southeastern Newfoundland, it is despised because it taints the milk. Mrs. Lankester suggests a better use for it. WILD CARROT, QUEEN ANNE'S LACE, BIRD'S-NEST, *Daucus Carol* a USE: root-vegetable. The WILD CARROT, which is such a pest in many old fields, belongs to the same species as the garden carrot but its root is small and tough and there are conflicting traditions which indicate that it is scarcely edible, some people stating that it is actually poisonous. Mrs. Morrell, who writes from a large experience with edible wild plants in Maine, states that the roots raised from the seeds of the Wild Carrot are remarkably sweet. BOGWOOD FAMILY (Cornaceae) BUNCHBERRY, CRACKERBERRY, *Cornus canadensis* and *C. suecica* USES: pudding, masticatory. The familiar, bright-red clusters of the BUNCHBERRY always attract attention and, although the berries of the more southern species, *C. canadensis*, are insipid and dry, with a very large stone, the berries of the more northern *C. suecica*, which bears its clusters from the axils of the small opposite leaves, are slightly tart and more palatable. Linnaeus describes the use of the latter berries by the Laplanders in making a dessert which might well be prepared from our common Bunchberry, with the addition of lemon-juice. The Lapland method of making what Linnaeus described as a dainty was to mix the berries

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302 EDIBLE WILD PLANTS with whey, then to boil them until the mass was as thick as a flummery. This pudding (preferably with the stones strained off) was eaten with cream. SOUR GUM or BLACK GUM, TUPELO, *Nyssa sylvatica* USES: acid fruit, masticatory. The familiar SOUR GUM or TUPELO got the first name from its pleasantly acid fruits. These are bluish stone-fruits with a very thin plup, but sharply acid and pleasant to roll in the mouth in autumn and winter. The more southern var. *biflora* (or *N. biflora*) has the fruit juicier but intensely bitter. Similarly COTTON GUM (*N. aquatica*) of southern swamps has disagreeably tasting fruit as large as a small olive. OGEECHEE LIME or OGEECHEE PLUM, *Nyssa Ogeche* USES: preserves, acid drink. The well known OGEECHEE LIME of wooded swamps from Florida to South Carolina has large red

fruits up to 1= inches long. In his Travels William Bartram said: I saw large, tall trees of the *Nyssa coccinea*, si[ve] Ogeeche, growing on the banks of the river... There is no tree that exhibits a more desirable appearance than this, in the autumn, when their fruit is ripe, and the tree divested of its leaves; for then they look as red as sc~irlet, with their fruit, which is of that colour also. It is of the shape, but larger than an olive, containing an agreeable acid juice . . . they are called Ogeeche limes, from their acid fruit being about the size of limes, and their being sometimes used in their stead. Stephen Elliott, in 1824, writing of the pleasant acid of its fruit, said but its last flavour is austere; and another South Carolina bot- anist, Dr. Mellichamp, wrote of the very delightful acid preserve.., made from the large drupes.

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PLATE VI Cow-P~sNIP ~.otttns

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OF EASTERN NORTH AMERICA 305 HEATH FAMILY (Ericaceae) SWEET PEPPERBUSH, *Clethra alnifolia* and *acuminata* USE:cooked vegetable. According to Dr. Georgeson the young leaves of the Japanese species are cooked, in times of scarcity of other greens, and eaten with rice in Japan. The Japanese spe- cies is so similar to ours that our own familiar species might be tried. PIPSISSEWA or PRINCES PINE, *Chimaphila~umbellata*, and SPOTTED WINTEREGREEN, *C. maculata* USES:drink, nibble. The familiar green-leaved PIPSISSEWA of acid wood- lands from the Gasp6 Peninsula to British Columbia, south, as one or more of its geographic varieties, to Geor- gia, the Great Lakes States and Mexico, is a regular in- gredient in root-beer. Both it and SPOTTED WINTERGREEN are well known to most lovers of the woods as pleasant and refreshing nibbles. INDIAN PIPE or CORPSE-PLANT, *Monotropa uniflora* USE:cooked vegetable (for those who want it). The members of the Heath family in general contain

rather powerful properties which render them more or less poisonous, some species known as lambkills being fatal to browsing animals. The INDIAN PIPE lacks the green coloring matter of most members of the family, and by its mushroom-like aspect has often suggested itself as possibly edible. So far as we are informed, the only person who has reported upon it is Prest, who states that the fresh plant is almost tasteless but that when parboiled and then boiled or roasted it is comparable to aspara

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306EDIBLE WILD PLANTS gus. Our own single experiment was not gratifying in its result. LABRADOR TEA or BOG-TEA, *Ledum palustre* (including *L. decumbens*) and *L. groenlandicum*. FIG. 99 KEY-CHARACTERS: low straggling shrubs with evergreen, alternate, dry- ish leaves covered beneath with dense wool (at first whitish, afterward brown), the margins of the leaves rolled back; flowers white, in umbrella- shaped, terminal clusters, followed by ellipsoid to slenderly-oblong seed- pods. HABITAT AND RANGE: boggy or peaty soils throughout the arctic regions, one species, *L. groenlandicum*, extending south in cold bogs to southern New England, northern New Jersey, mountains of Pennsylvania, and the Great Lakes States. SEASON OF AVAILABILITY: throughout the year. USES: tea, food-conservator. Through its suggestive name as well as the writings of northern travellers, LABRADOR TEA has gained a considerable reputation as a tea-substitute. Those who have tried the two species refer to the more northern *L. palustre* as superior to *L. groenlandicum*. The early explorer of western Canada, Dr. John Palliser, writing in his journal of 1866, thus noted it: We encamped after passing the Long Muskeg, where we got a supply of the muskeg tea FIG. 100, ALPINE BEAIBERRY FIG. 99, two species of LABRADOR TEA; *Ledum palustre* at left, *L. groenlandicum* at right

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OF EASTERN NORTH AMERICA 307 (*Ledum palustre*), which makes a capital beverage in absence of a better. The shrub has a strongly aromatic fragrance due to an oil, and Linnaeus found that in Lapland, two centuries ago, *Ledum palustre* is laid among corn in the barns, to drive away mice.~~ If the bristly spikes of *Setaria verticillata* (see p. 105) will keep away rats and the leaves of *Ledum* will drive away mice, the housewife should be pretty well set, especially if there is good basis for the statement made by Barton and Castle concerning the common WATER-PEPPER, *Polygonum*

Ilydropiper: It is not eaten by any animal. In some parts of Germany this herb is kept in bedrooms for the purpose of dispersing fleas, as these insects, it is said, will not come where it is. FLEABANE, Erigeron, has at least a good name in this connection. Unfortunately the housewives in many regions where it is much needed do not have a supply of BUGBANE, Cimicifuga. LAPLAND ROSEBAY, Rhododendron lapponicum
 KEY-CHARACTERS: A depressed shrub forming dense mats; with oblong, dry, evergreen leaves about 1/2 inch long, dotted, especially beneath, with brown specks; flowers violet-purple, 1/2 inch broad, in terminal clusters, succeeded by ellipsoid, reddish capsules covered with minute scales. HABITAT: dry, exposed, rocky or mountainous areas. RANGE: Arctic regions, south across the barren lands to Newfoundland, the mountains of Gaspé, Mt. Katahdin and Traveller Mt., Maine, the higher white Mts., Mt. Marcy, New York, and the Dells of the Wisconsin. SEASON OF AVAILABILITY: throughout the year. USE: tea. Sir John Richardson, writing of his famous expedition across the barren lands of Canada in search of traces of his former companion, Sir John Franklin, said: An infusion of the leaves and flowering tops was drunk with us instead of tea, but it makes a less grateful beverage than the Ledum palustre.

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308 EDIBLE WILD PLANTS BOG-ROSEMARY, Andromeda glaucophylla
 KEY-CHARACTERS: low and slender, aromatic evergreen shrub with bluish-gray stiff narrow leaves, with margins tightly recurved against the white lower surface; bud-scales with a bloom; flowers with delicate pink urn-shaped corollas, the foot-stalks recurving; fruit a depressed, turban-shaped capsule. HABITAT AND RANGE: mossy bogs, damp peat and quagmires, Labrador to Manitoba, south to Newfoundland, Nova Scotia, New England, northern New Jersey, Pennsylvania, West Virginia, Indiana, Wisconsin and Minnesota. SEASON OF AVAILABILITY: throughout the year. USE: tea. Dr. H. H. Smith stated that BOG-ROSEMARY LEAF used as a substitute for tea by the Ojibwe Indians. Its aroma is certainly delicious. Do not boil, simply draw the aroma with water. Boiling would extract the andromedotoxin which is harmful. LEATHER-LEAF, CASSANDRA, Chamaedaphne calyculata USE: tea. According to Dr. H. H. Smith, the leaves of LEATHER-LEAF, a familiar evergreen shrub of cooler parts of the Northern Hemisphere, are used, like those of Bog-Rosemary for tea by the Ojibwe Indians. The Ojibwe are famed as a stout people, but if one makes tea from Leather-leaf, the same care as in using Bog-Rosemary should be exercised. Steeping would probably extract the harmful andromedotoxin. SORREL-TREE, SOUR-WOOD or TITI, Oxydendrum arboreum USES: masticatory, thirst-quencher. The acid leaves of the SORREL-TREE of the Southern States when chewed are well known to allay thirst.

OF EASTERN NORTH AMERICA 309 TRAILING ARBUTUS, MAYFLOWER, *Epigaea repens* Usn:pleasant nibble. The fragrant corollas of the TRAILING ARBUTUS are spicy and slightly acid and are well known to children who eat them as a pleasant nibble and to relieve thirst. CHECKERBERRY, WINTERGREEN, TEABERRY, IYRY-LEAVES, etc., *Gaultheria procumbens* USES:tea, condiment, nibble, fruit. The berries and young, tender leaves of the CHECKERBERRY are familiar to most country children (under very diverse colloquial names) on account of their pleasant, aromatic flavor. The berries, maturing in late summer, last over winter and in early spring, after the melting of the snow, become enlarged and much less dry than in the autumn. The young leaves in the spring while still red are tender and highly flavored with oil of checkerberry, but in mid-summer become tough and less palatable. Woodsmen esteem the mature leaves as a substitute for tea. In the eighteenth century the plant was highly reputed as a tea-substitute; and we are told that the French Canadian court-physician, Dr. Hugues Gaultier (also spelled Gaultier) decouvrit le th6 du Canada qu il designa comme un breuvage excellent. On account of Gaultier's enthusiasm over the great possibilities of this tea, his friend, Pehr Kalm, the famous Swedish explorer, who visited him in 1748, proposed that the plant be named *Gaultheria*. It should be noted that oil of checkerberry or oil of wintergreen, used so much as a flavoring and in medicine, is derived (when not made synthetically) by distillation from the twigs of Black Birch.

310 EDIBLE WILD PLANTS ALPINE BEARBERRIES, POISONBERRY (in Newfoundland) *Arctostaphylos* (or *Arctous*) *alpina* and *rubra*. FIG. 100 KEY-CHARACTERS:prostrate, matted shrubs with pinkish-brown, papery bark, the trailing branches densely covered with crinkly-margined, very veiny, obovate leaves, which persist for many years as dried brown or gray masses of foliage; berries black (in *A. alpina*) or bright-red (in *A. rubra*), very juicy and with 4 or 5 hard seeds, the berries more or less hidden among the newer leaves. HABITAT:rocky barrens. RANGE:*A. alpina*, throughout the arctic and sub-arctic barren region, extending southward to Newfoundland (where called Poisonberry) and the higher mountains of Quebec, Maine and New Hampshire; *A. rubra*, limestone rocks and gravel, northern Newfoundland, Anticosti and the Mingan Islands of Quebec to Hudson Bay and the Canadian Rockies. SEASON OF AVAILABILITY: late July to October. USx:berries, fresh or cooked. The fruit of the ALPINE BEARBERRIES is unattractive to many palates, but in the absence of more attractive berries this fruit is apparently wholesome and one soon acquires a taste for

it. When thoroughly ripe the berries are juicy, with a pleasant acid but slightly bitter flavor, fairly good raw but better when cooked with sugar and eaten cold. Those of us who have had an opportunity to try both species prefer the red berries to the black. BEARBERRY, KINNIKINIK, MEALBERRY, HOG-CRANBERRY, Arciostaphylos Uva-ursi USE:cooked fruit; emergency-food. The dry and insipid red berries of the common BEAR- BERRY which forms extensive prostrate mats on sterile rock and sand from the Arctic regions south to the up- land of Virginia, sands of northern Indiana and Illinois and rocks to South Dakota and New Mexico, are mildly medicinal but wholly uninviting to eat raw. Porsild, how- ever, says that the mealy berries are quite nourishing. They are rather tasteless when raw, but are quite palat- able when cooked.

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OF EASTERN NORTH AMERICA 311 MOXIE-PLUM, CREEPING SNOWBERRY, MAIDENHAIR-BERRY, CAPILLAIRE, Ohio genes his pidula. PLATE VII KEY- CITAEACTERS: fine, trailing vine with thread-like branches covered with small, roundish, pointed, finely bristly leaves about 1/4 inch long; whole plant highly flavored with oil of wintergreen or checkerberry; berries ellipsoid, ivory-white, very juicy, covered with minute hairs, borne along the lower sides of the trailing branches. HABITAT: Mossy knolls and damp woods or thickets, chiefly under spruce or fir. RANGE: Labrador to British Columbia, south to the Maritime Provinces, northern and western New England, northern New York and the Great Lakes States, and in upland swamps locally to the mountains of North Carolina. SEASON o~ AVAILABILITY: herbage, throughout the year; berries, mid- summer and early autumn. USES: berries, fresh or cooked; tea. The MOXIE-PLUM, as it is called in Maine, or the MAIDEN- HAIR-BERRY or CAPILLAIRE, as it is called in Canada and Newfoundland, rarely fruits in abundance in the southern part of its range; but in the mountains of Gasp6 and the woods of Newfoundland the trailing mats often fruit so heavily as to fleck with white the knolls where they grow. Under these circumstances the berries are gathered with ease by lifting and stripping the branches and a pint cup can be filled in a few minutes. Eaten fresh the berries are pleasantly acid, with a mild suggestion of checkerberry, but when eaten with cream and sugar they are one of the greatest delicacies of the northern woods, having, in ad- dition to the mild, lemon-like acidity and the checker- berry-flavor, a suggestion in their aroma of heliotrope. The danger to the uninformed which lurks in colloquial names is well illustrated by Capillaire and Maidenhair, the names universally used in Newfoundland for Ohio- genes. In France and in French Canada Capillaire is the name of Maidenhair-Fern, Adiantum, the roots of which are used medicinally. But the names were too much for the globe-trotting Sir Richard Bonnycastle who, having a first- hand unfamiliarity with the facts, published an account of Newfoundland plants. Under

the Ferns he

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312EDIBLE WILD PLANTS had: The maiden hair (*Adiantum pedatum*) is a little trailing plant, seeking sheltered places, and is one of the most beautiful of the family of filices, or ferns. It bears a little fruit, white, and like an ants egg, which contains so much saccharine matter as to be luciously sweet when made into a jam or preserve. It is occasionally brought to families here by the girls who follow the berry-picking trade; but is preserved, and not used for capillaire, as in Canada. Sir Richards' account was the basis for the record under Newfoundland, in one of the recently revised encyclopedias, of the berry-bearing ferns of that Island. The preserves prepared in Newfoundland from these berries are justly famous as the most delicious preserve known in the region. All travellers in Newfoundland who are vouchsafed a taste write with enthusiasm of the preserve, which is rarely offered for sale, the berries bringing the highest price of any wild fruit in the market (before the war a price of two dollars a gallon for the raw berries). Tea made from the leaves has a mild flavor of wintergreen. **BLACK HUCKLEBERRY**, *Gaylussacia baccata* (or *resinosa*). **KEY-CHARACTERS:** a rigid, much-branched shrub a few feet in height; the alternate, oval to oblong leaves slightly varnished with yellowish-brown resin or wax, sticky when pinched; berries black and juicy, borne in small clusters along the branches, rarely blue with a bloom; seeds 10, hard and stone-like. **HABITAT:** dry or rocky, occasionally boggy, open situations, clearings, pastures, etc. **RANGE:** Newfoundland to Manitoba, south to Georgia and the Great Lakes States. **SEASON OF AVAILABILITY:** June to September. **USE:** fruit. The **BLACK HUCKLEBERRY** is so abundant that it is known to most people but, singularly enough, there prevails in many regions a tradition that the berries are poisonous. This idea may have arisen through confusion

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OF EASTERN NORTH AMERICA with some similar fruit, like the Chokeberries (*Pyrus arbutifolia*, etc.), which are puckery and nearly inedible when uncooked, or the Buckthorns (*Rhamnus*), which have poisonous berries. Although having hard seeds, the Black Huckleberries are deliciously spicy and sweet, in flavor superior to most of the small-seeded Blueberries or huckleberries (*Vaccinium*) and often mixed with them by the pickers. **BLACK HUCKLEBERRY**, *Gaylussacia frondosa*. FIG. 101

KEY-CHARACTERS:loosely branched shrub with whitish-green, elliptical or oblong, alternate leaves covered beneath by minute waxy atoms; berries blue and juicy, slender-stalked, borne in pendulous clusters; seeds 10, hard and stone-like. HABITAT AND RANGE: dry or moist woods, southern New Hampshire to Florida and Louisiana. SEASON OF AVAILABILITY: August, September. USE:fruit. Although rarely gathered and by many people thought (erroneously) to be poisonous, Dangleberries, often found in abundance, make one of the most luscious of desserts, being remarkably juicy and with a rich, spicy and sweet flavor. FIG. 101, DANGLEBERRY FIG. 102, SQUAW-HUCKLEBERRY

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314 EDIBLE WILD PLANTS DWARF HUCKLEBERRY, *Gaylussacia dumosa* KEY-CHARACTERS:low shrub, rarely more than 13 feet high, with gland-dotted, narrowly obovate to oblong, sharp-tipped leaves; the blackish berries hairy or bristly, in short, leafy clusters, juicy and aromatic, with 10 stone-like seeds. HABITAT AND RANGE: peat-bogs and quaking, mossy pond-shores and wet thickets, Newfoundland to New Jersey, and in drier sands and peats from New Jersey southward. SEASON OF AVAILABILITY: August, September. USE:fruit. On account of its habitat, in sphagnum bogs, the Dwarf Huckleberry is not generally known in the North; but its fruit is juicy and deliciously spicy. Southward, where it takes to dry sands, the fruit is readily accessible. Some other species of the genus occur farther south. SQUAW-HUCKLEBERRY, DEERBERRY, *Vaccinium* (Batodendron) *stamineum* (with 2 or 3 related species in the South). FIG. 102 KEY-CHARACTERS:diffusely branched shrub 15 feet high, with alternate, oval leaves whitish beneath, and bearing pendulous, leafy clusters of globular or pear-shaped, greenish, yellowish or amber-purple, gooseberry-like berries which, when ripe, promptly drop to the ground and have a sour and bitter taste and very thick skin. HABITAT AND RANGE: dry, sandy woods, plains, and rock-crests of the southeastern states, extending northward locally into southern Ontario, and central and southeastern Massachusetts. SEASON OF AVAILABILITY: July (southward) to early October. USES:raw or cooked fruit, jelly, marmalade. Although the raw fruit of the Squaw-Huckleberry is often unpalatable to some people and often supposed to be poisonous, individual shrubs yield delicious raw fruit. When cooked and served cold they are by many people considered delicious, suggesting a combination of gooseberry- and cranberry-sauce, with the slight bitter taste of grapefruit-marmalade. Jelly or marmalade made by cooking the juice or pulp with an equal weight of sugar is novel in color (greenish-amber) and unique in its agree-

OF EASTERN NORTH AMERICA 315 able flavor. The freshly stewed berries, when warm, are disagreeable in taste. Thousands of bushels go annually to waste. Those who know their possibilities do what they can to prevent this catastrophe. The berries often drop before ripening. BLUEBERRIES, HUCKLEBERRIES, WHORTLEBERRIES, WHORTS, HURTS, BILBERRIES, *Vaccinium* (20 or more species) Our Blueberries belong to two quite distinct groups: one, with the berries borne in terminal clusters, the true Blueberries, confined to eastern North America; the other, with the berries borne in the leaf-axils, the Bilberries or whortleberries, distributed rather generally in the northern half of the northern hemisphere. The Blueberries and Bilberries, often called huckleberries, are readily distinguished from the true Huckleberries, *Gaylussacia*, by having very many, fine and soft seeds instead of 10 larger stones, and by having no waxy atoms on the foliage and new shoots. The true Blueberries are roughly classified into the High-bush and the Low-bush species, each group containing several distinct shrubs. The HIGH-BUSH BLUEBERRIES are essentially southern, abounding in the southeastern states but becoming local north of Massachusetts, coastwise Maine and Nova Scotia. These High-bush Blueberries are difficult of classification; consisting of possibly several distinct species, the exact characters of which are not clearly understood. The berries are either blue with a bloom or black, sometimes purple or amber-pink. The LOW-BUSH BLUEBERRIES fall into several well-marked species with fruit of quite different character. One of them, the Sour-Top or VELVET-LEAF BLUEBERRY (*V. canadense*) is easily distinguished by having both sides of the small, entire leaves and the young twigs downy and the berries acid and maturing late in the summer. The Sour-top Blueberry is rather northern, occurring from Newfoundland to Manitoba, southward into the northernmost states and along the mountains to Virginia. The other two Low-bush Blueberries have smooth leaves and twigs and sweet berries. The Low SWEET or EARLY SWEET BLUEBERRY, *V. angustifolium* (or *pensylvanicum*), has the leaves bright-green on both sides (or in one form grayish), comparatively narrow (lanceolate or oblong) and distinctly bordered with fine bristles; while the LATE LOW BLUEBERRY, *V. vacillans*, has the leaves often whitened beneath, more oval in outline and usually with an entire margin. The Early Sweet Blueberry is abundant northward, from Labrador to the Saskatchewan and through the northern states, in dry, open places, especially in recently cleared land where fire has run. It extends southward to Virginia, but in its best development and heaviest fruiting is characteristically northern, where the very sweet berries are the

316EDIBLE WILD PLANTS preferred fruit of the late summer. Southward the fruit matures in June or early July, northward into August or early September. The Late Low Blueberry is characteristic of thin oak woods, thickets and dry clearings of the southeastern states, extending north to Michigan, southern Maine and southern Nova Scotia. Its fruit is not so large and juicy as that of the Early Sweet Blueberry and matures several weeks later (in southern New England in August and early September). Other species are familiar in the South. The Bilberries or Whortleberries are characteristic of Labrador, Newfoundland and the highest mountainous regions of New England, New York and the Lake Superior region. Although good or even sometimes superior, the berries are usually inferior to the true Blueberries, having a slightly bitter taste; but a single species, *V. nulleigenum*, confined to the mountains of western Newfoundland and Gaspé, has very richly flavored and large berries. Uses: fruit, fresh, cooked or dried; jelly. The use of Blueberries as fresh or stewed fruit is sufficiently general to need no comment, but the use of other fruits with Blueberries in making jams and jellies is less practiced than it should be. With the addition of sour apple, which supplies both tartness and pectin, a delicious jelly is made. The Indian practice of drying Blueberries in the sun later to be used like currants in puddings, cakes and pemican, is decidedly worth imitating, the berries drying readily in a week or ten days and being immune to decay. MOUNTAIN-CRANBERRY, ROCK-CRANBERRY, PARTRIDGE BERRY, POMME DE TERRE, *Vaccinium* (or *Vitis-Idaea*) *Vitis-Idaea* KEY-CHARACTERS: creeping, evergreen shrub with glossy, box-like leaves covered beneath with scattered, black bristles; berries red, in terminal clusters, shaped like blueberries but acid like cranberries. HABITAT AND RANGE: rocky, open soil, abundant throughout the northern barren lands, south to Newfoundland, Nova Scotia, the eastern coast of Maine and the mountains of New England. SEASON OF AVAILABILITY: late summer and autumn, but preferably late autumn after the frost has touched them; also winter and early spring. USE: cooked fruit. The MOUNTAIN-CRANBERRY, PARTRIDGE BERRY of Newfoundland, or POMME DE TERRE of French Canada and

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OF EASTERN NORTH AMERICA 317 Labrador, needs no introduction to northern peoples, for it is one of the staple fruits of all northern lands. In fact, the Norwegians have so long depended upon this fruit that the Norwegian colonists who have settled in the Middle West import the berries in vast quantities from Norway and from Newfoundland, preferring them to the larger bog-cranberries of the United States. Export of the Partridge-berries from Newfoundland alone to Minneapolis and neighboring markets has sometimes reached the annual total of more than 8600 barrels, valued at \$40,000. In New England, where the berries are found chiefly on the rocky summits of

granite mountains and on the eastern coast of Maine, they are commonly picked too soon, before the frost has had a chance to mellow them. All northern explorers insist that the berries are superior after the frosts. BOG-CRANBERRIES, *Vaccinium (Oxycoccus) macrocarpon* and *Oxycoccus* The two species of Bog-Cranberry are very similar, the common species of the southeastern United States, northward to Wisconsin and Newfoundland, the familiar Cranberry of the market, *V. macrocarpon*, having oblong leaves = inch or so in length and berries about 1/2 inch in diameter; the northern Cranberry, *V. Oxycoccus*, abounding in the cooler regions of the northern hemisphere and extending southward in bogs to New England and the Great Lakes States and locally to the Carolina mountains. The northern Cranberry has smaller, nearly triangular leaves and much smaller berries which are usually spotted with drab or brown. The berries are good but too small to compete with the larger fruit of the southern species. Uses: cooked fruit, jelly, acid drink, pie, etc. The use of CRANBERRIES as an acid sauce is familiar, but the berries may be utilized in various ways not so generally known: in the making of jelly or refreshing drinks; the syrup whipped with gelatine or white of egg into a light desert; or in the making of the well known camouflage, mock cherry-pie. Cranberries ordinarily require a large amount of sugar, but some years ago a Philadelphia experimenter announced that, by adding salt to the cook-

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318 EDIBLE WILD PLANTS ing berries before the sugar is added, the acidity is counteracted and only a small amount of sugar is needed. In our own experience, a teaspoonful of salt is found to take the place of half the sugar (a cupful) ordinarily used with a quart of Cranberries. LEADWORT FAMILY (Plumbaginaceae) THRIFT, FOXFLOWER, *Statice labradorica* KEY-CHARACTERS: a densely tufted plant, with soft and rather fleshy, linear leaves 26 inches long, the bases of the tufts covered with persistent, old, browned leaves; flowering stems somewhat wiry, erect, 2 inches to a foot or more high, terminated by a papery head of flowers 1/21 inch in diameter, and with a slender, reflexed, papery, tubular bract (like a closed umbrella) below the head; flowers with silvery-white or brownish papery calyx and delicately flesh-colored corollas. HABITAT AND RANGE: dry, rocky or mossy barrens and mountain-tops from Greenland south to northern and western Newfoundland and Mt. Albert, Gaspé Co., Quebec. SEASON OF AVAILABILITY: late spring and summer. USE: cooked vegetable. Botanical travellers in Iceland have stated that there the THRIFT (so closely related to our species as to be only doubtfully another species) is eaten; the bases cleaned and boiled in milk and then seasoned and dressed with butter. We have not tried our plant but its abundance, especially in northwestern Newfoundland and on the Labrador, should make the experiment an easy one. PRIMROSE FAMILY (Primulaceae) PIMPERNEL, Poon MAN 5 WEATHERGLASS, *Anagallis arvensis* USES: potherb, salad. Various

European authors commend the Pimpernel as a potherb and they speak of it as a frequent ingredient in salads. Others, however, state that it is poisonous. We have not felt it worth experimenting with!

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OF EASTERN NORTH AMERICA 319 SEA-MILKWORT, *Glaux maritima*. FIG. 103
KEY-CHARACTERS: a succulent plant of the sea-margin and of interior saline marshes, with simple to bushy-branched stems a few inches high; opposite, oblong, fleshy, dark green leaves about 1/2 inch long; pink-tinged, erect, axillary, bell-shaped flowers; and creeping rootstocks. HABITAT AND RANGE: saline shores south to New Jersey and to California and on alkaline areas of the interior. SEASON OF AVAILABILITY: early summer. USE: pickle. FIG. 104, sprout of MILK-WEED fit for cooking Mrs. Lankester, writing in England, states that, It is said that the leaves and stems of the plant make a good pickle after the manner of samphire. The great abundance of the plant along our northeastern seashores, especially from Cape Cod to southern Labrador, and the succulent leaves and stems of our large var. *obtusifolia* (commonly 5 inches, sometimes a foot, tall), invite experimentation. FIG. 103, SEA-MILKWORT

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320 EDIBLE WILD PLANTS EBONY FAMILY (Ebenaceae) PERSIMMON, *Diospyros virginiana* L. USES: fruit, jelly, syrup, coffee-substitute, breadstuff, tea, vinegar, beer. The PERSIMMON is so familiar to all natives of the southeastern United States as to need no introduction. The great fame of the fruit lies in the fact that, although intensely puckery before fully ripe, it becomes sweet and palatable, often delicious, when thoroughly mature. Those who know persimmons at their best will often travel many miles to secure the fruit. The qualities of the individual trees vary tremendously. Some of them produce small fruits; some, juicy fruits twice as large, while the var. *pubescens* of Missouri, eastern Kansas, Arkansas and Oklahoma, may have fruits 3 inches in diameter. Some bear abundantly, some scantily. Some of the trees from southern Indiana southward and westward have their fruit ripe as early as the middle of August; but in that latitude most of the persimmons ripen in October and November, and a few trees not until December or even January. The raw fruit, when thoroughly ripe, is delicious and it should not be picked until it is almost as soft as a thin cake-batter. At that stage it is not marketable; consequently, market persimmons are picked when unripe. One of the best

ways of serving cooked persimmons is as a pudding: 2 cups persimmon pulp, 1 cup (scant) sugar, 1 egg, 2 cups milk, 2 cups flour, 1 teaspoon soda, 1/2 teaspoon salt, 1 teaspoon cinnamon, = teaspoon cloves, = teaspoon allspice. Combine the ingredients, beating well. It is best to save about half the milk until all the flour has been added. Pour about 1= inches deep in well greased pans and bake about an hour in a 325 oven. The pudding turns dark brown when it is done. Serve either warm or cold with whipped cream. Soft, juicy per- simmons make the best pudding. Professor Milton Hopkins likes his pudding a little richer:

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OF EASTERN NORTH AMERICA 321 3 eggs, 1/2 teaspoon salt, 2 cups sweet milk, 3= cups flour, 1 qt. seeded persimmon fruits, 1 pint cold water, 1 teaspoon soda, 1 cup granulated sugar. Wash and seed the fruit (to make 1 quart, about 3 quarts of whole fruit are required) and soak them in cold water for about an hour. Then run them through a colander. Mix the other in- gredients in the order given, stirring thoroughly. Pour the batter into a greased pan and bake at 400 for one hour or until the pudding is a dark brown in color. Serve either hot or cold with whipped cream or hard sauce, and garnish with maraschino cherries. The pudding keeps well in the icebox for several days. Porcher gives a recipe for Persimmon syrup: The per- aimmons are mixed with wheat bran, baked in pones, next crushed and put in vessels, water poured on, and all al- lowed to stand twelve hours. Strain and boil to the con- sistency of molasses. He also says: A good vinegar, very much like, and equal to, white wine vinegar, is made as follows: Three bushels of ripe persimmons, three gallons of whiskey, and twenty-seven gallons of water. To those who can get the persimmons, the vinegar thus produced will be relatively cheap, even at any price which the most elastic conscience can ask for the spirits. But, reaching the subject of spirits, we will stop, al- though the saintly Rev. M. A. Curtis, writing from North Carolina, gave the blessing of the Church to Simmon Beer . . . by no means despicable; and within a few months the value of dried persimmon-leaves, which heretofore have not been used for tea, has been announced. Vinson et Cross, as reported by them in Science for No- vember 6, 1942, state that Persimmon leaves have been found to give exceptionally high values in content of vita- min C . . . tea from green leaves was very acceptable as was also that made from leaves dried in a Buss- ler oven at 1400 F. . . . The flavor . . . was similar to sassafras tea. In the South at various times the seeds have been

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322EDIBLE WILD PLANTS roasted and used as a substitute for coffee; while some of the southern Indian tribes dried the fruits and ground them into meal for bread-making. SWEET-LEAF FAMILY (Symplocaceae) SWEET-LEAF, HORSE-SUGAR, *Symplocos tinctoria* USE: masticatory. The familiar SWEET-LEAF, a shrub or small tree of rich woods in the South (Florida to Texas, north to Delaware and Arkansas) is familiar to most people on account of its pleasantly sweet and slightly acid, thickish and somewhat persistent oblong leaves. On a hot day in summer they are, when chewed, a most refreshing tid-bit, starting the flow of saliva and encouraging the chewer to forget the heat. STORAX FAMILY (Styracaceae) WILD OLIVE, Opossum-wood or SILVER-BELL-TREE, *Halesia carolina* USE: fruit as masticatory. The nut-like fruits of the WILD OLIVE, a small tree occurring from Florida to Texas, and north to rich woods or stream-banks of western Virginia, West Virginia, southern Ohio, southern Indiana, southern Illinois and southeastern Missouri, are rolled in the mouth for their acidity. OLIVE FAMILY (Oleaceae) ASH, *Fraxinus*, seven species USE: pickle. The winged fruits or keys~~ of Ash are and long have been in vogue as a pickle in Europe and Asia. We have not met them in America, except as derived from European sources. Evelyns 17th century recipe is detailed:

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OF EASTERN NORTH AMERICA 323 Ashen-keys. Gather them young, and boil them in three or four Waters to extract the bitterness; and when they feel tender, prepare a Syrup of sharp White-wine Vinegar, Sugar, and a little Water. Then boil them on a very quick Fire, and they will become of a green colour, fit to be potted so soon as cold. With a considerable variety from which to select we should certainly find some of our species quite as good for pickling as the keys of the European species. GENTIAN FAMILY (Gentianaceae) BUCKBEAN, BOGBEAN, WATER-TREFOIL, *Menyanthes trifoliata* USE: breadstuff. The familiar BUCKBEAN of northern bogs and pond-margins has the strong, bitter principle which is found so generally in the gentians. Nevertheless, the ground root-stocks have been used by the Laplanders and Finns in the making of missen-bread (famine-bread). Linnaeus gives an account of this bread, which is made by drying and grinding the thick rootstocks, then washing or leaching the meal to extract some of the bitter, after which a thoroughly unpalatable but nutritious bread may be made from the flour. MILKWEED FAMILY (Asclepiadaceae) MILKWEEDS, SILKWEEDS, *Asclepias* (a dozen worth-while species). FIG. 104 KEY-CHARACTERS: stems stoutish, unbranched, with milky juice, bearing opposite, oblong to ovate and entire leaves with a broad midrib; in summer familiar to every one because of the showy clusters of flowers, each with 5 tubular hoods, followed by the large greenish pods bearing plumose or silky seeds. CAUTION: other plants with upright habit and milky juice but inedible stems are

to be guarded against, especially the Spurges (Eu-phorbia) in which the leaves are scattered and alternate, plants reputed to be poisonous; and the Doghanes (see p. 59).
HABITAT AND RANGE: the common Milkweed or Silkweed, *A. syriaca*,

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324EDIBLE WILD PLANTS the species most generally gathered, in dry, open soil, roadsides, fence-rows or borders of fields, New Brunswick to Saskatchewan and southward; other species more localized. SEASON OF AVAILABILITY: new shoots, late spring and early summer; sugar from flowers, through summer; young pods, summer and early autumn. Uses: potherb, asparagus, cooked vegetable, sugar, chewing-gum. The use of MILKWEED-shoots while the leaves are still young and unexpanded is somewhat general in eastern America, the shoots when a few inches high being rubbed through the hand to remove the wool and cooked and served like asparagus. The leaves before they become tough and bitter are sometimes used like spinach, care being taken to throw off the first water which has extracted the bitter from the milky juice. The Indians likewise cooked the young flower-clusters while still in bud as greens, and Gilmore tells us that, among the Dakotas the young seed-pods while very immature and green are boiled and eaten, usually with meat. We are ready, from careful experimentation, to commend most highly this important discovery of the Dakotas. The pods when almost full-grown but still solid make, when cooked, a most palatable green vegetable, comparable with okra. Singularly enough, if the pods are gathered at just the right stage, the seeds and silk within cook up as a soft and delicate mass. If, however, the pods have become in the least elastic (under pressure of the fingers) they will cook up tough and stringy and the silk will be too obvious. The young and firm pods boiled in salted water, with a pinch of soda, may likewise be canned like any other vegetable and make a novel and delicious addition to the winter supply. The most surprising use of Milkweed is one that is not generally practiced and which needs verification. In his journal of explorations in America, the famous Swedish traveller, Pehr Kalm, wrote in the 18th century: The French in Canada make a sugar of the flowers, which for the purpose are gathered in the morning, when

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OF EASTERN NORTH AMERICA³²⁵ they are covered all over with dew. This dew is expressed, and by boiling yields a very good brown, palatable sugar. *Asclepias syriaca*

is the species generally used for cooking, but it is probable that several other similar species are just as good. The only one, apparently, which has found its way into the literature of edible plants, except Swamp Milkweed, *A. incarnata* (which is good) seems to be the BUTTERFLY-WEED, *A. tuberosa*, but on account of its shaggy-pubescent and slender stems it is not inviting. Furthermore, its roots are a demonstrated poison. For that matter, the raw shoots of any Milkweed may be toxic. We have tried the young pods of *Asclepias incarnata* and some of the smaller species. These have not proved attractive. Some of the larger species more closely related to *A. syriaca* should be tested: such species as *A. Sullivantii*, *latifolia* and *speciosa*. The following item by H. C. Skeels, published in the *American Botanist*, vol. vi. 77 (1904), should interest typical modern Americans. MILKWEED CHEWING Guiv. The boys of the prairies who pull off flower heads of rosin-weed, are matched by the children of Grand Rapids, Michigan. These children break the midribs of the leaves of the common milkweed (*Asclepias Cornuti*) and the milky juice oozes out. In a few minutes it hardens, is collected and used for gum. I cannot vouch for its flavor, not having tried it, but have the assurance of one who has that it was good. Barrows, in his account of the ethnobotany of southern California, states that by the Indians of that region the sap of some of the Milkweeds is collected and allowed to stand over night near a fire. It soon coagulates and is then used as a chewing-gum, the bitter taste soon disappearing.

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326 EDIBLE WILD PLANTS MORNING-GLORY FAMILY (Convolvulaceae) MAN-OF-THE-EARTH, WILD POTATO-VINE, *Ipomoea pandurata* KEY-CHARACTERS: a twining or trailing vine resembling the morning-glory; with heart-shaped leaves and with purplish and white morning-glory flowers usually clustered on long stalks from the leaf axils; the root a gigantic tap-root, which often weighs from 15 to 30 pounds, in appearance resembling the tropical yam. HABITAT: dry or light alluvial soils or fields. RANGE: southern and central states, extending locally northward to Ontario and Connecticut. SEASON OF AVAILABILITY: autumn to spring while the root is well filled. USE: root-vegetable. The tremendous, yam-like root of MAN-OF-THE-EARTH is reported by several writers on Indian foods to be used by the Indians, although it is to be noted that the fresh root is reputed to be purgative. The plant is related on the one hand to the sweet potato, on the other to the tropical, purgative *Ipomoea purga*. Caution should, therefore, be exercised in using it. WATERLEAF FAMILY (Hydrophyllaceae) WATERLEAF, JOHNS CABBAGE, *Hydrophyllum virginianum* and *H. canadense*. FIG. 105 USE: potherb. In 1843, Pr. John Torrey stated that the leaves of both the smoother species of WATERLEAF, *Hydrophyllum virginianum* and *H. canadense*, were used in New York state as potherbs under the name of JOHNS CABBAGE. Waugh likewise stated that by the Iroquois the young leaves were used, while Kephart records the

commendable virtue, that the plants stand repicking and that the leaves do not quickly become woody. London, discussing the plant as SHAWANESE SALAD, says the leaves are eaten either raw or cooked; but Dr. Huron H. Smith, long familiar with Indian customs, stated that, in cooking, the

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OF EASTERN NORTH AMERICA³²⁷ first water should be thrown off. Our own test was wholly satisfactory. The young leaves and tender summits of stems cook in five minutes and are a delicate potherb. HYDROLEA, *Hydrocotyle*, four species. FIG. 106 USE:potherb. The HYDROLEAS with us are creeping-based perennial herbs with the ascending branches bearing entire, alternate, lanceolate to ovate leaves which often bear a sharp spine in the axil; the flowers handsome, with the blue corolla 5-cleft, 2 distinct slender styles and a 2-celled capsule. They grow in wet places in the South, some of them coming north to southern Virginia, southern Indiana, Illinois, Missouri and Oklahoma. The foliage is very bitter and in the South is often pounded to a pulp and used as a poultice. In the East Indies, however, where a species very similar to ours occurs, its young tips are cooked and eaten with rice, retaining a slight bitter taste. Ours should be tested. BORAGE FAMILY (Boraginaceae) COMFREY, *Symphytum officinale* USE:potherb. The old-fashioned garden COMFREY occasionally escapes from cultivation to roadsides and ditches. By some European writers it is stated that the young leaves when boiled make a tolerable vegetable, and that the blanched stalks make an agreeable asparagus. Lindley, however, while tolerating it said, not, however, valued by persons of refined taste.

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328EDIBLE WILD PLANTS VERVAIN FAMILY (Verbenaceae) BLUE VERVAIN, *Verbena hastata* Use: breadstuff. The common BLUE VERVAIN of lowlands has slender spikes of flowers and of fruits borne in dense spire-like clusters; and, according to Chestnut, the seeds are gathered by the California Indians and after roasting used for meal. The seeds, which can be gathered in considerable abundance, have a mildly bitter taste, but it should be comparatively easy to test their quality with a view to determining how to obtain a palatable flour. BEAUTY-BERRY, FRENCH MULBERRY, *Callicarpa americana* Use: berry as a nibble. The familiar BEAUTY-BERRY of the South, in woods and thickets from Texas to Florida, northward into Oklahoma, Arkansas, Tennessee and

Virginia, has the defoliated branches covered in late autumn and early winter with masses of small currant-like pinkish-purple berries. Of these Stephen Elliott said in 1816: The fruit edible, sweet at first, but pungent and astringent afterwards. In 1860, M. A. Curtis said: These berries are juicy, slightly aromatic and sweetish, and are sometimes eaten, but are probably not very wholesome. Their best use is as a table-ornament for which they are almost unequalled. MINT FAMILY (Labiatae) ~ In general the Mints are familiar on account of their aromatic oil; and, although it is extremely difficult for any but the most experienced botanist to recognize at sight the many species, the general relationship is quickly indicated by the square stem, opposite leaves, and definite aroma of most species. Many of the familiar savory

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FIG. 106, HYDROLYSIS FIG. 108, WOUNDWORT, Stachys hyssoifolia FIG. 105, VIRGINIA WATERLEAF at right FIG. 107, HENBIT stage for cooking

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330 EDIBLE WILD PLANTS herbs of the kitchen, sage, thyme, marjoram, summer-savory, hyssop, etc., are derived from this family. Some of these plants are wild in America and we have many other species the foliage of which might well be used in the kitchen and which are always acceptable in camp. A few species, furthermore, have tuberous roots which are available as salads or as cooked vegetables. The most important of our wild Mints, besides those already enumerated, are the HOREHOUND (Marrubium), a white-wooly, bitter herb of waste places, from which the familiar horehound-candy receives its name; the BEE-BALMS (Monarda), tall plants with the upper leaves brightly colored and with showy pink, purple or red, tubular flowers in crown-like heads; the PENNYROYAL (Mentha pulegioides), a common, small herb of dry fields and pastures, familiar to children in eastern America; the MOUNTAIN-MINTS (Pycnanthemum), tall plants with minute flowers crowded in broad clusters of button-like heads; and the true MINTS (PEPPERMINT, SPEARMINT, etc.), familiar to most country children. The plants with edible tubers and those used as greens are enumerated below. HENBIT, Lamium amplexicaule. FIG. 107 USE: potherb. The little annual HENBIT, which springs up in fallow fields in early spring, with rounded opposite leaves with scalloped edges, the upper ones clasping the succulent square stem and subtending branches of flowers with gaping purplish corollas and 5-toothed cup-like calices, is used

in Japan as an ingredient of mixed potherbs. Our experiment shows it to be good when boiled and, when young in earliest spring, to be a pleasant nibble in the raw state. In Europe other species, like the perennial *Lamium album* of our gardens, are eaten either as salads or as potherbs.

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OF EASTERN NORTH AMERICA 331 WOTJNDWORT, *Stachys palustris*, *hyssopifolia* and several others. FIG. 108 KEY-CHARACTERS: square-stemmed, erect herbs from creeping rootstocks, the stems covered on the angles with long spreading hairs and on the sides with softer and shorter hairs in *S. palustris*, the stems smooth in *S. hyssopifolia*; leaves opposite, nearly without foot-stalks, hairy and oblong in *S. palustris*, narrower and smooth in *S. hyssopifolia*; flowers in a series of circular clusters at summit of stem, forming an interrupted spike; the calyx bell-shaped and with sharp teeth; the corolla gaping, tubular, pink; in fruit 4 blunt nutlets at base of calyx. HABIT AND RANGE: *S. hyssopifolia* on sandy or gravelly pond-margins, southeastern Massachusetts southward; *S. palustris* or close relatives in low grounds, Newfoundland to northwestern Canada, southward somewhat generally into the northern states; other species southward. SEASON OF AVAILABILITY: autumn to spring. USES: salad, nibble, cooked root-vegetable. Several species of *Stachys* develop in the autumn plump and crisp elongate white tubers from which new stems arise the following season. Those of *S. palustris* have been referred to by various European writers as, to quote Lightfoot, sweet, and in times of necessity eaten by men, either boiled, or dry, and made into bread. We have not tried them; but an Asiatic species has long been cultivated, especially in China and Japan and sometimes as a novelty elsewhere, for its edible tubers, as Chinese Artichoke. The small and smooth plant of sandy shores on Cape Cod, Long Island and in New Jersey, thence southward, *S. hyssopifolia* (Fig. 108), is worth attention. From October to early spring the sand about the colonies of shriveled fruting stems is full of crisp and nutty tubers and rootstocks, white) and as good a nibble or salad as one could wish. On a winters tramp where it abounds it tastes as good as crisp celery, though with an individual flavor.

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332 EDIBLE WILD PLANTS BUGLEWEEDS, *Lycopus uniflorus* and *L. sessilifolius*. FIG. 109 KEY-CHARACTERS: opposite-leaved, square-stemmed herbs; the leaves

ovate or narrower, 12 inches long, bearing in their axils dense clusters of small, white flowers, followed by the greenish or finally drab fruiting clusters; plant almost odorless; roots bearing thickish, knobby, linger-like white tubers ~2/3 inches long. HABITAT AND RANGE: *L. uniflorus*, low grounds, Newfoundland to British Columbia, south to Virginia, the Great Lakes States and Nebraska; *L. sessilifolius*, sandy pond-margins of the coastal plain, Mississippi and Florida to southeastern Massachusetts. SEASON OF AVAILABILITY: late autumn to spring, while the tubers are well filled. USES: relish, root-vegetable, pickle. The crisp, white tubers of the BUGLEWEEDS are often very abundant but sometimes scarcely developed. They are mild in flavor and make a most attractive radish-like relish either out-of-doors or at the table. Boiled a short time in salted water, the tubers are an agreeable vegetable, much suggesting the crosnes of European markets. They are also good pickled. On peaty or turfy shores or in meadows the tubers are borne on long subterranean stolons and are distant from the parent-plant and hard to find. When the plants grow in open sand the tubers are often crowded, abundant and large, close about the bases of the old fruiting stems. This is the ideal place to secure them. The tubers of *Lycopus sessilifolius* are superior and might well be planted on open sandy shores to insure a good crop. NIGHTSHADE FAMILY (Solanaceae) The Nightshade family furnishes some of the most important garden vegetables: the potato, tomato, and egg-plant. It is likewise the source of such narcotic poisons as belladonna, tobacco and stramonium. The following, although not important as food-plants, have their advocates.

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FIG. 109, BTJGLEWEED, *Lycopus sessilifolius*

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334EDIBLE WILD PLANTS BLACK-BERRIED NIGHTSHADE, MORELLA, *Solanum nigrum*. FIG. 110 KEY-CHARACTERS: bushy-branched herb, with long-stalked, alternate, coarsely toothed or angulate, ovate leaves; berries black, 1/4-1/2 inch in diameter, many-seeded, on stalked clusters borne chiefly from the sides of the stem (not from the axils of the leaves). (Not to be confused with the so-called Poisonous or Deadly Nightshade, *S. Dulcamara*, a woody, climbing vine, bearing berries which are bright red when ripe.) HABITAT: dry, open soil, borders of woods, roadsides, gravelly beaches or cultivated land. RANGE: throughout temperate or tropical America northward to south-

ern Canada. SEASON OF AVAILABILITY: midsummer to autumn. USES:berries, raw, cooked or in pies and preserves; potherb. The berries of the BLACK-BERRIED NIGHTSHADE have a varying reputation, sometimes with Seemingly good reason reputed to be poisonous, again treated as a harmless, edible fruit. In one of its very many forms and derivatives, it is sometimes cultivated under the absurd FIG. 110, BLACK-BERRIED NIGHTSHADE Fia. 112, AMERICAN Bacon- LIME

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OF EASTERN NORTH AMERICA 335 name GARDEN HUCKLEBERRY, the thoroughly ripe berries being used as a cooked fruit or in preserves and pies. In flavor the berries have no suggestion of a huckleberry (unless it be the mawkish Squaw-Huckleberry); on the other hand they suggest a mildly bitter tomato. Although there are few well authenticated cases of poisoning by eating the cooked berries, generally harmless, the green berries contain the toxic glucoside, solanone, but those who have especially looked into the question state that this disappears in ripening. The late Professor Charles E. Bessey published in the American Botanist for 1905 the following account of his education on this point. The note on page 75 of the October number of the Botanist reminds me of an incident which occurred in my class in Botany nearly thirty five years ago. I was lecturing on the properties of the plants constituting the Solanaceae, and, as a matter of course, said that the berries of the black nightshade (*Solanum nigrum*) were poisonous. A young fellow from Fort Dodge, Iowa, spoke up and said that the people in his neighborhood made them into pies, preserves, etc. and ate freely of them. I answered him, as became a professor of botany, by saying that as it was well known that black nightshade berries are poisonous, the student must have been mistaken. That was the young professor's way of settling things, and this particular thing remained settled for him for some years. After a while, however, I learned that the people in central and western Iowa actually did eat black nightshade berries, and they were not poisoned either. Later, I learned the same thing in Nebraska for this species, and still more for the spreading nightshade (*Solanum triflorum*), whose larger berries were freely used by the pioneers in the early days when other berries were scarce upon the Great Plains. Furthermore, Sampson and other writers regularly state that the young leaves and stems are a good potherb (cooked of course).

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336EDIBLE WILD PLANTS HUSK-TOMATO, GROUND-CHERRY, *Physalis* (various species). FIG. 111 KEY-CHARACTERS:stems simple or forking, with alternate, usually toothed or angled leaves, nodding fruits with slender stalks and inflated papery husks 12 inches long, which cover the yellow, nearly globular, tomato-like berry. HABITAT AND RANGE: open soil, chiefly in the Central and Southern States, but extending locally into southern Canada and New England. SEASON OF AVAILABILITY: late summer and autumn. USES:berries, raw, or preferably cooked or preserved. The HUSK-TOMATOES, unless perfectly ripe, have a strong flavor, but the ripe berries taste somewhat like tomatoes and when cooked make a very palatable preserve. The species are numerous and it is probable that the quality of the fruit is variable. A few species have been taken into cultivation and to a limited extent appear in city-markets. MATRIMONY-vINE, *Lycium Jtalimifolium* and chinense USE:cooked vegetable. The old-fashioned garden shrubs, the MATRIMONY- vINEs, with arching spiny branches, narrow, elongate leaves, greenish-purple flowers and orange-red to scarlet berries, have escaped and become naturalized along road- sides and in waste ground. In Europe and Asia the young leaves are sometimes cooked and eaten. FIGWORT FAMILY (Scrophularicaceae) BROOKLIME, WATER-SPEEDWELL, *Veronica americana*, *Beccabunga*, *Anagallis-aquatica* (glandif era) and *comosa* (catenata). FIG. 112 KEY-CHARACTERS:fleshy plants, creeping at base and rooting at the lower nodes, with opposite, short-stalked to sessile, oblong, lanceolate or ovate toothed leaves an inch or two long; flowers in axillary, elongating, loose simple clusters, with spreading to loosely ascending flower-stalks, the petals united into a shallowly lobed somewhat spreading lilac to rosy or bluish or white corolla; stamens only 2; fruit a flattened and rounded capsule, notched at apex.

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FIG. 111, HUSK-TOMATO

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338EDIBLE WILD PLANTS HABITAT:Springy places, brooksides, ditches, etc. RANGE:one species or another from Newfoundland to Alaska, south- ward to North Carolina, Tennessee, Missouri, Oklahoma, Texas, etc. SEASON OF AVAILABILITY: spring and summer. USEs:salad and potherb. Numerous European writers commend the

BROOK- LIMES as very desirable additions to the diet, especially as a preventive of scurvy and other malnutritional diseases. Bryant, in 1783, wrote: The leaves are very pungent and bitterish, yet are eaten by many with bread and butter. The plant is in the highest esteem as an antiscorbutic, and is said even to surpass the Watercress; this may not be conceit only, by reason it has the pungency of the latter, and is much more astringent. Other writers, including Chestnut, writing of western Indians, commend the plants as potherbs. SPEEDWELL, *Veronica officinalis* and *V. Chamaedrys* Use:tea. The common creeping SPEEDWELL, with hairy stems and hairy, elliptical leaves, is said by Withering to be a possible substitute for tea, although he states that the BIRD S-EYE SPEEDWELL, *V. Chamaedrys*, which is becoming naturalized in America, makes a better tea. BLADDERWORT FAMILY (Lentibulariaceae) BUTTERWORT, *Pinguicula vulgaris*. FIG. 113 KEY-CHARACTERS:leaves oblong, very fleshy and oily to the touch (as if buttered), pale yellowish-green, with the margins in-folded (thus trapping small insects) ; flower violet-like in form and color, borne on a glandular stalk from the center of the rosette of leaves. HABITAT:boggy spots, wet, open ground or damp limy rocks. RANGE:Labrador and Newfoundland across the continent, south locally to northern New Brunswick, the White Mountains, the northern Green Mountains, northern New York, the Great Lakes region, and through the northern Rocky Mountains. SEASON OF AVAILABILITY: summer. USE:to curdle milk.

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OF EASTERN NORTH AMERICA 339 Linnaeus gives a detailed account of the use of BUTTER- WORT as a substitute for rennet. This account, much abbreviated and in English, instead of Latin, is repeated by London: *Pinguicula vulgaris* has the property of giving consistence to milk, and of preventing its separating into either whey or cream. Linnaeus says that the solid milk of the Laplanders is prepared by pouring it warm and fresh from the cow over a strainer on which fresh leaves of *Pinguicula* have been laid. The milk, after passing among them, is left for a day or two to stand, until it begins to turn sour; it throws up no cream, but becomes compact and tenacious, and most delicious in taste. It is not necessary, that fresh leaves should be used after the milk is once turned: on the contrary, a small portion of this solid milk will act upon that which is fresh, in the manner of yeast. Three other species, with violet, pink, white or yellow flowers occur in low pinelands from North or South Carolina to Florida. They could doubtless be used in the same way. ThG. 113, BUTTERWORT FIG. 114, DICLIPTERA

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340 EDIBLE WILD PLANTS MARTYNNIA FAMILY (Martyniaceae) UNICORN-PLANT, PROBOSCIS-FLOWER, *Proboscidea* (or *Martynia*) *louisianica* USE: pickle. The UNICORN-PLANT, of river-banks and waste places from the Gulf States northward to West Virginia, southern Ohio, southern Indiana, Illinois and Iowa, is often cultivated for its beaked-fruit, used as a pickle. ACANTHUS FAMILY (Acanthaceae) IDICLIPTERA, *Dicliptera* (or *Diapedium*) *brachiata*. FIG. 114 USE: salad or potherb? Ochse states that species of the Dutch East Indies are eaten, the young leafy tips used either raw as salad or cooked. Our species is an opposite-leaved, smoothish, ascending, perennial herb 12 feet high, with thin and pliable long-pointed ovate leaves, the well developed pink gaping corollas 1/4 inch long and with 2 stamens or replaced by tiny closed corollas, the flowers subtended by pairs of opposite leafy bracts, the fruit a rigid 2-valved pointed capsule, each valve with clasps embracing the large flat seed. It occurs on wooded bottomlands from Florida to Louisiana, north to southeastern Virginia, southern Indiana, Missouri and eastern Kansas. We have not tried it, but the family is an extensive one without noxious properties. The juice is mucilaginous, the herbage somewhat bitter. It should be tested. PLANTAIN FAMILY (Plantaginaceae) SEASIDE PLANTAIN, GOOSE-TONGUE, *Plantago oligantha* and *P. juncoidea* (or *decipiens*). FIG. 115 KEY-CHARACTERS: Plants perennial in clumps on rocks or in marshes and along shore, with fleshy leaves suggesting succulent and brittle grass-

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OF EASTERN NORTH AMERICA 341 blades, with slender-stalked elongate spikes of insignificant greenish to bronze or drab flowers, the corolla papery or like thin parchment and capping the capsule, the latter opening by a cap at the summit which lifts off like a lid. HABITAT AND RANGE: maritime rocks, gravel and marshes, Labrador, Hudson Bay and Alaska, south to coast of New Jersey, marshes of Manitoba, and coast of California. SEASON OF AVAILABILITY: June to September. USES: salad, green vegetable. FIG. 116, CLEARERS SEASIDE PLANTAIN is not very generally known as one of the most available summer vegetables, but on the New England coast, especially by the fishermen of eastern Maine, and in Nova Scotia, where the plant is regularly gathered under the name of GOOSE-TONGUE, it is extensively used. The fresh leaves, freed from any shriveled or tough portions and washed, then cut and cooked like ~/ FIG. 115, SEASIDE PLANTAIN or GOOSE-TONGUE

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342EDIBLE WILD PLANTS string beans, make a palatable vegetable. The more tender leaves dressed as a salad with oil and vinegar make a tasty dish, the natural sea-salts contained in the plant giving a pleasant flavor. COMMON PLANTAIN, *Plantago major* USE.:potherb. The common dooryard PLANTAIN, with broad leaves having strong string-like fibers running from the foot-stalk to the tip of the leaf, may be eaten as a potherb. Only in emergency would most people use it, for the fibers are tough. Otherwise it would not be so common. Madder FAMILY (Rubiaceae) CLEAVERS, Goose-GRASS, *Galium aparine*. FIG. 116 KEY-CHARACTERS:sprawling plant; the weak stems covered with backwardly curving, short bristles, the swollen joints bearing a circle of about 5 slender leaves; inflorescences small, consisting of 13 flowered clusters in the leaf-axils; fruit bristly, 2-lobed or twin, seed-like, about 1/8 inch in diameter. HABITAT:rocky woods, rich thickets and gravelly sea-shores. RANGE:Newfoundland to Alaska, south to Virginia, Tennessee, northern Louisiana, Texas and Mexico. SEASON 01 AVAILABILITY: seeds, June and July; young sprouts March to July. USES:coffee-substitute, reducing diet, milk-strainer, potherb. European writers are agreed that the seeds of CLEAVERS make the best substitute for coffee in our northern flora. When dried and slightly roasted the seeds have the flavor or aroma of coffee. This fact is of special interest since the genus *Galium* belongs to the same natural family as true coffee. It is probable that the seeds of other species of the genus have, when roasted, a similar quality, but most species have smaller seeds than *C. aparine*. In these times when the buxom form is so often looked upon askance Cleavers or Goosegrass might be utilized, for in the 16th century Gerarde wrote: Women do

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OF EASTERN NORTH AMERICA343 vsually make pottage of Cleuers with a little mutton and otemeale, to cause lankuesse, and keepe them from fatness; while Parkinson stated a full three centuries ago that Clevers . . . is of subtile parts: it is familiarly taken in broth to keepe them leane and lanke, that are apt to grow fat. Furthermore, the same authority recorded another use, doubtless due to the matting of the stems on account of the retrorse hooks on branches and leaves: the herbe serveth well the Country people in stead of a strainer, to cleare their milke from strawes, haire, or any other thing that falleth into it. This custom, according to Henslow, can be traced back to Dioscorides and these sieves are still used in Sweden. Evelyn adds of Clavers, Goose-grass, *Aparine* the tender Winders, with young Nettle-tops, are used in Lenten Pottages. In the North, with us, the tender Winders are rarely available during Lent. YELLOW BEDSTRAW, CHEESE-RENNET, *Galium verum* KEY-CHARACTERS:tufted perennial with smooth, ascending, slender, square stems; leaves very narrow, 5 (or sometimes 6) in circles or

whorls, soon reflexed; flowers tiny, very numerous, yellow, 4-rayed, in a dense panicle. HABITAT:dry fields and roadsides. RANGE:Newfoundland to Ontario and North Dakota, south to Virginia, West Virginia, Indiana, Iowa and Kansas, rather local, but often abundant. SEASON OF AVAILABILITY: summer. USES:rennet, beverage. YELLOW BEDSTEAW or OUR LADYS BEDSTRAW, Galium verum, is fragrant upon drying and was very early designated as the plant which filled the manger at Bethlehem, with the result that, being thus blessed and having a pleasing aroma when dry, it was for many centuries used in mattresses. Of more certain foundation is its use, mixed with calf-
rennet, in the preparation of cheese. Gerarde, in the 16th century, quoting from the slightly earlier Matthiolus, told us that The herbe thereof is used for Rennet to make cheese, as Mathiolus reporteth,

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344EDIBLE WILD PLANTS saying, that the people of Thuscane or Hetruria, do use it to turne they milke, that the Cheese which they make of sheepes and Goates milke might be the sweeter and more pleasant in taste, and also more holsome. The people in Cheshire, especially about Namptwich where the best Cheese is made, do use it in their Rennet, esteeming greatly of that Cheese about other made without it. A century later John Ray stated that a refreshing beverage is made by distilling the flowering tops. PARTRIDGE-BERRY, TWIN-BERRY, SNAKE-VINE, *Mit chella repens* Usn:berries. The well-known trailing PARTRIDGE-BERRY, with soft, trailing stems and rounded, evergreen leaves and with axillary 2-eyed red berries, has barely edible fruit. The berries are dry and very seedy, but without disagreeable flavor. HONEYSUCKLE FAMILY (Caprifoliaceae) WATERBERRY, SWAMP FLY-HONEYSUCKLE, *Lonicera villosa* (L. caerulea of American botanists). FIG. 117 KEY-CITARACTERS:shrub 13 feet high, with stiffly ascending branches covered with very shreddy but persistent bark; the new sprigs with pale-brown, smooth bark; leaves opposite, nearly sessile, oblong to oval, about 1 inch long, rather firm, entire, dark-green above, paler beneath, rounded at tip; flowers and fruits borne in the leaf-axils; berries blue, resembling blueberries but with 2 slender and spreading, leaf-like bracts at base, very juicy and with many fine seeds (shrub quickly distinguished from the true blueberries by opposite leaves). HABITAT:peaty and wet, rocky soils northward; cold peat-bogs and swamps southward. RAITGE:Labrador to Manitoba, south to bogs of southern New England, northern Pennsylvania, Michigan, Wisconsin and Minnesota. 5r~soN O~ AVAILABILITY: berries, late May (southward) to early August (northward). USE:berries.

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OF EASTERN NORTH AMERICA³⁴⁵ Although but little known as edible fruit, the WATER-BERRIES, as they have been appropriately named in eastern Maine, are delicious, in flavor somewhat suggesting blueberries. On account of their early ripening, long before true blueberries are ripe, Waterberries should be better known. By some who have learned to prize the berries it has even been suggested that the shrub should be cultivated and the fruit improved. Thus the distinguished Wisconsin naturalist and scholar, Increase A. Lapham, long ago wrote to Asa Gray: Is not this worth cultivating for its abundant fine-flavored fruit ~ I will send you a root. The American shrub was long confused with the Eurasian *Lonicera caerulea* but differs in certain striking characters from the European species, and it is noteworthy that we have found no reference to the use of the fruit for food in Europe. WILD COFFEE, TINKER s-WEED, FEVERWORT, *Triosteum* (three species) KEY-CHARACTERS: coarse herbs with simple, erect, usually bunched, more or less hairy stems 1 1/2~3 or 4 feet high, with coarse, opposite, entire leaves rather abruptly narrowed at base and often joining around the stem; fruits clustered in the leaf-axils, 28 at each node of the stem, orange to dark red, ovoid to nearly globose, about 1/2 inch long, crowned by the 5 narrow and leaf-like sepals, and containing 3 large, bony stones. HABITAT AND RANGE: open woods and rocky slopes or thickets, ~frequent southward, more locally northward to western New Brunswick, southern Quebec and southern Ontario. SEASON OF AVAILABILITY: late summer and autumn. USE: coffee-substitute. BARTON, a distinguished botanist of Philadelphia a century and more ago, wrote: I learned from the late Rev. Dr. Muhlenberg, that the dried and toasted berries of this plant, were considered by some of the Germans of Lancaster county, as an excellent substitute for coffee, when prepared in the same way. Hence the name of wild coffee, by which he informed me it was sometimes known.

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346 EDIBLE WILD PLANTS HIGH-BUSH CRANBERRY, CRANBERRY-TREE, *Viburnum trilobum* (or *Opulus*, var. *americanum*). FIG. 118 KEY-CHARACTERS: large shrub or small tree with pale, ashy-brown bark; the opposite leaves 3-lobed above the middle, somewhat suggesting maple-leaves; the large, red berries borne in flat-topped, terminal clusters, very acid, with a large flat stone. HABITAT: rich thickets, especially along streams or at borders of low woods or by walls and fences. RANGE: Newfoundland to British Columbia, south rather generally through northern New England and eastern Canada, more locally to New Jersey, Pennsylvania, the Great Lakes States, northeastern Iowa, the Black Hills, etc. SEASON OF AVAILABILITY: late summer to winter, the berries softening after frost and lasting over winter. USES: cooked fruit, preserves, jellies. In the northern states and Canada HIGH-BUSH CRAN-BERRIES are generally known

and in many regions where the Bog-Cranberries are unknown the fruit is regularly cooked and Served under the name Cranberry. The fruit is acid and of pleasant flavor, but on account of the large, flat stones, it is desirable to strain the sauce. Jelly FIG. 117, WATERBERRY FIG. 118, HIGH-BUSH CnAHs~aY

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OF EASTERN NORTH AMERICA³⁴⁷ made from High-bush Cranberries is of beautiful color and delicious flavor. CAUTION: Do not confuse with the northern native High-bush Cranberry the introduced and cultivated (sometimes escaped) Wayfaring Tree, *Viburnum Opulus* of Europe. The fruits of the latter are bitter and sadly disappointing to those who suppose it to be the Canadian species. SQUASHBERRY, *Viburnum edule* (or *pauciflorum*). FIG. 119 KEY-CHARACTERS: straggling shrub with slender, gray branches and opposite, maple-like leaves; the large red berries borne in small, flat-topped clusters, juicy and acid, with a large flat stone. HABITAT: cool woods and thickets or on gravelly or rocky banks. RANGE: Labrador to Alaska, south across Newfoundland, Cape Breton Island and eastern Quebec, and locally on the mountains of northern New England, New York and Pennsylvania, and in cool regions of northern Michigan, Wisconsin and Minnesota. SEASON OF AVAILABILITY: late summer to winter, the fruit softening after frost and persisting over winter. USE: fruit, fresh or cooked, jellies, etc. FIG. 119, 5 QUASUBERRY FIG. 121, CoaN-SAI~An

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³⁴⁸EDIBLE WILD PLANTS SQUASHBERRIES are smaller and less acid than High-bush-Cranberries and borne in smaller clusters. In Newfoundland and Cape Breton especially they are in high repute for squash or sauce, and jellies. The fresh berries being only mildly acid when ripe are pleasant to eat raw, in spite of the large, flat stone. HOBBLEBUSH, Moosewood, *Viburnum alnifolium* Use: fruit as nibble or masticatory. The oblong, blue-black berries of the HOBBLEBUSIT of cool, Canadian and Alleghenian forests, when thoroughly ripe, are sweet and palatable, in taste suggesting dates or raisins. On account of the very large stone the berries are not generally gathered for table-use. The Striped Maple (*Acer pensylvanicum*) of Canadian and upland forests is also known as Moosewood and because it bears no berries is often considered by Maine guides the male of the species, the berry-bearing *Viburnum alnifolium* being considered the female. WILD IRAISIN, SWEET VIBURNUM, SHEEPBERRY,

Viburnum Lentago and V. cassinoides, and BLACK RAW, V. prunifolium. FIG. 120
KEY-CHARACTERS: large shrubs or small trees with opposite, entire or finely toothed oblong to ovate, thickish leaves, and with terminal, flat-topped clusters of white flowers, followed by blue-black or dark-purple plums, which are usually elongate but sometimes spherical, in V. Lentago 1/2 inch or more long, in the other species somewhat smaller; stone large, flat. HABITAT and RANGE: swamps, river-banks or open pastures and thickets, one species or another throughout eastern America, north to Quebec and Newfoundland. SEASON OF AVAILABILITY: late summer and autumn. USE: fruit as nibble or masticatory. The fully ripe bluish or blackish plums have a thin and rather dry, sweet pulp, which is palatable raw, although the stone is disagreeably large. The cooked pulp

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OF EASTERN NORTH AMERICA³⁴⁹ has not proved attractive, but it is possible that by adding some tart fruit to it a palatable sauce might be prepared. ELDERBERRIES, BLACK-BERRIED ELDER, Sambucus canadensis USES: cooked berries, preserves, pies, jelly, beverage, soup, breadstuff, pickles, asparagus-substitute, tea. Although ELDERBERRIES have always been popular as a source of domestic wine, their possibilities as unfermented food are often little realized. To many people the flavor of Elderberries is disagreeable but to others it is palatable, and in preparation the flavor is often modified by seasonings. The berries, boiled with a small amount of sugar with lemon-rind, may be canned to use for pies and in this form will keep indefinitely. Or, mixed with grape or other tart fruit, the Elderberries make a delicious jelly. Possibly the limited area over which elderberry-pie is popular may be due to improper preparation. At least, the following note by Clute in The American Botanist for 1905 indicates the trouble. THE USE OF ELDERBERRIES. In a discussion of the subject recently in pie-eating New England, the editor was surprised to find that many people are still ignorant of the fact that the berries of the common elder (Sambucus canadensis) make excellent pies. Others who have tasted so-called elderberry pie were inclined to call it a nauseating mixture. The trouble is not so much in the pie itself as in the way it is put together. Pies made of fresh elderberries are scarcely likely to appeal to many palates. The fruit still retains some of the rank eldery flavor possessed by the entire plant and made evident when the stem is broken; but if one will collect the berries when fully ripe and dry them in flat trays in the sun or in a warm oven he will have a cheap and appetizing material from which to manufacture pies all winter and pies that are not inferior to huckleberry pies in flavor. The eldery flavor

350EDIBLE WILD PLANTS seems to be dissipated by drying. The berries stewed and sweetened are also in demand in some households as sauce. The berries are also of some medicinal value and thus have an additional claim to our attention as a winter food. The following recipe for preparing Elderberry rob, for which we are indebted to Berry's Fruit Recipes, is well worth trying. Boil the fruit with spices (1 quart of juice with 1 tablespoon each of cloves, nutmeg and cin- namon); after half-an-hour strain and add = lb. sugar; boil a few minutes, skim, and seal while hot. In New England Herbs, published by the New England Museum of Natural History, Mr. S. N. F. Sanford gives the following interesting recipe for Elderberry Chut- ney. To two pounds of elderberries add one large onion, a pint of vinegar, a teaspoonful of salt, a teaspoonful of ground ginger, two teaspoonfuls of sugar, one saltspoon- ful of cayenne and mixed spices. The elderberries should have been freed from their stalks, weighed and washed, then put in a pan and bruised with a wooden spoon. Chop the onion, add the other ingredients and vinegar, bring to a boil, and simmer until thick. Stir well, put in a jar, and cover. The juice cooked with sugar makes a pleasant beverage, which may be bottled for winter use and served with water and lemon; while in some parts of Europe, the ber- ries of a related species are dried by the peasants and used in the winter to make a soup, the juice or the extract from the berries being thickened with flour. Elder-flowers, especially when very young, are likewise used in various ways: beaten into the batter and thus lightening the muffins or pancakes and giving them a dis- tinctive flavor; and the unexpanded flowers and green fruits have sometimes been pickled to use like capers. Ac- cording to Berry, the young shoots may be cooked and eaten, although by some writers it is stated that the green parts of the shrub are poisonous.

OF EASTERN NORTH AMERICA351 Although plain elder-flowers or these toned up by the addition of mint are familiar diet-food and diet-tea for dyspeptics, elder-flowers through the following recipe, published by Elizabeth Remsen Van Brunt, enter a field beyond the reach of most dyspeptics: And the umbels of creamy blossoms make a delicious fritter. Cut at the very height of bloom, soak in brandy with a stick of cinnamon for an hour. Dip each cluster (coarse stem removed) into rich egg batter and drop in deep hot fat, frying until a light brown. Drain on brown paper, serve sprinkled with powdered sugar and orange or lemon juice.~ The brilliant red berries of the RED-BERRIED or STINK- ING ELDER, *S. pub ens* or *racemosa*, with rhomboid clusters of fruit, are inedible. VALERIAN FAMILY (Valerianaceae) ToBacco-RooT, EDIBLE VALERIAN, *Valeriana ciliata* (often confused with the more western *V. edulis*) KEY-CHARACTERS:

herb with a very stout, brown, parsnip-like root which often forks deep in the ground, the whole fresh plant with a disgusting odor which has given the colloquial name Tobacco-root; leaves chiefly in a basal rosette, some of them simple and elongate, slightly broadened upward, others with a few lateral prongs and thus resembling antlers; flowering stem 13 feet high, bearing a very elongate cluster of small, whitish flowers, which are followed by rather large and hard seeds bearing a crown of curving hairs. HABITAT AND RANGE.: rich prairies and low plains, from southern Ontario to Minnesota, south into Ohio, Indiana, Illinois and northeastern Iowa. SEASON OF AVAILABILITY: autumn and early spring, while the roots are well filled. USES:root-vegetable, breadstuff, soup. Although the fresh plant of TOBACCO-ROOT has a peculiar, strong odor which makes it repulsive to the whites, every one who has eaten the cooked root of the more western *V. edulis*, properly prepared, has been enthusiastic over its palatable and nutritious qualities. To the Indians of the Great Basin those roots were an important source

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352EDIBLE WILD PLANTS of food and they prepared them by baking for two days under ground. According to Dr. Palmer the roots were also used as a source of bread and for soup. It is probable that the more eastern species, separated from the western one only on technical points, is similarly available as food. The offensive odor of the fresh plants of this genus apparently gave to a species of Europe and the Caucasus the quite expressive Latin name *Valeriana Phul* COR~W-5ALAD, LAMBS LETTUCE, *Valerianella olitoria* and several indigenous species. FIG. 121 USE:salad. CORN-SALAD, occasionally raised in this country, is a frequent weed of roadsides from North Carolina and Tennessee northward to the Northern States, shooting up from the basal rosette in earliest spring and quickly ripening; the young plants springing up in late autumn. Though relatively unknown as a salad with us, doubtless because it is small and superseded by more vigorous salad-plants, especially those forced in winter, it was long a favorite from late autumn to early spring. Gerard in 1597 explained the use and the English name Lambs Lettuce as follows: This herbe is colde and something moist, and not unlike in facultie and temperature to the garden Lettuce, in steede whereof in winter and in the first months of the springe it serves for a sallade herbe, and is with pleasure eaten with vineger, salt, and oile, as other sallades be, among which it is none of the worst; and further: The plant which is commonly called . . . the white pot-herbe (which of some hath been set out for a ~kinde of Valerian, but vproperly, for that it doth very notablie resemble the Lettuce as well in forme as in meate to be eaten, which property is not to be founde in Valerin, and therefore by reason and authoritie I place it as a kinde of Lettuce with this name, Lambes Lettuce).~ Several quickly developing native species

should be tested.

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OF EASTERN NORTH AMERICA 353 GOURD FAMILY (Cucurbitaceae)
MELONETTE, *Melothria pendula*. FIG. 15 USE: pickles! The delicate climbing
MELONETTE of our Southern States, extending northward into Virginia, southern In-
diana and southern Missouri, is like a very slender and tiny cucumber-vine, with ovoid
green to black berries about half an inch long. Although Bryant, in his *Flora Diaetetica*,
said The inhabitants of the West Indies pickle these berries, and use them as we do
Capers, it should be noted that the West Indian species are quite distinct from our true
Melothria pendula and that Por- cher, who certainly knew our plant, said: The seeds act
as a drastic purgative half a one is a dose for an adult. Martins states that three or four will
act powerfully on a horse. With plenty of other pickles it is wise to go slow in using
Melonette. In this case it would be unwise to take Bryants statement even with the
proverbial grain of salts! See p. 70. BLUEBELL FAMILY (Campanulaceae) PURPLE
BELLFLOWER, *Campanula rapunculoides* KEY-CHARACTERS: stem 13 feet high,
leafy; the lower leaves long- stalked and heart-shaped, the upper gradually becoming
more narrow and sessile, all coarsely toothed and stiffly hairy beneath; flowers blue-
violet, bell-shaped, nodding, in very elongate, spire-like, one-sided clusters. HABITAT
AND RANGE: roadsides and thickets about towns, escaped from old-fashioned gardens
and borders. USES: salad, root-vegetable. The widely creeping rootstocks send off late in
the sea- son at irregular intervals fleshy, subterranean cord-like branches which are full of
succulence and make a palat- able, slightly sweetish salad or, when cooked, have a fla-
vor suggestive of parsnip. In Europe, whence we derived our plant, it seems not to have
been used, doubtless be- cause of the large-rooted and superior Rampion, Cam-

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354 EDIBLE WILD PLANTS *panula Rapunculus*, which was formerly a garden-vegeta-
ble there. COMPOSITE FAMILY (Compositae) ~WERT GOLDENROD, *Solidago*
odora. FIG. 122 KEY-CHARACTERS: a Goldenrod with one-sided in- hlorescences and
strictly entire, widely spreading, elongate, smooth leaves 3-4 inches long, which are
conspicuously dotted with translucent spots (when held to a bright light); the bruised
foliage and other fresh parts giving off a delicate odor sug- gestive of anise. HABITAT
AND RANGE: dry, sandy, gravelly or other sterile plains or borders of thickets and open

woods, from Texas to Missouri and Florida, and northward to southern New Hampshire. SEASON OF AVAILABILITY: summer and early autumn. USE:tea. One of the first Europeans to record the use of the Sweet Goldenrod in making tea was Johann David Schoepf, who was chief surgeon of one of the bodies of Fio. 122, SWEET GOLDEN-ROD FIG. 120, WILD RAISIN or SHEEPBERRY

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OF EASTERN NORTH AMERICA 355 German troops sent to America by George III during our Revolution. Writing from Bedford Co., Pennsylvania, Schoepf said: Here we were introduced to still another domestic tea-plant, a variety of Solidago. The leaves were gathered and dried over a slow fire. It was said that around Fort Littleton many 100 pounds of this Bohea-tea, as they call it, had been made as long as the Chinese was scarcer. Our hostess praised its good taste, but this was not conspicuous in what she brewed. The account given only a few years later by the globe-trotting botanist, Frederick Pursh, was very different; and, in view of the facts that nowadays we are wont to despise all native substitutes for tea and to demand that our tea come from China or adjacent regions, it is worth while to repeat Pursh's statement: The flowers, gathered when fully expanded, and carefully dried, give a most agreeable substitute for tea, which for some time has been an article of exportation to China, where it fetches a high price. LARGE-LEAVED ASTER, *Aster macrophyllus* USE:potherb. The large, heart-shaped leaves of this Aster, which occur in tufts in dry woods and thickets, have sometimes been used as a potherb, especially in Maine and Quebec. They quickly become tough and leathery and, if they are to be tried, should be gathered when very young. ELECAMPANE, *Inula Helenium* USE:confection, substitute for soda-mints. It is generally stated that the young leaves of ELECAMPANE were eaten as a potherb by the Romans, but by those who have tried them the leaves are found to be bitter and disagreeably aromatic. A more general use in Europe,

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356 EDIBLE WILD PLANTS not well known in America, is the candying of the cooked roots, making, according to Mrs. Lankester, A sweet-meat, very popular with schoolboys. It would be rash to assume that the prowess of English schoolboys in athletics is in any way due to their eating this confection; but note what Parkinson, in 1640, thought of it and how closely his account accords with that of Pliny: The fresh roots of

Elecampane preserved with Sugar are very effectuall to warme a cold et windy stomach, and the pricking and stitches therein, or in the sides . . . , and to helpe the cough, shortness of breath . . . Pliny writeth . . . let no day passe without eating some of the rootes of Enula condited, which it may be . . . to helpe digestion, to expell melancholy and sor- row; and to cause mirth. It sounds like a substitute for bicarbonate of soda. IROSIN-wEED, COMPASS-PLANT, Silphium laciniatum IJsn:chewing-gum. Gilmore states that by the Omaha Indians the resinous exudations of the ROSIN-WEED of the Prairies are used as chewing-gum; and Clute noted (American Botanist for 1903) that Country boys are wont to pull the flower- heads from the plant and to return later for the hardened juice. This experiment should be tried on related spe- cies, S. terebinthinaceum of prairies and openings from southern Ontario to Minnesota, south to Georgia, Ala- bama and Missouri, and S. compositum of the Southeast, northward into Virginia. COCKLEBUR or CLOT- BUR, Xanthium (various species) Usn:breadstuff~ Although it is sometimes stated, as by Sanford, that The seeds ... were ground and mixed with corn meal and with squash seeds, by the western Indians, and eaten as food, it should be noted that Muenscher classes

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OF EASTERN NORTH AMERICA³⁵⁷ Xanthium seeds among the poisonous group. The forbid- ding burs and the rank odor and taste are not inviting. ECLIPTA, Eclipta alba USE:potherb. The insignificant weedy annual, ECLIPTA, of damp soils, alluvium, ditches, etc. from Tropical America to southern New York, southern Ontario, Indiana, Illinois, Iowa and Nebraska, is a semi-cosmopolitan weed with rough-hairy, slender but depressed stems, sessile and opposite, lance- olate to oblong toothed and pointed leaves, and small axillary heads with tiny white rays. We find no indica- tion that it has been used in America as food but Dalziel states that in Africa The plant can be used as a pot- herb. SUNFLOWER, Helianthus (various species) USES:breadstuff, oil, soup, coffee- substitute. Long before the coming of the white man and the ex- ploitation of SUNFLOWER-oil, the American Indians were using the seeds of the larger species of Sunflowers as im- portant sources of food. Slightly parched and ground into flour, they serve in making bread, cakes and rich soups; or the oil, separated by boiling the crushed seeds and skimming the oil from the surface of the water, was used by the Indians, as it is now by the whites, as a table-oil. Several explorers state that the roasted shells, after the starch has been removed by roasting, crushing and sifting, or the roasted seeds were used in preparing a drink tasting just like coffee. JERUSALEM ARTICHOKE, Helianthus tuberosus. FIG. 123 USF~S:root-vegetable, salad, pickle, puree. The JERUSALEM ARTICHOKE, which is a species of Sun- flower with large tubers, is indigenous in the central part

358EDIBLE WILD PLANTS of North America and was cultivated by the Indians who introduced it to the Europeans. The tubers have been in considerable repute in parts of continental Europe, but, although often found in our markets, they are not greatly appreciated by the whites in America. The flesh is watery and sweet and with a peculiar flavor which is palatable to some tastes, disagreeable to others. Many persons like the tubers as a salad or pickle. When cooked they are prepared as a purée or peeled and baked, with liberal oil or butter, or escalloped with crumbs which absorb the mucilaginous juice. The tubers have been extensively cultivated in the past and the plants are now thoroughly naturalized along roadsides, in borders of fields or in town-dumps throughout the Eastern States and southern Canada. The discussion of the waning use of the Jerusalem Ar- 1 FIG. 123, JERUSALEM ARTICHOKE FIG. 124, GALIN SOGA

OF EASTERN NORTH AMERICA 359 tichoke in Europe, given by W. B. Booth, three quarters of a century ago, is worth quoting: They are used either boiled and mashed with butter, or baked in pies, and when nicely cooked are not only well flavoured, but considered to be both wholesome and nutritious more so even than the potato, as they may be eaten by invalids when de- barred from the use of other vegetables. On the continent they are in considerable demand for soups, and before the potato be- came plentiful, they were a good deal used in this country [Eng- land]. Parkinson, writing in 1629, says they were then so common in London that even the vulgar began to despise them: they were baked in pies with marrow, dates, ginger, sack, etc. and, being so plentiful and cheap, rather bred a loathing than a liking for them. Hence it appears that, as the culture of the potato extended, it gradually displaced the Jerusalem Artichoke, and at the present time the latter is only grown to a very limited extent in first-class gardens. Since the failure of the potato crops, the Jerusalem Artichoke has been strongly recommended as a substitute for that vegetable; but notwithstanding all that has been said and written in its favour, it is still far from common, and by no means esteemed so much as it deserves to be. ,W. B. Booth in *The Treasury of Bot- itny*. The name Jerusalem applied to this plant is likely to lead to misconception. The tubers, early introduced into Europe, were soon popular in the Mediterranean countries and in Spanish were called girasol, in Italian girasole. True to their genius in such matters the English promptly changed it to Jerusalem. SPANISH NEEDLES, *Bidens bipinnata* USE: potlierb. The semicosmopolitan SPANISH NEEDLES, one of the an- nual species of Beggar-ticks, too abundant in most tropi- cal

and warm-temperate regions, is usually looked upon only with disgust on account of its exceptionally slender and adhesive ticks. The natives of Tropical West Africa have found a way to keep it from fruiting, for

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360EDIBLE WILD PLANTS Daiziel tells us that there the leaves are used as a potherb. To the white nose the odor of *Bidens* is rather offensive. *Cosmos*, *Cosmos sulphureus* Use: salad or potherb. The familiar orange- or golden-rayed *Cosmos* of *gardeus* is beginning to establish itself as a plant of waste lands and roadsides from New Jersey and Pennsylvania southward, as is the finer-leaved *C. pinnatifidus*, with showy red, pink or white rays. *C. sulphureus*, a native of Mexico, is naturalized in many tropical and warm-temperate regions; and Ochse tells us that in the Malayan region The young tops and the leaves of this species are eaten, either raw or cooked.... Sometimes it is sold for this purpose on the native markets. Raw it has a slightly unpleasant, oily flavor. This is, perhaps, modified in cooking. It will be easy to secure a sample. GALINSOGA, *Galinsoga parviflora*, *ciliata* and 2 less common species. FIG. 124 KEY-CHARACTERS: small opposite-leaved annuals, the succulent, 3-nerved, ovate, toothed leaves 14 inches long; tiny heads of flowers, with short, white to pinkish rays borne at the tips of the branches; the chaff at summit of the nutlets of small, oblong, cut-fringed, pale scales. HABITAT AND RANGE: aggressive weeds of cultivated or disturbed soils northward to southern Canada. SEASON OF AVAILABILITY: summer and autumn. USE: potherb. GALINSOGA in the last half-century has rapidly spread and has now become, as Small properly characterizes it, A particularly pestiferous weed of such rapid growth and seeding as to make eradication extremely difficult. It has invaded most tropical and temperate regions; but in southeastern Asia it met a hungry population who cook the young plants (all but the roots) as greens. It belongs in a group of edible and, gastronomically, quite wholesome plants (Sunflowers, etc.). If our people take to eat-

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OF EASTERN NORTH AMERICA 361 ing it the problems of back-yard vegetable-gardens will be partly solved. TARWEED, *Madia* (various species) USE: meal. The TARWEEDS, viscid and heavy-scented herbs (ours annuals), with narrow leaves, the yellow flowers borne in small heads which are crowded into dense clusters, the seeds nut-like, each more or less embraced by a bract, are native from Pacific America across the

plains to Minne- sota, and three of them are appearing in waste places in the Atlantic States and eastern Canada. They are not likely to be of much service to us but the oily and nutri- tious nutlets are (or were) used by western Indians for meal. MUSTER JOHN- HENRY, *Tagetes minuta*. FIG. 125 USE: seasoning. MUSTER JOHN- HENRY, as it is universally called in southeastern Virginia and eastern North Carolina, is a tall aromatic annual with feathery leaves and large ter- minal flat-topped inflorescences of innumerable slenderly cylindric, tiny yellowish heads. The whole plant is pleas- antly aromatic, from the oil-dots which freely cover it. It is seen in the yards of most colored families and has spread freely to roadsides, open bottomlands and dumps; it is generally used to season soups and broths and might well find a place in modern herb-gardens. OX- EYE DAISY, WHITEWEED, MARGUERITE, *Chrysanthemum Leucanthemum* USE:salad. Some European authors state that the young leaves of the OX-EYE DAISY make a palatable salad, and in China several related species are used as salads. The odor of

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362EDIBLE WILD PLANTS our plant suggests, however, that fondness for this par- ticular salad is an acquired taste. COSTMARY, *Chrysanthemum Balsamita* USES:salad, condiment. The old-fashioned COSTMARY, now somewhat established about towns as a relic of cultivation, has an agreeable smell, which to many is far preferable to that of any of the Mints. Costmary was formerly cultivated in gar- dens for the purpose of mixing with sallads, and it is a pity it is not continued, as from its sensible qualities it seems superior to many aromatic plants now [1783] in credit. TANSY, BITTER BUTTONS, *Tanacetum vulgare* USE: condiment, cooked vegetable. Gerarde, in the sixteenth century, wrote: In the spring time are made with the leanes hereof newly sproong up, and with eggs, cakes, or Tansies, which be pleasant in taste, and good for the stomacke; and among the devout in England similar cakes and pud- dings with TANSY as the bitter herb are used during Lent. In Maine occasionally Tansy-cheese is made by steeping the herb and pouring the extract into the milk before the curds are made. In these times, when aromatic and other strong herbs are in vogue, this paragraph from Evelyns *Acetaria* of two and a half centuries ago might be appreciated: Tansy, *Tanacetum*; hot and cleansing; but in regard to its domineering Relish, sparingly mixd with our cold Sallet, and much fitter (tho in very small quantity) for the Pan, being qualify d with the Juices of other fresh Herbs, Spinach, Green Corn, Violet, Primrose-Leaves, etc. at entrance of the Spring, and then fry d brownish, is eaten hot, with the Juice of Orange and Swgar, as one of the most agreeable of all the boild Herbace- Gus Dishes.

OF EASTERN NORTH AMERICA 363 MUGWORT, WORMWOOD, *Artemisia vulgaris* and other species USE:condiment. The leaves of MUGWORT and of some of the other Worm- woods are sometimes used as aromatic, bitter condiments much like tansy. COLTSFOOT, *Tussilago Farfara* USE:confection. The familiar COLTSFOOT, naturalized from Eurasia and abounding in damp clay soils of brooksides and roadsides from Newfoundland to Minnesota and in parts of the Northeastern States, is, of course, famous as a supposed cough-medicine. Coltsfoot-candy, however, is a delicious confection, even if it may be helpful to the respiratory system. It is one of the few medicines which one wholly craves. FIG. 125, MUSTEE JOHN-HENEY FIG. 126, SWEET COLTSFOOT

364 EDIBLE WILD PLANTS SWEET COLTSFOOT, *Petasites palmatus* and *vitifolius*. FIG. 126 KEY-CHARACTERS: Extensively creeping herbs, flowering before the leaves expand, the flowering stem stout and 4 inches to a foot and a half high, sheathed its whole length by leaf-like bracts, the creamy-white flowering heads fragrant and borne in a large cluster; leaves expanding later and arising along the creeping rootstocks, rounded or triangular in outline, cut and cleft into coarse lobes, the blades becoming 29 inches broad. HABITAT AND RANGE: low woods, damp clearings and boggy meadows, Labrador to northern Alberta, south through Newfoundland and eastern Canada to northern and western New England, northern New York, Michigan, Wisconsin and Minnesota. SEASON OF AVAILABILITY: spring and summer. USE:potherb. The foliage and young inflorescences of Eurasian species are frequently cooked; those who have tried our own report them to be very good. FIREWEED, *Erechtites hieracifolia* USES:salad or potherb. The very familiar leafy- and simple-stemmed, annual plant of the Cornpositae, with stems 18 feet high, the narrow leaves abundant and toothed, the inflorescence a group of cylindrical heads with many tubular creamy-white flowers, the nutlets capped by long white hairs, abounds in rich low ground or after fires, in burned clearings, whence the name FIREWEED. It is common from Florida to Texas, northward to Canada, with closely related species in tropical America and from eastern Asia to New Zealand. In Asia the young tops and tender foliage are eaten, either raw or cooked. There is no reason, except the odor, to prevent our using it. Cooking may make it palatable to us. BURDOCK, *Atractium* (4 species). FIG. 127 USES:salad, cooked vegetable, potherb, soup, confection. As a food-plant the usually common (throughout southern Canada and the more northern states) and much

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366EDIBLE WILD PLANTS despised BURDOCK has greater possibilities than the neglected Pigweed. In fact, in Japan an esculent garden variety has been developed and, according to some authors, it is in that country as important as potato is here; and a century ago the great French botanist, Poiret, expressed astonishment that Burdock was not generally found in French kitchens. In many parts of Europe Burdock-roots, young leaves and young stems have been much used for food. The roots, at the end of the first season, are described as tender, nutritious, of excellent flavor, in this as well as in form and size resembling salsify, like which they are cooked. Our experiments, following this suggestion, have been surprisingly successful. The tender pith of the root and the leaf-stalks when young, before the stem has begun to lengthen, boiled in two waters (with a little soda in the first water, to break the tough fibers, salt in the second water), make a really palatable and unusual pot-herb. The young stems, which are often an inch or more in diameter, are gathered before the flower-heads are well formed, in late spring or early summer, and carefully peeled, great care being taken to remove every shred of the tough, strong-smelling and bitter rind. The remaining pith is a half-inch or more thick, tender and succulent and, when cooked in two or more waters (to remove the strong taste), makes a superior vegetable, in flavor like salsify. According to some writers, the young tops, including the stems, leaves and young branches, are good as a pot-herb, the first waters, naturally, being thrown off as in cooking the pith. Others even state that the pith of the young stems is eaten raw, with a dressing of oil and vinegar, or sometimes candied; and Waugh tells us that by the Iroquois the roots of this plant (introduced into America by the European) are dried and stored for winter and, when required, are soaked out for use as a soup.

OF EASTERN NORTH AMERICA 367 Surely, when our sophisticated tastes have been

trained to favor the Burdock, there should be no trouble in exterminating this now obnoxious weed from many back yards. PLUMELESS THISTLE, *Carduus* (three species) USES: rennet, cooked vegetable. The PLUMELESS THISTLES are with us rather locally naturalized from Europe. They differ from our common thistles chiefly in having the long individual hairs of the thistle-down simple instead of covered with minute branches or plume. They have the same use as rennet, Lightfoot saying of *Carduus nutans*: The dried flowers ... are used in some countries as a rennet to curdle milk. In late spring and early summer, when the flowering stem has well grown, the thick pith, with all the rind cut off (very easily) is delicious boiled a few minutes in salted water and dressed. THISTLE, *Cirsium*, about ten species USES: cooked vegetable, rennet. Several writers, both in Europe and in America, advocate the utilization of young elongating stems of THISTLES as potherbs. Thus, Lightfoot says of *Cirsium palustre*: The tender stalks of this and most of the thistles are esculent, being first peeled and boiled. In this manner the inhabitants of Smoland in Sweden, as Linnaeus informs us, often eat them. Writing from Alabama of Giant Thistle . . . , a winter annual, forming a round mat of leaves fully 15 or 20 inches in diameter, very spiny, Dr. Carver said This plant is delicious when young, cooked just like turnip greens.... Nearly all the leaves can be used if the sharp spines are clipped off with a pair of scissors before cooking. Most of our thistles are biennial; from the rosette, formed the first season, the upright flowering stem arising the second season. It will require

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368 EDIBLE WILD PLANTS enthusiasm and hunger to start our people gathering and trimming the spines from thistle-leaves. Our experiment shows that from May through June, when the new leaves are succulent, the flavor is good but the return not worth the discomfort and labor. Lightfoot's recipe is better: the young stems, stripped of their leaves, then peeled (taking off all the shreddy rind), cut in pieces and boiled a few minutes in salted water, are a vegetable of great delicacy, tender and with a mild flavor of French Artichoke. Withering says of BULL-THISTLE, *C. vulgare* or *lanceolatum*: The flowers, like those of the Artichoke, have the property of Rennet in curdling milk. SCOTCH THISTLE, COTTON THISTLE, *Quercus Acanthium* USES: substitute for French artichoke, salad. The true Scotch THISTLE is only rarely naturalized in North America and few people will be situated to experiment with it. But English writers state that the fairly large receptacle or base of the head is cooked and eaten like the artichoke, and that the vigorous young shoots stripped of their rind and then boiled are also edible. NIPPLEWOET, *Lapsana comminis* USES: salad, potherb. NIPPLEWORT, a small-leaved lettuce-like plant with milky juice, is locally and sometimes abundantly naturalized as a weed for instance, for 20 miles or more along the Chesapeake and Ohio Railroad east of Richmond, Virginia. In view of the fact that every helpless infant has been forced

to feed at a nipple it is comforting to learn that Nipplewort is edible. Withering stated that Before it goes into flower it is eaten raw; and Mrs. Lankester said that it can be cooked as greens.

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OF EASTERN NORTH AMERICA³⁶⁹ CHICORY, BLUR SAILORS, *Cichorium Intybus*. FIG. 128 KEY-CHARACTERS:leaves mostly clustered at the top of a strong tap- root, in form resembling dandelion-leaves but thicker and usually harsher; stems tall, loosely branching, rather rigid, bearing in late summer and autumn bluish flowers (heads) in form resembling dandelions and followed by loosely cylindric fruiting clusters. HABITAT:fields, roadsides and waste places, especially in clay soils or ashes. RANGE:generally introduced from Europe, found from Newfoundland to Manitoba and southward, often, as in eastern Massachusetts, excessively abundant but sometimes local or absent over considerable areas. SEASON OF~ AVAILABILITY: for salad and potherb, spring and winter (indoors); roots, autumn to spring. USES:potherb, salad, coffee-substitute. CHICORY has always been more or less popular in European countries, having been well known, apparently, to the early Romans. In the spring the leaves are gathered somewhat indiscriminately with dandelion-greens, having the same excessively bitter quality which some people find palatable in a potherb. The bitterness is somewhat reduced by cooking and may be further withdrawn by cooking the leaves in several waters. Under the name BARBE DU CAPUCIN, the blanched leaves have long been popular as a salad in continental Europe, and are more and more seen in American markets, although the closely related endive is, perhaps, more generally cultivated. An economical and decidedly attractive bitter salad is easily secured by digging the larger, wild Chicory-roots during late autumn or in mild periods during winter, boxing them in earth in a dark and warm cellar, preferably with a cover to keep out any rays of light. The roots, frequently watered, soon send up an abundant, crisp white foliage which, by judicious handling, may be continued for several weeks. The use of the ground and roasted roots of Chicory as an adulterant in coffee has long been practiced and, according to some authors, coffee containing a large proportion of Chicory is not only more palatable but more

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370EDIBLE WILD PLANTS wholesome than true coffee. For, although discriminat-

ingly referring to some frequently cooked plants as not, however, valued by persons of refined taste, Lindley enthusiastically wrote of Chicory, whose tap roots are cultivated as a substitute for Coffee, which they certainly improve when torrefied and added in small quantities. Lindley was an Englishman. Johnson tells us that in parts of Europe the demand for Chicory-coffee often exceeds the supply and that the ground Chicory has sometimes been mixed with sawdust, roasted beans, dried horse-liver, and other substances used to add bulk. Thus it is easy to understand the scarcity of good coffee in most tourist-hotels of Europe. Since through many decades Chicory-root has maintained its place as the chief substitute for or adulterant of coffee and is now being urged as an official substitute, the following passage, written by Porcher in South Caro FIG. 129, GoATS-BEARD or FIG. 128, CHICORY SALSIFY

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OF EASTERN NORTH AMERICA³⁷¹ lila when the South was suffering from the privations caused by the Civil War, may be of value: By the combination of a little chicory with coffee the flavor of the coffee is not destroyed, but there is added to the infusion a richness of flavor, and a depth of color a body, which renders it to very many people much more welcome as a beverage. The cheapness of chicory enables a grocer, by the combination of chicory powder with good coffee, to sell a compound which will yield a cup of infinitely better stuff than any pure coffee that can be had at the same price. Any one with a sensitive taste, and a sufficient purse, would of course buy coffee of the finest quality, and never think of bettering with chicory the enjoyment of its delicate aroma. The majority of the people, however, are by no means in this position. Coffee, with an admixture of genuine chicory, (which we take care to procure by purchasing the article in its raw state, and having it roasted the same as coffee,) was preferred to coffee in its pure state. The reason of this we can clearly understand, and will explicitly state. We can afford to sell, and do sell a finer coffee when mixed with chicory than we can sell in its pure state at the same price; and the superiority of the coffee in conjunction with the fulness of the chicory, in our opinion, decidedly gives greater satisfaction to the public. The fillers now being exploited contain chicory and various types of parched beans. GOAT S-BEARD, SALSIFY, OYSTER-PLANT, Tragopogon, three species. FIG. 129 KEY-CHARACTERS: tall biennials with tap-roots; leaves like broad grass-blades, with milky juice, the first year forming broad rosettes or tufts, the second shriveling as the tall, leafy flowering stem develops; flowers resembling large dandelion-heads, yellow or purple, the involucre or leafy cup without the outer curling series of the dandelions; the long fruits with long firm beaks, with the slender, terminal beard of plumose hairs. Three species with us: SALSIFY or OYSTER-PLANT, *T. porrifolius*, with purple flowers, the fruits 5,4~ of an inch long; GOAT S-BEARD, *T. pratensis* and *T. dubius*, both yellow-flowered, the former with the long terminal flower-stalk slender

to summit, the green involucre from 94 to 11,4 inches high, the fruits scarcely an inch long, *T. dubius* with the flower-stalk thickened above, the involucre 2 to 3 inches long and the fruits 1 to 2 inches long. HABITAT: fields and roadsides. RANGE: one or more species often abundant in southern Canada, thence south to Georgia, Tennessee, Missouri, etc.

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372EDIBLE ~TILD PLANTS SEASON OF AVAILABILITY: for green vegetable, spring; for root, autumn to earliest spring. USES: potherb, cooked root, salad. SALSIFY or OYSTER-PLANT is more or less familiar as a winter-vegetable; the root, variously prepared, is appreciated by many. When it grows wild the roots, unless in very rich soil, are smaller than in the highly cultivated plant but perfectly good, remembering always that they are useless after the flowering stem has developed. The young stems when a few inches high and the bases of the lower leaves make a delicious cooked vegetable. Many people like the roots of the yellow-flowered weedy species better than those of the cultivated Salsify. The latter has larger roots, therefore it alone is in the gardens. The cultivation of Salsify apparently is not very old. Note Evelyn's indignation in 1706: Goats-beard, Trago-pogon; but of late they have Italianized the Name, and now generally call it Salsisix; and our Seed-Sellers, to disguise it, being a very common Field Herb, growing in most Parts of England, would have it thought (with many others) an Exotick, and call it Salsify and Sassify; whilst, by whatever Name dignified or distinguished, it must be owned to be an excellent Sallet-Root, and very nutritive, and may be stewed and dressed as Sorzonera, exceedingly amicable to the Breast. As to the superiority (except in size) of the yellow-flowered Goats-beard, Bryant, writing in England, said: This plant [the bell-flowered *Tragopogon porrifolius*] is cultivated in gardens by the name of Salsafy, and its roots are dressed and served up at table in a variety of forms. They are of a pleasant, nutritious nature, but though these are at present in the greatest esteem, they are much inferior to those of the pratense. DANDELION, *Taraxacum officinale* (or *T. Taraxacum*) and about ten local native species found from Labrador and Newfoundland across Canada USES: potherb, salad, coffee-substitute. The use of young DANDELION-leaves as a potherb is so familiar that it hardly needs discussion. Nevertheless the

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OF EASTERN NORTH AMERICA 373 novice should be particularly cautioned that the

leaves at first should be covered with boiling, not cold, water, thus removing much of the herby taste. Like Chicory the leaves of the Dandelion may be blanched by covering during their rapid growth and then prepared as a salad; but the best salad from these plants is prepared from the cold, cooked greens thoroughly chilled, chopped, and served with a proper dressing. Strong plants (crowns and 2 or 3 inches of root) brought into the cellar and raised in winter, covered with litter or coal-ashes, furnish a splendid salad. On the continent of Europe and in this country Dandelion-greens have long been recognized as having a decidedly wholesome effect on the digestion, but in England the value of this bitter potherb was tardily appreciated. Thus, after enumerating the virtues of the plant and its popularity on the continent, good old Dr. Culpeper wrote in 1770: You see here what Virtues this common Herb hath, and thats the reason the French and Dutch so often eat them in the Spring; and now if you look a little farther, you may see plainly, without a pair of Spectacles, that Foreign Physicians are not so Selfish as ours are, but more communicative of the Virtue of Plants to People. The ground roots, like those of chicory, can be used to adulterate coffee or used alone to make a palatable, bitter drink; and in times of famine the roots themselves, cooked, have been used for food. We thus find the statement made by various authors that, during a famine on the island of Minorca caused by a destruction of the harvests by locusts, many of the inhabitants subsisted on the roots of Dandelions. SOW-THISTLE, *Sonchus* (various species) KEY-CHARACTERS: bristly or prickly-leaved thistles with heads of yellowish flowers, and a milky, bitter juice.

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374EDIBLE WILD PLANTS HABITAT AND RANGE: weeds of cultivated lands, barnyards, roadsides, etc., throughout temperate America. SEASON OF AVAILABILITY: early summer, before flowering. USES: potherb, salad. The common SOW-THISTLES have a milky juice and a bitter taste very similar to those of dandelion and chicory, and in Europe the young foliage has sometimes been used as a potherb or salad, although the plants have rarely appealed to the English taste. Consequently we find John Parkinson, in 1640, saying: They are usually eaten as salad herbes in the Winter and Spring, while they are young and tender by those beyond the seas familiarly. Our own tests show the succulent species to be fairly good but not superior potherbs. WILD LETTUCE, *Lactuca* (including *Mulgedium*), several species USE: potherb. The species of WILD LETTUCE, although of the same genus as garden lettuce, resemble the latter only in technical characters: milky juice, tall and leafy flowering stem and yellow, coppery or bluish little strap-shaped flowers borne in elongate or urn-shaped heads, the flowers surrounded by green to purple bracts. One species or another is found from Newfoundland to British Columbia, south throughout the United States. Belonging to the genus *Lactuca*, they are beyond suspicion and the vigorously growing leafy stems

(before flowering, after which they are tough) and the unexpanded inflorescences can be cooked. Dr. Carver praised the tender kinds as salad.

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CHAPTER IV MUSHROOMS, SEAWEEDS AND LICHENS 1. MUSHROOMS FOR MANY YEARS ~ll America, particularly from the late 19th into the early decades of the present century, the fashion of gathering and eating mushrooms so rapidly developed that there grew up in several communities a little group of people who knew and regularly gathered the edible mushrooms the devotees of these peculiar growths who have been jocosely dubbed the mycophagic cult. Those who are or were members of the cult in regular standing will find nothing in the present chapter to merit their attention, for they already know its contents and have access to one or more of the many volumes devoted exclusively to mushrooms and their recognition; and for those who wish to pursue the study of mushrooms with thoroughness these books are naturally the best sources of information, whether they use Atkinsons extremely conservative volume, the gigantic mushroom bible (McIlvaine s sumptuous book), or one of the other works indicated in the bibliography, or others of later vintage. By far the most authoritative treatment, simple, safe and with marvelous illustrations is *Icones Farlowianae*. Much less expensive and with illustrations reproduced from paintings by the late L. C. C. Krieger, is *A Popular Guide to the Higher Fungi (Mushrooms)*, published by the New York State Museum, from which, through the kindness of the director, Dr. C. C. Adams, we have been allowed to photograph several species. Some other photographs here used are those of the late J. Franklin Collins. We are greatly indebted to 375

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376EDIBLE WILD PLANTS Dr. David H. Linder, Curator of the Farlow Library and Herbarium, who has freely advised us. Unfortunately, there is no simple magic, as many uninformed persons suppose, by which edible species can be distinguished from poisonous species; and the popular notion, that the former are mushrooms, the latter toadstools is, of course, erroneous. The words mushroom and toadstool are synonymous, but the former is the better one to use. In many genera, as *Amanita*, *Boletus*, etc., actively poisonous and even deadly species superficially resemble others which the thoroughly trained enthusiast does not hesitate to eat. It is obvious, then, that the beginner must be extremely cautious about eating wild mushrooms and should never allow himself to be

tempted into eating any mushroom unless he is absolutely certain of its identity. As already stated, the student who wishes to follow up the mushrooms with any thoroughness must consult the books or papers enumerated in the bibliography. A few mushrooms, however, are so very distinct in form, color and texture as to be unmistakable, provided, of course, that the collector exercises reasonable care in observation. Some of the more marked and palatable of these are discussed and several of them illustrated below, and, as a safeguard, some of the most common of the violently poisonous or even deadly species are also shown. Poisonous SPECIES For the beginner certain rules are absolutely necessary, lest the attractive but dangerous species should be eaten. 1. Never gather to eat mushrooms in the button or unexpanded stage. One is then too apt to confuse poisonous and edible species. 2. Never gather to eat nor mix with species to be eaten any mushroom with a membrane-like cup, bowl or bag

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OF EASTERN NORTH AMERICA 377 or a scaly bulb at the base of the stem. Our deadliest species, the DEATH-CUP or DEADLY AMANITA, *Amanita phalloides* (PLATE VIII, three FIGS. at right), has such a cup (volva) at base when young and at least ruptured portions of it may usually be found on old specimens. Another virulent species, the FLY-AMANITA (PLATE VIII, FIGS. at left and in center), *Amanita muscaria* (because poisonous to flies), has a scaly bulb at base. Above all things, avoid any mushroom with the cup (volva) at base (often half buried in the earth and consequently to be watched for with utmost care), a ring at or near the summit of the stem, and white gills on the under side of the cap. These are most likely to be members of the very dangerous genus *Amanita*, and if the spores (the fine dust-like particles which fall from the gills) are white no question is left as to the identity, for the combination of characters (volva or scaly bulb, ring, white gills and white spores) clearly indicates *Amanita*. Our two most common poisonous *Amanitas* are, as stated, the DEATH-CUP (PLATE VIII, FIGS. at right), with the top of the cap bright white, or pale yellow to brownish, and smooth, and the FLY-AMANITA (PLATE VIII, FIGS. at left and in center), with the top of the cap varying from bright yellow to red, its surface flecked with loosely whitish scales or shreddy white spots. Both species occur in woods, where the Fly-*Amanita* is one of the handsomest of mushrooms; and the Death-cup also occurs in rich, open ground. 3. Avoid all earth-growing mushrooms with the under side of the cap full of minute pores. These are mostly members of the great genus *Boletus*. Some species are famous for their edible qualities, but many others are well known to be violently poisonous. The species are extremely difficult to distinguish and, until one becomes an expert, it is the part of wisdom to let them alone. 4. Avoid all mushrooms with milky juice, unless the juice is red or deep orange. These mushrooms with milky

378 EDIBLE WILD PLANTS juice constitute the genus *Lactarius* (which also contains some with watery juice) and, although the species with red or deep-orange juice is one of the most delicious of mushrooms, some of those with white or pale juice are very peppery or bitter and should be avoided. 5. Avoid the common woodland mushroom with the flattish-topped smooth cap bright red or rosy above, with the white gills radiating regularly like crowded spokes of a wheel, i.e. without any or at least many short, intermediate gills. This is *Russula emetica*, the name of which is sufficiently suggestive. Other species of *Russula* are found in woods and some are considered edible, but the beginner will be wisest if he lets them alone. 6. Avoid the beautiful saffron-yellow or yellowish-orange large mushroom, often occurring in late summer and autumn about the bases of stumps and old trees, with many crowded, solid stems and the convex caps overlapping, the broad gills extending irregularly down the stem, the surfaces phosphorescent in the dark. This very handsome species is JACK-o-LANTERN, *Clitocybe illudens* (PLATE IX) a tempting mushroom, said by those who have eaten it to be of excellent flavor but, most unfortunately, a violent emetic which produces discomfort and long-continued vomiting. 7. Until well trained in the careful study and identification of mushrooms, avoid any species not positively known to be harmless and many harmless species are scarcely edible. 8. Avoid any mushroom which is beginning to decay. To recapitulate, if the beginner carefully follows these eight rules, he will be avoiding the truly dangerous mushrooms and the somewhat poisonous kinds which are large enough or abundant enough to be specially inviting. 1. Avoid all mushrooms in the button stage. 2. Avoid all mushrooms with a membrane-like cup or scaly bulb at base.

PLATE VIII Courtesy of N. Y. State Museum DEATH-CUP or DEADLY AMANITA, three FIGS. at right; FLY-AMANITA, FIG. in center and two at left

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OF EASTERN NORTH AMERICA 381 3. Avoid all earth-growing mushrooms with the under side of the cap full of minute pores. 4. Avoid all mushrooms with white or pale milky juice. 5. Avoid all woodland mushrooms with flattish-topped, smooth cap bright red or rosy above, and with the white gills radiating like crowded spokes of a wheel. 6. Avoid the saffron-colored or yellowish-orange mushroom of old stumps, etc., with crowded solid stems, convex overlapping caps, broad gills extending irregularly down the stem, and surfaces phosphorescent in the dark. 7. Avoid any species not known to be edible. 8. Avoid any mushroom which is beginning to decay. EDIBLE SPECIES The following mushrooms are so characteristic that there is little danger of their being confused with poisonous species. MEADOW or PASTURE MUSHROOM, *Agaricus arvensis* and *campestris*, PLATE X KEY-CHARACTERS of *A. arvensis*: stem short and stout, solid, with a small and thin ring at summit (at least when young); cap 2-10 inches broad, at first hemispherical, then becoming expanded-convex, thick and firm, whitish to whitish-brown, smooth and dryish on top, or tinged near the center of the top with yellow-ochre which becomes intensified when rubbed; veil (at first stretched across the gills on the lower side) of two layers, the outer peeling off and exposing the inner, which soon ruptures; gills in the button-stage white, soon becoming pinkish and finally purplish-brown; spores purplish-brown; the bruised mushroom slightly aromatic. *A. campestris*: smaller, the cap usually 2-3 inches broad, flattened at first, then becoming convex, smooth or finally minutely silky in little flocks, the center of the top without the yellow tinge, the margin extended beyond the gills; the veil single; odor simply that of most mushrooms, not aromatic. HABITAT AND RANGE: open ground of pastures, fields, lawns and roadsides, often abundant, *A. campestris* oftenest where cow-manure has gathered, through temperate regions. SEASON OF AVAILABILITY: August to October. *Agaricus arvensis* (sometimes called *Psallio* [a] is the mushroom, i.e. the species (PLATE X) which is gen

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382 EDIBLE WILD PLANTS erally cultivated and sold in the market. *A. campestris*, although technically different in many details, is the commoner of the two in old pastures and manured areas. Though not so firm and solid it is a delicious species and is

prepared like the mushroom of the market. SHAGGY MANE, HORSETAIL-MUSHROOM, *Coprinus comatus*. PLATE XI KEY-CHARACTERS: usually tufted, the clumps often with numerous stems, but sometimes solitary; stem slender and hollow, bearing a narrow, loose ring about half-way up; cap not expanding until over-ripe, resembling a closed but very baggy umbrella or a slender barrel, 13 or 4 inches long, rounded at summit, densely shaggy over the surface with whitish or brownish locks, spreading open in maturity and turning to black or inky fluid; gills white, then pinkish, but in age black and changing to ink; spores black. HABITAT AND RANGE: fields, meadows, lawns, manured land, ash-heaps, etc., in temperate regions. SEASON OF AVAILABILITY: after rainy weather, early summer to autumn. The SHAGGY MANE IS one of the most easily recognized of mushrooms, not only on account of the shaggy barrel-shaped cap, but on account of the mature plant rapidly deliquescing or changing to a blackish fluid, in which stage it is inedible. The firm caps washed and drained are excellent baked (seasoned and flecked with butter) or simmered in butter. They lose much water in cooking and, if all the flavor is wanted in eating, this black juice may be thickened with flour and the whole served on toast. INK-CAP, INKY MUSHROOM, *Coprinus atramentarius* KEY-CHARACTERS: growing in clusters or scattered; stem rather short and stoutish, frail and hollow, elongating in age; cap egg-shaped, grayish or smoky in color, smooth or slightly roughened, 13 inches high, expanding only when overripe and then becoming an inky wet mass; gills at first pale, changing gradually to blackish and becoming wet and inky; spores black. HABITAT AND RANGE: about manure-heaps, rubbish, rich fields and lawns (especially if recently manured), in temperate regions. SEASON OF AVAILABILITY: spring, late summer and autumn.

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PLATE XI SHAGGY MANE Upper, ready to eat, courtesy of D. H. Linder; lower, a little too old, photo. by J. F. Collins

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OF EASTERN NORTH AMERICA 385 The INK-CAP is one of the most familiar of mushrooms and by many is considered good eating. It is not generally so highly esteemed as the Shaggy Mane but may be cooked in the same ways. SMALL or EARLY INKY MUSHROOM, GLISTENING CopiuNus, Coprinus micace us. PLATE XII KEY-CHARACTERS: densely tufted; the brittle, hollow stems slender; cap small, rarely more than 1 1/2 inches high, somewhat thimble-shaped, thin, yellowish-brown or drab, with fine stripes near the margin; gills pale, becoming pinkish-drab and finally black; spores black; whole plant quickly changing to a black inky mass. HABITAT AND RANGE: about the bases of dead or weakened trees, old stumps, lawns, etc., temperate regions, often on old bases of elms. SEASON OF AVAILABILITY: after rains of first warm days of spring through summer and frequently in autumn (often until killing frost). The EARLY INKY MUSHROOM is highly appreciated by lovers of mushrooms because, although small, it comes during the first warm days when there are few other species available. The small caps usually occur in such abundance that a good mess is quickly gathered, great care being necessary to pull off the caps without getting the dirty and gritty bases of the stems, which are too easily pulled up. The caps (with all old and very black ones rejected) are simply cooked, by washing in two or three waters, draining through a colander, throwing into a sauce-pan with a little butter and seasoning, bringing to a boil and allowing to simmer for a few minutes. There is a superabundance of black, watery juice which may be thickened with flour to make a rich, creamy sauce. Some prefer to bake the caps about half-an-hour in a slow oven. The little mushroom is so abundant that it may be canned (cold pack). On account of the excessive quantity of well flavored watery black juice the full value is best retained by mixing with dry bread-crumbs, beaten egg, milk and seasonings; then baking. The baked Inkys are delicious.

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386 EDIBLE WILD PLANTS _____ PArRY-RING, Marasmius oreades. PLATE XIII KEY-CHARACTERS: forming regular or interrupted (often entirely obscure) broad rings in the grass; stem tough and solid, slender, white, an inch or two high; cap dull creamy-white, creamy-pink, buff or cracker-brown, convex or widely expanded (often with a bump in the middle), 12 inches broad, somewhat leathery in texture, not quickly decaying but drying in the bright weather and freshening again when wet; gills somewhat remote or with obvious intervals; spores white. HABITAT AND RANGE: open grassy places, lawns, fields, pastures, etc., in temperate regions. SEASON OF AVAILABILITY: early summer to autumn, especially after rains. The FAIRY-RING is pretty generally known and is most quickly discovered through the fact that where it occurs the grass grows ranker and greener than in the neighboring sections of the field.

However, we can give no guarantee that the mushroom will always be found under such conditions! The leathery texture of this species is objectionable to some, but the flavor is delicate and when simmered for about half an hour, in butter and seasoning, with a little water added, it is usually thought delicious. One of our photographs shows a good gathering from a grassy roadside near Rimouski, Quebec. When found in such profusion, they may be strung on strong thread and dried for winter use. OYSTER-MUSHROOM, *Pleurotus ostreatus*. PLATE XIV KEY-CHARACTERS: forming clumps on the trunks of trees; the very short and thick (or almost obsolete) whitish stem attached at the margin (not near the center) of the cap; the large white, gray or buff, leathery caps of a fan-shaped or oyster-shell outline, crowded and overlapping, 3-9 inches broad; gills broad, white, running irregularly down the stem as prominent but gradually disappearing veins; spores white. The very similar *P. sapidus*, scarcely distinguishable except for its pink spores, is by many considered superior to *P. ostreatus*. HABITAT AND RANGE: ON dead branches, knot-holes, decaying tree-trunks, etc., in temperate regions. SEASON OF AVAILABILITY: summer and early autumn (rarely after frosty weather).

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PLATE Xlii FAIRY-RING Upper, courtesy of N. Y. State Museum; lower, ready to dry

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OF EASTERN NORTH AMERICA 389 Although by some considered not one of the best, the OYSTER-MUSHROOM is quite safe to eat and, if gathered when young and before it has toughened, is palatable, either stewed in fragments or fried in butter or bacon-fat. Melvaine is enthusiastic about it, saying: When the tender parts are dipped in egg, rolled in bread crumbs, and fried as an oyster, they are not excelled by any vegetable, and are worthy of a place in the daintiest menu. ELM-MUSHROOM, *Pleurotus ulmarius* KEY-CHARACTERS: Clustered on tree-trunks; the long, thick, often curved,

white stem attached somewhat to one side of the center of the cap; caps convex, becoming flat, with somewhat inrolled margin, whitish or shaded toward the summit with brown or yellow, 26 inches broad, many and overlapping, of rather tough texture; gills white, slightly wavy, abruptly notched at base; spores white. HABITAT AND RANGE: on dead or wounded trees, often elms, but by no means confined to them, temperate regions. SEASON OF AVAILABILITY: summer and especially autumn. The ELM-MUSHROOM is often abundant, especially after heavy autumn rains, on dead trees and about injured branches or knot-holes. It is of better quality than the oyster-mushroom and by many people is highly valued. If the older caps are used only the tender parts should be cooked as the middle of the cap soon becomes tough. ORANGE-MILK MUSHROOM, *Lactarius deliciosus*. PLATE XV, three upper FIGS. KEY-CHARACTERS: growing solitary or scattered; stem stout, an inch or two high, orange or yellowish, commonly spotted, becoming hollow; cap 25 inches broad, orange, yellowish, or these colors suffused or blotched with drab or greenish tones, commonly with concentric bands or zones of color, somewhat slimy or viscid on top and with a central depression; gills very soft and brittle, crowded, running down to the stem; spores white; the bruised plant exuding a thick, milky, pleasantly aromatic, orange or saffron-red juice, which on exposure to the air gradually turns greenish. HABITAT AND RANGE: in damp woods, Newfoundland and Canada and the northern States, south in cool or upland regions; in northern New England and Canada oftenest under spruces and firs or in open bushy, spruce and fir thickets. SEASON OF AVAILABILITY: summer and autumn.

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390EDIBLE WILD PLANTS *Lactarius deliciosus*, as its specific name implies, has long been famous as one of the choicest of mushrooms, and it is often found in great abundance though sometimes tantalizingly scattered. It requires long cooking, forty minutes to an hour or more, either stewed or baked. The tendency of the red or orange juice to turn green is likely to frighten the novice but, if thoroughly cooked, the species is apparently quite safe to use. HYPOMYCES LACTIFLUORUM. PLATE XV, three lower FIGS. KEY-CHARACTERS: solitary or often clustered orange-red or in age darker red, funnel-shaped or irregularly vase-shaped, solid but fleshy mushrooms often 36 inches high and as broad or broader, depressed at summit, with no gills or only with obscure furrows and ridges on the outside. (This description applies to the highly characteristic and greatly modified mushroom, the *Hypomyces* itself of course being the filmy orange-red coat.) HABITAT AND RANGE: dry mixed or deciduous woods, throughout the eastern States and southern Canada. SEASON OF AVAILABILITY: summer and early autumn. This is a most singular and delicious mushroom. Technically the HYPOMYCES is the orange-red surface of the mushroom, a minute parasitic species which grows over the surface of a true mushroom, completely or almost completely

obliterating the gills and adding vastly to the weight and edibility of the host. It is now demonstrated that the host is commonly the very peppery white-juiced *Lactarius piperatus*. If so, then indeed is *Hypomyces* an unusually good parasite. The brilliant orange-red funnels or vases may be found in dry, old woods, often hardly showing above ground, but lifting slightly the dead pine needles and other leaves. In pastured regions the cattle are likely to destroy the crop; at least in one rich habitat in Maine we have found it difficult to get ahead of the cows and have often discovered the hidden treasures by noticing where cattle had previously been nosing them out. The red parasitized *Lactarius* when fresh, furnishes one of the most substantial and satisfying of vegetables.

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H OYSTER-MUSHROOM Courtesy of Boston Mycological Club

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PLATE XV ORANGE-MILK MUSHROOM, three upper FIGS.; *HYPOMYCES LACTIFLUORUM*, three lower FIGS. Courtesy of N Y. State Museum

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OF EASTERN NORTH AMERICA 393 Cut into thin pieces crosswise and stewed, in a little water, for an hour or more, then seasoned and the juice thickened, it is very rich and suggestive of young shell beans. PERPLEXING *HYPHOLOMA*, *Hypholoma perplexum*. PLATE XVI, FIG. at lower-right KEY-CHARACTERS: forming tufts; the tough and rather fibrous hollow stems 2-4 inches long and about 1/2 inch thick, reddish-brown to yellowish at base; the caps 1 to 2 1/2 or 3 inches across, convex to flattish, smooth, brownish or reddish, with yellowish margin and whitish flesh; the thin and approximate gills at first yellowish, changing to greenish, then brown or purplish. HABITAT AND RANGE: on decaying bases of stumps or fallen logs of hardwood, through much of our range. SEASON OF AVAILABILITY: September to November, often appearing after early frosts or with the caps frosted but uninjured. Although not one of the choicest, this *HYPHOLOMA* is often so abundant in the autumn that great quantities can be gathered.

It is solid, nutty and very acceptable, browned in butter, oil or bacon-fat, or escalloped with crumbs, eggs, milk and seasoning. It is too flavorless to be wholly attractive when stewed. CHANTERELLE, *Cantharellus cibarius*. PLATE XVI, three upper FIGS. KEY-CHARACTERS: a fleshy and thickish, rather firm, egg-yellow or chrome-yellow mushroom of funnel-shape, 25 inches high, with the border of the funnel often wavy or irregular, sometimes decidedly one-sided, the surfaces opaque or dull, not shining; gills with blunt edges, rather stout and with numerous parallel forkings which are often connected by little cross-veins; spores whitish-yellow. The similar *C. aurantiacus* has a dull- orange or brownish cap, with yellow gills. HABITAT AND RANGE: old woods, on the ground or on decaying logs and fallen branches, often abundant, in southern Canada and generally through the northern and eastern States. SEASON OF AVAILABILITY: summer and early autumn. The CHANTERELLE, especially *Cantharellus cibarius*, is one of the famous mushrooms, highly valued both in Europe and America, and in Europe sold in the markets.

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394EDIBLE WILD PLANTS It is often found in dry pine, fir or spruce woods in such quantities that it would be easy quickly to fill a bushel- basket. Cut into thin shreds across the gills and stewed for half-an-hour or more and well seasoned it is always an inviting dish. It may also be fried in butter. When found in quantity, Chanterelle may be strung, suspended at the top of the kitchen and dried for winter use. The similar *C. aurantiacus* is sometimes as good as *C. cibarius* but sometimes a little bitter; and other species, with elongate, trumpet- or cornucopia-forms, are edible, though not always of the best flavor. GRAYLINGS, *Cantharellus umbonatus*. PLATE XVII, upper FIG. KEY-CHARACTERS: a leathery, gray or fawn-colored, top-shaped or vase- shaped mushroom growing in and attached to the common Hair-cap Moss, *Polytrichum*; the cap regular or irregular and puckered at edge, of rather thin texture but tough, 13 inches broad, usually depressed and with a hump (umbo) at the center; gills whitish, thin and remote, running down to the leathery stem. HABITAT AND RANGE: occurring, as said, in carpets of Hair-cap Moss, *Polytrichum*, and not easily gathered without pulling some of the moss with the mushroom. Common in southern Canada and the northern States, on cool slopes or in damp thickets and open woods, wherever the *Polytrichum* abounds. SEASON OF AVAILABILITY: summer and especially autumn and even, in open winters, to January. The little *Cantharellus*, which the late Ralph Hoffmann, the writer on ornithology, appropriately named GRAY- LING, is one of the best of mushrooms for stewing. It has the characteristic, so well known in the Fairy-ring, of drying in bright weather, softening in wet weather, and only very slowly or very tardily showing any tendency to decay. It may, consequently, be gathered through a long As Ralph Hoffmann used to say: ~cwe read And here and there a lusty trout, And here and there a grayling. when we go trout-

fishing we find these gray mushrooms. why not gray- tings?

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PLATE XVI PERPLEXING HYPHOLOMA, FIG. at lower-right; CHANTERELLE, three upper FIGS. Courtesy of N. ~.

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PLATE XVII -J GRAYLINGS, upper FIG., courtesy of N. Y. State Museum; SULPHUR MUSHROOM, lower FIG., photo. by J. F. Collins

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OF EASTERN NORTH AMERICA 397 period; and we have often found it in excellent condition in warm days of December or during the January thaw. We annually dry many quarts of Graylings for winter use. BEEF-STEAK MUSHROOM, *Fistulina hepatica*
KEY-CHARACTERS: forming short-stalked to closely sessile brackets on trees and stumps; the brackets or shelves mostly solitary or scattered, shaped like a broad opened fan, or, when scalloped on the margin, suggesting a liver; the fleshy and juicy shelf about half an inch thick, dark-red and when wet sticky or slimy above, usually with distinct lines of color radiating from the base and middle; under surface yellowish or buff, full of flue pores. HABITAT AND RANGE: dead trunks and stumps of hard-wood trees, especially the nut-trees, locally abundant in the eastern states, commonest southward, too rare northward. SEASON OF AVAILABILITY: after rains, midsummer to early autumn. CAUTION: do not confuse the Beef-steak Mushroom with the hard and woody *Eomes lucidus*, which forms large, very shiny, red or chestnut-purple shelves and brackets on trees. The hard bracket-mushrooms are inedible and if mistaken for *Fistulina hepatica* will cause disappointment. The BEEF-STEAK MUSHROOM is said by enthusiasts to be as good when broiled as a tenderloin steak. The juice is acid and some people find it offensive. Others, however, enjoy it. The acid and much of the slime may be removed by soaking in salt water. Slice, season and broil, or slice and fry in butter, or cut into thin slices crosswise (the slices streaked with red like a steak) and stew in water

and butter for half-an-hour. SULPHUR MUSHROOM, *Polyporus sulphureus*. PLATE XVII, lower FIG. KEY-CHARACTERS: forming large overlapping sulphur-yellow (or orange- shaded) brackets on the trunks or bases of dead or injured deciduous trees or on logs and stumps; the masses of brackets a foot or more across, the individual brackets attached separately to the host or more commonly fused at base; caps fan-shaped, flattish above or convex, the under surface full of minute pores; texture of the brackets rather firm and tough. HABITAT AND RANGE: on old trunks, logs and stumps of decaying hard- wood trees, through the eastern states.

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398EDIBLE WILD PLANTS SEASON O~ AVAILABILITY: midsummer to frost. CAUTION:The Sulphur Mushroom is scarcely to be confused with any- thing else, but the beginner should make sure that he finds the abundant fine pores, not broad gills, on the under surface, and that the shelves are not long-stalked. The highly emetic JACK-O - LANTERN, *Citocybe illudcn~* (PLATE IX), with overlapping saffron-yellow, stalked caps and with broad gills running down the stem, grows on trees and stumps and must be clearly distinguished. THE S1JLPHUR MUSHROOM, on account of its rather tough quality must be cut into very thin slices crosswise and sim- mered or slowly stewed for half-an-hour or more, when it is excellent. It is particularly delicious if, after parboil- ing, it is finely chopped, mixed with crumbs and a white sauce, and made into croquettes. HEDGEHOG-MUSHROOM, *Steecherinum* (formerly *Hydnum*), two soft and edible species. PLATE XVIII, FIG. at upper-left KEY-CHARACTERS:forming irregular shelves, tufts or festoons, with long processes or elongate fingers or teeth hanging down in a dense fringe or shaggy mass, usually white or yellowish. HABITAT AND RANGE: on dead trees, old logs, etc., in woods, cool and temperate regions. SEASON OF AVAILABILITY: summer and autumn. There are several types of the genus, some too difficult for the beginner to distinguish, some tough and inedible, but the plants such as shown in the photograph are un- mistakable. The slender fingers or soft spines stewed or mixed with crumbs, beaten egg and scalded milk, sea- soned and then baked, are by some considered delicious, by others not specially inviting. CORAL-MUSHROOMS, *Clavaria* (various species). PLATE XVIII, lower FIG. and FIG. at upper-right KEY- cIIAEAcTERS:erect or ascending plants, either bushy in habit, with many upright, simple or forking and often fused branches, suggesting some types of coral, or with simple club-shaped bodies; texture soft and brittle; colors various, creamy white, yellow, pale-brown and drab or reddish.

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PLATE XVIII HEDGEHOG-MUSHROOM, upper left; CORAL-MUSHROOMS, lower and upper-right FIGS. All photos. by J. F. Collins

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PLATE XIX PUFFBALL, three FIGS. at left, courtesy of N. Y. State Museum; MOREL, two FIGS. at right, photos. by J. F. Collins

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401 HABITAT AND RANGE: on leaf-mold in the woods or on dead wood, old logs, decaying branches, etc., one or another species in most parts of the United States and Canada. SEASON OF AVAILABILITY: summer and autumn. \$1, The CORAL-MUSHROOMS are all considered safe to eat. Some are of superior quality, some slightly bitter, but their distinctions are too technical for this book. The larger freely forking kinds often occur in great quantity and it is then easy to fill a large basket; but it should be remembered that immediately after heavy rain the plants are apt to be very watery and tasteless. We like them best stewed or broken into fragments, mixed with crumbs and beaten egg and scalded milk, well seasoned and baked. The little, simple yellow clubs (*Clavaria pulchra*) shown in the photograph (PLATE XVIII, lower FIG.) are common in spruce and fir woods northward and are excellent raw, delicate and nutty. They also make a delicious dish if prepared like an oyster stew. PUFFBALLS, *Lycoperdon* and *Calvatia* (various species). PLATE XIX, FIGS. at left The PUFFBALLS which when young have white flesh are all harmless and several of them are of excellent quality. When the flesh is at all dark-colored the Puffball should not be eaten and at least one kind with dark flesh is held in suspicion. The Puffballs vary from tiny rounded or balloon-shaped species, which are too small to be useful, to the Giant Puffball, *Calvatia gigantea*, which varies from a few inches to a foot or more in diameter and which occurs in grassy fields, disturbed soil and rich thickets. The Giant Puffball may be peeled, sliced and fried, or it, as well as the smaller species, after peeling may be cut into bits and stewed or mixed with crumbs, beaten egg, scalded milk and seasoning and baked. Always reject Puffballs in which the flesh is not white and firm.

402 EDIBLE WILD PLANTS MOREL, *Morchella* (various species). PLATE XIX, two FIGS. at right KEY-CHARACTERS: stem stout and hollow, somewhat pebbled or granular on the surface; cap not separable from the stem, of various forms from cylindrical or conical to globose or depressed, with a deeply corrugated surface consisting of fleshy interlacing ridges and deep pits, usually darker-colored than the stem, hollow inside. HABITAT AND RANGE: several species, one or another in rich woods, thickets, borders of woods, orchards and other half-shade, temperate regions. SEASON 01 AVAILABILITY: May and June, in warm weather following rain. The MORELS are ranked among the very choicest of edible fungi, but unfortunately they are local and likely to occur as scattered individuals. Sometimes, especially where there has been a brush-fire, they come up in quantity and we have, in such a spot, been able to fill a large knap-sack. When found in such quantity they may be strung and dried over the kitchen range for winter use. Morels are cooked in various ways: stuffed and baked for half-an-hour; tossed in butter, etc.; always good if they are well cooked and the rich juice, boiled down and thickened, is served as a sauce. 2. SEaweEDS The Seaweeds are comparatively unimportant for food, but four species of our Atlantic coast have some value. They contain iodine and are often prescribed for those inclined to goiter and other conditions due to deficiency of iodine in the system. IRISH Moss, *Chondrus crispus*. PLATE XX, upper FIG. KEY-CHARACTERS: fronds tough and elastic or leathery, when wet mucilaginous or slimy, when dry crisp and shrunken, flattened, 36 inches high, freely forking and subdividing several times, with the terminal lobes crowded, whitish, creamy, or greenish to purple or even black. HABITAT AND RANGE: at or just below high tide, chiefly upon rocks, but commonly cast up on different types of shore, from North Carolina northward.

PLATE XX IRISH Moss, upper FIG.; BITESE, lower FIG.

PLATE XXI LAYER

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OF EASTERN NORTH AMERICA 405 IRISH Moss is extensively sold by the grocer for the making of blanc mange, and is of course familiar to all house-wives. The growing plants are usually of dark colors, from olive to purple or black, but the market commodity consists of sun-blached creamy-white fronds which have been cast up on the beach. It is singular that green, purple or black Irish Moss is looked upon with suspicion, so used are we to cooking only the old, dead and pallid fragments! DULSE, *Rhodomenia palmata*. PLATE XX, lower FIG. KEY-CHARACTERS: plants with a very short stem which quickly broadens into a thin, tongue-shaped or fan-shaped, ribless and nerveless, dark-red or claret-colored expanse, the fans variously cleft into flat thumbs or fingers and these again sometimes with short round-tipped lobes; the whole plant a few inches to a foot or so long. HABITAT AND RANGE: on rocks or attached to coarser seaweeds and kelps, from low-water mark to considerable depths, Atlantic coast. DULSE is often seen in our markets, where in the dried condition it is unattractive in appearance. It is a popular food, either cooked or raw, in Europe but has never become a staple with us, though it is often nibbled as a relish. LAYER, *Porphyra* (various species). PLATE XXI KEY CHARACTERS: frond thin and with a satiny sheen, red, dark-purple or purple-brown, simple or variously lobed or cleft, with strongly ruffled margin, varying from a few inches to a foot long; easily distinguished by its red, purple or purple-brown color, filmy and elastic texture and satiny lustre. HABITAT AND RANGE: near low tide on rocks, boulders and other supports, general on the coast, and freely cast up on shores. LAYER is a pleasant relish, eaten raw or nibbled, and it may be cooked and used in making soup. The Chinese are specially fond of it and at various times the Chinese in America have imported Layer in quantity from China, not knowing that there is plenty on both our Atlantic and

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406 EDIBLE WILD PLANTS Pacific coasts. Dr. Berkeley, in *The Treasury of Botany*, supplies the following recipe: A condiment prepared from the common *Porphyra*, which is greatly esteemed by some, while to others it is an object of unmitigated disgust. The taste for it, like that for olives, is only acquired by use. The best way of preparing it for

table is to mix the quantity required for immediate use with a few table- spoonfuls of stock, and a little lemon-juice. It is then to be made quite hot in a well-tinned or silver saucepan, and poured upon toast. EDIBLE KELP, *Alaria esculenta*. PLATE XXII KEY-CHARACTERS:a characteristic kelp, with short, cylindric stem and a ruffled or wavy olive-green or -brown, thinnish, unperforated frond a few inches wide and from one to many feet long, distinguished from our other kelps (except the Sea-colander, *Agarwra Turneri*, which has very numerous round holes or perforations in the frond) by having a strong midrib run- ning from base to apex and by bearing from near the base slender- stalked, tongue-shaped, ribless secondary fronds upon which the fruit is borne.

HABITAT AND RANGE: rocky bottoms and submerged ledges, below high tide, from Massachusetts northward. The thick midribs, divested of the broad wing-like, olive membrane, have had some use in Europe as food, as have the heavily fruiting lateral fronds, both of which are said to have a sweet taste. 3. LICHENS About the last sources of food we should ordinarily think of are the dry, juiceless, gray, drab or brown lich- ens, often mistakenly called mosses, which carpet ster- ile ground or expand their flat or crisped surfaces on rocks, fences or trees. But several of the lichens have been important food and in a number of cases man has fought off starvation by their use. The famous lichen- manna of North Africa and western Asia would certainly seem as unpromising a source of food as could be imag- ined, being mere small lumps, often no larger than a pin-

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PLATE XXII EDIBLE KELP

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PLATE XXIII TRIPE DE ROCHE or ROCK-TRIPE Lower FIG., showing a colony on rock, from photo. by J. F. Collins

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OF EASTERN NORTH AMERICA409 head or a pea. Yet the following extract from

Lindsays most helpful Popular History of British Lichens, from which we have drawn much of our information regarding the edible species, certainly indicates its importance in emergency. Two foreign species of this genus, *Lecanora esculenta* and *affinis*, are of great interest, from having repeatedly, under extraordinary circumstances, served as the food of large numbers of men and cattle, in various countries lying between Algeria and Tartary. They are said at various times and in divers places to have appeared suddenly, covering with a layer, sometimes from three to six inches thick, large tracts of country; and the inhabitants, believing their origin to have been from heaven, have designated them a species of manna, and have imitated their flocks, in times of scarcity of food, by eating them. . . . Several rains of manna . . . have been described by travellers. . . . The manna is usually found in the form of small lumps, from the size of a pin's head to that of a pea or small nut, which are greyish or whitish, hard, irregular in form, inodorous, and insipid. . . . As an illustration of the circumstances under which manna-rain is said to fall, Ancherclou states that in 1829, during a war between Russia and Persia, a large tract of country round a town on the south-west shore of the Caspian, whose inhabitants were in a state of famine, was suddenly covered by a Lichen which fell from heaven. The sheep were noticed to eat it with avidity; the idea immediately occurred to the famishing inhabitants that this substance might prove equally agreeable or nutritious to themselves, and accordingly it was converted into bread. The explanation of the rains of manna is, of course, that the lichen grows attached on the ground elsewhere and the fragments, being light, are transported by wind. Probably the most famous instance of use of a Lichen as emergency-food in American annals was the long period when Sir John Franklin, Dr. (later Sir John) Richardson, George Back (all famous names in American botany) and their Canadian voyageurs staved off starvation for many weeks in the region northwest of Hudson Bay by living on *Tripe de Roche*, black, tough and dry

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410EDIBLE WILD PLANTS blister-like lichens (PLATE XXIII) of the genus *Gyrophora*, growing on rocks. These uninteresting-looking lichens contain abundant starch and when boiled yield a jelly similar to blanc mange; but they also contain a bitter and purgative principle. This substance, it is stated, can be removed by steeping the *Rock-Tripe* in dilute soda-water, after which the nutritious lichen is wholesome. But Franklin and his party were not situated to remove the purgative principle. From Franklin's intensely dramatic journal we extract a few pertinent records of a starving party of dauntless scientists, written on different days during a period of nearly two months. Some *tripe de roche* was collected, which we boiled for supper... they refused to pick *tripe de roche*, choosing rather to go entirely without eating, than to make any exertion. . . . Having persuaded the people to gather some *tripe de rache*, I partook of a meal with them. . . . My associates were all in the same debilitated state, and poor Hood was

reduced to a perfect shadow, from the severe bowel complaints which the tripe de roche never failed to give him. . . . The want of tripe de roche caused us to go supperless to bed. . . . The tripe de roche disagreed with this man and with Vaillant, in consequence of which, they were the first whose strength totally failed. We had a small quantity of this weed in the evening, and the rest of our supper was made of scraps of leather. . . the weather not permitting the gathering of tripe de roche, we had nothing to cook. . . . Next morning the breeze was light and the weather mild, which enabled us to collect some tripe de roche, and to enjoy the only meal we had for four days. We derived great benefit from it, and walked with considerably more ease. . . . The tripe de roche had hitherto afforded us our chief support, and we naturally felt great uneasiness at the prospect of being deprived of it, by its being so frozen as to render it impossible for us to gather it... . We endeavoured to pick some tripe de roche, but in vain, as it was entirely frozen. Several other lichens have been used in emergency and a few species have considerable fame as sources of palatable blanc mange and even bread. Some of our most im

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PLATE XXV TRBE-LIUWGWORT, upper FIG.; REINDEER-Moss, lower FIG. from photo. by J. F. Collins

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OF EASTERN NORTH AMERICA 413 portant edible species are illustrated and discussed below, but most lichens are too difficult of distinction for the beginner. TRIPE DE ROUGE, ROCK-TRIBE, Umbilicaria and Gyrophora (various species). PLATE XXIII KEY-CHARACTERS: commonly forming circular or nearly circular cartilaginous or leathery (when dry brittle and with curling edges) dark blisters, attached to rocks at the center; color gray, olive, dark brown or black. HABITAT AND RANGE: on rocks, one or another species throughout our range and extending to the Arctic.

Sufficiently discussed in the preceding paragraphs. ICELAND Moss, *Cetraria islandica*. PLATE XXIV KEY-CHARACTERS: a tufted lichen, making broad somewhat foliaceous (leaf-like) olive or brown mats, often with blood-red blotches, from which arise very numerous erect, somewhat cartilaginous, freely forking, olivaceous, tubular or slenderly funnel-form tufts which divide at summit into many finely dissected divisions. HABITAT AND RANGE: on the ground, from the Arctic regions to the bare mountains and hills of the northern States, the coast of New England, and the higher mountains of North Carolina. The ICELAND Moss is said to contain 80 per cent. of starch, also gummy matter, fat, a bitter principle and various mineral salts. The bitter principle is purgative, as in Tripe de Roche, but can be removed by parboiling in water and soda. The jelly derived from Iceland Moss (after the bitter has been removed) is like blanc mange and is considered highly nutritious and digestible. It is stated that one pound of the plant, boiled in water, yields eight pounds of the jelly. The Icelanders and other northern peoples not only use the plant in the preparation of puddings but in the making of soups and, powdered, in making bread. Cows, horses and other domestic animals are fattened by being fed upon it; and, in fact, the Iceland Moss is so highly esteemed in the North that it has been affirmed of the Icelanders that a bountiful Providence sends them bread out of the very stones.

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414 EDIBLE WILD PLANTS TREE-LUNGWORT, *Sticta pulmonaria*. PLATE XXV, upper FIG. KEY-CHARACTERS: forming very large, coarsely but deeply lobed, thin but leathery, loosely overlapping expanses, greenish or olive above and with abundant oblong or squarish depressions bordered by interlacing ridges, pale-brown on the under surface. HABITAT AND RANGE on trees or damp rocks, Newfoundland, Canada and the Northern States, south in the uplands to South Carolina. The TREE-LUNGWORT is one of the most familiar large lichens of the cool forests and it early got its name from the supposed resemblance of its pitted and reticulated thallus to the structure of the lungs. It was supposed, on account of this resemblance, that jelly prepared from it was valuable food for consumptives. Although the Tree-Lungwort contains comparatively little starch, the jelly is slightly nutritious and is worth remembering in case of emergency. The moose is reputed to feast extensively on this plant. REINDEER-Moss, *Cladonia rangiferina* and allied species. PLATE XXV, lower FIG. The REINDEER-Moss, of which the photograph shows a growing carpet, is so very common on open ground and slightly shaded situations of northern and cool regions and is so familiar as forming the deep elastic carpets of wet weather (crisply brittle in dry weather), that it scarcely needs description. The plant, which northward forms tremendous carpets to a depth of six inches or a foot, received its name because it is the favorite winter food of reindeer (similarly of our American caribou). It is, therefore, collected in northern countries as

fodder for domestic animals and it has more than once been asserted that the milk of Cattle fed upon it becomes wholly cream and that their flesh is peculiarly fat and sweet. Reindeer-Moss is also eaten by man, either powdered and mixed with other flour for making bread or boiled to make a blanc mange or mucilaginous soup.

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Bloodroot (rootstock)	Cowbane (fleshy roots)
Water-Hemlock (fleshy roots)	Butterfly-weed (root)

FLY-POISON, *Amianthium* (or *Chrosperma*)
Muscaetoxicum. FIG. 1

KEY-CHARACTERS: bulb coated as in the onion, without its odor; leaves basal, broadly linear; flowers in an elongating raceme, the flowers on expanding white, with no glands at base of the segments, then turning green or slightly purplish, enlarging and persisting.

HABITAT AND RANGE: acid peaty or sandy low woods, thickets and bogs, Florida to southern Missouri and Oklahoma, north along the mountains to West Virginia and Pennsylvania and on the coastal plain to Long Island.

FLY-POISON, as its name implies, is deadly to flies, it is known to poison cattle. Recently, a well known botanist, after gathering the bulbs for drug-studies and most scrupulously washing his hands before touching his mouth, has spent some weeks prostrated and in the hospital. The toxic alkaloid in bulb and foliage is not one to treat lightly.

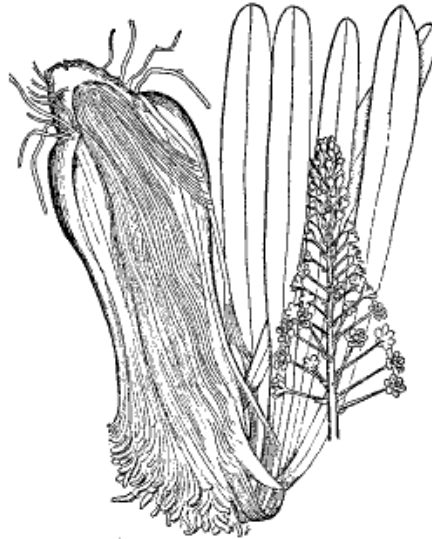


FIG. 1, FLY-POISON, bulbous base folded back (deadly)

DEATH-CAMASS, WHITE CAMASS, POISONOUS CAMASS,
Zigadenus (including *Anticlea*, *Toxicoscordion*
and *Oceanoros*). FIG. 2

KEY-CHARACTERS: bulbous plants with narrow grass-like leaves clustered at base, the racemes or panicles with white, yellowish, greenish or bronze flowers with 6 segments, each segment with a shining spot (gland) at base, the elongate capsule with 3 beaks.

HABITAT AND RANGE: one species or another across the continent from the lower St. Lawrence in Quebec to Alaska, south to our southernmost states. In gravels, rock-crevices, meadow, prairie or sandy and peaty pine-lands.

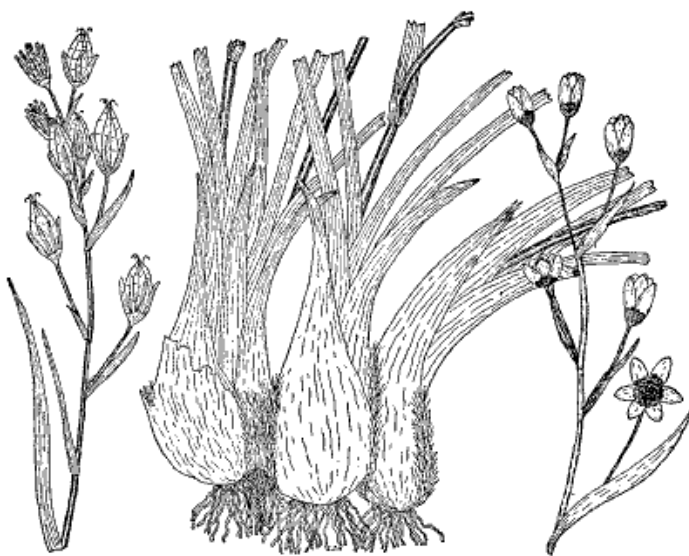


FIG. 2, DEATH-CAMASS, bulbs, with flowers at right, fruit at left (deadly; do not mistake for onion)

The genus *Zigadenus*, which from Virginia southward also has a tall species with stout rootstock instead of a bulb, but marked by the pale perianth with 6 glands at base, must be most scrupulously avoided by the seeker for edible bulbs. Its violently poisonous alkaloid, *zygadenine*, is responsible for the deaths of many grazing animals, statistics showing that in some droves which have been allowed to eat the plant more than half have died from the poison. The bulbs are attractive and look "good." In eastern Quebec, where one species abounds, it is reported to be "a powerful medicine for the guts."



FIG. 3, WATER-HEMLOCK or BEAVER-POISON (deadly, roots smelling and tasting like parsnips)

RANGE: throughout temperate eastern America; related species westward and southward.

The WATER-HEMLOCK is one of the most dangerous of our wild plants because from autumn to spring its roots, resembling dahlia-roots and smelling like parsnips, are by the untrained often mistaken for small, wild parsnips. Many cases of fatal poisoning of children and ignorant laborers who have indulged in these little "parsnips" are recorded. The roots are frequently thrown out of the ground by the action of frost or of water, and everyone who has children or who attempts to eat any wild roots should be thoroughly acquainted with the plant.

BULB-BEARING WATER-HEMLOCK,
Cicuta bulbifera. FIG. 4

KEY-CHARACTERS: plant somewhat resembling carrot or caraway, but with the stem taller; the lower leaves with 3 primary forkings and with numerous, very elongate and slender leaflets; the upper branches and the leaf-axils bearing numerous small bublets; root similar to that of the last species but smaller.

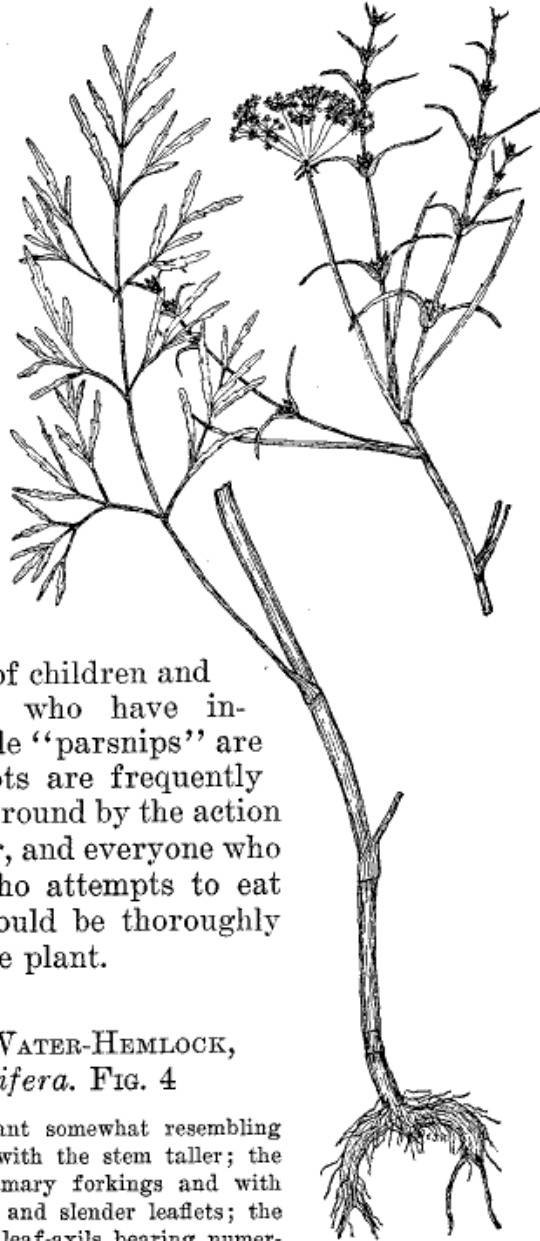


FIG. 4, BULB-BEARING WATER-HEMLOCK (deadly)

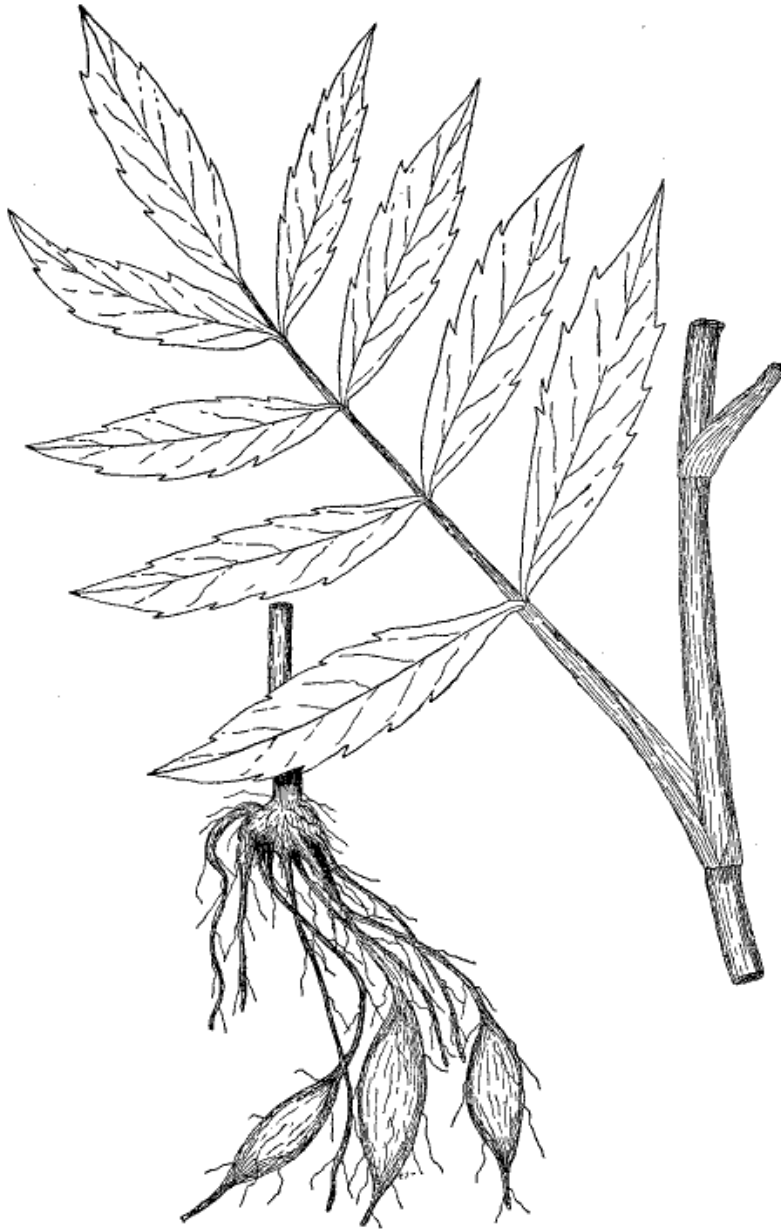


FIG. 5, COWBANE (deadly, roots smelling and tasting like
parsnips)

open-pyramidal inflorescences of greenish flowers with 6 perianth-segments.

HABITAT AND RANGE: meadows, low woods, banks of streams, etc., from eastern Quebec to western Ontario and southward.

INDIAN POKE, on account of its attractive appearance in early spring and its abundance in places where edible new shoots, such as those of Marsh-Marigold, Water-Cress and Skunk-Cabbage abound, should be known to every one, since it is so easy accidentally to include a bit of it in a hastily gathered basket of greens. The plant is violently narcotic, containing poisonous alkaloids, and in a few cases has been demonstrated as the source of death, although ordinarily quick treatment with cardiac and respiratory stimulants is likely to prove beneficial, especially since the poison is spontaneously vomited.

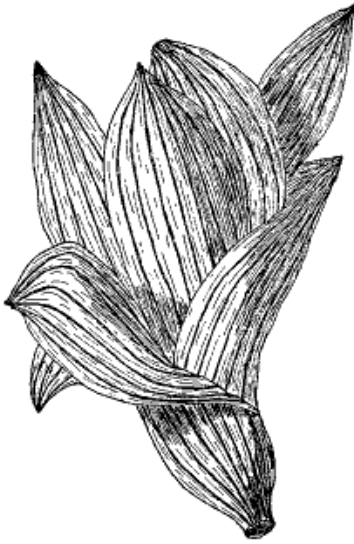


FIG. 6, WHITE HELLEBORE OF INDIAN POKE (violently poisonous, often mistaken for Skunk-Cabbage)



FIG. 7, CELANDINE or SWALLOWWORT (supposed to be poisonous to eat)

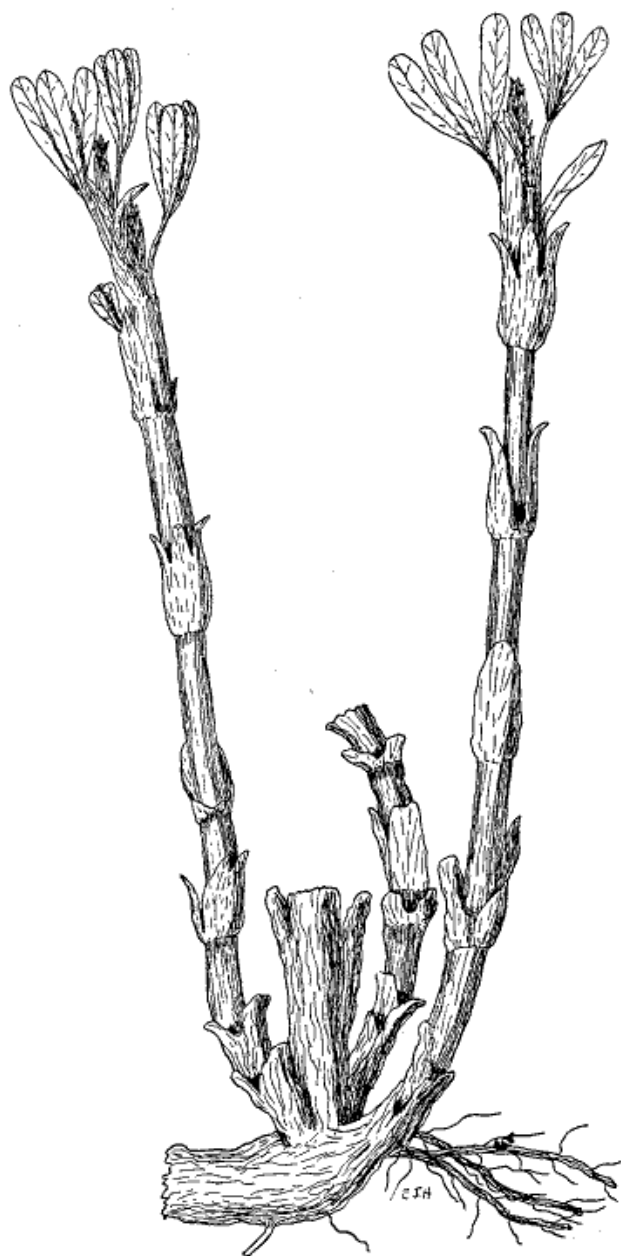


FIG. 8, WILD INDIGO (poisonous to browsing animals. Do not mistake it for asparagus)

ers, it should be kept constantly in mind that the RAW plants are somewhat poisonous, even the common and much cooked *Asclepias syriaca* in the raw condition known to poison stock.

DOGBANES, *Apocynum androsaemifolium* and other species

KEY-CHARACTERS: herbs with cylindric stems having a milky juice similar to that of Milkweed; and opposite, oblong to ovate, nearly sessile leaves; stem soon forking and bearing its bell-shaped flowers in loose, spreading clusters.

HABITAT: thickets, borders of woods and banks of streams.

RANGE: throughout temperate America.

On account of their milky juice and opposite leaves the young sprouts of the DOGBANES might be confused with the sprouts of the Milkweeds; but the young stems are usually tougher, entirely smooth, and quickly forking. The plants are emetic and cathartic and are sometimes held responsible for the poisoning of young cattle and



FIG. 9, FOOL'S PARSLEY (Do not be fooled and mistake it for Parsley; note long, pendulous, slender leaves at tips of rays)

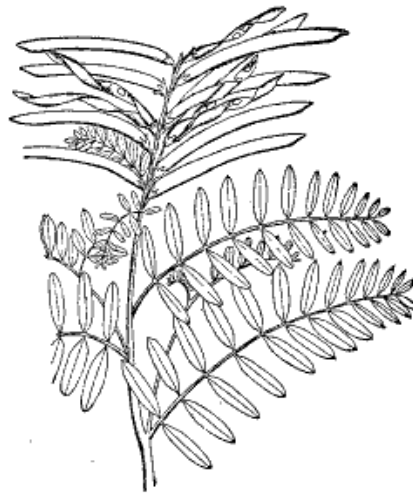


FIG. 10, HOARY PEA, GOAT'S RUE or CAT-GUT (poisonous to stock; juice of related species used as fish-poison)

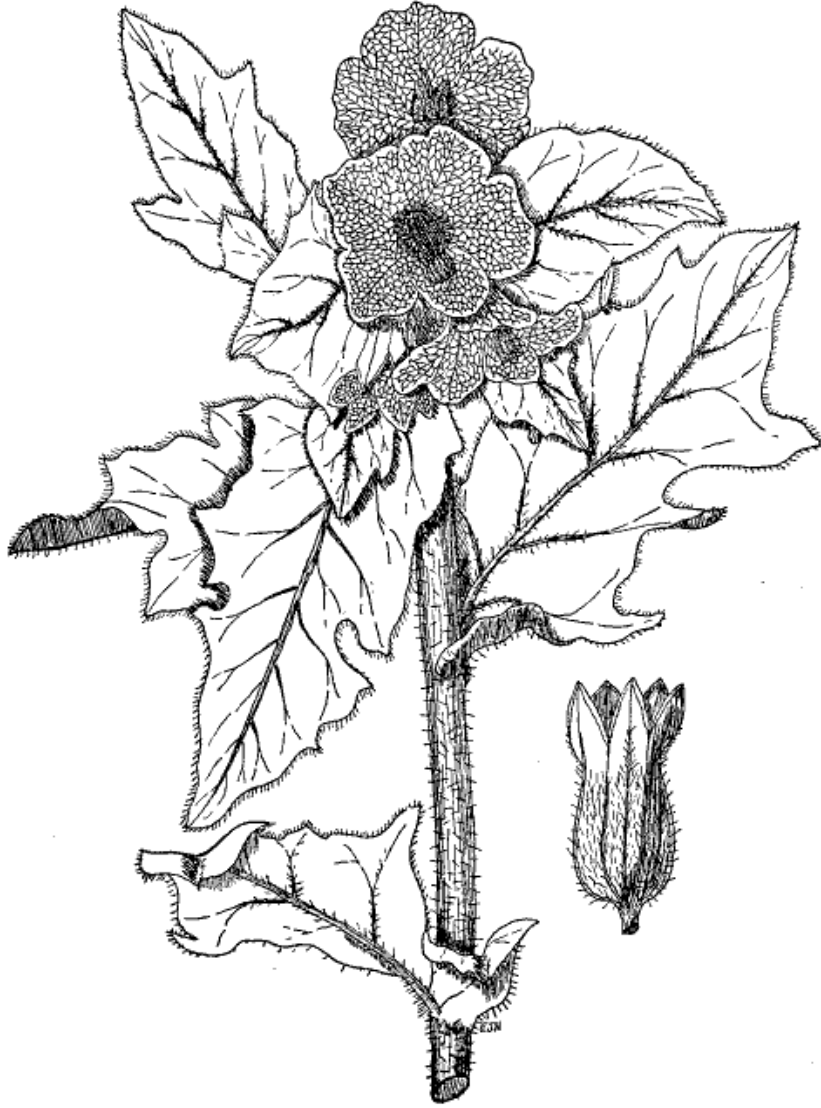


FIG. 11, HENBANE (deadly poisonous to eat; see that children let it alone)

Pride-of-India, China-tree or "Mahogany"	Privet
Buckthorn	Bittersweet
Mezereum	Black-berried Nightshade
English Ivy	Beauty-berry
	Melonette

GROUND-HEMLOCK, *Taxus canadensis*

See p. 77. The pulp of the bright red fruits is edible, but the stone is very poisonous, containing the toxic alkaloid, *taxine*.

MISTLETOE, *Phoradendron flavescens*

The white berries of the American MISTLETOE might prove tempting to children; but it should be known that, in the Southern States several deaths of children have been attributed to the eating of these berries.

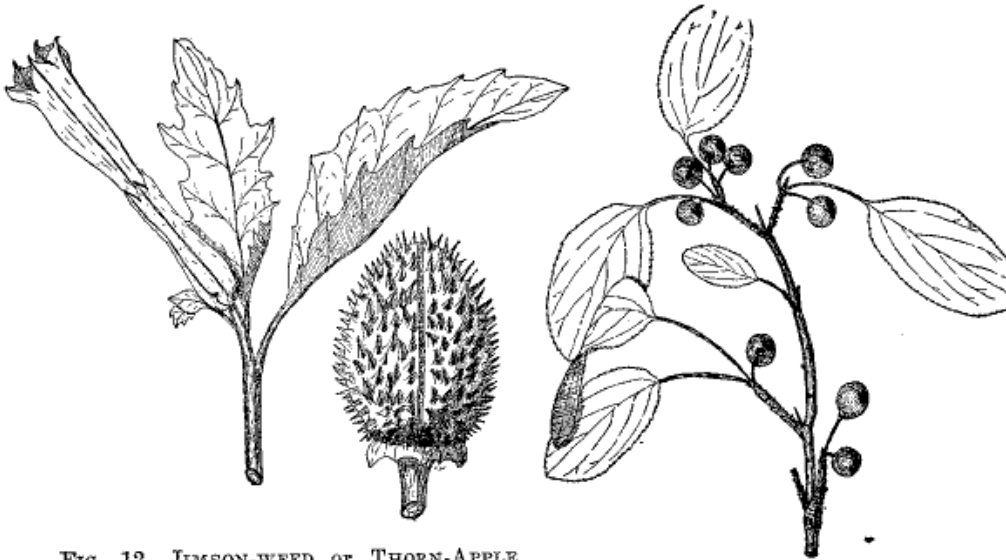


FIG. 12, JIMSON-WEED OR THORN-APPLE
(whole plant deadly to eat. See that children do not eat seeds or suck the flowers)

FIG. 13, BUCKTHORN (black berries
violently cathartic)

(as a substitute for Blueberries!). It should be stated, however, that the berries of this species, like those of the Bittersweet, are harmful to some people and have been demonstrated to poison sheep, goats and other domestic animals. It is wisest, then, to be cautious about eating the berries, and children should be taught to leave them alone.



FIG. 14, BITTERSWEET or NIGHTSHADE (Red or orange berries perhaps poisonous. Do not let children eat them)

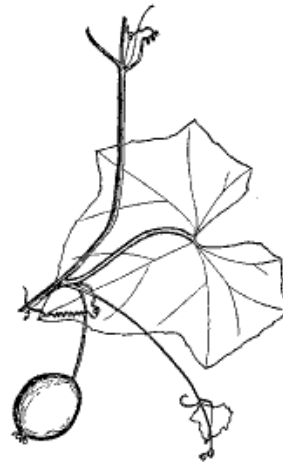


FIG. 15, MELONETTE (blue-black berries violently purgative)

BEAUTY-BERRY or FRENCH MULBERRY, *Callicarpa*

See p. 328. The pinkish, pungent-flavored berries are in the doubtful class.

MELONETTE, *Melotheia pendula*. FIG. 15

See p. 353. The berries are not likely to be eaten twice. They are said to be "a drastic purgative."

When the fronds of Bracken are full-grown and tough they develop toxic principles which sometimes poison grazing animals. No one in his right mind, however, would think of eating old, dry and hard Pasture-Brake any more than he would eat the foliage of his beans, squashes or tomatoes. When young and uncoiling the croziers seem to be wholesome.



FIG. 16, PASTURE-BRAKE or BRACKEN, a little too old for eating



FIG. 17, OSTRICH-FERN. Young croziers, ready to eat, center; portion of old sterile frond, right; portion of old fertile frond, left

OSTRICH-FERN, *Pteretis nodulosa* (*Onoclea Struthiopteris* and *Matteuccia Struthiopteris* of some American botanists). FIG. 17

KEY-CHARACTERS: young fronds forming dense, vase-like clumps borne from a long deep-creeping and freely forking rootstock; the old persistent remnants of last year's fruiting fronds resembling thick, dark-brown feathers, with numerous crowded, ascending, dry, necklace-like rows of rounded lobes; new fronds with stout stalks (*stipes*) bearing brown, papery, quickly deciduous, broad scales and with a feather-like leafy summit.

HABITAT: wet swamps or shallow waters.

RANGE: eastern Quebec to British Columbia, south to the Gulf of Mexico.

SEASON OF AVAILABILITY: late summer and autumn.

LIKELY TO BE CONFUSED WITH: (1) ARROW-ARUM, GREEN ARUM OR TUCKAHOE (*Peltandra*), having arrow-shaped leaves but a stout and deep vertical root, the Arrow-heads having the root fibres springing directly from the base of the tufts of leaves, without a strong deep rootstock. The fruits of the Arrow-Arum are rounded, bean-like seeds in masses within a leathery pouch (spathe). (2) WILD CALLA (*Calla palustris*), with heart-shaped or rounded leaves springing from stout, widely creeping and horizontal rootstocks, and bearing heads of red berries. (3) PICKEREL-WEED (*Pontederia cordata*), with leathery heart-shaped or arrow-shaped blades; the mature plant bearing one heart-shaped leaf high upon the flower-stalk; the flowers blue-purple spotted with yellow and borne in a dense spike; the dry fruits also in a dense spike.

USE: starchy vegetable.

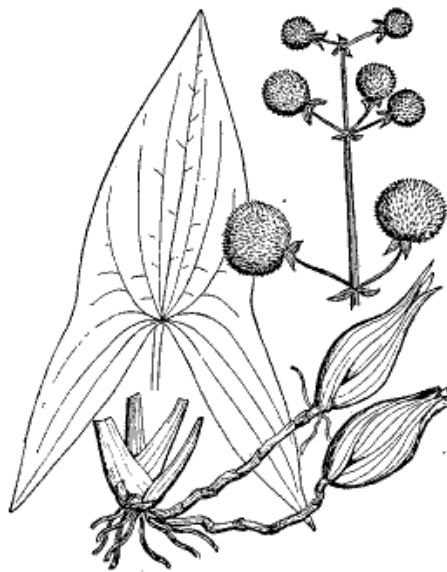


FIG. 18, ARROW-HEAD



FIG. 19, FLOATING
MANNA-GRASS, in-
floreescence and sin-
gle spikelet

All our species of ARROW-HEAD produce late in the autumn hard, potato-like tubers at the ends of long subterranean runners, but those most available as food are, naturally, the larger species, *Sagittaria latifolia* and *S. cuneata* (or *S. arifolia*) and a few others. The tubers



FIG. 20, STRAND-WHEAT or SEA-LYME-GRASS, inflorescence

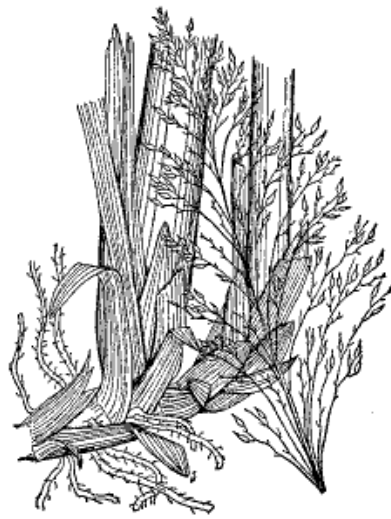


FIG. 21, WATER-MILLET, base and inflorescence



FIG. 22, WILD RICE, inflorescence



FIG. 23, CHUFA

above it, . . . and then they dug up the roots, and consumed them with great avidity. These roots, when prepared in this manner, I am told, taste like potatoes."

Later writers seem to have depended very largely upon Smith's account; but in a manuscript letter preserved at

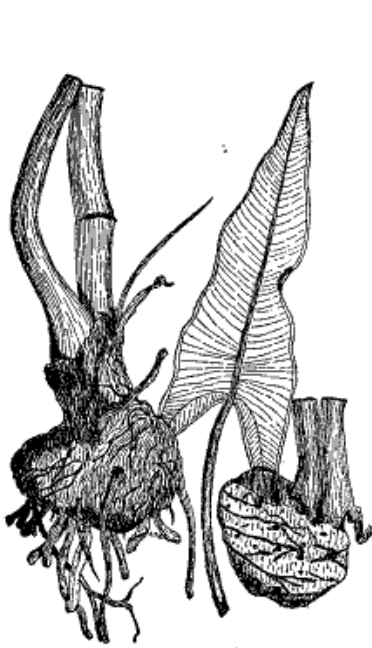


FIG. 24, ARROW-ARUM



FIG. 25, WILD CALLA in fruit

the Gray Herbarium, the late Albert Commons, who during his long life of active botanizing was recognized as the leading field-botanist of Delaware, presents a different story. Mr. Commons states that, although the fresh seeds are slightly acrid, the roots and leaves are not so. This divergence from the account by Smith would indicate that occasionally the roots lack the peppery quality which is generally found in the family. The root contains a large amount of starchy matter and when thoroughly dried it quite lacks the pungent taste. The root should be

clump slightly suggesting a cabbage, the individual leaves having an outline suggesting the familiar burdock leaf, but smooth and moist to the touch; the root often as large as the human fore-arm, perpendicular, and strongly anchored by pale, cord-like fibres.

HABITAT: swampy woods.

RANGE: Quebec to western Ontario, south to Georgia and Missouri.

SEASON OF AVAILABILITY: roots in late autumn and early spring while well filled; leaves in the spring while tender.

USES: breadstuff, potherb.

The roots of the SKUNK-CABBAGE have had repute among the eastern Indians as a source of bread. In re-

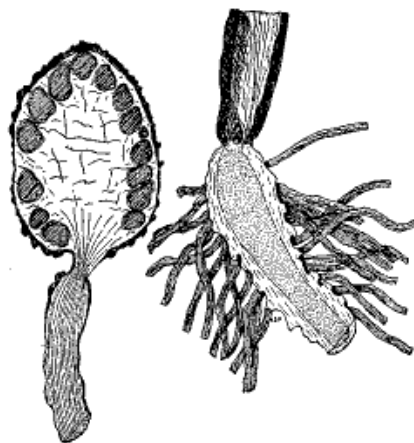


FIG. 26, SKUNK-CABBAGE, fruiting head and root, cut longitudinally



FIG. 29, DAY-FLOWER, *Commelina communis*

gions where the plant thrives the roots are abundant but difficult to dig; and obviously, for many reasons, only an enthusiast will try to secure them. It is probable that drying or baking before final use will dispel the acrid properties, as in *Peltandra* and *Arisaema*, but our own experience shows that three weeks of drying is insufficient to dispel the peppery quality. The bread made from the flour dried for three weeks is palatable, having a sugges-

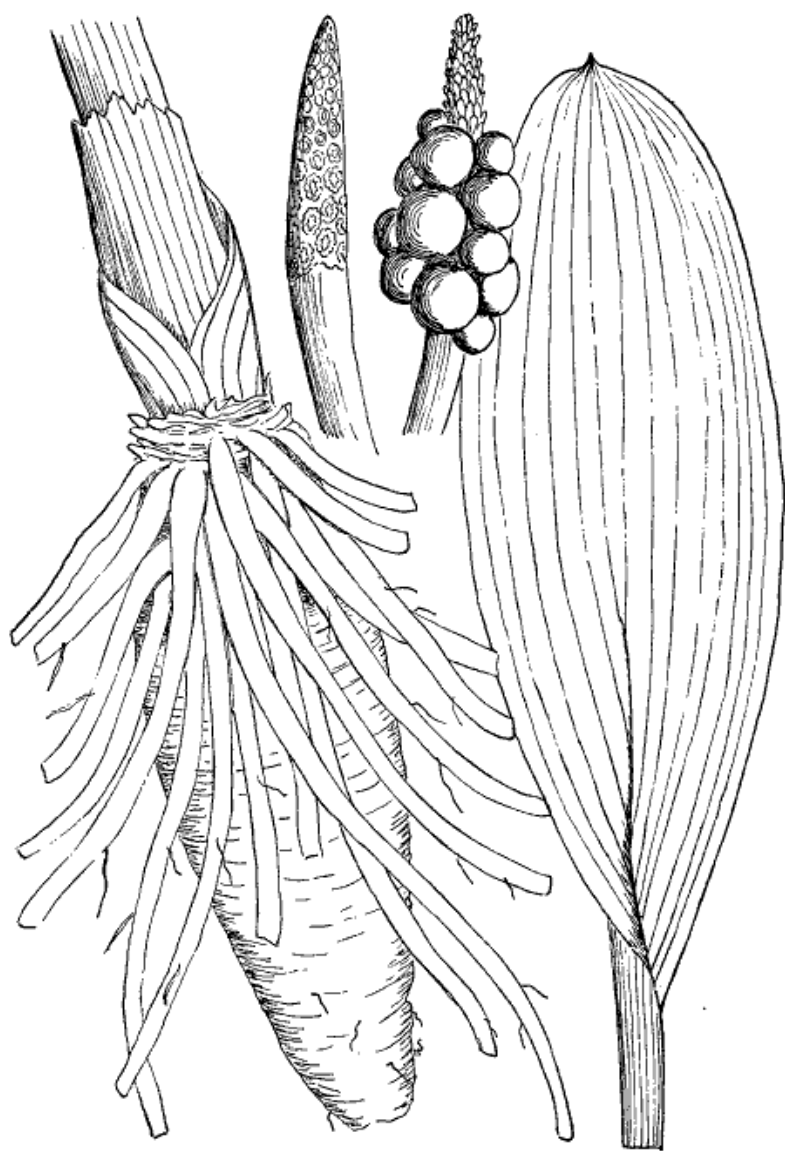


FIG. 27, GOLDEN-CLUB

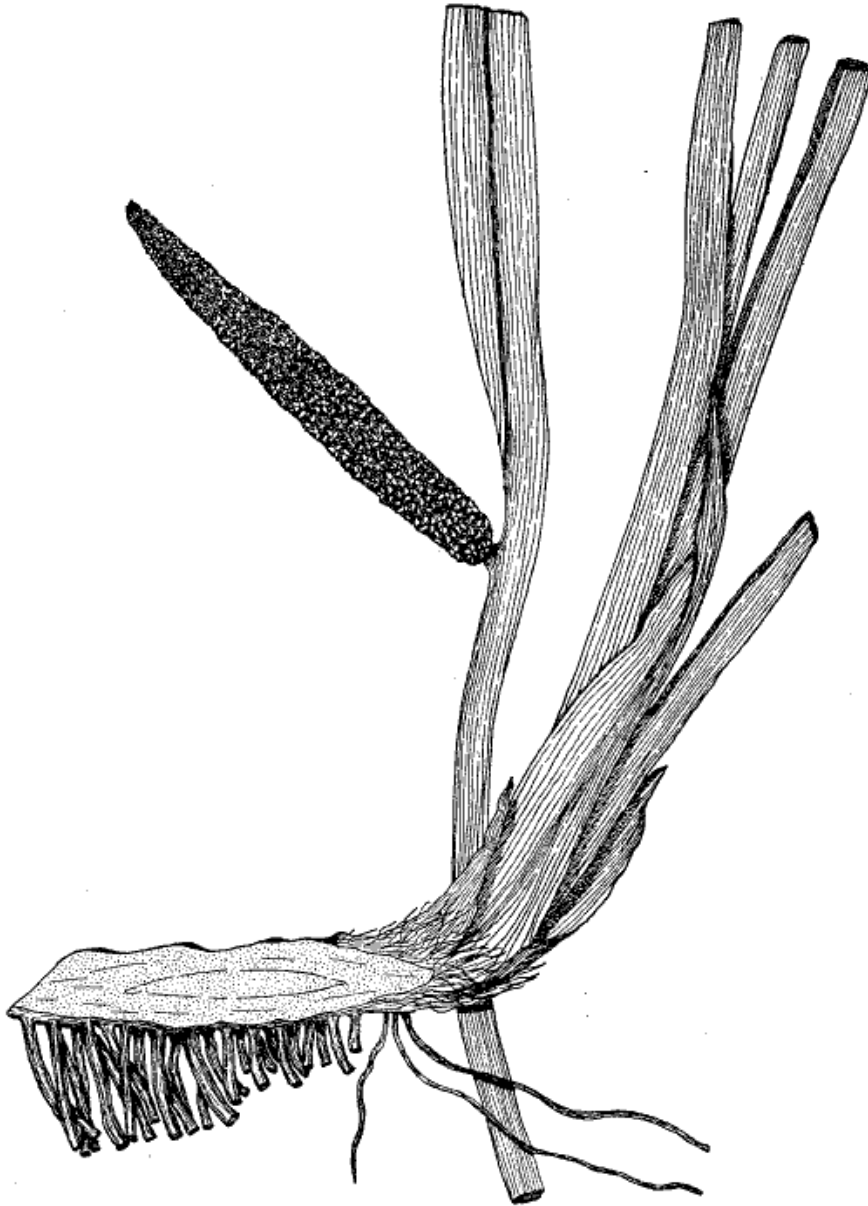


FIG. 28, SWEET FLAG, the root cut longitudinally



FIG. 30, PICKEREL-WEED in fruit; single fruit enlarged

A. tricoccum, the Wild Leek, with flat leaves 1-3 inches broad, in rich or alluvial woods and thickets from New Brunswick to Minnesota and Iowa, south to North Carolina; *A. ceruum*, the Wild Onion, with nodding, loose clusters of pink flowers, from New York to South Carolina and westward; and *A. Schoenoprasum* or *A. sibiricum*, the Chives, with stiffly erect, dense pink heads resembling pink clover, on ledgy or gravelly river-banks of Canada and the northern states.

SEASON OF AVAILABILITY: bulbs, late autumn or early spring; bulblets of Wild Garlic, May or June; young leaves for seasoning, late spring or early summer.

USES: vegetable, seasoning, pickles.

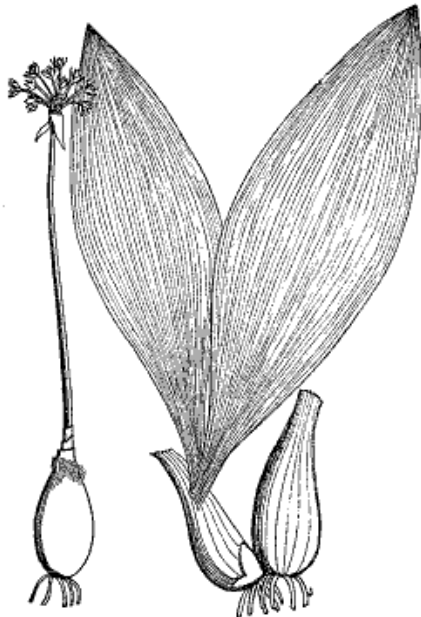


FIG. 31, WILD LEEK



FIG. 32, CORN-LILY

The WILD ONIONS may be used as substitutes for the cultivated species, but the bulbs are usually very small, so that the supply is limited. The bulbs of *A. canadense*, Wild Garlic, are sweet and very palatable, and Porcher and others state that the "top bulbs" are superior to the common onion for pickling. This species treated like leeks is a delicious vegetable; the whole plant, before flowering, merely stripped of the shriveled outer coats of the

with enlarged nodes, but without the large, circular scars. The latter plant is reputed to be poisonous (see p. 45 and FIG. 60).

INDIAN CUCUMBER, CUCUMBER-ROOT, *Medeola virginiana*. FIG. 33

KEY-CHARACTERS: stems solitary, slender and erect, covered with cobwebby hairs, bearing near the summit a circle of 5-7 elongate leaves and often above that a smaller circle of 3 (rarely 4 or 5) leaves, from the axils of which are borne somewhat spider-like flowers with recurving straw-colored petals, the leaves in autumn becoming strongly suffused with purple; berries black or purplish; root a horizontal, white tuber-like rootstock the size of a small thumb.

HABITAT: rich woods.

RANGE: New Brunswick to western Ontario, south to Florida and the Great Lakes states.

SEASON OF AVAILABILITY: throughout spring, summer and autumn.

USES: salad, pickle.

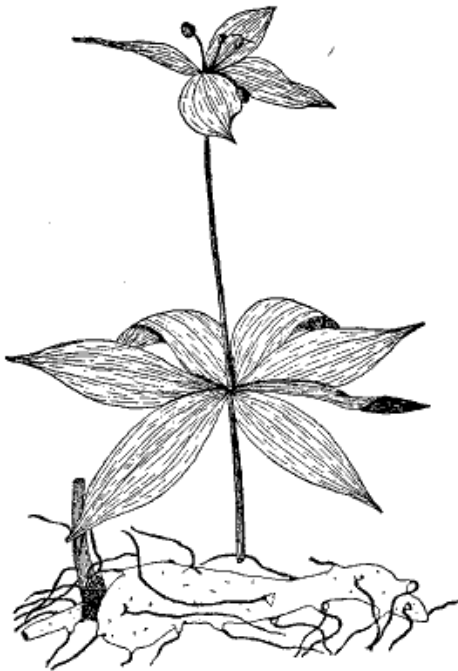


FIG. 33, INDIAN CUCUMBER



FIG. 35, CAT-BRIER



FIG. 34, CARRION-FLOWER

land, climbs high by twining, and has attractive, strongly ribbed, rounded-triangular and long-pointed opposite leaves with small whitish bulb-like tubers borne in the axils. As far north as Pennsylvania it escapes and in waste lots, as about Richmond, Virginia, is often very abundant. Its deep subterranean potato-like tubers are



FIG. 36, CINNAMON-VINE
or CHINESE YAM, flower-
ing sprig and axillary
tubers



FIG. 37, SWEET GALE

said to become 2 or 3 feet long. Cooked like potatoes they are reputed to be excellent. They are extensively cultivated in southeastern Asia and when they were first brought to Europe nearly a century ago Decaisne and other French botanists and agriculturalists, as quoted in *The Gardeners' Chronicle* for July 22, 1854, commended the giant roots as "rich in nutritive matter, eatable when raw, easily cooked either by boiling or roasting . . . in cooking . . . it acquires the taste and quality of a Potato,

BIRCH, river-swamps and lowlands of the South, north to New Jersey (locally to southeastern New Hampshire) and up the Mississippi Valley; the small WHITE or GRAY BIRCH (*B. populifolia*), sterile soils, either wet or dry, Prince Edward Island to Delaware and the Thousand Islands; PAPER- or CANOE-BIRCH (*B. papyrifera*), Labrador to Alaska, south into the northern states and locally to the Carolina mountains.

USES: tea, cooling drink, syrup, sugar, oil of wintergreen, vinegar, bread, beer.

The bark, young buds, leaves and twigs of the SWEET BIRCH and the YELLOW BIRCH contain an aromatic oil which is essentially identical with the oil found in the Checkerberry plant and some others of the Heath family. When not prepared synthetically, "oil of wintergreen" of commerce is extracted from these birches, especially from the Sweet Birch which is the more aromatic of the two. The oil-bearing twigs, leaves, etc., make a pleasant flavoring and the dried leaves, especially of the Yellow Birch, were commended by Michaux and others for tea. The sap is said to make a pleasant drink, and, when boiled down, to furnish sugar. Birch beer, made by fermenting the sap, is made chiefly from Sweet Birch.

The WHITE BIRCHES lack the aromatic oil found in the Sweet Birches, but



FIG. 38, BEAKED HAZEL



FIG. 39, HACKBERRY

nettle is an excellent potherb. The stalks of the old nettle are as good as flax for making cloth. I have heard my mother say, that she thought nettle-cloth more durable than any other species of linen."

The roots of most species are perennial and produce many shoots, so that the plant has been advocated in Scotland as desirable for winter use, the roots brought into



FIG. 40, NETTLE



FIG. 41, BASTARD TOADFLAX

the cellar promptly sending up shoots which are blanched as they come up through the earth or rubbish. The stinging propensities of the Nettle, the result of which Threlkeld naively said "may be felt everywhere," will deter all but the enthusiast from attempting to gather the greens.

Lightfoot, one of the earliest writers on Scotch natural history, says:

"In *Arran*, and other islands, a rennet is made of a strong decoction of nettles: a quart of salt is put to three pints of the

The MOUNTAIN-SORREL, which resembles a miniature rhubarb, with small rounded leaves, has always been highly esteemed in the Arctic regions as a "scurvy-grass", the new growth up to flowering time being eaten raw, when it tastes like a mild rhubarb and is a valuable addition to the diet. Cooked as a green the plant, we have



FIG. 42, MOUNTAIN-SORREL



FIG. 43, BITTER or YELLOW DOCK

found, is quite as good as the French Sorrel, *Rumex Acetosa*, and, like the latter plant, is especially attractive for a thick soup or purée. It is especially desirable as an ingredient of mixed alpine or arctic salads or potherbs, giving a pungent flavor.

The northern peoples have used the plant in still other ways: the Alaskan Indians are said to chop it with peppery cresses, while other tribes allow it to ferment as a sauerkraut. Kjellman tells of the Siberian Eskimo storing the fermented Sorrel for winter use.

“Yet such is the nicety of our times (forsooth) that Women will not put it in the Pot because it makes the Pottage black; Pride and Ignorance (a couple of Monsters in the Creation) preferring Nicety before Health.”

The largest of our Docks, the PATIENCE-DOCK or PATIENCE, *R. Patientia*, was long a popular garden vegetable



FIG. 44, BLUNT-LEAVED DOCK

in Europe and has been occasionally cultivated in this country as one of the “French Sorrels.” The plant is thoroughly naturalized from eastern Maine to Newfoundland, but elsewhere it is less abundant than desirable. From its leaves a delicious purée is prepared.

The American Indians, especially in the West, used the seeds of various Docks in preparing meal; this would seem an eminently practical and sensible use, since the plant is very closely allied to buckwheat and it fruits in

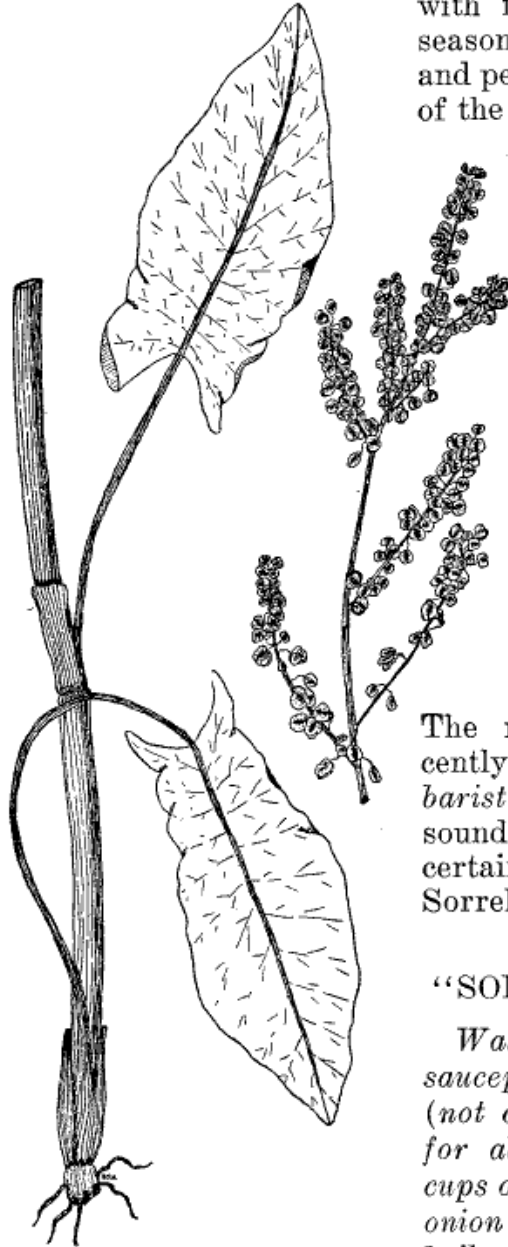


FIG. 45, FRENCH SORREL

with flour and butter, and seasoned to taste with salt and pepper. A small amount of the fresh leaves makes an unusual seasoning for fish, rice, or potatoes, or mixed with other salads.

The acidity is due to the presence of potassium oxalate, which, if eaten in excess, may be detrimental. Ordinary small nibblings of the fresh plant are quite safe and, as everyone knows, refreshing. When boiled the sorrels seem to be harmless.

The recipe below has recently appeared in *The Herbarist* (no. 1, p. 29). It sounds attractive, and it is certainly easy to find the Sorrel.

“SORREL SOUP (for 6)

Wash Sorrel and put in saucepan with a little water (not covered). Cook slowly for about ½ hour. Put 4 cups of milk with small white onion (whole) in double boiler. Add 2 teaspoonfuls

quickly as cayenne pepper. Some species (including the BLACK BINDWEED and CLIMBING FALSE BUCKWHEAT) have mild leaves and seeds, and the seeds of these species have sometimes been used by primitive races for making meal, which has the qualities of buckwheat flour. The grains are hard-shelled and with only a small amount of starchy matter.

ALPINE BISTORT, *Polygonum* (or *Bistorta*) *viviparum*.

FIG. 46

USES: nut-like vegetable.

A small perennial abundant in Arctic regions, and extending south to Newfoundland and to the mountains of



FIG. 46, ALPINE BISTORT



FIG. 47, JAPANESE KNOTWEED

New England and Colorado, with a thick tuber-like rootstock, which is in great demand among northern peoples for the almond-flavored nibble it furnishes. Kjellman states that by the natives of northeastern Siberia these roots are eaten as we would eat nuts and raisins; and the

spinach could be used, the family enjoyed the abundant Pigweed, and under the sophisticated name "spinach," presented pans of it to the local residents, who returned with the suggestion that if the crop was abundant they would like another mess, little guessing that they had been enjoying despised Pigweed, which grew even more lux-



FIG. 48, MEXICAN TEA



FIG. 51, SEA-BLITE

uriantly in their own barnyards. In cooking, Pigweed reduces considerably in bulk and it is necessary to gather two or three times the bulk that is wanted when cooked. The fresh leaves readily shed water but, as soon as steamed, lose this peculiarity. The boiled Pigweed is a comparatively dry potherb and it is particularly good if mixed with Dock-greens which are unusually wet or mucilaginous.

The seeds of the Pigweeds can be gathered in great quantities and they were largely used by the American Indians as a source of bread or in gruel. They are very hard and slippery, inclined to jump and bounce while be-

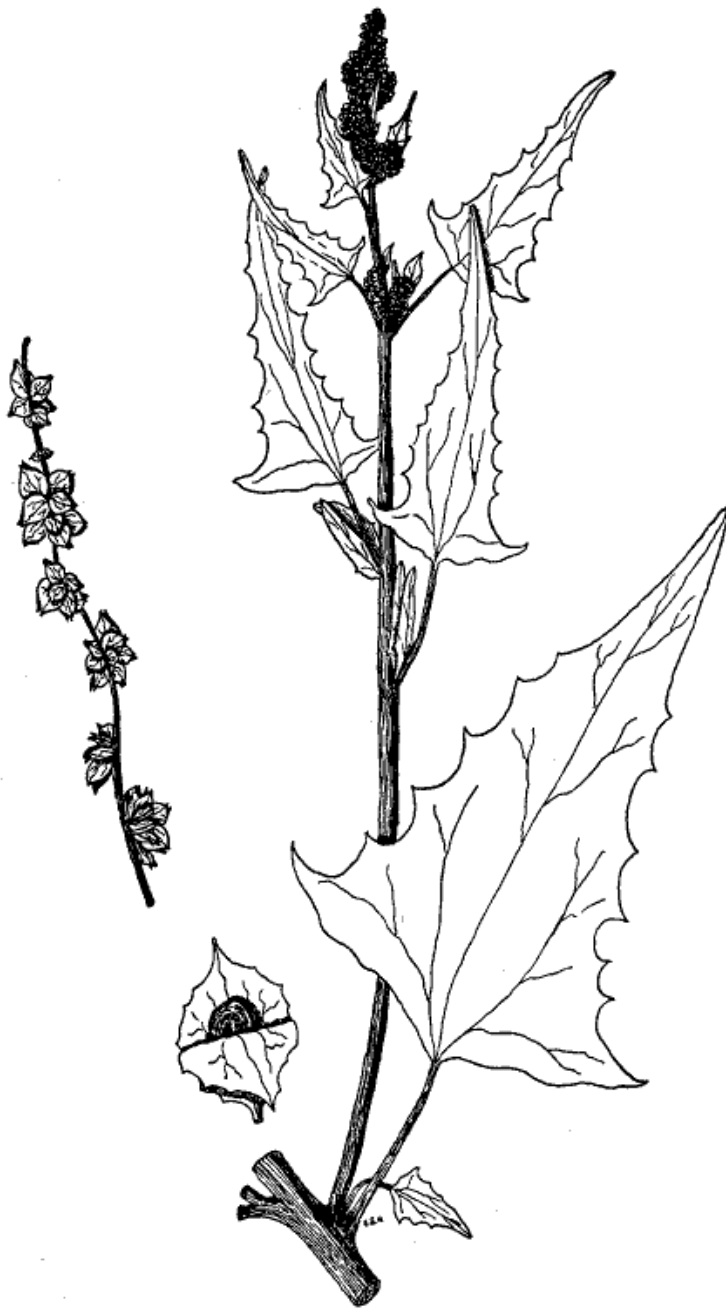


FIG. 49, ORACH, with fruiting branch and enlarged single fruit at left

potherb; but it is there raised chiefly for its abundant seeds, used by themselves or in bread, and for the dried bushy-branched plant for brooms—essential for clearing up after a meal.

“SAMPHIRE,” GLASSWORT, CHICKEN-CLAWS, *Salicornia* (various species). FIG. 50

KEY-CHARACTERS: fleshy herbs of the salt marshes and sea-strands, with leafless, conspicuously jointed, juicy stems bearing inconspicuous flowers hidden under closely appressed scales; plants bright green in summer, becoming red in autumn.

HABITAT AND RANGE: three species: one a tough-stemmed perennial of sea-shores from Massachusetts southward (*S. ambigua*); the others annual, with soft stems usually branching from near the base, *S. europaea* and *S. Bigelovii* (or *mucronata*), occurring northward to the Maritime Provinces or Newfoundland, chiefly on salt marshes.

SEASON OF AVAILABILITY: summer and early autumn.

USES: pickles and salad.

The name “SAMPHIRE” is in colloquial use in America for these plants, but they should not be confused with the

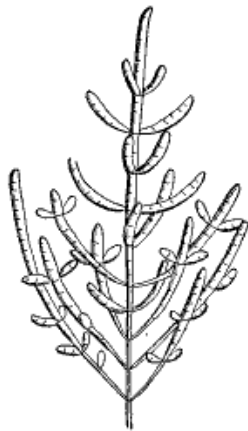


FIG. 50, “SAMPHIRE”
OR CHICKEN-CLAWS



FIG. 52, GREEN AMARANTH

ipecac, and that the handsome, purple bark or rind of the mature stem, late in the season, is also poisonous. The young shoots do not have this purple coloring and are a perfectly wholesome and palatable vegetable. In cooking, however, it is a wise precaution to boil in two waters, throwing off the first water in order to dispose of any possible extract from the developing bark. One boiling



FIG. 53, POKEWEED, young sprouts ready to gather



FIG. 54, POKEWEED, fruiting top

is sufficient if only young sprouts are used. In the South the young shoots are made into pickles, very highly recommended.

One of the most practical uses of Pokeweed is as a winter vegetable or substitute for asparagus, since large roots of the plant supply a phenomenally continuous crop of sprouts. In our experience we have found that twenty medium-sized roots (3 or 4 inches across) dug after the first heavy freezes of the autumn and chopped off to a length of 5 or 6 inches, then planted in a deep box of earth in a dark cellar, supply a family of six for three months with a weekly mess of "asparagus." The crowns bear a

CHICKWEED, *Stellaria* (or *Alsine*) *media*

USE: potherb.

The common CHICKWEED of gardens and damp, shaded dooryards is not to be despised as a mere weed, for many European authors are enthusiastic in their praises of it as a substitute for spinach. Thus Mrs. Lankester went so far as to say: "When boiled, it forms an excellent green vegetable resembling spinach in flavour, and is very wholesome." Others speak of it as having little taste (as we have found out), but as being a good padding to add bulk to other spinaches. Only the young, vigorously growing tips should be used, since the older bases of the plant become stringy in age.

MOUSE-EAR CHICKWEED, *Cerastium semidecandrum*

USE: potherb.

The MOUSE-EAR CHICKWEEDS are chiefly weeds of cultivated land, and differ from the true Chickweeds in



FIG. 55, CARPET-WEED or INDIAN CHICKWEED

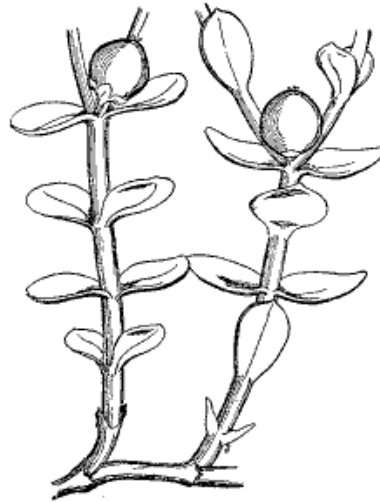


FIG. 56, SEA-PURSLANE or SEABEACH SANDWORT

PLATE II



Photo. by J. F. Collins

SEA-PURSLANE OF SEABEACH SANDWORT
Forming carpets on sea-beaches

PLATE III



ALPINE CRESS

Photo. by J. F. Collins



FIG. 57, BLADDER-CAMPION

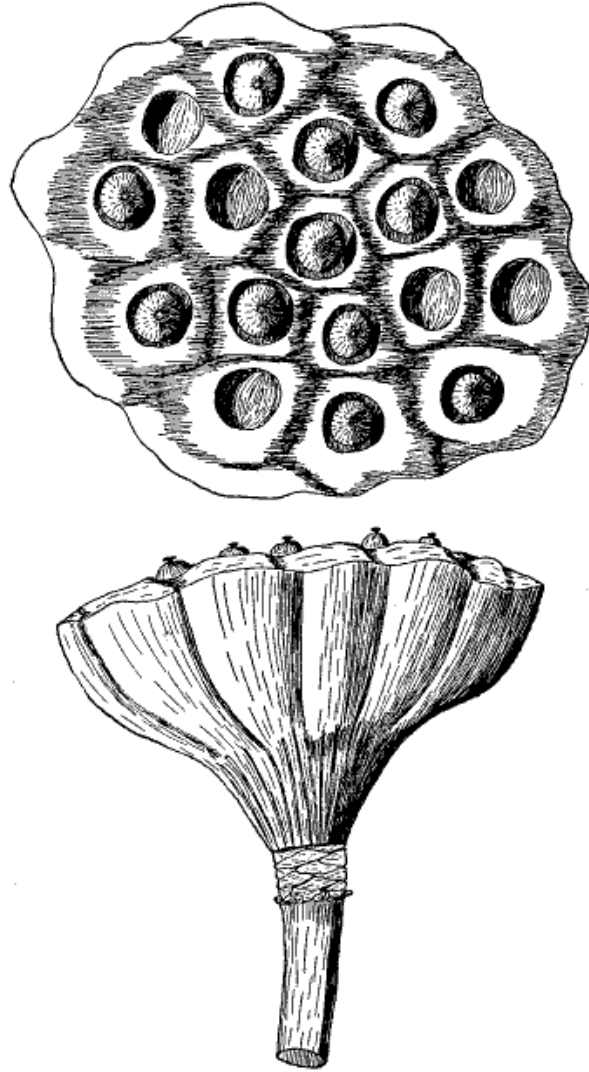


FIG. 58, WATER-CHINQUAPIN, fruits

The young leaf-stalks and unrolling leaves are said to form a palatable potherb.

The Omaha Indians are reported to gather the seeds in winter when the ice is firm. They also dry the tubers for winter use.

be taken to include none of the poisonous species which occur in the same habitat, for the rich meadows where Marsh-Marigold abounds are the homes of the WHITE HELLEBORE, *Veratrum viride* (see p. 50) and some of the deadly poisonous WATER-HEMLOCKS, *Cicuta* (see pp. 45-47), all of which, with ordinary care, are easily distinguished. The new leaves and stems of the Marsh-Mari-

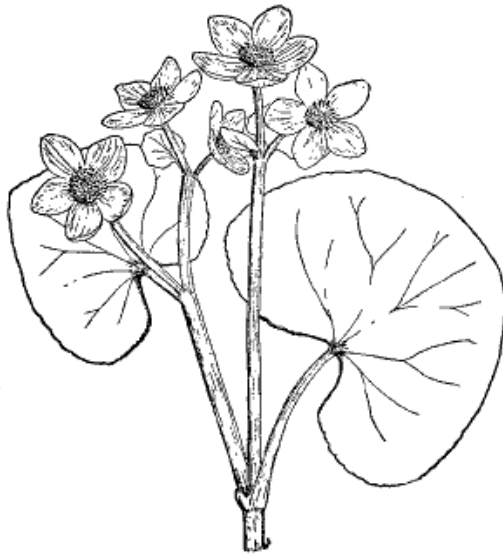


FIG. 59, MARSH-MARIGOLD



FIG. 61, SPICE-BUSH

gold should be carefully picked over to exclude the stipules and mucilaginous bases, then boiled thoroughly for an hour or more, changing the water at least once and, if a mild potherb is desired, twice, since the first water extracts only part of the acrid principle which pervades the plant.

It is singular that the Europeans have so regularly looked upon the Marsh-Marigold as poisonous. Thus we find Johnson saying, "Turner, the old herbalist, recommends it for the toothache, but I would not advise anyone



FIG. 60, MAY-APPLE

country. They are palatable and said to be important as a preventive of scurvy.

MUSTARD FAMILY (*Cruciferae*)

To this family belong many of the cultivated vegetables; the so-called brassicaceous crops (turnips, cauliflower, Brussels-sprouts, cabbage, etc.), the mustards, radish and various cresses. Practically all the members of the group have qualities suggestive of the crops, but the following are the most important of the wild species to use as food.



FIG. 62, PENNY-CRESS



FIG. 63, WILD PEPPERGRASS

PENNY-CRESS, MITHRIDATE-MUSTARD, *Thlaspi arvense*.

FIG. 62

KEY-CHARACTERS: a common annual weed with oblong, pale leaves along the stem; white flowers with 4 petals a third of an inch long, and deeply notched flat, roundish many-seeded pods about half an inch long, these in simple elongate clusters, each pod on a slender, spreading stalk and, when

SEASON OF AVAILABILITY: throughout the open season, while the leaves and stems are tender.

USES: salad, potherb.

SCURVY-GRASS has very palatable, crisp foliage and forms one of the most agreeable of salads, suggesting water-cress. It is an important addition to the diet of northern peoples, and in the early days of navigation was much sought as a preventive of scurvy. Bryant says that "the best way of eating them [the leaves] is between bread and butter."

SEA-ROCKET, *Cakile edentula*. FIG. 65

KEY-CHARACTERS: a succulent-stemmed and fleshy-leaved annual of sea-strands, with the fleshy, somewhat wedge-shaped leaves wavy-margined; the flowers lavender, with 2 pairs of opposite petals; the seed-pods plump, consisting of 2 joints, the upper joint beaked.

HABITAT: sandy and gravelly seashores and lake-strands.

RANGE: Atlantic coast, northward to southern Labrador, and locally on the strands of the Great Lakes.



FIG. 64, SCURVY-GRASS



FIG. 66, WATER-CRESS

century later, said: "The poor people in the country [England] eat the leaves of this plant with their bread, and on account of the relish they give, call them *Sauce-alone*. They also mix them with Lettuce, use them as a stuffing herb to pork, and eat them with salt-fish."

AMPHIBIOUS YELLOW CRESS, *Rorippa amphibia*

USES: salad and potherb.

This coarse perennial species, with elongate rooting branches and entire or shallowly toothed to jagged ob-lanceolate leaves, small yellow flowers and ellipsoid pods, is naturalized in wet places in Quebec, New England and New York. In Europe and Asia the young shoots are eaten either raw or cooked. Doubtless other species could be similarly used.



FIG. 65, SEA-ROCKET



FIG. 68, two species of CRINKLE-ROOT

HABITAT: damp fields, roadsides and rich, rocky banks, often a too abundant weed.

RANGE: eastern Quebec to Maryland and Wisconsin.

SEASON OF AVAILABILITY: as salad and potherb, late spring and early summer; tubers, spring to midsummer, again in autumn.

USES: salad, potherb, pickle.



FIG. 70, ALPINE CRESS

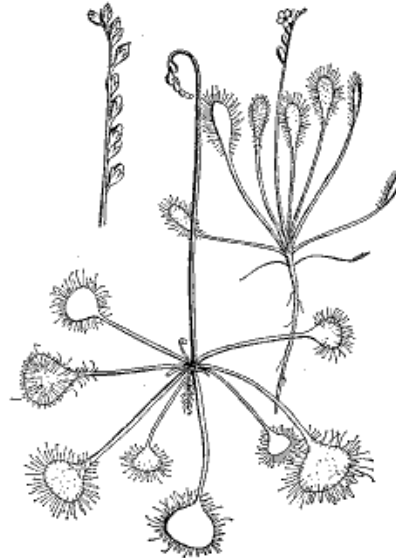


FIG. 71, two species of SUNDEW

LIVE-FOREVER or FROG-PLANT is familiar to most children in regions where it occurs on account of the readily loosened epidermis of the leaf, loosened by holding the leaf between the tongue and the roof of the mouth; after which, by blowing into the opening, the loosened epidermis may be distended like a frog's throat. It is, therefore, surprising how few people are familiar with the delicious quality of the tender, young leaves and stems as a salad. If the plant is to be used as salad, it should be gathered very young, but as a potherb (of indifferent quality) it may be used until July. The rounded or finger-like tuberous roots are crisp and succulent and after some days pickling in a salted vinegar, best put on the tubers while

boiling hot, they form a tasty relish. After midsummer the tubers become stringy and tough, but again in late autumn crisp tubers may be found. They often occur in enormous masses and then furnish an abundant and easily obtained food.

ROSEROOT, SCURVY-GRASS, *Sedum Rosea* (*Rhodiola Rosea*).

FIG. 72

KEY-CHARACTERS: a tufted, succulent plant, with a large rough root which, when bruised, gives off a fragrance like attar-of-roses; stems 6-10 inches high, with crowded, fleshy, pinkish- or whitish-green, oblong, toothed leaves; flowers pale-yellow, in a dense terminal cluster, followed by reddish or purplish, 4- or 5-pronged capsules.

HABITAT AND RANGE: ledges, rocky banks and cliffs, especially near the sea, rarely inland, abundant in the polar region and southward, especially on the coast of Labrador, frequent on the coast of Newfoundland, local on the outer coast of Maine, as far southwest as Monhegan Island, rare southward to northeastern Pennsylvania and the Carolina Mountains.

SEASON OF AVAILABILITY: early summer to autumn.

USES: salad, potherb.



FIG. 72, ROSE-ROOT



FIG. 73, SWAMP-SAXIFRAGE

do not fruit heavily or the fruits are distorted and spoiled by fungous diseases and insects; in other regions, however, the berries are abundant and should become well known. To the European taste the berries are best when made into puddings or pies, the thoroughly cooked seeds giving a flavor suggesting sweet cherry pie. The berries, especially if cooked first, are splendid for berry-muffins, yielding a rich almond flavor.

By the Indians the fruit was much used in the making of bread, being gathered in large quantities, beaten into a paste and then dried in cakes. This dried fruit was afterward mixed with the corn-meal or the pemican and, according to northern travellers, Sir John Richardson, Bourgeau, and others, the dried berries were used in puddings, for which use they "nearly equal Zante currants."



FIG. 74, CHOKEBERRY

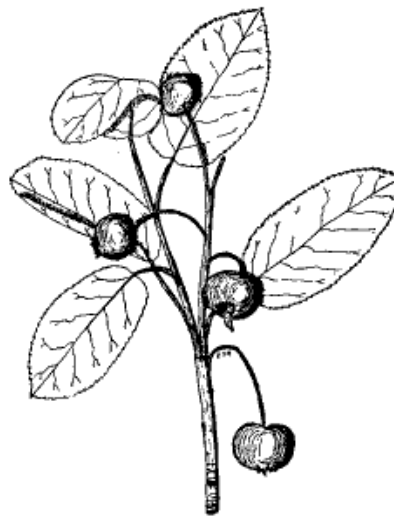


FIG. 75, SERVICE-BERRY

PURPLE AVENS, WATER-AVENS, CHOCOLATE-ROOT, *Geum rivale*. FIG. 76

KEY-CHARACTERS: erect herb, with slender but stiffish, purplish stems 1 or 2 feet high; the basal leaves coarsely divided, pinnate; the stem terminated by nodding flowers, with purple, triangular sepals $\frac{1}{2}$ inch long, and buff to cream-colored veiny, wedge-shaped petals a little longer; the fruit a bristly head $\frac{3}{4}$ inch in diameter.

HABITAT and RANGE: meadows and boggy spots throughout Canada and the northern states.

SEASON OF AVAILABILITY: throughout the year, but probably best in autumn or early spring.

USE: chocolate-substitute.



FIG. 76, PURPLE AVENS

Mrs. H. K. Morrell, writing upon edible wild plants of Maine, states that the "root when boiled makes a drink like chocolate" and Prest, writing from Nova Scotia, makes a similar statement, adding that, although the drink has a chocolate-taste, it is astringent, with a slight addition of acid. The root should be well boiled and sugar added. In our

own experiments we have as yet found no reason to be enthusiastic about this drink. If, however, the root were used in the fashion of the 16th century, there might be enthusiasm about it; for Parkinson tells us that

"Some use in the Spring time to put the roote to steepe for a time in wine, which giveth unto it a delicate flavour and taste,

for an elongate Blackberry, sometimes for the Black Raspberry, but the famous Thimbleberry of the upper Great Lakes region, from Lake Huron in Ontario and Michigan to the Lake Superior region of Minnesota, is a very different plant, *Rubus parviflorus*, a handsome shrub, with large leaves resembling glorified maple-leaves, large flowers like single white roses and big juicy and luscious berries.

The leaves of Blackberries and Raspberries are sometimes used as substitutes for tea; and the young, tender sprouts, when peeled, make a pleasant nibble. Cheney states, however, that the tea from leaves of Black Raspberry, *Rubus occidentalis*, may be physiologically harmful.



FIG. 77, CLOUDBERRY or
BAKED-APPLE BERRY (left)
and PLUMBOY (right)



FIG. 78, BROOM

BURNET, *Sanguisorba* (various species)

USE: salad.

The Old World *Sanguisorba minor* once had a period of popularity as a salad, the young leaves said to taste like cucumber. This species is casually introduced into



FIG. 79, PRAIRIE-TURNIP

TUBEROUS VETCH, EARTH-NUT, *Lathyrus tuberosus*

USE: tubers.

TUBEROUS VETCH is a European species beginning to appear as an introduced plant in America. In Europe the tubers are gathered from the wild plant, or in some cases the plant is cultivated for them. Bryant stated that: "This plant, though a weed in France, is cultivated in Holland for the roots, which are carried to the markets there for sale. They have an agreeable pleasant taste, much resembling that of the Sweet Chestnut."



FIG. 80, LICORICE-ROOT



FIG. 81, BEACH-PEA

BEACH-PEA, *Lathyrus japonicus* or *maritimus*. FIG. 81

USES: young peas, salad.

The tender young seeds of the BEACH-PEA used like green peas are a tolerable vegetable, although the peas



FIG. 82, GROUNDNUT

flowers pea-like, whitish or lilac, in axillary clusters, succeeded by small bean-pods; producing from the lower axils slender runners which bear round, somewhat flattened, bean-like fruits $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter.

HABITAT: rich, moist thickets and woods, especially near streams.

RANGE: New Brunswick to Manitoba, south to the Gulf States.

SEASON OF AVAILABILITY: late autumn and early spring.

USE: subterranean fruits like shelled beans.



FIG. 83, HOG-PEANUT



FIG. 84, CROW-BERRY

The subterranean fruits of the HOG-PEANUT were well known to the Indians, particularly of the Central States; and, when boiled and properly seasoned with salt and pepper and dressed with butter or cream, they are not unlike the shelled beans of the garden, though of a rather dry quality. The "skin" or shell of the 1-seeded subterranean pod is somewhat leathery, but cracks off in boiling. The fruit is sufficiently abundant to repay the time spent in digging, especially when one is camping in the autumn and time is not highly valued. Voles or field-mice gather the fruit in quantities and their nests often contain several quarts of the beans. The canny Indian procedure was to depend upon these stores but, although it

from them mildly stimulating. *I. vomitoria* is a stiffly branched shrub or small tree with close whitish-gray bark and small, leathery and evergreen bluntly scalloped leaves, and black, seedy berries along the branchlets. Every one in the Southeast knows it. The leaves are not simply harvested and brewed; if they were they would make an unpalatable drink, with strong herby taste. They must, like oriental tea-leaves, be properly prepared. Here are Porcher's directions, based in part on the preparation of the related South American MATÉ or PARAGUAY TEA, *Ilex paraguayensis*:

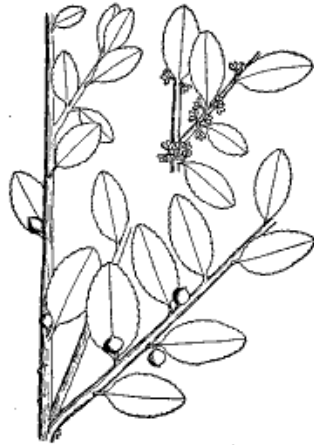


FIG. 85, CASSINA or YAU-PON



FIG. 86, GALLBERRY or INKBERRY

“It can be gathered during the whole year. It is collected in the woods—‘a process of kiln-drying is resorted to upon the spot, and afterward the branches and leaves are transported to some crude mill and powdered in mortars. The substance, after this operation, is almost a powder, though small stems, denuded of their bark, are always permitted to remain.’ A small quantity of the leaf, either with or without sugar, is placed in a common bowl, upon which cold water is poured; after standing a short time, boiling water is added, and it is at once ready for use. It must be imbibed through a tube on account of the particles of

The very similar *C. ovatus*, with leaves narrower and more elliptical, has presumably similar properties.

VINE FAMILY (*Vitaceae*)

GRAPES, *Vitis* (a dozen species)

USES: jelly, marmalade, preserves, cold drink, the smaller and more acid fruits as masticatories.

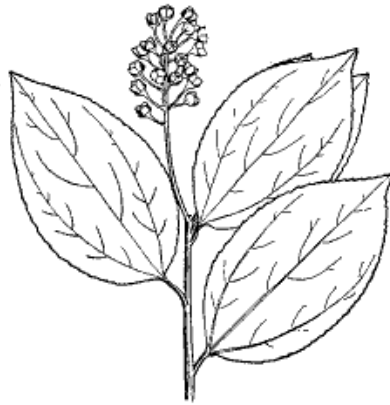


FIG. 87, NEW JERSEY TEA



FIG. 89, RIVER-BEAUTY

The various WILD GRAPES which occur from New Brunswick westward and southward are too well known to need special definition, and their fruits are in large demand for the making of jellies, marmalades and preserves. The best species northward is undoubtedly the FOX GRAPE, *V. Labrusca*, with large fruits, but some of the other northern species have fruits which, though small, are highly valued in the making of jelly. Of some of the sweeter-fruited species the Indians formerly gathered a great store, drying the fruit for winter use. South-



FIG. 88, DEERGRASS

at just the right stage of development, which has to be learned by experience in each locality, and cooked in two waters, it has a taste similar to that of salsify or oyster-plant, or some say like parsnip.

European authors state that the roots are used as salad, but the roots of our ordinary wild plants need cooking. It has also been stated that the young sprouts make a good salad but in our own experience they are altogether too puckery.



FIG. 90, EVENING-PRIMROSE

WATER-CHESTNUT FAMILY (*Trapa*ceae)

WATER-CHESTNUT, WATER-CALTROP, *Trapa natans*

USES: nut, flour, cooked vegetable, confection.

The WATER-CHESTNUT, which has been introduced at a few points in the eastern United States and which is now somewhat naturalized, often crowding out other plants, in ponds and slow streams, has the submersed leaves divided into thread-like segments but the floating leaves forming a rosette on the surface of the water, with coarsely toothed, rounded blades and inflated leaf-stalks. The nuts are an inch or two broad and usually armed with four strong spines. The seed inside has sometimes been used in Europe and Asia to make a coarse flour or as a coarse, roasted vegetable. It is said by Paillieux, how-

make jelly with berries of Life-of-Man, a great favorite."

The closely similar *Aralia cordata* of Japan is there very important. Seeds are sown in any unused and fertile corner. When the plants are three or four years old the roots are covered with soil or litter and the blanched new stems, like asparagus, are harvested and sold in the market. "Stewed and served with sauce . . . an agreeable and palatable dish." Our common Spikenard has great possibilities.



FIG. 91, SPIKENARD; root cut longitudinally and showing pockets of nutrition



FIG. 92, DWARF GINSENG

WILD SARSAPARILLA, *Aralia nudicaulis*

USES: ingredient in root-beer, emergency-food.

The long rootstock of the common WILD SARSAPARILLA of dry woods is often used as an ingredient of root-beer. We

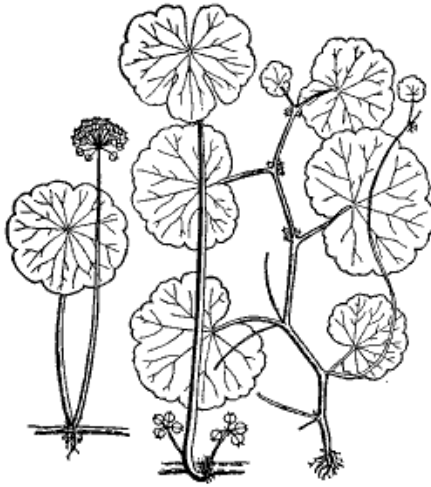


FIG. 93, three species of WATER-PEN-
NYWORT



FIG. 94, CENTELLA



FIG. 95, SWEET CICELY



FIG. 96, HONEWORT



FIG. 97, CARAWAY

who are perfectly familiar with the plant but unsafe for those uncertain of its identity. The seeds are familiar seasoning, either in cookies and bread or sometimes with cheese or, after the German method, mixed with ginger, salt and butter and spread on bread. But the other uses are less familiar in America.

The tender, new leaves are highly recommended by European writers as a salad, while the slightly more mature foliage is said to make a good potherb (presumably by cooking in two waters). The plant, like the carrot or parsnip, is a biennial, making a vigorous tuft of leaves and a well-filled root the first year; and upon the authority of the seventeenth century apothecary, John Parkinson,

“the roote thereof is better foode then of the Parsnep, and is pleasant and comfortable to the stomacke helping digestion.” Parkinson further informs us that “the seede is conducing to all the cold greefes both of the head and stomacke; . . . the seede is much used in Bread, Cakes, &c. to give a relish and warming qualitie to

PLATE IV



WATER-PARSNIP

PLATE V



FENNEL

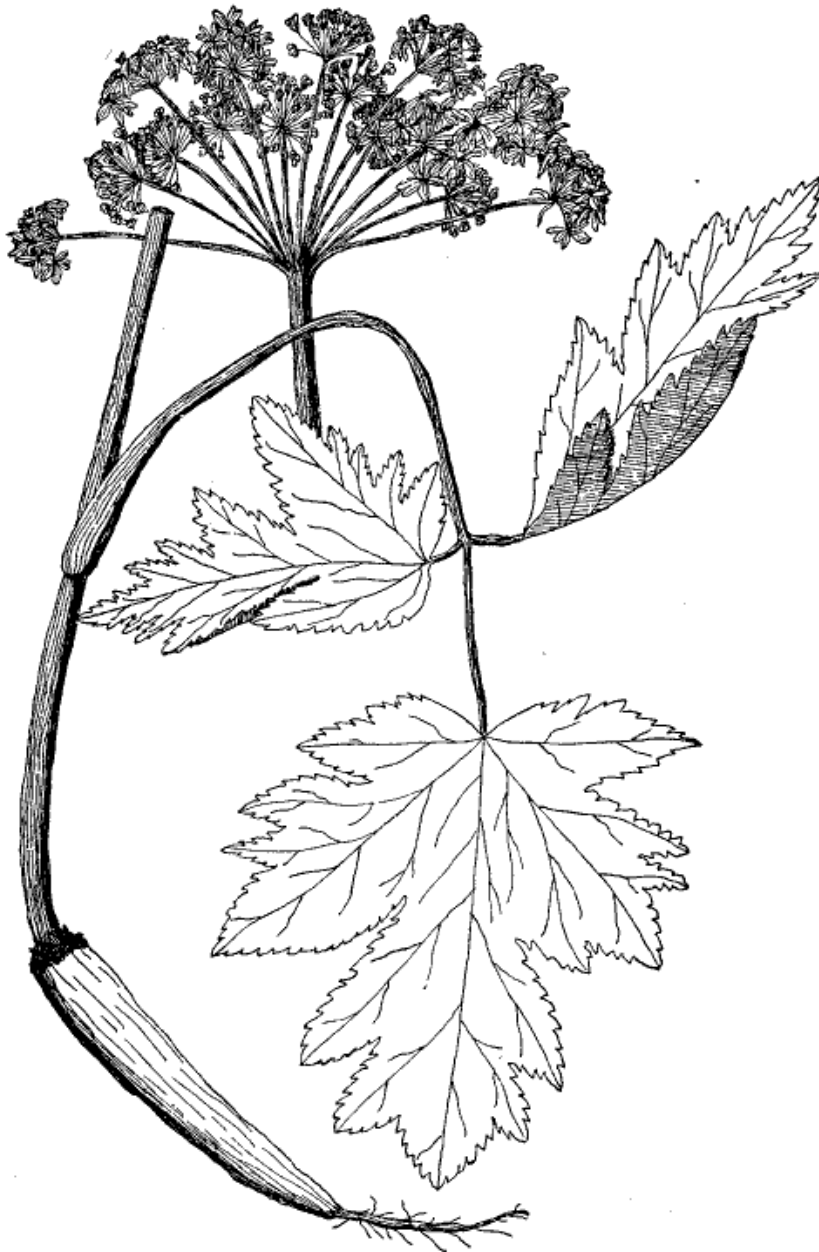


FIG. 98, COW-PARSNIP

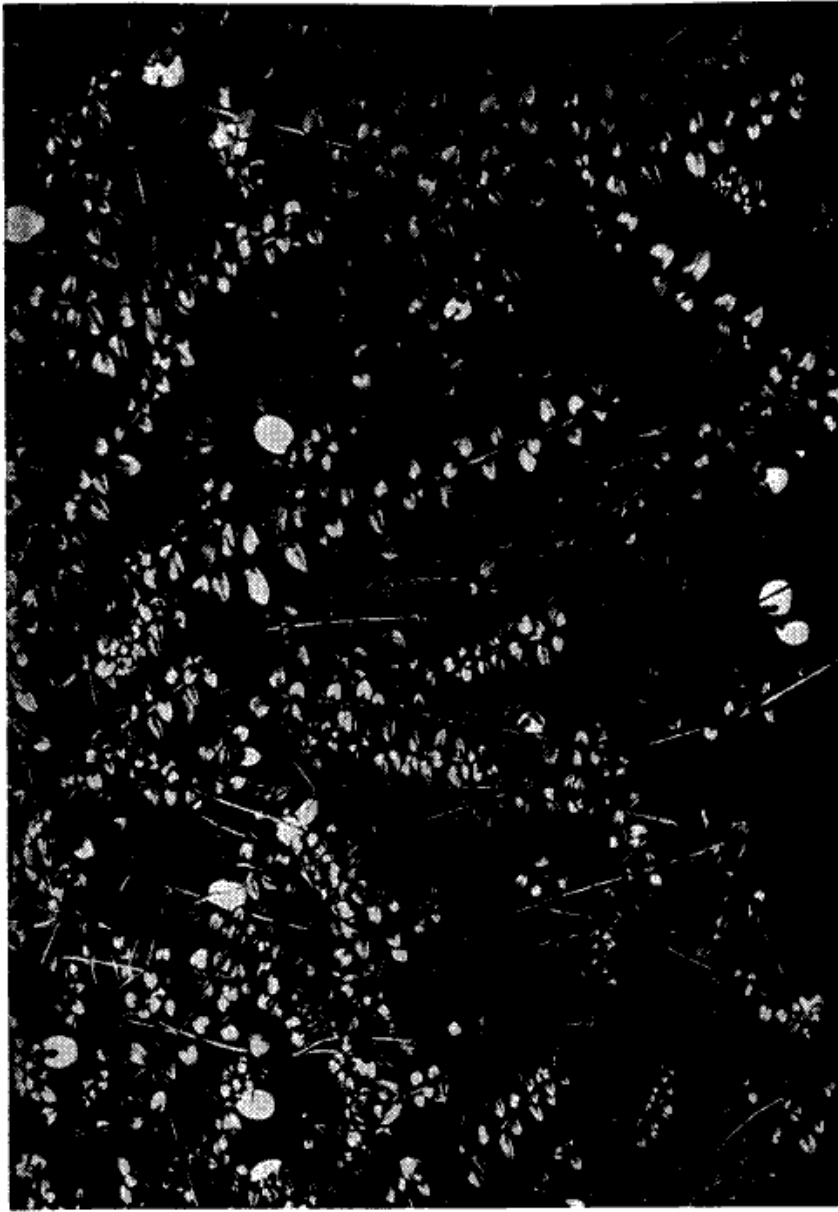
PLATE VI



Photo. by J. F. Collins

COW-PARSNIP

PLATE VII



MOXIE-PLUM

Photo. by J. F. Collins

gus." Our own single experiment was not gratifying in its result.

LABRADOR TEA OR BOG-TEA, *Ledum palustre* (including *L. decumbens*) and *L. groenlandicum*. FIG. 99

KEY-CHARACTERS: low straggling shrubs with evergreen, alternate, dryish leaves covered beneath with dense wool (at first whitish, afterward brown), the margins of the leaves rolled back; flowers white, in umbrella-shaped, terminal clusters, followed by ellipsoid to slenderly-oblong seed-pods.

HABITAT AND RANGE: boggy or peaty soils throughout the arctic regions, one species, *L. groenlandicum*, extending south in cold bogs to southern New England, northern New Jersey, mountains of Pennsylvania, and the Great Lakes States.

SEASON OF AVAILABILITY: throughout the year.

USES: tea, food-conservator.

Through its suggestive name as well as the writings of northern travellers, LABRADOR TEA has gained a considerable reputation as a tea-substitute. Those who have tried the two species refer to the more northern *L. palustre* as superior to *L. groenlandicum*. The early explorer of western Canada, Dr. John Palliser, writing in his journal of 1866, thus noted it: "We encamped after passing the Long Muskeg, where we got a supply of the muskeg tea



FIG. 99, two species of LABRADOR TEA; *Ledum palustre* at left, *L. groenlandicum* at right



FIG. 100, ALPINE BEARBERRY

with some similar fruit, like the Chokeberries (*Pyrus arbutifolia*, etc.), which are puckery and nearly inedible when uncooked, or the Buckthorns (*Rhamnus*), which have poisonous berries. Although having hard seeds, the Black Huckleberries are deliciously spicy and sweet, in flavor superior to most of the small-seeded Blueberries or "huckleberries" (*Vaccinium*) and often mixed with them by the pickers.

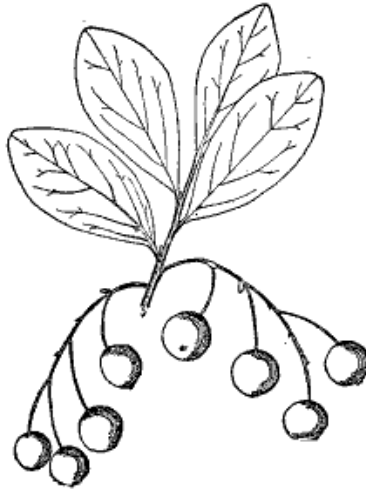


FIG. 101, DANGLEBERRY

DANGLEBERRY, BLUE-TANGLE, *Gaylussacia frondosa*. FIG. 101

KEY-CHARACTERS: loosely branched shrub with whitish-green, elliptical or oblong, alternate leaves covered beneath by minute waxy atoms; berries blue and juicy, slender-stalked, borne in pendulous clusters; seeds 10, hard and stone-like.

HABITAT AND RANGE: dry or moist woods, southern New Hampshire to Florida and Louisiana.

SEASON OF AVAILABILITY: August, September.

USE: fruit.



FIG. 102, SQUAW-HUCKLEBERRY

Although rarely gathered and by many people thought (erroneously) to be poisonous, Dangleberries, often found in abundance, make one of the most luscious of desserts, being remarkably juicy and with a rich, spicy and sweet flavor.

SEA-MILKWORT, *Glaux maritima*. FIG. 103

KEY-CHARACTERS: a succulent plant of the sea-margin and of interior saline marshes, with simple to bushy-branched stems a few inches high; opposite, oblong, fleshy, dark green leaves about $\frac{1}{2}$ inch long; pink-tinged, erect, axillary, bell-shaped flowers; and creeping rootstocks.

HABITAT AND RANGE: saline shores south to New Jersey and to California and on alkaline areas of the interior.

SEASON OF AVAILABILITY: early summer.

USE: pickle.



FIG. 103, SEA-MILKWORT



FIG. 104, sprout of MILK-WEED fit for cooking

Mrs. Lankester, writing in England, states that, "It is said that the leaves and stems of the plant make a good pickle after the manner of samphire." The great abundance of the plant along our northeastern seashores, especially from Cape Cod to southern Labrador, and the succulent leaves and stems of our large var. *obtusifolia* (commonly 5 inches, sometimes a foot, tall), invite experimentation.



FIG. 105, VIRGINIA WATERLEAF at right stage for cooking

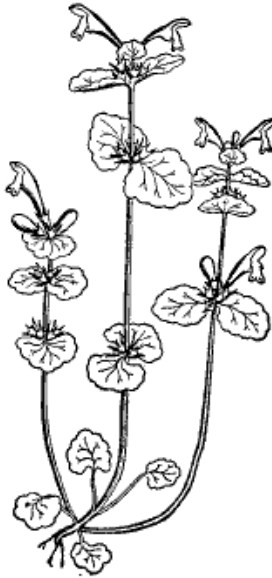


FIG. 107, HENBIT



FIG. 106, HYDROLEA



FIG. 108, WOUNDWORT, *Stachys hyssopifolia*

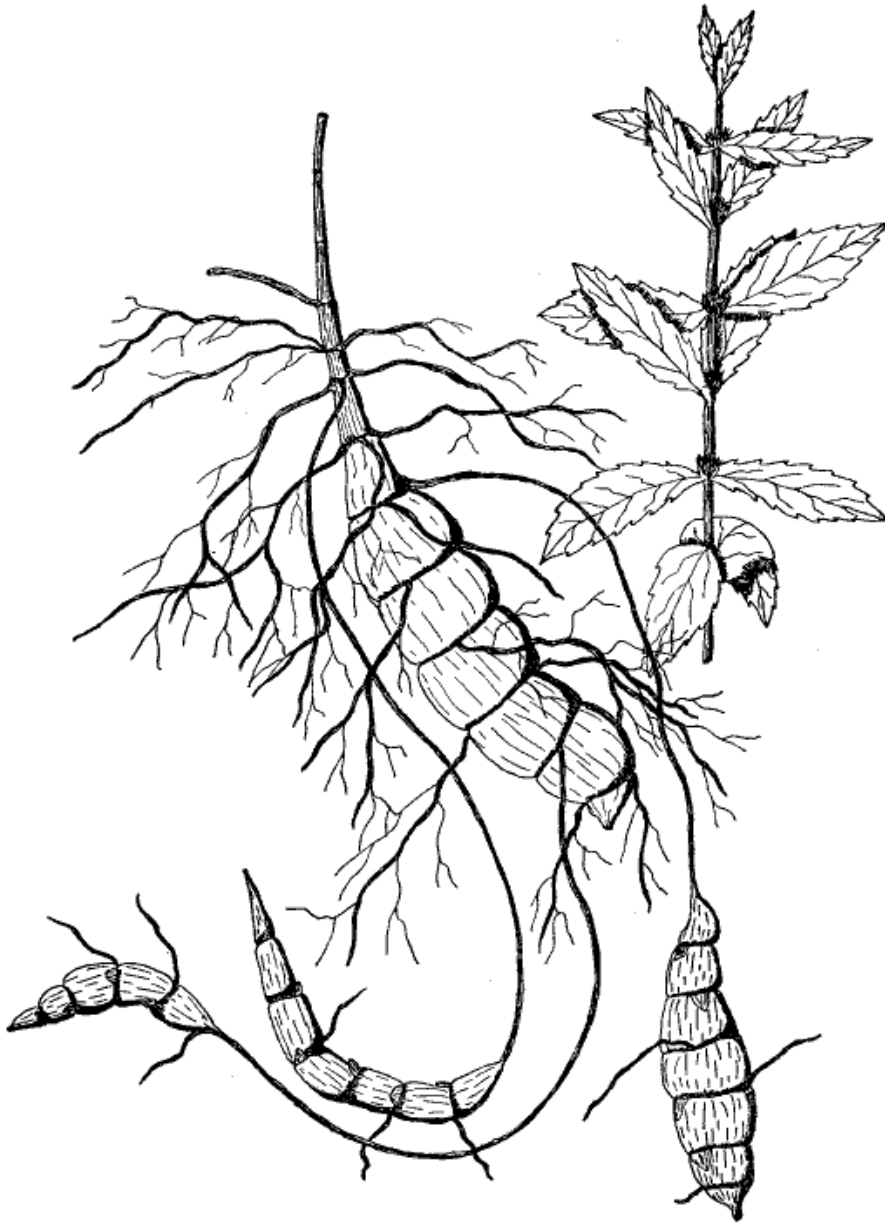


FIG. 109, BUGLEWEED, *Lycopus sessilifolius*

BLACK-BERRIED NIGHTSHADE, MORELLA, *Solanum nigrum*.
FIG. 110

KEY-CHARACTERS: bushy-branched herb, with long-stalked, alternate, coarsely toothed or angulate, ovate leaves; berries black, $\frac{1}{4}$ - $\frac{1}{2}$ inch in diameter, many-seeded, on stalked clusters borne chiefly from the sides of the stem (not from the axils of the leaves). (Not to be confused with the so-called Poisonous or Deadly Nightshade, *S. Dulcamara*, a woody, climbing vine, bearing berries which are bright red when ripe.)

HABITAT: dry, open soil, borders of woods, roadsides, gravelly beaches or cultivated land.

RANGE: throughout temperate or tropical America northward to southern Canada.

SEASON OF AVAILABILITY: midsummer to autumn.

USES: berries, raw, cooked or in pies and preserves; potherb.

The berries of the BLACK-BERRIED NIGHTSHADE have a varying reputation, sometimes with seemingly good reason reputed to be poisonous, again treated as a harmless, edible fruit. In one of its very many forms and derivatives, it is sometimes cultivated under the absurd



FIG. 110, BLACK-BERRIED NIGHTSHADE



FIG. 112, AMERICAN BROOK-LIME



FIG. 111, HUSK-TOMATO

Linnaeus gives a detailed account of the use of BUTTERWORT as a substitute for rennet. This account, much abbreviated and in English, instead of Latin, is repeated by Loudon:

“*Pinguicula vulgaris* has the property of giving consistence to milk, and of preventing its separating into either whey or cream. Linnaeus says that the solid milk of the Laplanders is prepared by pouring it warm and fresh from the cow over a

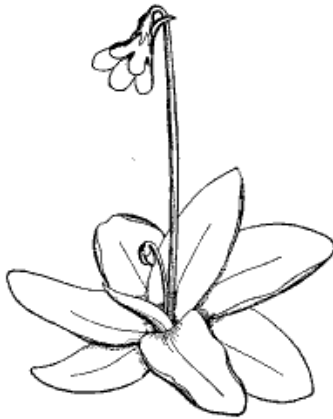


FIG. 113, BUTTERWORT



FIG. 114, DICLIPTERA

strainer on which fresh leaves of *Pinguicula* have been laid. The milk, after passing among them, is left for a day or two to stand, until it begins to turn sour; it throws up no cream, but becomes compact and tenacious, and most delicious in taste. It is not necessary, that fresh leaves should be used after the milk is once turned: on the contrary, a small portion of this solid milk will act upon that which is fresh, in the manner of yeast.”

Three other species, with violet, pink, white or yellow flowers occur in low pinelands from North or South Carolina to Florida. They could doubtless be used in the same way.

blades, with slender-stalked elongate spikes of insignificant greenish to bronze or drab flowers, the corolla papery or like thin parchment and capping the capsule, the latter opening by a cap at the summit which lifts off like a lid.

HABITAT AND RANGE: maritime rocks, gravel and marshes, Labrador, Hudson Bay and Alaska, south to coast of New Jersey, marshes of Manitoba, and coast of California.

SEASON OF AVAILABILITY: June to September.

USES: salad, green vegetable.



FIG. 115, SEASIDE PLANTAIN
or GOOSE-TONGUE



FIG. 116, CLEAVERS

SEASIDE PLANTAIN is not very generally known as one of the most available summer vegetables, but on the New England coast, especially by the fishermen of eastern Maine, and in Nova Scotia, where the plant is regularly gathered under the name of GOOSE-TONGUE, it is extensively used. The fresh leaves, freed from any shriveled or tough portions and washed, then cut and cooked like



FIG. 117, WATERBERRY



FIG. 118, HIGH-BUSH CRANBERRY

HIGH-BUSH CRANBERRY, CRANBERRY-TREE, *Viburnum trilobum* (or *Opulus*, var. *americanum*).

FIG. 118

KEY-CHARACTERS: large shrub or small tree with pale, ashy-brown bark; the opposite leaves 3-lobed above the middle, somewhat suggesting maple-leaves; the large, red berries borne in flat-topped, terminal clusters, very acid, with a large flat stone.

HABITAT: rich thickets, especially along streams or at borders of low woods or by walls and fences.

RANGE: Newfoundland to British Columbia, south rather generally through northern New England and eastern Canada, more locally to New Jersey, Pennsylvania, the Great Lakes States, northeastern Iowa, the Black Hills, etc.

SEASON OF AVAILABILITY: late summer to winter, the berries softening after frost and lasting over winter.

USES: cooked fruit, preserves, jellies.

In the northern states and Canada HIGH-BUSH CRANBERRIES are generally known and in many regions where the Bog-Cranberries are unknown the fruit is regularly cooked and served under the name "Cranberry." The fruit is acid and of pleasant flavor, but on account of the large, flat stones, it is desirable to strain the sauce. Jelly

made from High-bush Cranberries is of beautiful color and delicious flavor.

CAUTION: Do not confuse with the northern native High-bush Cranberry the introduced and cultivated (sometimes escaped) Wayfaring Tree, *Viburnum Opulus* of Europe. The fruits of the latter are bitter and sadly disappointing to those who suppose it to be the Canadian species.

SQUASHBERRY, *Viburnum edule* (or *pauciflorum*).

FIG. 119

KEY-CHARACTERS: straggling shrub with slender, gray branches and opposite, maple-like leaves; the large red berries borne in small, flat-topped clusters, juicy and acid, with a large flat stone.

HABITAT: cool woods and thickets or on gravelly or rocky banks.

RANGE: Labrador to Alaska, south across Newfoundland, Cape Breton Island and eastern Quebec, and locally on the mountains of northern New England, New York and Pennsylvania, and in cool regions of northern Michigan, Wisconsin and Minnesota.

SEASON OF AVAILABILITY: late summer to winter, the fruit softening after frost and persisting over winter.

USE: fruit, fresh or cooked, jellies, etc.



FIG. 119, SQUASHBERRY

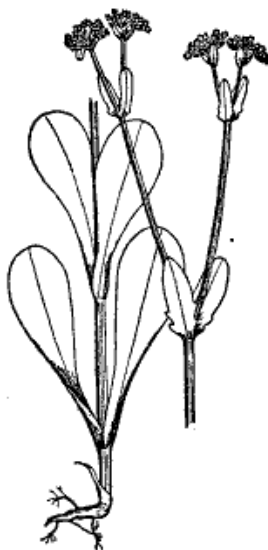


FIG. 121, CORN-SALAD

panula Rapunculus, which was formerly a garden-vegetable there.

COMPOSITE FAMILY (*Compositae*)

SWEET GOLDENROD, *Solidago odora*. FIG. 122

KEY-CHARACTERS: a Goldenrod with one-sided inflorescences and *strictly entire*, widely spreading, elongate, smooth leaves 3-4 inches long, which are conspicuously dotted with translucent spots (when held to a bright light); the bruised foliage and other fresh parts giving off a delicate odor suggestive of anise.

HABITAT AND RANGE: dry, sandy, gravelly or other sterile plains or borders of thickets and open woods, from Texas to Missouri and Florida, and northward to southern New Hampshire.

SEASON OF AVAILABILITY: summer and early autumn.

USE: tea.

One of the first Europeans to record the use of the Sweet Goldenrod in making tea was Johann David Schoepf, who was chief surgeon of one of the bodies of



FIG. 120, WILD RAISIN or SHEEPBERRY



FIG. 122, SWEET GOLDEN-
ROD

of North America and was cultivated by the Indians who introduced it to the Europeans. The tubers have been in considerable repute in parts of continental Europe, but, although often found in our markets, they are not greatly appreciated by the whites in America. The flesh is watery and sweet and with a peculiar flavor which is palatable to some tastes, disagreeable to others. Many persons like

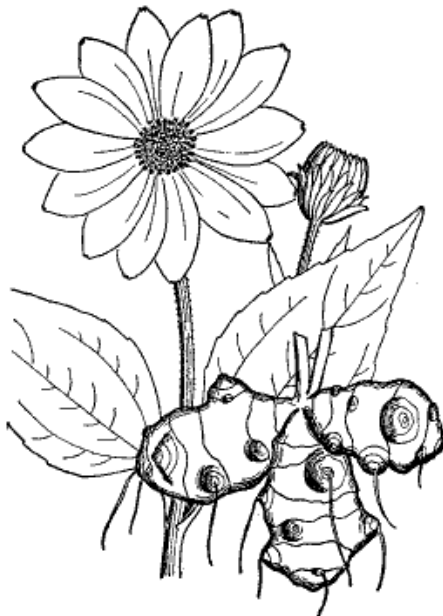


FIG. 123, JERUSALEM ARTICHOKE



FIG. 124, GALINSOGA

the tubers as a salad or pickle. When cooked they are prepared as a purée or peeled and baked, with liberal oil or butter, or escalloped with crumbs which absorb the mucilaginous juice. The tubers have been extensively cultivated in the past and the plants are now thoroughly naturalized along roadsides, in borders of fields or in town-dumps throughout the Eastern States and southern Canada.

The discussion of the waning use of the Jerusalem Ar-

MUGWORT, WORMWOOD, *Artemisia vulgaris* and other species

USE: condiment.

The leaves of MUGWORT and of some of the other Wormwoods are sometimes used as aromatic, bitter condiments much like tansy.



FIG. 125, MUSTER JOHN-HENRY



FIG. 126, SWEET COLTSFOOT

COLTSFOOT, *Tussilago Farfara*

USE: confection.

The familiar COLTSFOOT, naturalized from Eurasia and abounding in damp clay soils of brooksides and roadsides from Newfoundland to Minnesota and in parts of the Northeastern States, is, of course, famous as a supposed cough-medicine. Coltsfoot-candy, however, is a delicious confection, even if it may be helpful to the respiratory system. It is one of the few medicines which one wholly craves.

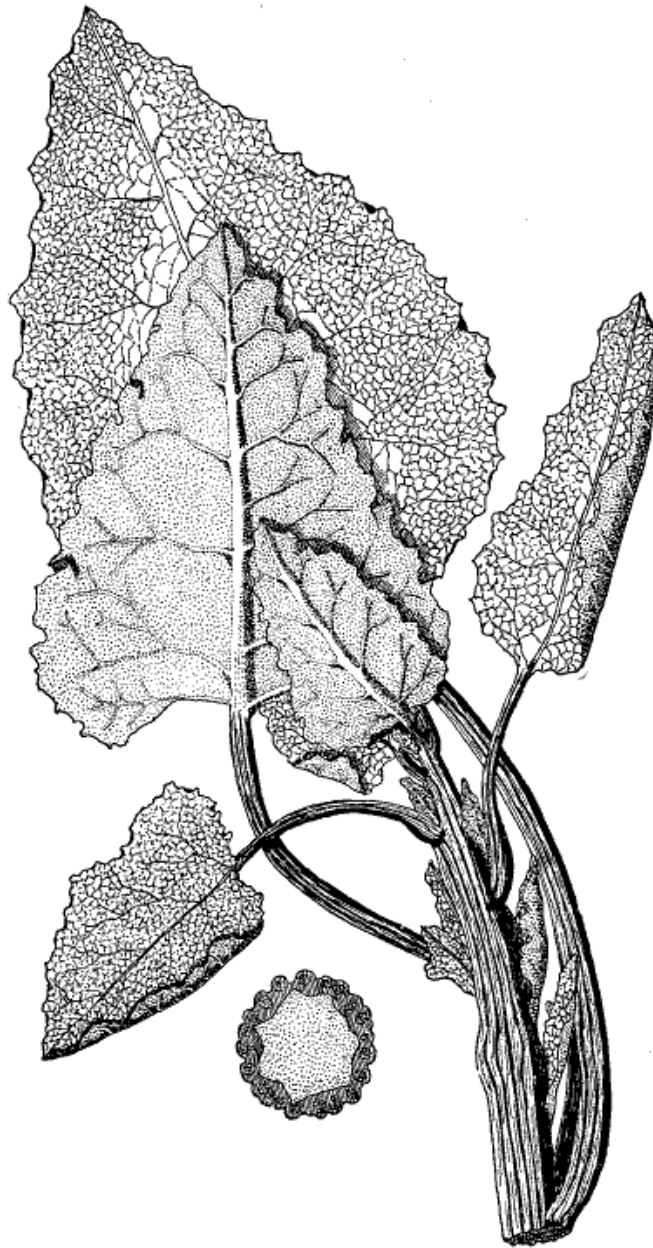


FIG. 127, BURDOCK at stage for cooking. Note broad pith (very tender)

wholesome than true coffee. For, although discriminat-
ingly referring to some frequently cooked plants as "not,
however, valued by persons of refined taste", Lindley
enthusiastically wrote of Chicory, "whose tap roots are
cultivated as a substitute for Coffee, which they certainly
improve when torrefied and added in small quantities."
Lindley was an Englishman.



FIG. 128, CHICORY

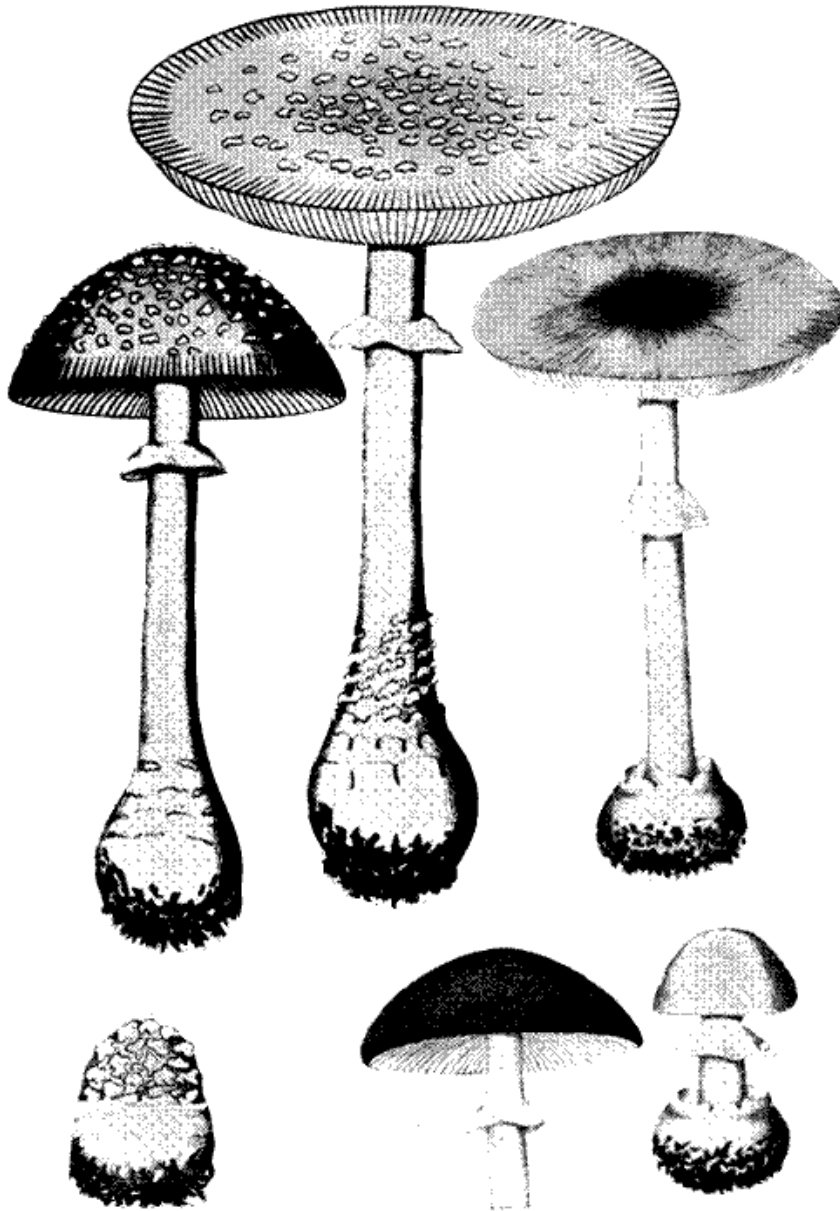


FIG. 129, GOAT'S-BEARD OR
SALSIFY

Johnson tells us that in parts of Europe the demand for Chicory-coffee often exceeds the supply and that the ground Chicory has sometimes been mixed with sawdust, roasted beans, dried horse-liver, and other substances used to add bulk. Thus it is easy to understand the scarcity of *good* coffee in most tourist-hotels of Europe.

Since through many decades Chicory-root has maintained its place as the chief substitute for or adulterant of coffee and is now being urged as an official substitute, the following passage, written by Porcher in South Caro-

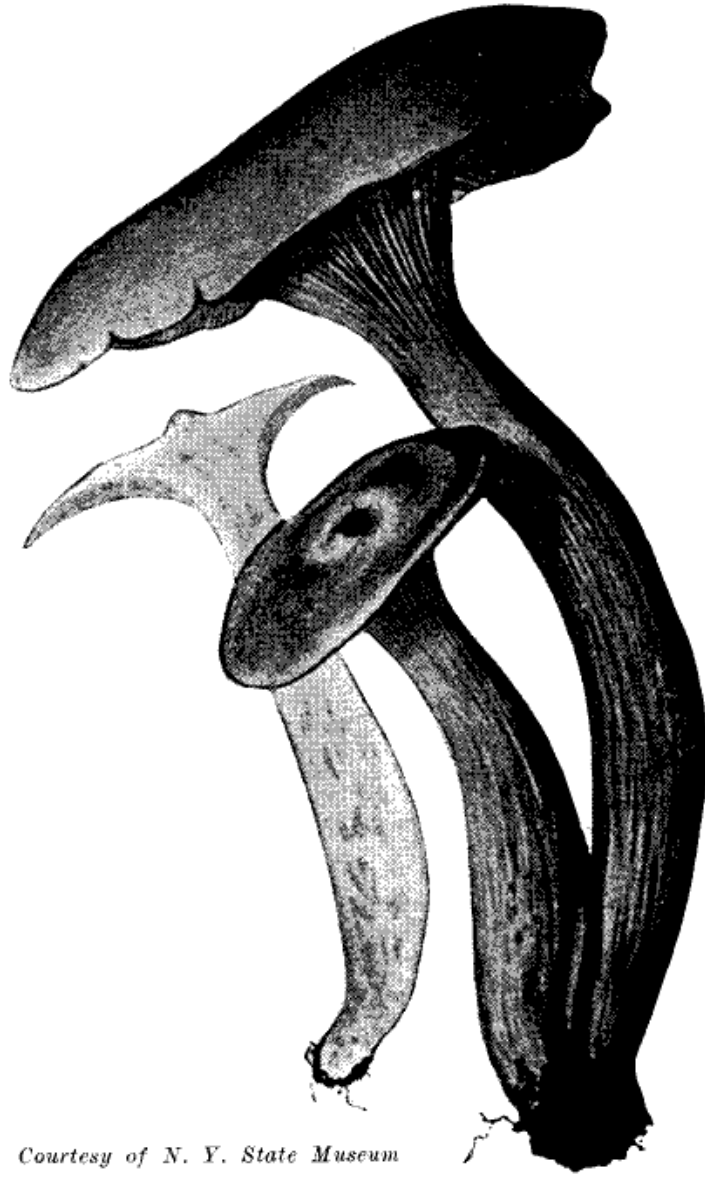
PLATE VIII



Courtesy of N. Y. State Museum

DEATH-CUP OF DEADLY AMANITA, three FIGS. at right;
FLY-AMANITA, FIG. in center and two at left

PLATE IX



Courtesy of N. Y. State Museum

JACK-O'-LANTERN

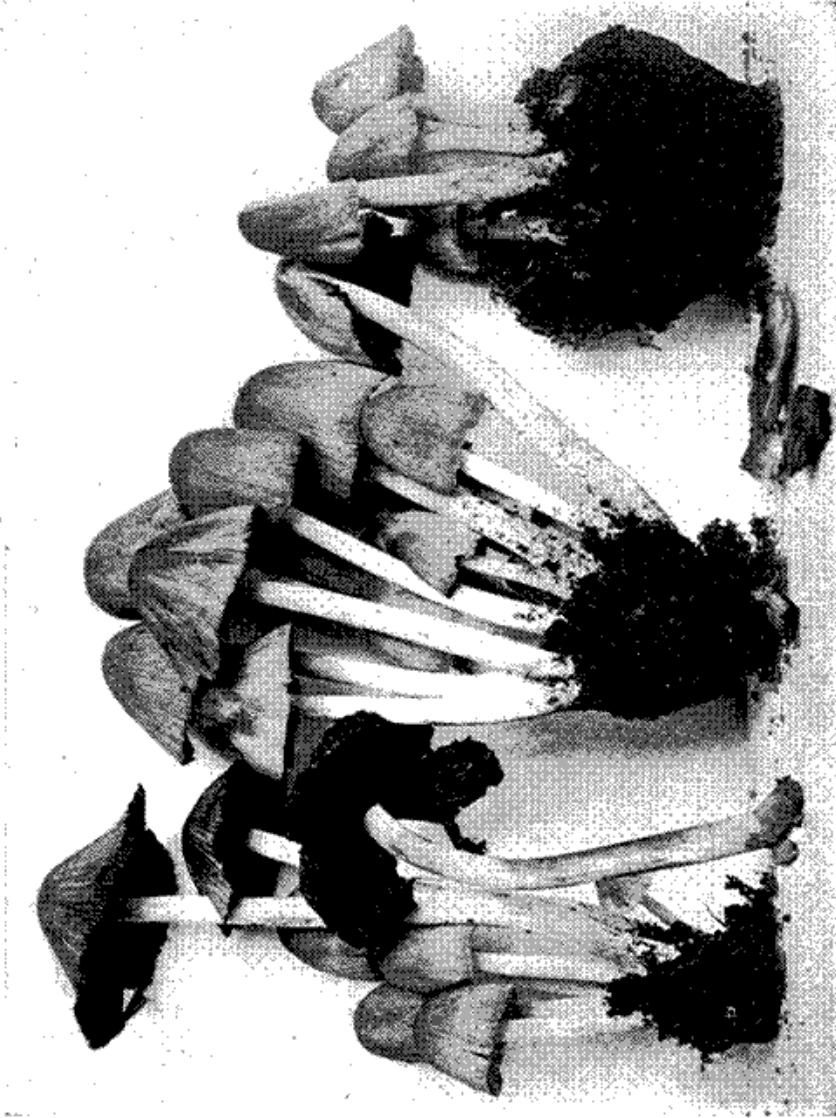
PLATE X



Courtesy of Boston Mycological Club

MEADOW MUSHROOM

PLATE XII



SMALL OF EARLY INKY MUSHROOM

PLATE XIII



FAIRY-RING

Upper, *courtesy of N. Y. State Museum*;
lower, ready to dry

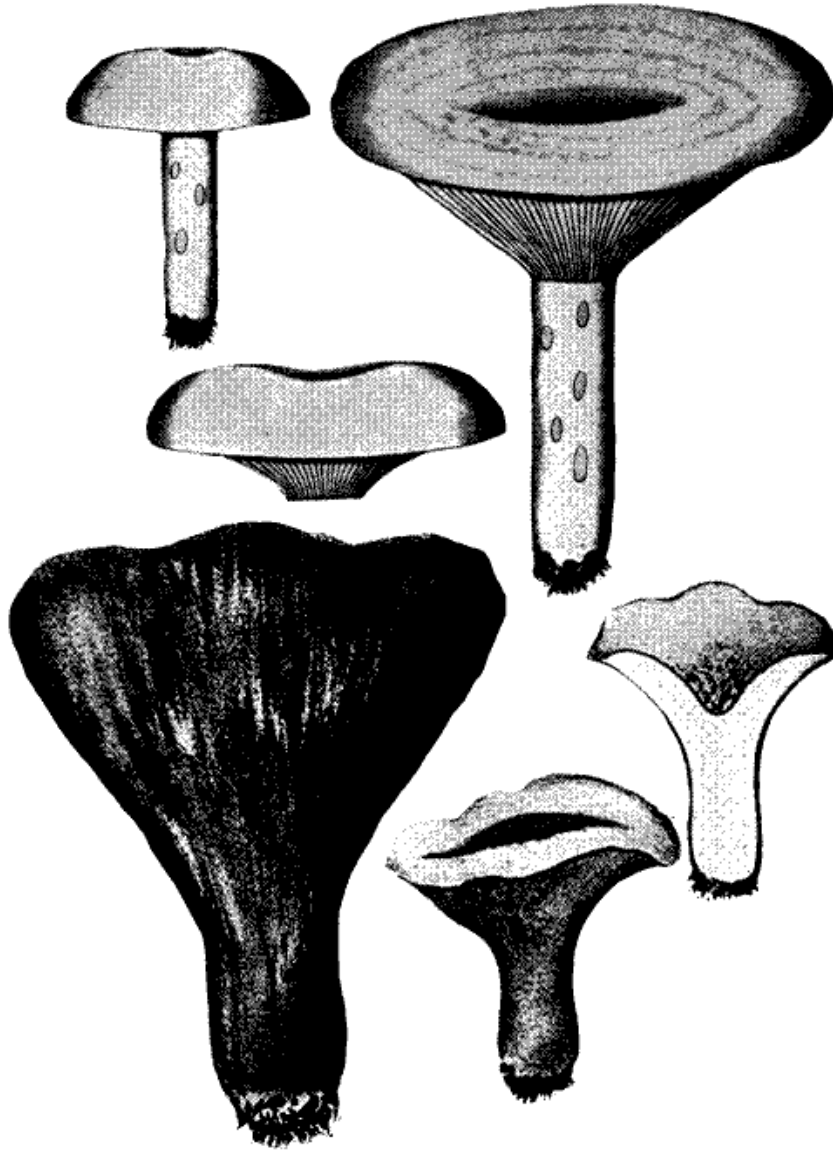
PLATE XIV



Courtesy of Boston Mycological Club

OYSTER-MUSHROOM

PLATE XV



Courtesy of N. Y. State Museum

ORANGE-MILK MUSHROOM, three upper FIGS.;
HYPOMYCES LACTIFLUORUM, three lower FIGS.

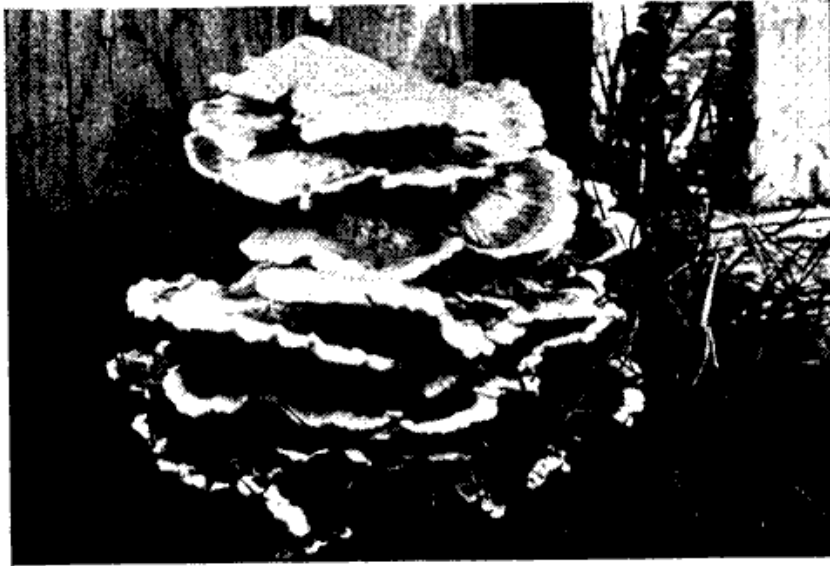
PLATE XVI



Courtesy of N. Y. State Museum

PERPLEXING HYPHOLOMA, FIG. at lower-right;
CHANTERELLE, three upper FIGS.

PLATE XVII



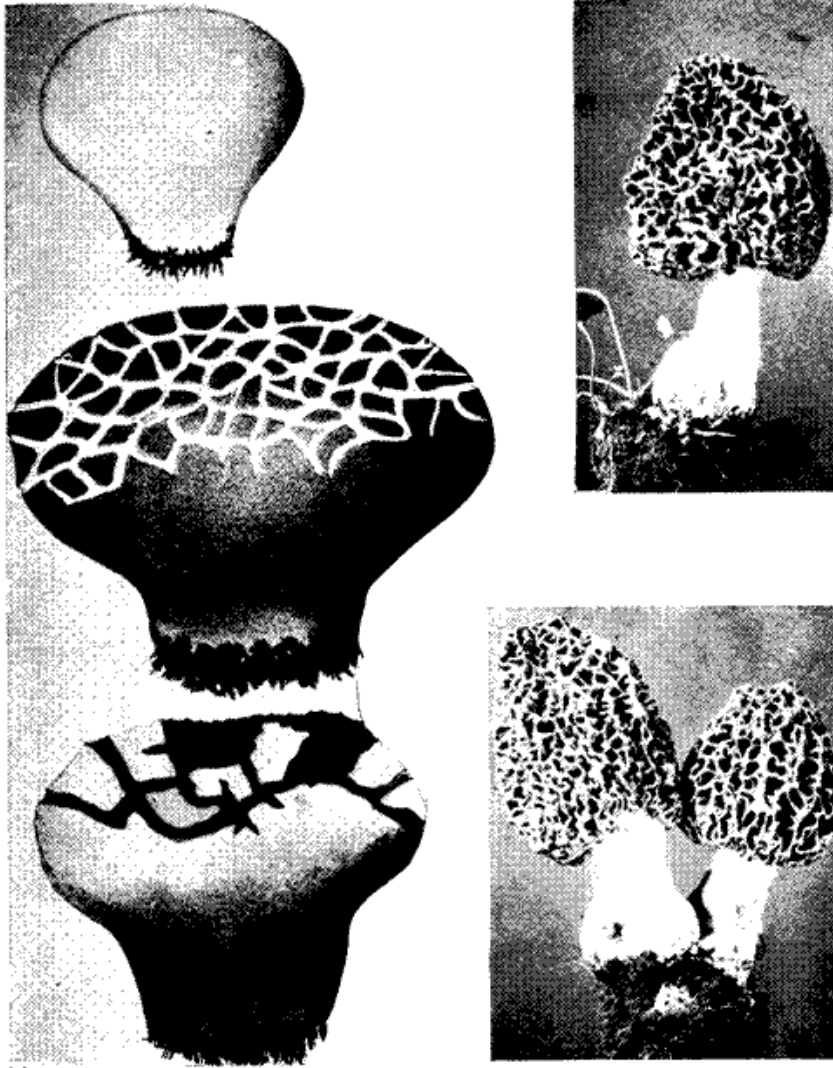
GRAYLINGS, upper FIG., *courtesy of N. Y. State Museum*;
SULPHUR MUSHROOM, lower FIG., *photo. by J. F. Collins*

PLATE XVIII



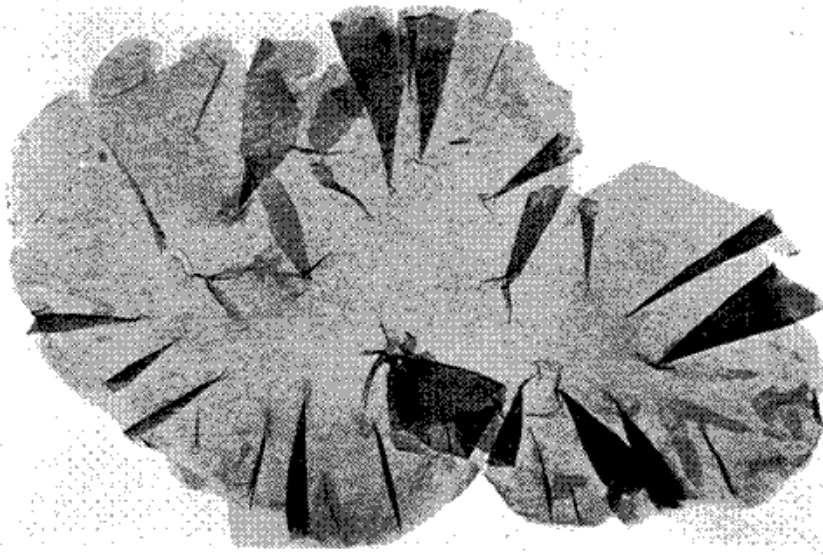
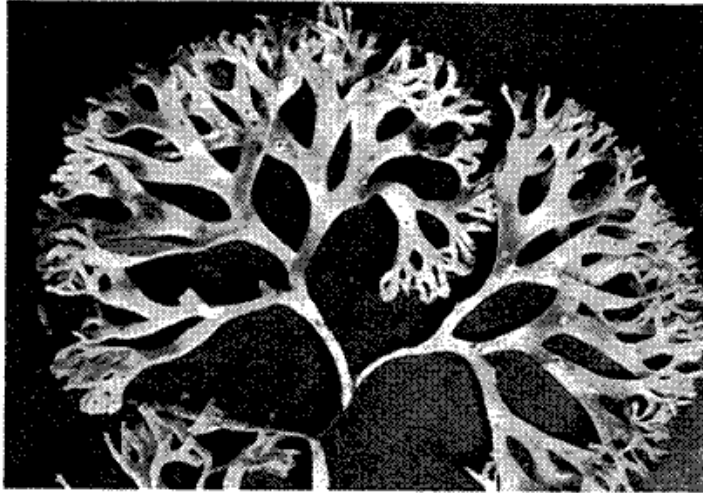
HEDGEHOG-MUSHROOM, upper left; CORAL-MUSHROOMS,
lower and upper-right FIGS. *All photos. by J. F. Collins*

PLATE XIX



PUFFBALL, three FIGS. at left, *courtesy of N. Y. State
Museum*; MOREL, two FIGS. at right, *photos. by
J. F. Collins*

PLATE XX



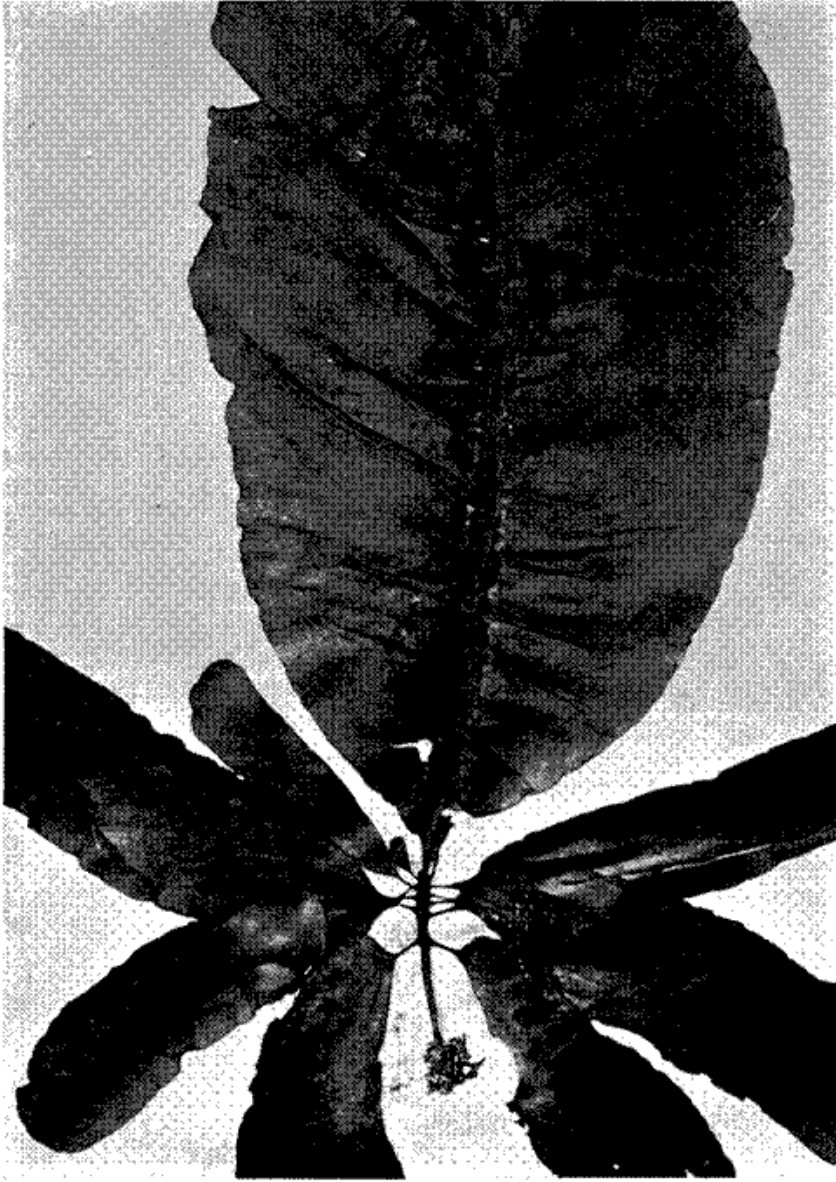
IRISH MOSS, upper FIG.; DULSE, lower FIG.

PLATE XXI



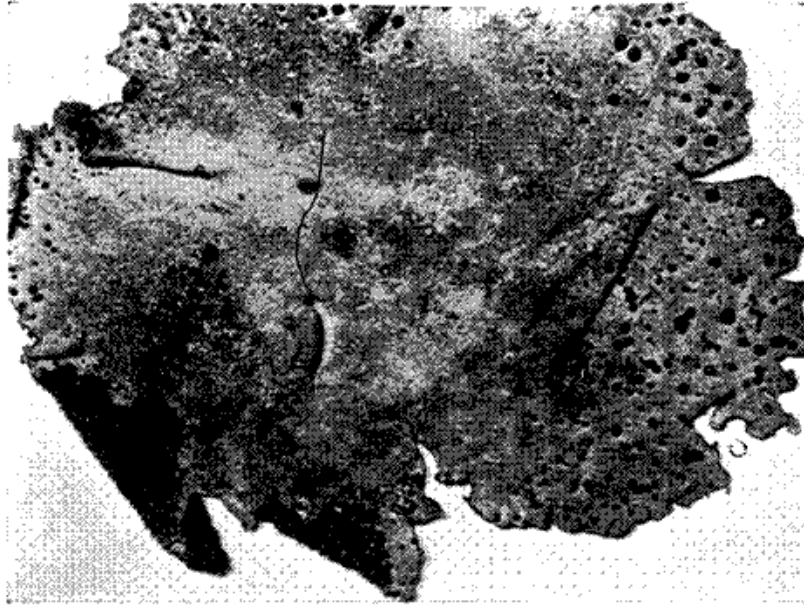
LAVER

PLATE XXII



EDIBLE KELP

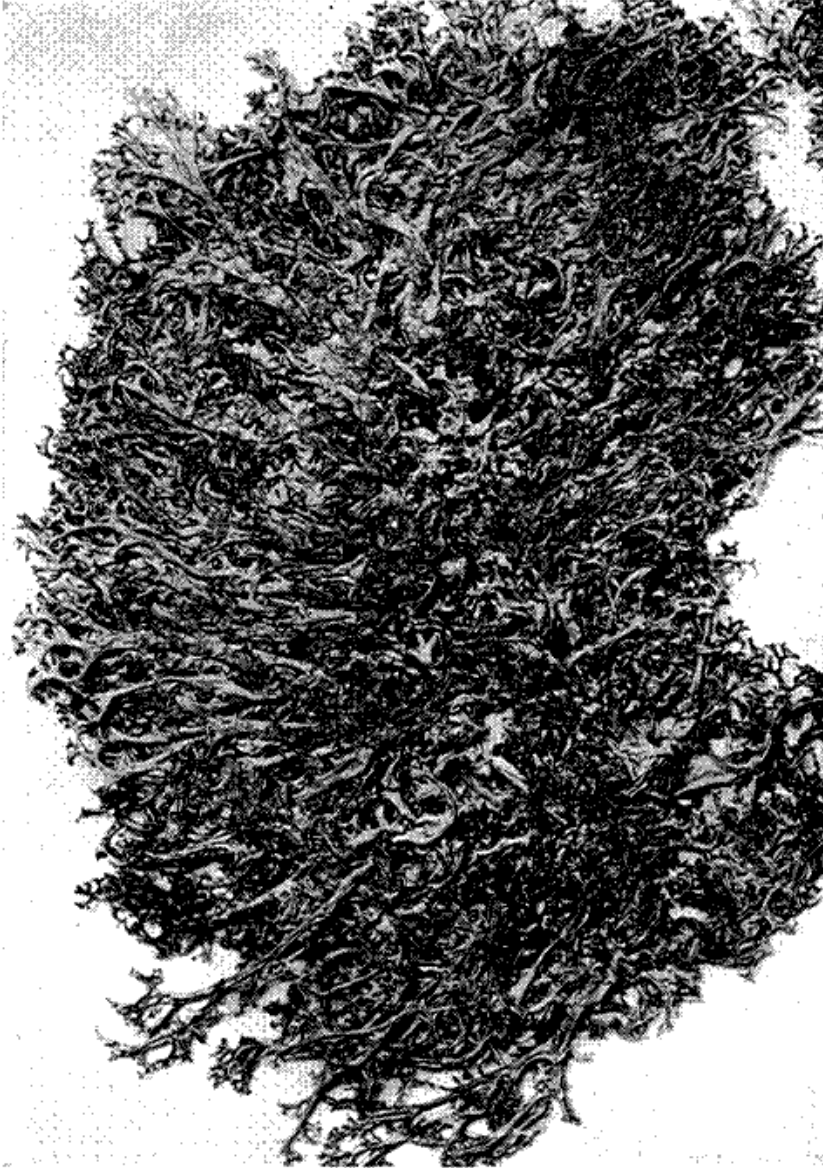
PLATE XXIII



TRIPE DE ROCHE OR ROCK-TRIPE

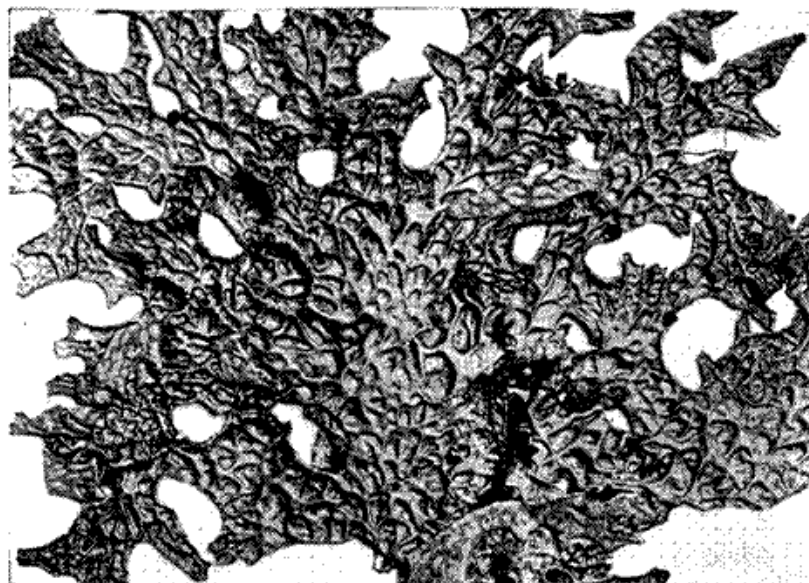
Lower FIG., showing a colony on rock, from *photo. by*
J. F. Collins

PLATE XXIV



ICELAND MOSS

PLATE XXV



TREE-LUNGWORT, upper FIG.; REINDEER-MOSS, lower FIG.
from *photo. by J. F. Collins*