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Your weeds and your neighbor's.

Charles Frederick Millspaugh

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Bulletin No. 23

WEST VIRGINIA

Agricultural Experiment Station

MORGANTOWN, W. VA.

YOUR WEEDS AND YOUR NEIGHBOR'S.

Part 3.

ILLUSTRATED
DESCRIPTIVE LIST
OF WEEDS.

MAY, 1892.



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DESCRIPTIVE LIST
OF THE
WEEDS OF WEST VIRGINIA.

C. F. MILLSPAUGH, M. D.

BOTANIST.

In the following list of the individual weeds of this State, I have attempted to outline each species as fully as space would permit, and at the same time give under each what I could determine to be the best method of eradication, as well as some idea of its usefulness when any such quality is known.

I have grouped the plants in their natural order, i. e., all those of like characters together, giving in case of large families an illustration showing some of the characters of the family in general. In small families of usually well-known plants I have omitted the cuts. In the families, the parts of all plants mentioned will bear some likeness to the illustration; so that one not versed in plant names may, by examining the flower or fruit of a weed of which he desires to know the name, commence and compare the family characters with the same portions of the plant in hand until reaching one that agrees nearest; then read the descriptions until satisfied concerning the weed in question.

The letters (A) (B) or (P), following the common name or names mean respectively Annual, Biennial or Perennial. The figures in **black face type** refer to the same numbers in the list of observers on Pages 179 to 185 of Part 2, where the name is in **common type**, it means that the plant is a native of that region; when in **SMALL CAPITALS**, it is understood that the plant referred to is a foreign species becoming naturalized here. The names in italics are the

scientific names of the plants, by which they are known in all countries and languages.

The cuts illustrating the families of plants, as well as those of weeds; Nos. 39, 48, 56, 59, 63, 70, 77, 79, 85, 87, 91, 93, 97, 98, 99, 103, 105, 106, 107, 108, 109, 110, 112, 113, 114, 117, 119, 122, 124, 127, 138, 142, 163, 169, 171, 181, 184, 186, 187, 191 and 196 are from original drawings; the balance (thirteen) are adapted from the Reports of the Secretary of Agriculture.

BUTTERCUP



FAMILY.

1. Tall Meadow Rue. (P.) (*Thalictrum polygamum, Muhl.*)

A common weed in damp meadows, where it grows to a height of 4 to 6 feet, and bears a showy, feathery cluster of greenish-white flowers, in July. Should the land where this weed grows be desired for cultivation, the underdrainage necessary to reclaim it would doubtless kill out the weed.

2. Small-flowered Buttercup. (B.) (*Ranunculus abortivus, L.*)

A frequent weed in and about moist yards and meadows, where it appears as a low, juicy-stemmed, branching herb, with quite small greenish-yellow flowers, and 'little bur-like clusters of seed. This is one of the minor weeds that yield readily to the hoe or drainage; it is, however, a profuse seeder, and should it become obnoxious in any given locality, the land should be drained and cultivated. The Buttercups are said to be frequently the cause of "slobbering" of cattle, and should be carefully weeded out of pasture lands.

3. TALL, OR ACRID BUTTERCUP. (P.) (*Ranunculus acris, L.*)

This is the common tall buttercup in most localities, which bears the well known yellow saucer-like blossoms so well loved by children. It is one of the hardy European immigrants, and the most acrid species of its class in this country, blistering the mouths of cattle eating of it. The blistering property is, however, lost in drying and therefore harmless in well cured hay. This buttercup, like the next, grows mostly in moist meadows and along ditches, and may be removed when too prevalent by underdrainage or tillage.

4. Creeping Buttercup. (P.) (*Ranunculus septentrionalis, Poir.*)

Similar in appearance and place of growth as the last plant,

but weak and prostrate, with running stems, and larger flowers. To be treated like the last.

5. Rattle-root. Rattle-weed. Spuaw-root.

Black Cohosh. Black Snake-root. (P.) (*Cimicifuga racemosa* (L.), Nutt.)

This well known woodland plant often becomes a troublesome weed in newly cleared lands, and in neglected fields bordering woodlands. It is readily recognized by its long wand-like stem, terminated by a spike of fuzzy white flowers, becoming later in the season, a rattling mass of papery pods. This weed will not withstand the usual tillage of the soil, nor will it infest our meadows and pastures.

The root is a well known family medicine, being used as a tonic (213), blood purifier (50.214), and stomachic (113). It is used in conjunction with sumach for liver troubles (137), and is said to prove a good purgative for animals (35) and a general alterative for hide-bound horses (214). Its excellence in some forms of rheumatism (73.121.190.) is well understood by the medical profession. The use of a syrup of the root for coughs (123) and sore throat (236), and a decoction for colds and fevers (236, 267, 147, 244, 96, 216, 213) seems to be quite general in this State. The root has also been recommended for small pox (101), though it is doubtful if it would be relied upon when other and better known remedies were obtainable.

Custard Apple Family.

6. Papaw. (P.)

(*Asimina triloba* (L.) Dunal.)

This well known shrub, or small tree, with edible fruit, often becomes a veritable nuisance in pasture lots and meadows, though in some localities its sprouting is not so profuse as in others. Like the sumach, it can only be eradicated by thorough grubbing.

Barberry Family.

7. May-apple. Mandrake. (P.) (*Podophyllum peltatum*, L.)

No description is needed of this common plant which can be properly called a weed only in some localities. In many damp or woodland meadows it often, however, grows so profuse as to greatly contract the grass area. The use of the hoe, will kill it out in a few seasons.

The medical action of the root seems to be expended almost entirely upon the alimentary tract; it is, therefore, used for general torpidity of the liver (21, 78, 204), and as a purgative (35, 139, 213, 225). The extensive use of the root as a component of cathartic pills, causes it to be dug for profit at many points in the State.

POPPY



FAMILY.

8. **FIELD POPPY. CORN POPPY.** (A.) (*Papaver dubium, L.*)

This pretty red poppy, which bears a general resemblance to the poppies of the gardens, and is illustrated above; is rapidly spreading in Jefferson, Berkeley (117), and Morgan counties, where at least, it threatens to become a troublesome weed. The plants should be pulled up before they ripen their immense number of seeds, and burned with other trash.

9. **HORN POPPY.** (A.) (*Glaucium luteum, Scop.*)

This peculiar plant, with saffron-colored milky juice, whitish-green stem and leaves, yellow flowers, and stem prickly below near the ground; has been sent in to me as a weed likely to become troublesome in Monongalia (10) and Harrison counties. It should, however, yield readily if the plants are treated as mentioned under the preceding species.

MUSTARD



FAMILY.

10. **HORSERADISH.** (P.) (*Nasturtium Armoracia (L.) Fries.*)

In some localities this well known garden plant escapes and becomes a very troublesome weed, taking possession of large tracts and proving very difficult to eradicate (237). Thorough turning up of the roots yearly, and removing them from the spot, is the best measure to use against this growth.

The roots, gathered in spring, grated, and placed in vinegar

for use on the table as a sauce with meats, forms an excellent appetizer, as well as acting as an antiscorbutic. A poultice of the fresh leaves is considered a good remedy for some types of headache, if bound about the forehead (249).

11. **WILD MUSTARD. CHARLOCK. "WATER CRESS."** (A.)
Brassica arvensis (L.) B. S. P.

This tall mustard-like plant with yellow blossoms has become a pest in the wheat growing districts of the valley counties. As it is a profuse seeder, and the seeds known to retain their vitality for long periods, the best method of ridding the farm of this troublesome plant is to carefully cut and burn all when the blossoms first appear. Sheep are fond of the weed (35), but it is best not to trust them to eradicate it.

12. **MUSTARD. BLACK MUSTARD.** (A.) *Brassica nigra* (L.)
Koch.

This mustard becomes at times quite troublesome in fields and along roadsides. It grows more slender and less branching than the last, and never as tall. It should be treated the same as the Wild Mustard.

13. **SHEPHERD'S PURSE.** (A) *Bursa Pastoris* (L.)

A small weed with the lower leaves much like those of the Dandelion both in shape and arrangement around the base of the stem, and bearing minute white flowers, and later a profusion of flat, heart-shaped seed pods. This weed, though most frequent along roadsides, often becomes troublesome in gardens and fields. Thorough cultivation and enrichment of the soil will, however, tend to suppress it.

14. **Peppergrass,** (A.) *Lepidium Virginicum*, L.

A small weed, similar in appearance to the last, but with roundish pods notched at the top; most frequent in door-yards and along roadsides, though often found largely in cultivated fields. Treat as for No. 13.

15. **ENGLISH PEPPERGRASS. "GLENN-WEED."**
"GLENN-PEPPER." "CROWD-WEED." (A.) *Lepidium cam-*
pestre, (L.) RBr.

Similar to the last, but profusely branched, and often with many stems from the root; pods egg-shaped and winged; and the leaves (which fall early) arrow-shaped. This European immigrant is rapidly becoming one of the worst pests in the Valley Counties. It is a most profuse seed-bearer, often producing as high as 40,323 to the single plant, by actual count. I have seen fields of wheat so completely filled with this weed that the stand was far greater than that of the grain. The amount of seeding-in by such a crop is almost beyond imagination. "It actually crowds out the wheat" (47) in some cases. "This weed fully destroyed any chance for a crop

of wheat in a field near Hedges, the stand was afterward plowed under" (117). "It is the worst weed in this section, being known here as the Glenn-weed. (So called, because it was first noticed on a farm owned by people of that name. It is believed to have been brought there in oat seed from Maryland). It is more numerous this year than I have ever seen it before, several crops of wheat in this neighborhood being almost ruined by it" (78).

This weed will prove as hard to eradicate as any that I know of, on account of our inability to plow up the newly sprouted seeds, as it is usually winter wheat that suffers from it most. I can offer no method at present that could be efficaciously applied, except summer fallowing as directed in Part 4 of this Bulletin. Much can be done toward its eradication, however, in corn lands where the necessary cultivation will tend to greatly lessen the number of plants allowed to go to seed. In other cases, a careful preparation of the land, and laying it in good clean meadow is the only way I can see at present of decreasing this pest.

The great similarity of the seed in size and shape to that of Red Clover; and the fact that the plant seeds at the same period, should warn farmers generally not to grow clover for seed where the weed is present; and also that it would be dangerous to sow clover seed known to have been produced in a region where this weed grows. To those who examine their seed before planting, with a magnifying glass, to detect impurities, those of the "Glenn-weed" will appear covered with a fine transparent mealiness, not smooth as if varnished like those of the clover.

16. **WILD RADISH.** (A.) *Raphanus Raphanistrum, L.*

This wild species, which bears a general resemblance to the cultivated form, bids fair to become quite troublesome in the fields of some sections of the State. It may be recognized by its yellow flowers turning purplish veined, or white as they age; and its neck-lace-form pods.

It is best to pull up, or cut and burn, this weed during its stage of flowering to prevent the ripening and distribution of its numerous seeds.

VIOLET FAMILY.

17. **Violet.** (P.) *Viola cucullata, Ait.*

This common and pretty form of the blue violet has been complained of in some localities as a bad weed in meadows. As it tends to spread quite profusely wherever it gains a footing. I would suggest the digging up of the plant wherever found, before it gets beyond this method of treatment. Of course the plant will not persist in cultivated soils.

18. **Field Tri-colored Violet.** (P.) *Viola tenella, Muhl.*

This dainty little plant becomes quite a weed in some meadows, and should then receive the same treatment as the previous species.

PINK



FAMILY.



19. **SOAP-WORT. BOUNCING BET.** (P.) *Saponaria officinalis*, L.

There are probably few weeds in this State that are at present spreading more profusely than this. It may be described as a coarse, conspicuous plant, about three feet high growing in clumps, with large pink-like, rose-colored, often double flowers, the odor of which if much inhaled will cause susceptible persons to vomit. The root yields a mucilaginous juice that will form a lather with water, like soap; hence the name.

This weed seeks uncultivated soils like railroad embankments and roadsides. In Jefferson, Berkeley and Morgan counties it is found in great quantities along the B. & O. R. R. It spreads mostly by root. Though this plant will probably never extend to cultivated fields, or to pasture lands, its appearance gives any farm roadside a shiftless look, it should, therefore, be grubbed out and thrown in the compost heap where it will be of some use. Two seasons of grubbing will kill it out.

20. **COCKLE. CORN COCKLE.** (A) *Lychnis Githago*, (L) Lam.

This common weed of wheat fields, with its rose-colored flowers, is too well known to need description. Though it may be carefully rooted up by the farmer, still it maintains its place year after year in wheat sections, on account of the difficulty of obtaining cockle-free wheat for sowing. The presence of the roundish black seeds of this weed in wheat is readily detected, but their separation from the grain is vastly more difficult. These seeds also injure the quality of the manufactured flour. The only method by which wheat can be produced free from the seeds of this pernicious weed, is to sow only cockle-free seed wheat, and to carefully pull the cockle plants from the field when they are in bloom.

21. **CHICKWEED. MOUSE-EAR CHICKWEED.** (P.) *Cerastium vulgatum*, L.

This spreading, clammy-hairy, little plant, with leaves something like mouse's ears, growing in tufted masses in fields and gardens, and along roadsides; threatening to become a nuisance in many localities. In Mineral county, the seed of this plant is supposed to have been imported from Europe with that of the Turnip (46.) In

Wood county, it has become in places a quite troublesome weed 194. The only means of getting rid of the plant is thorough cultivation, where possible, to prevent the weed from maturing its seed.

This plant is said to cure diarrhoea when taken in tea, by coating the bowels ; being especially useful when the passages are bloody (35.)

22. **Chickweed.** (A.)

Stellaria media, (L.) Smith.

This probably better known chickweed differs from the last in its more star-shaped white flowers, its larger growth and leaves, and its tendency to remain green and flower almost throughout the winter. It is most common about dwellings, and in moist fields, whence it is often gathered by housewives as a food for caged birds. The plant frequently becomes plentiful enough to be very troublesome, and has been known to grow so profusely as to crowd out other vegetation. This weed yields quite readily, however, to careful cultivation.

23. **PURSLANE. PUSSLEY.** (A.)

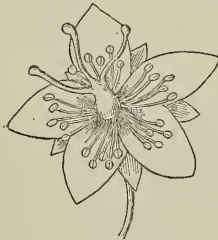
Portulaca oleracea, L.

“Meaner than pussley” has become in some localities a synonym of persistent and obtrusive offensiveness ; an expression originating from the resistance of this weed to succumb to ordinary hoeing, especially in damp weather. Purslane is well known by its fleshy leaves and stem ; its spreading, clinging, prostrate growth ; and its great vitality. Thorough hoeing, or careful cultivating, in a dry season, before the seed are matured will kill it out ; especially, however, if some care is used to render the plants helpless by turning them over upon their backs as one would turtles.

□ This weed was once considered a good pot-herb, but of later years it has been supplanted by much more esculent vegetables.

ST. JOHN'S

WORT



FAMILY.

24. **St. John's-wort.** **St. John.** (P.) *Hypericum perforatum*, L.

An erect, woody herb, 1 to 2-feet high, branching, with numerous opposite leaves dotted with minute black spots, rooting offsets from the base of the stem, and bearing many clusters of yellow flowers like those in the cut above. This intruder often becomes a very troublesome weed in pastures, and should be pulled up by every neat farmer as soon as discovered. In an early day it was

supposed to be the cause of a disease then prevalent among cattle, characterized by ulcerous sores appearing upon different parts of the animal, and affecting white cows, and horses with white feet and noses especially; however, as this disease has disappeared, and the St. John's-wort has not, it must have been due to some other cause; probably an epidemic.

The plant has been recommended in fresh decoction, for coughs and hoarseness (188); and being somewhat resinuous in its nature it has been used in some forms of bowel troubles. One of the later and more scientific uses of this plant, in alcoholic tincture deserves special mention: In this use it has been termed "The Arnica of the Nerves," being found to be an excellent internal remedy, in two drop doses frequently administered, for wounds or bruises where the nerves or spine has been injured. Most gratifying results have followed its administration, even in bad cases of lock-jaw.

25. **Shrubby St. John's-wort.** Broom-brush. (P.) *Hypericum proliferum*, L.

In glady regions this profusely branched, shrubby form of St. John's-wort is often a decided pest in meadows and pasture lands. This plant may be eradicated by first underdraining the land, a process that the presence of this plant shows the need of. The plants now grubbed out will never sprout up again.

MALLOW



FAMILY.

26. **COMMON' MALLOW.** CHEESES. (P.) *Malva rotundifolia*, L.

This is a common garden weed, with round scolloped-edged leaves, and small yellowish-white flowers; the seeds form a flattened globular mass set within a hull like that of a strawberry, and when green are mucilaginous, and are often gathered and eaten by children under the name of "cheeses." This weed often gives a great deal of trouble to the gardner especially, and should be pulled up and thrown on the compost heap before the seeds ripen.

The seeds are often used in domestic practice to make a demulcent drink, in place of slippery elm water; and the whole plant as a poultice for inflamations.

27. **SPINY SIDA.** (A.) *Sida spinosa*, L.

This native of India is becoming but too thrifty in waste and

cultivated lands along our greater water courses. It grows more upright than No. 26, the leaves are elongated egg-shaped, and saw-toothed on the edges; the flowers are small, greenish-yellow and resemble a single hollyhock blossom in shape; the fruit is composed of five small, two-horned pods all enclosed in a hull. The name denotes a character that the plant does not possess, as it has no spines but only a little wart-like process at the base of each leaf stem.

This weed is very aggressive and utterly useless, and should be pulled up before seeding, and thrown with its kindred into the compost heap.

28. **INDIAN MALLOW VELVET-LEAF.** (A.) *Abutilon Avicennae*, Gaertn.

In some sections of the State, the tall stems and large velvety, heart-shaped, pointed leaves of this Indian plant are very conspicuous indeed, especially in corn and potato fields. This weed is more frequently allowed to grow and mature its seed at will than well befits the thrifty farmer. An annual so easily subdued by cutting out when in flower, should not be seen upon any man's lands. The peculiar inverted-bell-shaped fruit shown in our illustration will always identify this species.

29. **FLOWER-OF-AN-HOUR. BLADDER KETMIA.** (A.) *Hibiscus trionum*, L.

This last weed of the mallows has a deeply rooted tendency to infest our gardens and cultivated fields, where its floral life is short, and its seeds are rapidly matured. The weed may be readily recognized by the great resemblance of its flowers to those of the Rose of Sharon of our door yards—they are, however, yellow with a purple eye, instead of rose colored as in that shrub. The plant grows about one to two feet high, and bears three-parted leaves of which the middle part is the longest. As this European plant is quite ornamental, try and induce the children of your household to pull up all they can find and put them in vases to ornament the house; this will in time rid you of the weed, if they are praised delicately for their pretty boquets.

GERANIUM



FAMILY.

30. **Wild Cranesbill.** (A.) *Geranium Carolinianum*, L.

In several sections of the State this pretty little wild flower

has become a great nuisance, both in cultivated fields and in meadows, where it spreads profusely, covering the entire surface in its chosen locality and choking out all other vegetation (98). "It is considered a bad weed in Cabell county." (194). I have noticed in many places in Monongalia, large patches of the dense growth of this species, greatly contracting the area of grass in meadows. The weed may be recognized by its pink flowers resembling that depicted above, by its rose-geranium-like leaves, and its peculiar seed pods also illustrated here. This seed pod is so formed that in bursting the seeds are thrown quite a distance compared with the size of the plant, therefore grub it out before the seeds are ripe, and throw it into the compost heap, and watch the spots the next season prepared to treat what appears the same way.

The root is drastic, and is often used in decoction for bowel troubles. (202).

31. **Yellow Sheep Sorrel.** (A.) *Oxalis corniculata*, L., var. *stricta* (L), Sav.

A small, apparently weak weed with sour clover-like leaves, and small yellow flowers; growing in fields, meadows, pastures, gardens, along roads, and in waste places. That this is a bad weed may be seen by the following analysis by our Station Chemist, which shows that one dry ton of the plant robs the soil of the following amount plant food:

37.74 lbs. Nitrogen,	value at 19 cents	7.17
55.88 lbs. Potash,	value at .5 cents	2.79
11.18 lbs. Phos.acid,	value at 8 cents	.89
		\$ 10.85

Where this weed is prevalent, thorough cultivation, and dressing with plaster for several seasons, will kill it out.

QUASSIA FAMILY.

This family is represented in this country only by :

32. **THE TREE OF HEAVEN. CHINESE SUMACH.** (P) *Ailanthus glandulosus*, Desf.

A large tree, imported from China years ago with the idea that its presence would absorb all malarial miasm, and thus render its neighborhood free from fevers of that type. In its early growth it resembles the common sumach, when large, the Black Walnut. The fruit is an immense pendant mass of winged seeds something like those of the Maple, and like them capable of sailing with the wind.

However it may be concerning its quality of absorbing malarial poison, the female tree is certainly becoming a serious pest in many parts of the State, and should be destroyed, the pure males alone being allowed to grow for shade or ornament in towns. There is how-

ever a great objection even here, as these trees emit when in flower an odor that is painfully obnoxious to many people. This tree has spread so badly from the seed in Lewis, Jefferson, Marion, Monroe, Gilmer, Kanawha, Jackson, Monongalia, and other counties near the larger towns, as to warn the people of the necessity of destroying at once all fruit bearing specimens of the species. In many places clumps of seedlings have become as dense as sumach tangles, and should be treated the same way, by grubbing them out as soon as possible.

Several cases of poisoning from this species are on record, from children eating the flowers; the symptoms arising being similar to those of a severe attack of catarrhal croup, but far more serious.

THE VINE FAMILY.

33. Virginia Creeper. American Ivy. (P.) *Vitis quinquefolia* (L), Lam.

This vine with its pointed five-divided leaves, like the outspread fingers of a hand; and which turns such a bright crimson color in autumn; is too well known to need a farther description. There is nevertheless considerable misunderstanding in regard to it, many mistaking it for the poison-vine, or poison ivy, which however has only three divisions to its leaves which are often wavy or notched on the margin something like the white oak, whence the name "poison oak" so often applied. (See illustration below.) Grubbing is the only method that will remove the plant from places where it is judged to be a weed.

CASHEW



FAMILY.

Poison Ivy.

34. Sumach. Shumake. P. *Rhus glabra*, L., and *typhina*, L.

On sandy or gravelly hillsides and like situations the Sumach is a very troublesome shrub, often causing extreme labor on the part of the cultivator to keep it in any kind of subjection; it being one of those weeds that seems to thrive upon opposition, and grow the thriftier for being disturbed. Grubbing and burning the roots so torn up is the only method that will tend to result in its eradication and this only if persisted in.

35. Dwarf Sumach. P.

Rhus copallina, L.

The winged leaf-stems of this species render it the most ornamental of our forms, but as we are not now dealing with the ornamental, this point will only serve in distinguishing this species from the others. Dwarf sumach habits the poorer soils of exposed hill-sides and knolls, where it proves as hard to eliminate as the two previous species. The same treatment must therefore be applied to it.

36 Poison Ivy. Poison-Vine. Poison Oak. (P)

Rhus radicans, L.

In some portions of the State especially in the northern counties there is no more obnoxious weed than this miserable vine. Apart from its liability to poison anyone passing near it on a damp day or especially one trying to dig it out, its persistence is similar to that of the other and more shrubby forms. Should this vine need any description whatever for the reader to know it, the cut at the beginning of this family of plants will probably be all that is necessary; it represents the leaves of the "poison oak" variety, often however they are entire on the margin, not even wavy. There are over two acres on University Campus here, one dense mass of the vine, and along the Monongahela River below stands a fence a quarter mile long, every post of which looks like a picturesque pollard willow in winter from the dense masses of this vine that cover them. So profuse is the growth in some places in the State, that no attempt whatever is made to reclaim the land. In Hampshire also "it is a very troublesome weed" (119.)

The only method of successful action against the vine is thorough grubbing during a very dry season, though people susceptible to the poison should not attempt to work at it.

Single drop doses of an alcoholic tincture of the whole plant, morning and night twice a week, is often curative of certain kinds of rheumatism, especially muscular forms that are worse in damp weather, and where there is a deal of stiffness on first beginning to move, that gets better as the muscles are worked a little. The best application to parts effected by the vine is some alkaline wash like a solution of common washing soda. A wash made by boiling elder leaves in buttermilk is recommended. Poultices of the fresh leaves of Vervain (weed No. 142), often prove a great relief. "The milk of Wild Cotton (weed No. 119) applied to the parts affected will cure nearly every time" (55). See also remarks under weed No. (130.).

PEA & BEAN



FAMILY.

This family includes all those plants that have a butterfly-like flower similar to those of the Pea, Bean, Redbud, Locust, Peanut, etc., etc.

37. **RABBIT-FOOT CLOVER.** (A) *Trifolium arvense, L.*

An erect hairy, branching, clover; with soft oblong hairy heads, bearing some resemblance to a rabbit's paw. A native of Europe, now becoming quite thoroughly naturalized in this country. Its presence is such a plain advertisement of thin soil, and neglected agriculture, that all who have it upon their lands should adopt methods of improvemet by higher cultivation and more thorough fertilization, that will supplant it with more valuable growths.

38. **YELLOW OR HOP CLOVER.** (A.) *Trifolium agrarium, L.*

This little weed creeping surely and persistently westward from the Atlantic seaboard is now found quite plentifully in the valley counties. It may be readily recognized from its small dense, oblong heads of yellow blossoms, low habit, and general clover-like appearance. Lands infested with this worthless weed and its companions cinquefoil and red sorrel should, receive thorough cultivation following a good plaster dressing.

39. **WHITE MELILOT. SWEET CLOVER. BOKHARA CLOVER.** (B?) *Melilotus alba, L.*

This tall weed with slender stems 4 to 6 ft. long tipped with slender spikes of small white blossoms, and sparse sweet-scented clover-like leaves, is valued in some sctions as a forage plant when the cattle have been trained to eat of it, and as such has been somewhat cultivated in this country. From these points of cultivation it has escaped and become a coarse weed, which cattle here utterly refuse to eat of except when it is cured or young and very tender. The plant grows with us mostly along ditches and roadsides and in waste places in the valley counties, and near the larger towns in other portions of the State; where, though sweet-scented and and graceful, it is unsightly and useless. Though having reason to doubt its value here as a fodder, I have none as to its classification asa weed.



Sweet Clover.

The cultivated plant, according to the analysis of the Massachussetts Station gives about the following

food constituents: Protein, 2.09; nitrogen free extract 3.09; crude fibre 3.06; ether extract (fat, etc.) 0.4; thus giving a wide nutritive ratio of 1:4.7.

The best method of utilizing this weed is to grub it out while in flower and compost it. Treated thus, the following table will show for it a higher value as a manurial substance than as a food:

	Mass. Analysis.	W. Va. Analysis.
Nitrogen,	1.77	2.40
Potash,	1.67	1.95
Phosphoric Acid,	.43	.50

The Massachusetts analysis thus gives it a value of \$9.15 per dry ton and ours \$10.85; its average value is therefore \$10.

40. Yellow Locust. (*P.*) *Robinia pseudacacia*, *L.*

This common tree whose north-eastern limit is within the boundaries of this State, often proves a troublesome weed by its persistence in sprouting from the root or stump, as well as its capacity and frequency of seeding in on lawns and meadow lands, as well as in pastures. The only method of subduing it, is to pull out the stumps with their major roots, and to grub out carefully and thoroughly all seedlings as they appear.

This tree reaches its highest development on the western slopes of the mountains of this State. Its timber is well known as very durable underground, being on this account extensively used for fence posts and other partly buried supports. The wood is heavy, hard and strong, close-grained, and compact. It ranks third in strength, nineteenth in elasticity, and one hundred and thirty-seventh in fuel value among over three hundred species of American woods.

This tree is just now undergoing a crisis in its existence in this State, that threatens to end very disastrously; for not only has the common borer (*Clytus Robinæ*) been very industrious, but full forty other insects have added their work to its destructive operations. Our Entomologist says of this trouble:

“Returning to the Station on August 7th, after an absence of about two months, I observed the locust trees all along the Baltimore & Ohio R. R., between Central Station and Morgantown peculiarly affected. The trees everywhere in the forest and field having a scorched and dead appearance.”

“The landscape thus marred by the dead appearance of this, one of our most valuable as well as beautiful forest and shade trees, attracted the attention of every one, and excited their wonder and curiosity as to the cause of the trouble.”

“The present trouble was found to be caused by insects; and the region thus affected so far as I have since observed extends through Doddridge, Harrison and Preston counties, from Grafton westward to near the Wetzel county line, from Fairmont through Monongalia county to the Pennsylvania line, and from Piedmont southward through Tucker, Randolph Upshur and Lewis counties. The

trees were unaffected through Ritchie and Wood counties, and along the Ohio River as far as was observed, the leaves being fresh and green at the time they seemed to be dying in the infested districts mentioned. This dead and scorched appearance of the locust trees at a time of year when they are noted for their beautiful green foliage was, as far as can at present be learned, first noticed in Harrison county about the year 1885, when a few scattering trees were observed to turn brown. The number of trees thus affected rapidly increased each year until every tree, bush, and sprout of this species looked as if it had been killed by fire. This trouble continued to spread until at present at least one-fifth of the State is affected."

While over forty species of insects were found to be feeding on different parts of the affected trees, one species, the Locust Hispa, appeared to be the principal cause of the trouble.

Such widespread affection of this valuable timber is very deplorable, and unless checked by some one of Nature's remedies will cause great loss to the State. This seems possible from our observations last season.

41. **Beggar's Lice. Beggar's Ticks. Stick-Tights. (P)**
Desmodium sp.

There are a large number of species of this genus of plants whose general characters are similar. They are known by their three-foliolate leaves, long flower stems, small scattering pea-like pink blossoms, and adhesive pods arranged like a chain or necklace. These latter separate into little triangular or roundish flat "seeds" that stick to and mat the hair or fleece of animals. Some of the species are found in all weedy places, open woods or fields, and are the particular bane of Shepherds, as they decrease the value of wool and cause torment to the sheep themselves by their irritation. The practice of beating down these weeds before the fruits form is often resorted to, but the best measure would be to hack them off with the hoe, in open woods, or cut them with other weeds when growing along ditches, fence rows and like places and cart them to the compost heap. In large, weedy fields such as I have often seen in the State where this weed abounds in great quantities, treatment should be adopted according to Part 4 of this bulletin. One of the species (*Desmodium rotundifolium*, L.) is called "Hive Vine" in some sections, where it is used in decoction for hives (220).

42. **Bush Clover. Violet Clover. (P.)** *Lespedeza violacea, Pursh.*

A low bushy clover-like plant with small violet pea-like blossoms, closely arranged on the long slender tips of the stems. In some dry fields, this plant becomes as prevalent as cinque foil. Cattle eat of it when young but refuse it entirely later in the season. Its eradication should be undertaken through a thorough renewal of the field with proper cultivation, plaster dressing and fertilization.

42a. **Japan Clover.** (P.)*Lespedeza striata*, L.

A low herb with small trifoliate leaves, and very small flowers, producing little flatish one-seeded pods. The seeds of this plant were accidentally brought into South Carolina about the year 1849 from China; from whence it has spread quite rapidly over the South and has been tenaciously holding its own wherever introduced. In the South, it is considered a very valuable forage plant which idea is fully sustained by chemical analysis. As a weed, the plant often crowds out our best grasses, and as it freely produces quantities of small seeds, it proves quite hard to exterminate. Its use as a forage plant seems to be more or less like that of the Bokhara Clover, as cattle have to be starved in order to take lessons in eating of it. Prof. Gulley of Mississippi says: "For the South, Japan Clover is, without exception, the most valuable plant that grows, after once started it grows spontaneously, except on lime land. It keeps hills from washing, even coming in to fill the washes. It can be killed by plowing for one year. On good land, it grows from 12 to 24 inches high, cuts a good crop of hay, equal to first class timothy. It will grow when Blue Grass and Clovers fail entirely. It stands dry weather admirably, and on some soils will even choke out Bermuda Grass."

In contradistinction to this, Mr. Henry Stewart, in the "Country Gentleman" for January, 1886, says: "I assert emphatically that unless cattle and pigs are starved to it they will not eat the Japan Clover or any kind of *Lespedeza*. This statement is given to prevent your readers from being fooled into buying the seed and trying to grow it in any place north of Virginia."

Mr. J. W. Miller, of Barboursville, this State says: "I consider the Japan Clover one of the most dangerous weeds we have to contend with in this part of the State. It first made its appearance down the Sandy river, and then came down the Guyandotte. It came from the South. I know parties here who paid at the rate of \$40 per bushel for the seed, when it was taking all the fields in this section as a weed. It grows on any kind of ground, poor south hillsides are adapted to it, and it will grow in the woods; but the trouble is, when it gets among our tame grasses, it will destroy them. It comes up from the seed every year about May 1st and grows 8 to 10 inches tall and is killed by the first frost. After this, the ground looks as bare as an old pennyroyal field, stock will now eat it but it is too short lived to be of any value. I think should it get scattered over all our State, it will be a great curse to the farmer, as it has killed out both Orchard and English Blue Grass in my pastures. By all means warn our farmers against buying this seed."

This plant has become a weed in this State almost throughout the southern section. It may be eradicated by thorough cultivation and plaster dre sings, as suggested by the words of Prof. Gulley as quoted above.

43. **Wild Senna.** (P.)*Cassia Marliandica*, L.

This bushy herb with its showy yellow flowers and locust-like

leaves and pods, has become a troublesome weed in many sections of the State ; especially, however, in Fayette, Summers, Gilmer, Kanawha, Mason, Harrison, Webster (246), Monongalia, and Marion, near Gray's flat (259). It should be grubbed out wherever found, especially as its aggressiveness is not yet thoroughly known.

The dried leaves act much the same as the Senna of commerce in three times the dose ; its action, however, often causes severe griping.

44. **Honey Locust. Black Locust. Three-thorned Accacia.** (P.) *Gleditsia triacanthos, L.*

This well known tree extends in this State to the higher Alleghanies, where on lawns as well as in parks, fields and meadows it causes trouble, much as does the Yellow Locust by its sprouting and profuse seeding in ; and should receive even more thorough attention. The thorns are very strong, and when scattered about after being broken off by the wind, often penetrate the feet of cattle causing severe wounds.

This tree properly planted and pruned makes a completely impervious hedge. The wood is heavy, strong and quite compact, and although it is somewhat coarse-grained it takes a very high polish. It is, like the Yellow Locust, very durable under ground, and is used in a similar manner ; it is, however, eighty-third in order of strength, sixty-sixth in order of elasticity, and one hundred and ninetieth in order of relative fuel value, among about 400 American woods.



To this family belong all of those plants resembling in their flowers the well known cherry, peach, thorn, apple, rose and strawberry. It is one of the largest families of plants represented in North America.

45. **Eriars. Blackberry.** (P.) *Rubus villosus, Ait.*

This well known plant, particularly obnoxious from its tendency to take absolute possession of old fields, needs no description here, as it is already too prominent in the minds of our farmers. The berries produced, as well as the vines, vary greatly in size, thorniness and general appearance according to the soil and locality in which they grow. The best method of subduing this pest is to

cut over the land thoroughly in July and September for three years, casting the crop gathered into the compost heap, where, when properly rotted, it should be worth the labor as a manure.

When with all the labor of gathering, the berries bring but four or six cents per gallon as usual in our markets, the bushes would be worth more as compost than their yield as a table fruit.

The root has long been known in domestic practice as an astringent, and as such is used in decoction for summer complaint (249); diarrhoea (239); and dysmennorrhoea (154). A sort of brandy made from the juice of the fruit, and preserves of the same, are also slightly astringent.

46. Dewberry, Running Briars. (P.) *Rubus Canadensis*, L.

This prostrate form of the blackberry is a very prominent weed in this State, and should meet with the same treatment as the last. The berries are usually larger and sweeter, as well as earlier, than the high bush forms.

The famous Leucretia Dewberry originated in this State near Beverly, Randolph county.

47. Cinquefoil. "Sinkfield." (P.) *Potentilla Canadensis*, L.

This too well known little runner that is often complained against as "taking" whole fields running out the good grass and proving altogether obnoxious, needs no description except may be to the scientific farmer who seldom sees it upon his own lands. Large quantities of this plant indicate two things; a poor thin soil or thriftless farming. Plentiful use of good, well-rotted, stable manure with lime or plaster, and one thorough cultivation will rid land so treated of this detestable pest. Old pastures run to Cinquefoil and Sorrel should be treated in this manner and sown with good, clean, pasture-grass seed.

48. Stick Seed. Beggar's Ticks. (P.) *Agrimonia Eupatoria*, L.



Agrimonia.

This little plant with light green leaves, similar to those of the strawberry and rose, and a long tip of small yellow flowers resulting in numerous little greenish, pear-shaped, prickly-hooked fruits, so detrimental to sheep and wool; is one of the worst of pests to the shepherd. It grows in damp, shady places, along ditches and runs and in open woods, from whence it should be carefully cut with other trash twice a year until subdued.

49. Stick Seed. Baggar's Lice. (P.) *Agrimonia parviflora*, L.

This plant which is a twin of the preceding species, only differs from it to the eye of the general observer in its more numerous leaflets and smaller flowers and fruits. The fruits being fully as well armed with prickles as the last, the plant should receive the same treatment as a weed as its predecessor.

50. Wild Rose. Swamp Rose. (P.) *Rosa Carolina*, L.

This beautiful swamp brier with its clusters of deep pink single roses terminating the branches, grows from 3 to 5 feet high, and often forms almost impenetrable thickets on low lands and in wet meadows. Such lands, if needed for cultivation, require thorough underdrainage for one year before removing their weeds with the mattock and scythe. One careful going over will then reclaim them from this character of growth, especially if the treatment for low fields—recommended in Part 4—be faithfully followed.

51. Sweet Brier. Eglantine. (P.) *Rosa rubiginosa*, L.

This plant introduced from Europe threatens some parts of the State with one of the most formidable briars capable of growing in this section. The bush grows densely and lustily, and its yellow-green stems are armed with strong curving prickles; its leaves are resinous beneath and aromatic; and its flowers and fruits very showy. This species has become quite noticeable in parts of Nicholas, Randolph, Greenbrier, Summers, and Monroe counties, and should be carefully grubbed out wherever seen.

GOOSEBERRY AND CURRANT FAMILY.

52. Wild Hydrangea. (P.) *Hydrangea arborescens*, L.

This bush bears some resemblance in its blossoms to the common elder, but on close inspection will be found to differ from it widely, having broadly ovate leaves, and larger white flowers scattered around the margin of the clusters of small ones. The shrub grows from 4 to 6 feet high, and flourishes in damp spots near springs, runs or rivers, and sometimes in damp meadow lands where it may be killed out by grubbing and watchfulness.

The stems were used in an early day by housewives for weaving "quills"; and a decoction of the young twigs, flowers, and leaves, was considered valuable in reducing the pain caused by the passage of gravel, especially in the earlier stages of the disease.

MELASTOMA FAMILY.

53. Meadow Beauty. Deer Grass. (P.) *Rhexia Virginica*, L.

In damp meadows about our river bottoms and like situations, this pretty flowered weed is often very profuse. It grows erect, about 4 to 8 inches high, and bears little clusters of large purplish-pink flowers with large yellow anthers, from each of the upper leaf axils. The stem is square and winged along the angles.

This weed, like all others found associated with it will only yield to cultivation after the grounds upon which they grow are well under-drained.

LOOSESTRIFE FAMILY.

54. "Tar Weed." (A.) *Cuphaca petiolata*, (L.) Koehne.
This persistent little weed with its purplish stems and flowers, is considered a nuisance in many parts of the State (36, 73, 111, 123), where it often threatens to occupy fields and pastures almost to the exclusion of other vegetation. It has received the name "tar weed" on account of the sticky hairs that cover its stems and branches, which when rubbed off by sheep and mingled with dirt in their fleece, gives them the appearance of having come in contact with tar (36).

There is no method of getting rid of this plant except renewing the pastures and fields in which it has become a pest, by thorough cultivation and enrichment.

EVENING PRIMROSE FAMILY.

55. Fire-weed. Willow-herb. (P.) *Epilobium spicatum*, Lam.
In newly cleared land that has been burned over, large areas of this tall brilliantly-pink blossomed plant with its willow-like leaves will often appear Phoenix-like from the ashes. This is the Fire-weed so called, which will often thereafter appear in fence rows and other untilled spots, where it tends to flourish as a constant feature of such places. Although stately and graceful in appearance, it is of no use to the farm and should be cut and composted with its companions before fruiting.

56. Evening Primrose. Sun-drops. (B.) *Oenothera biennis*, L.
A tall branching and fruitful weed with large yellow flowers which open at night and close on the rising of the sun unless the day be cloudy and wet. The illustration represents the top of the plant only, giving but little idea of its large coarse growth. This is one of the conspicuous weeds of old fields and neglected lands, as well as of roadsides and fence rows, where its flowers may be seen even on quite dark nights as their petals have the power of storing up sunlight and emitting a sort phosphorescence at night in consequence. As the plants are profuse seeders, they should be grubbed out, and destroyed during their flowering season.



Evening Primrose.

The young roots are said to be edible and pleasant either boiled or pickled, they having a "nutty taste;" and are used in some parts of France and Germany for the table. Medicinally, the plant has met

with considerable use in the South, where it is known as the "King's cure-all." Mr. L. J. Germain says of the uses of the plant: "In some of the Eastern States, it is said to be used as a diaphoretic in fevers, and is there known as 'fever plant'. It is also said to be used there in the harvest field under the name of 'coffee plant', for its invigorating qualities, and to slaken thirst and promote perspiration. In the Middle States it is generally known as 'scabish plant,' or wild Evening Primrose, and is in great repute for 'summer complaints,' such as ordinary diarrhœa, cholera morbus, bloody flux, Asiatic cholera, cholera infantum, etc. The young roots are also grated fine, pulverized or macerated with fresh lard, mutton tallow, or fresh butter, and applied as an unguent to cutaneous affections such as burns, scalds, felons, bunions, erysipelas, cuts and bruises. In the Southern states it is commonly known as 'king's cure-all,' and used by physicians to dispel gathering humors, such as boils or 'gatherings.' The negroes use it as an antidote for snake bites and as a poultice for wounds, causing them to heal by 'first intention.' For the latter purpose, the usual method of preparing the poultice by country physicians is by boiling the leaves with wheat bran."

"Another use for the plant is in cases of sun stroke. Its reviving effect in such cases and the relief of the attending apoplexy is wonderful, as I have experienced in my own person and observed in others. It is also used as a soothing stimulant by the aged, infirm, and hypochondrical. I have seen the tea used successfully to promote perspiration and check vomiting and spasms in a case of Asiatic cholera. I also used the same with good effect upon myself on one occasion in a case of ordinary cholera. On frequent occasions, during a series of years with a surveying party in the West, I have given it to my men for sudden attacks of bowel complaint, always with good results. In some cases better results seem to have been obtained by a slight addition of alcohol to effect a more complete solution of some of the gummy principles. Sulphate of ether, instead of alcohol, has been used in desperate cases of cholera infantum and for the diarrhœa which often follows scarlet fever."

"I should also add that the blossoms placed in water form a mucilage excellent for inflamed eyes."

57. Sun-drops. "Wild Beet." (B. or P.) *Oenothera fruticosa*, L.

This species bears a general resemblance to the last, differing from it, however, in that it does not grow as tall, and bears a greater profusion of flowers and fruits. One of our farmers remarks in sending me a specimen of this weed; "I bought in 1889 an old field that had not been plowed for years. I plowed it and sowed in oats and grass in 1890; these ugly hard weeds, came up thick and grew some three or four feet high, with stalks from one-half to three quarters of an inch thick, very hard to cut. I think this is a bad weed in a wheat crop." (13) Lands infested with this plant should be thoroughly improved both by cultivation and thorough and

methodical fertilization, followed by a crop requiring good full cultivation.

The value of this weed as a component of the compost heap is quite low compared with many others, its analysis showing only 1.05 per cent of nitrogen; 0.39 per cent of phosphoric acid; and 1.68 per cent of potash, yet this should not discourage its addition to the heap early in its flowering season.

This plant when young is used with the last as a pot herb (88), and in domestic practice meets with the same medicinal use. It is also used for croup (34), and as a vulnerary for recent wounds.

GOURD AND MELON FAMILY.

58. Wild Balsam Apple. (A.) *Micrampeles echinata*, (Muhl.) Raf.

This climbing or running plant so often cultivated for arbors, and with the false impression that it beautifies old sheds and fences by its growth,—a point that could be much better proven by the painter and carpenter—may be known by its five divided grape-like leaves, minute flowers, and fleshy egg-shaped weak-spined fruits, that burst at the point and eject their seeds together with the juice of the fruit. Escaping from cultivation in this State to damp waste places and fence rows, it soon fails to look ornamental and becomes justly considered as a nuisance. It should be torn away at the root before the fruits are formed.

PARSLEY FAMILY.

As the name denotes, all plants of this family bear a general resemblance to the common garden parsley. They all have more or less umbrella-like heads of small flowers; mostly fine or numerous cut leaves; and a peculiarly shaped double-winged seed, with ridges and minute oil cells between. There are many aromatic forms in the family such as anise, coriander, fennel, lovage, etc., and many of the plants are poisons of greater or less virulence, though this property is generally lost in cultivation or by cooking; like the parsnip, carrot, etc.; or by bleaching, like the celery. The peculiar pungent, rank odor of the bruised plants of any member of the family will serve as a point of recognition.

59. Wild Carrot. Devil's Plague. (B.) *Daucus Carota* L.

The finely cut leaves, flat-topped white flower cluster and bird's nest-like fruiting cymes of this most aggressive and pernicious weed are becoming so well known as to render a minute description of this plant unnecessary here. This species has proven itself our most aggressive weed, being now represented in every county of the State. It is considered a new weed in Wood



Wild Carrot.

(206); Wetzell, in 1889 (33); Brooke (250); Morgan (175); Hampshire (171, 216); Grant (242); Jackson (51, 121); Pendleton, where it is being carefully watched and exterminated (70, 268); Greenbrier about Lewisburg, but has not yet reached Frankford, fourteen miles from there; Summers (244); and Harrison counties. The seeds of this plant are usually brought in grass and clover seed, and are disseminated in many ways when once established. The seeding heads curl up when ripe, enclosing the seeds until late in the season or even far into the winter, when becoming broken, the seeds are scattered far

and wide during blustery weather; sometimes the whole head is broken off and driven over the snow by the wind into adjoining fields and pastures. Fifty thousand seeds have been counted upon a single plant of the average size.

The wild carrot being a weed of uncultivated places, meadows, pastures and waste spots, the method of its eradication is evident, *i. e.* cultivation; and this should be followed industriously where the plant is prevalent. When only plentiful or infrequent, it should be carefully cut down before going to seed. Two years of this work will clear out the stand. Composted, it is of considerable value to the farmer, as it will not only recover to him a large quantity of nitrogen and potash (see part I.), but it will also tend to keep the weed off his place. Sheep on short pasturage will eat off the tops, thus preventing the plant from fructifying (121), but this can not be considered a good means to utilize against the weed, as it would be far better for the farm and sheep as well to remove such weeds and leave more room for good grass.

To conclude: the wild carrot is one of three of our most aggressive weeds; it is absolutely good for nothing except in the compost heap, and not worth growing for that purpose; altogether, it should be watched with the utmost care, and never allowed to come to maturity. For further data upon the plant see chapters on Distribution and Bad Points of Weeds.

60. *Angelica* (P)

Angelica villosa, (Walt.) B. S. P.

Another weed of the same general family characters as the last, from which it differs mainly in its lower and more leafy habit, and its dense covering of silky hairs. This rank weed generally grows in dry fields and meadows and should be looked upon with the deep suspicion that all species of this family deserve. It is certainly poisonous and unsightly and should be grubbed out whenever noticed; especially as its aggressiveness is as yet uncertain.

61. **Cow Parsnip. Masterwort.** (P) *Heracleum lanatum, Michx.*

A tall, stout, rough, woolly, strong-scented plant, with large, thrice-compound leaves, grooved leaf stem, broad flower heads, and a general rank and unsightly appearance. It grows in damp meadows and pastures, and has a very doubtful reputation, considering which it should be cautiously removed from the farm with the mattock.

The root in a fresh state is very acrid, inflaming and blistering the skin wherever touched by it, and is poisonous if taken internally. Small doses have been recommended for epilepsy, and various like nervous diseases, as well as for asthma, and apoplectic attacks.

62. **WILD PARSNIP. "QUEEN-WEED"** (B) *Pastinaca Sativa, L.*

This common garden vegetable in its wild degenerated state is very unsightly and one of our aggressive weeds. In this condition it is tall, stout, deeply grooved along the stem, bears large clusters of yellow flowers, and larger fruits than any other prominent member of this family. Its aggressiveness is positive and should be diligently checked by grubbing out all plants seen before the fruits are formed.

Although the cultivated root is succulent, sweet, nutritious and very pleasant to many, yet it is acridly poisonous in its wild state and causes vomiting and inflammation of the stomach and bowels even after cooking. In several cases of poisoning recorded, the symptoms of delirium pointed to this plant as a severe gastric irritant with reflex cerebro-spinal excitation. The seeds have been used in ague, but how effectively I can not say. In Ireland, a beer is made from the cultivated roots with hops, also a wine, while a kind of rum is at times distilled from them.

63. **Water Hemlock. Beaver Poison.**

Spotted Cow-bane. (P.)

Cicuta maculata, L.

This weed of the damp meadow and brookside, is another of the poisonous members of this family. It may be recognized in addition to the illustration here given, by its purple stem, slender habit, and pungently aromatic odor. Nearly every year some account may be seen in the Press of the country, of cases of poisoning of children from eating of the root; and on this account, if no other, this and every member of this family should be grubbed out from the farm lands the moment they are recognized.

The symptoms of poisoning are: Pain in the bowels; vomiting, followed by violent continuous convulsions: dilation of the pupils; frothing at the



Cow-bane.

mouth, and death.

64. Harbinger-of-spring. (B) *Erigenia bulbosa*, Nutt.

This little vernal member of the family I should hardly consider a weed had I not noticed last spring two cornfields in this county absolutely covered with it. It is a low, smooth, almost stemless, few flowered plant, springing from a deep round tuber. This plant would hardly persist in lands subjected to cultivation especially if properly drained.

SPIKENARD FAMILY.

Plants of this family bear some little resemblance to those of the last; differing mostly in bearing berry-like fruits instead of seed-like carpels.

65. Angelica Tree. Hercules' Club. (P) *Aralia spinosa*, L.

This large shrub or low tree with its immense pompon-like masses of small white flowers, and stout prickly stems and stalks, bears some resemblance to the sumac when in flower. It generally grows along the banks of runs, or large streams, though I have met with it frequently on hillsides and in pasture lands far from any stream; it thus shows points in aggressiveness which should warn us that it may not prove as innocent as may seem at first glance, grub it out before the fruits are ripened. It is of no use.

WOODBINE FAMILY.

66. Elders. (P.) *Sambucus Canadensis*, L.

There is probably no plant in the weed category that has caused more "sweat of the brow" than this innocent looking shrubby species. Its persistent sprouting from the roots, which are very tenacious of life, renders it most difficult to subdue; even plowing it up frequently only scatters it the more. The talent of this weed for spreading seems to be almost unsuppressible, one of my correspondents entirely removed a large growth of this species simply by cutting it close with a hoe (98), others have signally failed. Cattle can not be grazed close enough to starve them into eating even the young sprouts (90) in some localities; in others even if stripped of their leaves by sheep, they continue to grow year after year without apparent injury. The only method of subduing them is by the constant use of the mattock. With this as with the Canada Thistle "eternal vigilance is the price of freedom."

Economically the berries are often used for making wine, or as a fruit for pies, but this use must spring from necessity rather than from choice.

In domestic medicine, this plant forms almost a pharmacy in itself, and has been used substantially as follows: A decoction of the flowers and leaves, or an ointment (69) containing them, is used as an application to large wounds to promote healing and prevent deleterious consequences from flies; the leaf buds prove a violent and unsafe cathartic; the flowers, in warm infusion, are stimulant, exci-

tant and sudorific ; in cold infusion, diuretic, alterative and laxative—even for horses (132) ; they are also employed in ointment as a discutient. The inner bark is a severe hydrogogue cathartic, emetic, deobstruent, and alterative, valuable in intestinal obstructions and dropsy. The berries prove aperient, diuretic, diaphoretic and cathartic ; valuable in rheumatic gout, scrofula and syphilis—the juice making a cooling laxative drink. The leaves, worn inside the boots, will prevent galling, and are often used for like purpose under the collars or saddles of horses.

BUTTONWEED FAMILY.

67. Bluets. Innocence. (P.) *Houstonia caerulea, L.*

This humble little plant which dots or patches our pastures and meadows in early spring with its sky blue flowers with a yellow eye, does more harm than is readily imagined by crowding out with its spreading habit much grass. Fields that are too much given to it will generally be found to need renewal, and should be treated as recommended in Part 4.

68. *Houstonia*. (P.) *Houstonia purpurea, L.*

A small erect plant with narrow grass-like leaves and little funnel form purple flowers in a terminal cluster.

This is an herb of the woodlands, but in this State quite plentiful in old fields and pastures. Fields in which this weed grows will be found so overgrown with pennyroyal, cinquefoil and sorrel, as to need thorough renewal as advocated in Part 4.

69. Cleavers. Goose-grass. Bed-straw. (A. or P) *Gallium Sp.*

In all damp spots of the farm will be found a variety of low vegetation that renders them unsightly and gives the fields in which they occur a very unkempt appearance. Among this vegetation, some species of this class will usually be found. They may be distinguished by their square stems having small leaves clustered around them at regular intervals, by their weak habit, by their small white flowers, and by the tenacity with which some of them cling to the clothing, they being beset with minute hooked prickles along the angles of the stem. As cattle and sheep are often worried, and wool injured by these plants, the spots in which they grow should be drained and cleared away thoroughly, as these plants will not thrive if bereft of moisture and the friendly shade of larger vegetation.

TEASLE FAMILY.

70. Teasle. Water-thistle. Tall Thistle.
Fuller's Card. Indian Thistle. Huttonweed. Eng-
lish Thistle. (B.) *Dipsacus sylvestris, Mill*

Of the many course weeds of the State, I know of none that have

been so much the object of



questioning remark and wonder, and less attempted against, than this introduced member of a small but aggressive family. The teasle is a tall, prickly, strictly upright plant, with large opposite leaves meeting and forming a cup at the stem, and terminated by numerous long-stalked egg-shaped prickly heads as in the illustration here given. The plant was introduced from Europe into the eastern United States at an early day that the heads might serve for carding wool; and its growth was encouraged for that purpose. Those grown upon a farm in Greenbrier county in this State were thus protected by Volnez,

the illustrious historian, as he predicted for the locality a great manufacturing center (218.) From such points it has escaped and spread widely. It often forms such dense thickets that cattle will not attempt the passage of them (278.) The plant is called "Water Thistle," from the large amount of rain water often found in the cups of the leaves at their junction with the stem, and in the hollow stems themselves when cut (229.) It is called "Hutton-weed" in Randolph county from having first been found upon the farm of Col. Elihu Hutton's father. It is more often looked upon, however, as the Canada Thistle by those who have never seen the latter plant. It has proven itself a very aggressive weed in Cabell, Marion, Marshall, and several other counties.

The teasle grows mostly on dry banks, along roadsides, in old fields, and on hillside pastures; from whence it is easily eradicated by the diligent use of the mattock before its fruits are ripe, for a few consecutive seasons.

ASTER
AND



DAISY
FAMILY

Wild Sunflower.

This is the largest family of plants in North America, and to it belong all those plants having heads of flowers of two kinds like those seen in the illustration above; the flowers of the margin (b) are called ray florets; while those of the center (a) are called disk florets. The asters, daises, dahlias, chamomiles, sunflowers (the subject of the illustration), and over three hundred other forms characterize the family. All the plants represented in this country seem to have a greater or lesser tendency to become weeds, especially as almost all of them have some form of self-distributive growth particularly adapted to render them aggressive. The seeds are either little parachutes prepared to be blown about by the wind; or winged for a like end; or furnished with hooks or barbed points to attach them to the hair of animals; or are small hard nutlets especially adapted to pass through the intestinal tract of any animal eating them, without injury to themselves.

71. "Devil's Grandmother," "Tobacco-weed." (P.) *Elephantopus tomentosus*, L.

A roughish, hairy, stout herb, with compound heads, dark green leaves, and purplish flowers. This plant shows a strong tendency to become a noxious weed in this State; especially in some parts of Upshur (12), and Harrison (36) counties. It should yield to grubbing in a few seasons.

72. Iron Weed. (P.) $\left\{ \begin{array}{l} \textit{Vernonia Novaeboracensis}, \textit{ Willd.} \\ \text{and} \\ \textit{Vernonia altissima}, \textit{ Nutt.} \end{array} \right.$

There are several species of this tall, coarse, hard weed in the State, principal among which are the two mentioned above. They are characterized by their erect growth, strict leafy stems, long pointed leaves, and small purple heads of flowers at the apex of the plant. The hard woody stem of this weed renders it a particular nuisance to farmers who find it difficult to cut down; it is from this fact that it receives its vulgar name "Iron Weed." The proper method of eradication is to grub up all plants each season before blooming, and if they persist after that, the fields upon which they grow should be properly underdrained. This proceeding will render the land far more profitable, and will effectually remove not only this species, but several other weeds that accompany it.

The bark of the root is used in domestic practice as a bitter tonic; and in rheumatism (190).

73. Queen-of-the-Meadow Quill-wort.

Indian Gravel Root. (P.) *Eupatorium purpureum*, L.

A tall, graceful plant 4 to 10 feet high, growing erect and strict, surmounted by a large mass of reddish pink blossoms. The leaves are arranged in a circular manner at regular intervals around the stem; they being long, pointed and sharply saw-toothed upon their margins. This species grows like the last in moist ground, and is amenable to the same treatment. It shows a high value as a manurial substance, as it contains 2.07 per cent. of nitrogen; and 2.11 per cent. of potash.

As a family remedy, the root has met with considerable use, especially as a sudorific in fevers (276), particularly those of an ague type. It has also an established reputation as a diuretic in dropsical affections (68, 217); kidney troubles (124, 135, 181, 201, 207, 266); and for gravel (202, 207, 267); especially in chronic forms of these troubles. It is also extensively used, like the last, as an astringent tonic.

74. **Round-leaved Boneset.** (P.) *Eupatorium rotundifolium*, L.
var. *pubescens*, (Muhl.) B. S. P.

A plant growing in drier grounds than most other species of its type. It bears considerable resemblance to the common boneset in its flowers, which are, however, smaller; but the leaves are small, egg-shaped, and saw-toothed on the margins, and do not clasp the stem at their bases as in common form. As a weed this species frequents pastures, dry hillsides and roads, and is becoming too common and unsightly to be allowed to flourish. It should fall to the scythe with other filth.

75. **Boneset. Thoroughwort. Feverwort.** (P) *Eupatorium perfoliatum*, L.

This is one of the most well known of our moist land plants; its clusters of small white flowers, and light green veiny foliage set closely about the stem are characters not to be mistaken. When existing as a weed as it often does in wet meadow lands, it can be eradicated by the only method of reclaiming such, that is to say by thorough tile draining.

There is probably no plant in American domestic practice that has more extensive or frequent use than this. The attic or woodshed of almost every country farm house, has its bunches of the dried herb hanging tops downward from the rafters during the whole year, ready for immediate use should some member of the family, or that of a neighbor, "take a cold." How many children have winced when the maternal edict: "drink this boneset; it'll do you good," has been issued; and how many old men have craned their necks to allow the nauseating draught to the quicker pass the palate! The use of a hot infusion of the tops and leaves to produce copious perspiration was handed down to the early settlers of this country by the Aborigines, who called it by a name that is equivalent to ague-weed. It was first introduced, as a plant, into England in 1699; but was not used in medical practice, even in this country, until about the year 1800. It has now a place in every work on Medical Botany which treats of North American plants.

Boneset produces perspiration only when given in generous doses of the hot infusion; a cold decoction is claimed to be tonic and stimulant in moderately small: laxative in medium: and emetic in large doses. It is also said to be anti-dyspeptic and anti-rheumatic. It is prominently adapted to the cure of a disease peculiar to the South known as break-bone fever (Dengue), and it is without doubt from this property that the name "Boneset" was derived.

This herb has also been found to be curative in intermittent fever, bilious fever, bilious colic, typhus and typhoid conditions, influenza, catarrhal fever, rheumatism, lake fever, yellow fever, and remittent types of fevers in general. Many of the earlier works allude to this species as being diuretic, and therefore of great use in dropsy. This is evidently an error of substitution, No. 73 of this list being without doubt the species used.

As a family remedy, its use in this State has become very common; it being considered a specific for a great variety of troubles, but especially for colds and fever (2, 12, 26, 34, 43, 100, 126, 139, 143, 152, 171, 175, 238, 244); for coughs, colds and hoarseness (3, 12, 73, 138, 169, 188, 214); and for malarial fever (124, 153, 186, 204, 276). Its use as a tonic (124), and remedy for deranged liver (128), as well as a stomachic (29), emetic (124), and cathartic (124), is quite general.

76. **Mist Flower. Blue Boneset.** (P.) *Eupatorium celestinum*, L.

This species has the general characteristics of the round-leaved boneset, but differs in its larger, sky-blue flowers and larger, coarser toothed, longer stemmed leaves. It flourishes in either moist or dry fields, preferably the former, and will yield to the usual methods used to kill out its friends and neighbors: drainage or the scythe. It has not had, to my knowledge, any particular use as a medicine.

77. **Golden Rod. Yellow Top.** (P.) *Solidago sp.*

This, the chosen flower of our nation, while graceful and aesthetic to the eye of the civilian, is looked upon with anything but inspiring thought by the agriculturist. Its wiry stems, sprangling yellow tops, and aggressive nod to every passing breeze, causes him to anathematise it rather than sing of its beauty. Notwithstanding all this, the graceful curves of its stem, branches, and sprays of golden flowers are worthy of more than one lingering thought of the beautiful 'ere it is rendered obnoxious by classifying it with trash of the field.



Golden Rod.

It should be mown down with other weeds before fruiting, and the lands which it infests given better cultivation and more nourishment.

Late medical discoveries have proven this plant to be a very efficient diuretic in some forms of kidney troubles.

78. **Daisies.** (A. & P.) *Aster sp.*

There are a large number of species of asters in the State all of which, with their blue or white flowers, bear some resemblance to the next species. All of them are unsightly weeds upon the farm, and should be cut and composted ere they mature their seeds. The directions given for gathering weeds in Part I of this bulletin will

prove excellent measures against these species if followed carefully.

79. "White Devil." "Wire-Weed." "Devil-Weed."
 "Old Virginia Stick-Weed." "Old Field-Sweet."
 "Farewell Summer." "Nail Rod." (P.) *Aster lateriflorus*,
 (L.) Britt. var. *hirsuticaulis*, (Lindl.) Gray.

There are few weeds in this State that have caused so much comment as this scraggly branched, profuse blooming little aster, with its wiry stems clothed with minute leaves intermingled with small clusters of close growing white or blueish flowers.



White Devil.

Mr. J. W. Miller, Cabell county, says of this weed: "The Nail Rod that has been here for 10 or 15 years has white or purplish flowers in the fall, grows up 4 or 5 feet, stalk dies every winter and sprouts up from the root again in the spring. It grows on fields that were in grain the year before, and laying fallow the next. It grows thick as a rye field. We do not consider it bad, as it is a good fertilizer and any kind of stock will eat it and kill it out. We never find it in our pasture lands."

Mr. George A. Alexander of the same county says: "The Farewell Summer, I am told, is a common weed in Virginia. It commenced growing here in this and adjoining counties about eight or ten years ago, and I consider it a very troublesome weed. I hear general complaint from farmers concerning it. It does not grow very fast until about July or August, after which it begins to bloom in little clusters of white blossoms, and continues to do so until frost kills it. Fields sown in clover and not pastured till the bloom ripens, are utterly ruined unless the weeds are previously mown down, and even then the clover roots are badly damaged. Cattle will eat it while it is in bloom, because it is at that time almost impossible for them to find anything else; they seem to like it at that time, but do not thrive well upon it. If it is not mown down the stalks remain erect till clover cutting time the next year, when it is almost impossible to cut them with any safety, for they are as hard as sticks, hence the origin of the name 'Stick Weed' I am told that it usually grows on old worn out fields in Virginia, and that is why it is called by some 'Old Field Sweet.' In this locality it usually grows fastest, and is most troublesome, on our best lands."

Gen. Jno. McCausland, of Mason county, says: "White Devil, a weed growing on heavy exhausted clay land, I think will become very troublesome. The stem is very hard and woody, and it branches like a pine tree. I have seen fields so covered with it that they had the appearance of a buckwheat crop."

This weed is considered new in Mason (170), Cabell (229), Kanawha (154), Wayne (178), and several other of our southern counties. It is often mentioned as being relished by sheep and cat-

tle (154,229), and is an excellent late, honey producing plant (178,191).

Fields infested with this plant should be cut over while the weed is in flower, and the crop gathered and composted ; which, as the plant contains 1.92 per cent. of nitrogen, 0.56 per cent. of phosphoric acid, and 1.61 per cent of potash, will fully repay the trouble especially as the seeds are thus destroyed, and the roots will not outlive such treatment many seasons.

80. "Blue Devil." "Stick Weed." "Bee Weed." "Fall Aster." (P.) *Aster cordifolius*, L. var. *laevigatus*, Porter.

This aster differs from the last in its taller growth, larger lower leaves, longer and less straggling branches and its generally larger and bluer flowers growing mostly on the end of the smaller branches. It is considered a weed much as the last species, and sometimes the names are intermixed for both.

It is considered a new weed in Greenbrier (142,) Upshur (270), Barbour (180), Harrison (22), Jackson (115, 200, 201, 256, 273), Roane (136, 159), Braxton (108, 255, 266), Wetzel (105) and Wirt (39, 125) counties. This species, is in fact, to our central and northern counties, what the last is to the more southern.

Mr. J. P. Campbell, of Jackson county, says of this weed: "The Blue Devil will prove a blessing to all our farmers that fail to sow grass, as it grows very thick on the ground furnishing shade for the land, giving it a chance to recuperate from the effects of exhaustive farming ; in fact, for some kinds of soils, I am not sure but that it is an excellent fertilizer. Sheep and cattle eat it, and sheep will soon eradicate it in their pastures ; but if left to ripen it leaves a stiff, woody stem full of branches, which on good land will be four or five feet high."

This is also one of our late bee plants, being frequented by these honey gatherers as one of their last chances of the season.

It should be cut and composted before flowering, which, as its analysis shows 1.49 per cent. nitrogen, 0.52 per cent. phosphoric acid and 2.25 per cent. potash, will fully repay the trouble.

81. Butter-weed. Horse-weed. (A.) *Erigeron Canadensis*, L.

This erect, greatly branched, hairy weed, with its top of small aster-like flowers, and its slender grass-like leaves, is generally found along roadsides, in waste places, and covering old fields especially along the Great Kanawha river bottoms, and in the valleys generally. As it is a profuse seeder, and as its fruits are capable of flying in the air like those of the dandelion, the plant should be cut and composted before they are ripe.

An infusion of the plant has often proved an excellent remedy for spitting of blood in people of dark complexion ; also as an astringent in diarrhoea and dysentery. The oil is, however, the most useful, in doses of from four to six drops per hour.

82. **White-top. Daisy Flea-bane.****Sweet Scabious.** (A.)*Erigeron annuus*, Pers.

This common White-top is a tall daisy-like plant of the pasture and meadow. The stem is stout, leafy, hairy and branching; the leaves egg-shaped, pointed, and sharply and coarsely saw-toothed along their margins; the flowers are white and clustered at the summit of the plant. Although this weed is very unsightly in meadows and a source of general disrespect, it is not particularly obnoxious, as cattle do not refuse it when it is cured with the hay; yet, could our farmers see the white meadows of the northern and middle states where this weed is plentiful, they would immediately see the necessity of keeping weeds from seeding whenever possible.

Its astringent properties are considered by some Agriculturists a valuable element in stock feeding (210.)

83. **Old-Field-Balsam. Everlasting.** (A.) *Gnaphalium obtusifolium*, L.

One of the most noticeable of our old field weeds is this pearly-white member of this family. Its large bunch of wooly heads, whitish stems and branches, and tendency to preserve its form of flower and leaf very late in the season, as well as its slight balsamic odor, are points of recognition known to every farmer. Being a weed of fallow lands, the methods of renewing such mentioned in Part 4, of this bulletin will be sufficient to eradicate it if followed.

A hot decoction of this plant proves pectoral and somewhat anodyne, and is therefore often used as a remedy for coughs (39, 94, 220); it is also sudorific and useful in feverish colds (38). Hot fomentations of the herb are used like arnica for sprains and bruises, as well as a poultice for unhealthy ulcers. The dried flowers and leaves form excellent filling for the pillows of consumptives, their balsamic exhalations often giving ease to the cough and rest to the patient.

84. **Low Cud-weed.**(A.) *Gnaphalium, uliginosum*, L.

This little prostrate, spreading, silvery herb, having much of the general characteristics of the last, is found in moist spots of meadows and pastures. Thorough drainage will readily eradicate it.

85. **ELECAMPANE.** (P.)*Inula Helenium*, L.

□ This tall stout graceful herb, with its large leaves whitish-wooly beneath, and large heads, is a well known pasture and roadside weed in many parts of the State. It is a native of southern Europe, and grows spontaneously in damp places in the United



Elecampane.

States. It is of little use and should be grubbed out and destroyed before the flowering season, as there are few weeds that give a more ragged, slovenly appearance to a field than this after its flowering season has passed.

The root is large and has a camphoraceous odor and mucilaginous juice. On this account it was one of the most famous of ancient medicines. As far back as the Hippocratic writings, it is stated to be a stimulant to the brain, stomach, and kidneys. In this State, it is often used for lung troubles (45), and for colds when accompanied by cough (37, 45, 94, 112, 139.)

86. **Leaf-cup.** (P.) *Polymnia Uvedalia, L. & Canadensis, L.*

Large, coarse, stout, hairy and heavily odorous plants, with immense thin lobed leaves, and light yellow heads of flowers; growing mostly in moist shady places, but often in our mountain counties seeking open pasture lands and meadows. A careful farmer will remove them with a mattock, when locking out for the welfare of his fields and stock.

87. **Tall Rag-weed. Horse-weed.** (P.) *Ambrosia trifida, L.*



Tall Rag-weed.

This tall form of the rag-weed, with its erect stems tri-lobed leaves and three forked spikes of minute yellowish-green flowers; is a general habitant of rich fields, where, if left to itself it forms a dense growth choking out most other plants. It will yield to frequent cutting which should be done before the tops flower.

This species is especially enjoyed by horses and hogs, which seem to find in it a tonic bitter pleasant to their palates.

88. **Rag-weed.** (A.) *Ambrosia artemisiacifolia, L.*

A low omnipresent species with doubly divided leaves, many branches, and numerous spikes of greenish yellow flowers. This is one of the very few weeds the vulgar name of which is national. The rag-weed is the commonest weed of the stubble field, and can only be subdued by constant and careful cultivation. Sheep appear to be very fond of it, and in some counties of this State it is harvested and stacked to serve as a winter fodder for them (see chapter on Weeds as Fodder for Stock in part 2 of this bulletin.)

The medical uses of this plant are but slight, the principal

being as a bitter astringent for diarrhoea (30), and summer complaint (224). It has met with some uses in fevers (181), and in Maryland was once used as a substitute for quinine, but with little success. It is claimed to be a successful application to parts poisoned by poison ivy, if rubbed in until the skin is discolored by its juice.

Of late years much attention has been called to the species of this genus—especially this and the preceding plant—as being, through their pollen, the cause of hay-fever, many people affected with this troublesome disorder laying the charge direct. It is true that when the pollination of this plant is begun, this disorder generally commences in those people subject to it, and only ceases when the plants are out of flower. We have had the pleasure of curing several patients with this disease, all of whom had asthmanic symptoms at the height of the trouble, with drop doses of the tincture given three times per day.

89. **THORNY CLOT-BUR.** (A)

Xanthium spinosum, L.

This Clot Bur is as yet little known to the farmers of this State, but I have noticed an increased abundance of it during the two seasons I have botanized in the State, and fear that it is to become one of our most obnoxious weeds. Not only are the burrs as adhesive to wool as those of the next species, but the stem is thorny as well. I have noted it along road-sides in Jefferson, Berkeley, Mineral, Kanawha and Wood countie . Its distinguishing characters are: its leaves, which have three white ribs upon their dark green upper surface and are silvery white beneath ; its stems and branches which have three long, stout, golden yellow thorns at the base of each leaf, altogether making one of the most formidable of weeds, and one that should be watched and cut down before going to seed.

90. **Clotbur. Cockle-bur. Cuckle-bur.** (A) *Xanthium Canadense, L.*

A common weed of ditches and damp places, characterized by its brown-speckled stem, large, ovate, long stemmed toothed leaves, and spiny fruits growing singly or in clusters from the base of the leaf stems.

The clotbur is a weed as much detested by shepherds as the burdock, and with good reason, as the fruits can not be released from the fleece without cutting out and wasting a considerable quantity of wool.

Fields infested with this weed should be reclaimed by under-drainage, and small sections of land given up to it should receive the same treatment.



Clotbur.

91. Nigger-head. "Yellow-Daisy."
"Brown-eyed Susan." (P.)

Rudbeckia sp.



Nigger-head.

This daisy-like flower with its deep orange-yellow rays and dark purple almost black button-like center, can not fail to attract the attention of the farmer, who is now realizing in the growth of this species what aggressiveness in weeds really signifies; as it was but a few years ago a rare plant in this State, while now many fields are almost one solid mass of color from its presence.

It frequents meadows and pastures as well as fallow land, but seems to prefer the former. It should be carefully cut down while in bloom to prevent its spreading by means of the seed.

92. Wild Sunflower. (P.)

Helianthus sp.

We have in this State as far as I have noted fifteen species of the wild sunflower, at least one-half of which are taking upon themselves the nature and characteristics of weeds. They grow in all kinds of soils and many appear to be quite aggressive. The cut at the beginning of this family will give an idea of the character of their flower.

Wild sun flowers should be cut during their flowering season, and composted to guard against trouble from their multiplication.

93. Wing-stem. Stick-weed. (P.)

Actinomeris alternifolia,
(L.), DC.

This tall branching weed with its stem and branches winged upon the angles, saw-toothed, feather-veined leaves, numerous yellow daisy-like flowers, and globes of winged seed, threatens to become a fearful pest along our greater river bottoms. An average plant produces 212 ball-like heads each having an average of forty seeds, giving a yield of 8,480 seeds to the plant.



Wing-stem.

Mr. J. W. Miller, of Cabell, says of this weed: "Our worst weed here on good ground is the Stick Weed, which grows about 4 to 6 feet high, has yellow blossoms in Fall. It only grows in some parts of our county. When it gets a start, the ground has to be broken, or the weeds grubbed out. No stock will eat it. I have known pasture land to be cut over for years without killing

or even thinning them out."

This weed should be grubbed out and composted before the flowers have been opened, as the younger ones often mature their seed while later ones are blooming. This will probably account for the lack of success mentioned in the letter above.

94. **Wild Coreopsis.** (P.) *Coreopsis sp.*

Several species of these plants, mostly quite similar to the last except that their flowers are more like those of the wild sunflower, escape from open woods and shrubby hillsides to our drier pasture lands, where they threaten to become more or less obnoxious to the farmer. If cut and dealt with as other trash according to the directions given on page 125 of Part 1 of this bulletin, they can not fail to be subdued.

95. **Stick-tights. Beggar's Ticks. Pitchforks.** (A.) *Bidens frondosa, L.*

Who of our farmers are not acquainted with the small, flat, two-tined seeds of this miserable weed, that sticks to their clothing and the hair of their animals in the early autumn. Most moist spots of the farm annually yield millions of these seeds from plants whose flowers show plainly their allegiance to this family. These seeds, as well as others bearing these names, will be found illustrated in the plate explaining the chapter on Weeds Detrimental to Wool in Part 4 of this bulletin.

Those spots on the farm yielding heavy growths of this species need under drainage to fit them for paying crops, and this measure will readily kill out the weed.

96. **Spanish Needles.** (A.) *Bidens bipinnata, L.*

Two particular characters distinguish this plant from the above: first, the leaves are finely divided into numerous portions; and second, the seeds have three to four long tines barbed down their sides. The true Spanish Needle (this species) grows also in dryer situations than the last often choosing even rocky soil. As a weed, it is more of a pest to shepherds than the last, and more difficult to eradicate. The plants should be pulled up when noticed or, if existing in large numbers, should be cut down before they mature their seed.

The only medical use I know of for this species is that of a decoction of the leaves for croup (142), and how effective this may be I am not prepared to say.

97. **DOG'S FENNEL. MAY-WEED.** (A) *Anthemis Cotula, L.*

This common weed has become, since its introduction from Europe, thoroughly naturalized throughout the cultivated regions of North America. Its particular choice of soil and location is roadsides and along the paths worn by cattle about the farm; though it often spreads into dry fields and pastures in general. It grows from 1 to 2 feet high, branches profusely, and bears numerous white daisy-like flowers the rays of which droop back toward the stem in age, exposing the button-like yellow center. This character, together with the finely divided yarrow-like leaves readily distinguish it. Dog's Fennel should meet with the same fate, as all of its family by being cut and destroyed before its fruits are ripe.



Dog's Fennel.

The plant when cut and cured until black, is readily eaten by cattle (55). In family medicine, it has been used much like its near relative chamomile for colds (258, 267) and colic (21, 131, 154.) The blossoms are also used in decoction for flux, either alone (55, 97) or mixed with the leaves of the Smartweed (124.) The plant has been somewhat used for sore throat (224, 271,) and for diphtheria (131) though probably not the true type of that disease. The leaves, bruised and bound upon the places affected, are said to relieve the pain of neuralgia (98.)

98. **Yarrow.** (P.)*Achillea Millefolium, L.*

This weed is growing to be very common in this State, where its flat-topped clusters of white or slightly pinkish flowers, and its finely dissected leaves are becoming but too thoroughly known. It is somewhat aromatic and too strongly bitter for our cattle to even nibble at it. It should be grubbed out in June and September before its seed are ripe. Its value as compost will be found on Page 124 of Part 1, of this bulletin.



Yarrow.

The uses of this plant in domestic medicine depend mostly upon its astringent and tonic properties having been more or less curative in colds (66); croupy coughs (264); dysentery (112); dropsy (194) wasting haemorrhages (88); and in nocturnal enuresis of children (244.)

99. OX-EYE DAISY. BULL'S-EYE.

"SHERIFF PINK." (P.) *Chrysanthemum leucanthemum*, L.

This vile European pest is becoming but too well known throughout the United States. Its distinguishing characters are fully illustrated in the accompanying cut and need no further description except that the flower heads are white with a deep yellow center. The ox-eye spreads, not only by seed, but like the Canada Thistle, by root as well; and could our West Virginia farmers once see the solid white meadow lands of the North and East, where this plant has achieved almost absolute supremacy, they would never pass a single plant in this State until they had paused to destroy it. The gradual spread of this weed in West Virginia may be realized by examining the tables appended to part 2, of this bulletin. Ox-eye is considered new in Hampshire (4, 71, 92); Pendleton (20, 268); Preston (93); Upshur (34); Braxton, in 1887 (146); Harrison (26, 95); Jackson (51); and Wood (89, 209) counties. My correspondents in general, grant this weed the most



Ox-eye Daisy.

prominent place among all those of the State. In some cases, it has escaped as a weed from flower gardens, where it is often cultivated for bouquets like its sister the chrysanthemum; it is more often introduced, however, in baled hay, and in clover and hay seed.

It has been introduced in some places as a fodder plant for sheep, though by close grazing they will exterminate it. This teaches a lesson of great value to our farmers, showing that sheep are the most valuable stock that can be grazed upon our lands, both as weed exterminators, and as highly profitable market animals. Correspondent (188) says: "I consider Ox-eye good food for cows, if cut when in full bloom and cured like hay."

Where this weed is abundant it is often used to restore worn out lands that are too poor to produce a good crop of clover. Our analysis shows that the plant contains 2.12 per cent. nitrogen; 0.46 per cent. phosphoric acid; and 2.88 per cent. potash. Its value is therefore high for this purpose; nevertheless cultivation of it as a manurial substance would be a dangerous experiment, and entirely useless while we have so much burdock, poke, bitter dock, thistle, fox tail, golden rod, iron weed, rag weed, wild lettuce, and like trash to use for the same purpose from our fallow lands. All this in the face of correspondent (142), who says: "I think the farmers of thin land should cultivate ox-eye daisy as it improves the land better than clover and will make a better crop and more food for all kinds of stock." It may seem needless for me to add that this plant has proven itself too aggressive a weed to be introduced as a crop in any locality whatever. (See remarks on Weeds as Fodder for Stock, in part 2 of this bulletin.)

Prof. Seymour of Wisconsin, in whose ideas I fully con-

cur, speaks of this weed as follows: "To exterminate the Ox-eye Daisy from grass lands where it has got a hold is no small task, especially if it is generally diffused, unless there is a united efforts on the part of all. A farmer finds little encouragement to clean it out from his own farm if he knows hundreds or thousands of seeds will be blown from his neighbor's farm on the roadside after a few weeks. It should never be allowed to seed ; but keeping down the stems will not prevent the growth of the root leaves, and so the roots and root stalks will be nourished and live on indefinitely. To kill it out in grasslands is very difficult, if not impossible. Annual plowing or regular cultivation for some crop for several years is recommended and ought to be effective ; but, unless the roadsides and fence corners are closely watched and cut over, all efforts will be thwarted by repeated seeding."

That quaint writer, Dr. Michener, in his *Weed Exterminator*, says: "Happily, this invader is sure to herald his approach, by deceitfully displaying a White Flag. While this need not to deceive, it must warn of the danger, and should lead to prompt, and vigorous resistance. It is not sufficient that the White Flag-staff should be cut down, and the Flag trampled in the dust, the farmer must industriously apply the glove, the hoe, the scythe, the plow, and that with little advantage to himself; if he does not know and act in accordance with his knowledge, that the daisy ripens its seed while yet in bloom. In other words, it retains its white ray flowers long after the proper flowering season has passed ; and time allowed for maturing the seeds. With a knowledge of this fact, the plants must not be suffered to remain on the ground, even after cutting, but must be effectually destroyed."

There is no Botanist nor farmer in the Eastern United States to-day but would agree with me in saying that, in a State like ours where this weed is not yet so plentiful, no self-imposed task would meet with more worthy praise than alert and watchful care exercised in the removal of every spray and root of this most aggressive weed that appears upon the soil.

100. **TANSY.** (P.)

Tanacetum vulgare, L.

In numerous localities in the State, this well-known medicinal plant with its finely cut dark green foliage and button-like yellow heads, has escaped to roadsides, fields and fence rows. It does not appear however, to be very aggressive, yet if not needed should be thoroughly rooted out and the spots watched and treated for several seasons until no trace of it is left. There is no telling what such weeds may do if left to flourish.

Tansy has been used as a carminative tonic since the Middle Ages ; especially in convalescence from exhausting diseases, in dyspepsia, jaundice and periodic fevers. A tea is often made of the plant and drank while hot as an anodyne in extreme nervousness ; this preparation is also used as a diuretic in dropsy, and a diaphoretic in fevers. The indiscriminate use of the oil of this plant by

women, as an emenagogue, should be discountenanced entirely, as it has proven to be of little use in this direction and numerous serious and even fatal cases of poisoning have followed.

101. **FRENCH WORMWOOD.** (P)

Artemisia sp?

Along the Great Kanawha river, from Charleston to its mouth, thence northward to the center of Jackson county, a tall species of this genus has advanced with threatening persistence until, in some places, miniature forests of the herb have developed. It is said to have been introduced by a French Physician, who brought the plants with him from France, and cultivated them in his garden here. I have never met with the plant during its flowering season, and have not, on that account, been able to determine its species. The name is common in the neighborhood in which it grows, and with this alone to distinguish it, all farmers having it upon their lands or road sides should take measures to kill it out by grubbing before its flowers are developed.

102. **Indian Plantain.** (P)

Cacalia sp.

These tall plants are distinguished by their long stemmed leaves, pale above and white beneath, and their whitish flowers, together with their tall, erect growth, and should be destroyed by grubbing whenever found, as they seem to grow annually more aggressive in their character. In just how much they will prove obnoxious is yet a question, but in this weed, if in no other, "a stitch in time" should always be taken. Should new weeds appear upon your farms, do not let them grow until you find out their characters or you will more often than otherwise have cause

to regret your delay. Kill them before they fruit.

103. **Fire-weed.** (A.)

Erechthites hieracifolia, (L.), Raf.

Just as the other Fire-weed No. 55 appears first and most frequent in newly cleared land that has been burned over, so also does this species, which as readily spreads to moist or dry soils thereafter.

This fire-weed is a tall, coarse plant with large thin leaves, the lower ones triangular, and whitish flowers. It seldom becomes a weed except in rich, moist fence rows, whence its unsightly presence should be removed with the help of the scythe before the seeds ripen and float away in the air as most species of this family are able to do.



Indian Plantain.



Fire-weed.

104. **BURDOCK.** (B.)*Arctium Lappa, L.*

This is one of the very few weeds that even the most negligent farmer is perforce compelled to remove from his land because of its peculiar habit of filling the houseyard and barnyard with its immense growths, and because if he does not do so his cattle are apt to become moving masses of its adhesive burs. A woeful sight indeed is the poor cow, whose tail hangs heavily downward—like that of the Mandarin's Ass—with its weight of Burdock burs too heavy to longer prove a protector against the last flies of the season. The shepherd must remove the plants or lose his fleece; here compulsion proves a remedy. The weed is so rank that man, the jack-ass, and caterpillar are the only animals that will eat of it. Repeated cutting below the crown of the root will rid the place of this most unsightly weed in two or three seasons. The plants so cut should be greatly prized as compost as they contain 1.85 nitrogen and 3.07 per cent. potash, both valuable fertilizers.

The young stems stripped of their bark may be eaten raw or boiled; as a salad with oil or vinegar, or as greens. In Japan, it is cultivated under the name of "gobo," and used much as we use salsify. The root has met with extended use as a tonic (4, 145) and blood purifier (7, 14, 26, 37, 42, 48, 49, 57, 66, 69, 73, 74, 77, 85, 94, 111, 114, 109, 122, 131, 148, 149, 150, 160, 181, 188, 195, 213, 217, 220, 225, 231, 232, 249, 261, 264). The seeds crushed and steeped form a decoction useful for stomach cramp and abdominal colic. The root has also been used for biliousness (145); for kidney troubles (100, 123); and for rheumatism (110).

THE THISTLES.

There has been so much written to me by my correspondents showing their doubts as to their ability to distinguish the different thistles, that I have taken some pains to show our principal species so arranged that their characters may be compared and their differences noted. In these cuts the sizes of the head are all relative one to the other. It will be noticed that the heads of the Plume thistle are the largest, that its leaves are long, quite broad and regularly scalloped and toothed; that the heads of the Boar thistle are smaller, that the leaves are very narrow and pointed, and that the stem is fully as prickly as the leaves; that the Virginia thistle has broad and but slightly scalloped leaves with few prickles, while the peculiar heads are still smaller than the last and not prickly at all; that the Canada thistle has the smallest heads of all and that they are grouped in clusters, that the leaves are broad, numerously scalloped and very prickly, while the stems are bare.

There is one other thistle in the State called the Swamp thistle, that has heads like those of the Virginia thistle, and leaves like the Plume thistle. This may be distinguished by its gummy adhesive heads.

The heads of the Plume thistle average one and one-half

inches in diameter; those of the Boar thistle one inch ; those of the Virginia thistle three quarters of an inch ; while those of the Canada thistle measure only from one quarter to one-half inch. The Plume thistle grows from 1 to 2 feet high ; the Bull thistle from 2 to 4 feet ; the Virginia thistle from 1 to 3 feet, and the Canada thistle about the same.

105. **Boar Thistle. Purple Thistle. (B.)**

Cnicus lanceolatus (L.) Willd.

This is our most common pasture thistle, characterized by its narrow green leaves, sweet purple flowers, and stems rendered very prickly by the continuances of the bases of the leaves down them. This species grows from two to four feet high and bears heads about an inch in diameter. It infests roadsides, meadows, and pasture lands from whence it may be readily removed by cutting it off below the crown of the root. The plant contains the large percentage of 2.44 nitrogen, and 5.53 potash, and will thus pay largely for the little trouble it takes to kill it, if properly composted after cutting.

A tea of the root is recommended for rheumatism (88), and neuralgia (249).



Boar Thistle.

106. **Virginia Thistle. (B.)**

Cnicus Virginianus (Michx.), Pursh.



Virginia Thistle.

This thistle differs from the other three principally in its broad, slightly indented leaves, few prickles, and wooly stems. It grows from Virginia southward mostly in open woods and fields.

[] It is hardly plentiful enough in this State to consider it much of a weed, being included in this list principally for comparison with the other forms described.

107. **Pasture Thistle.** (B.) *Cnicus odoratus* (Muhl.), B. S. P.

Pasture Thistle.

This large thistle much affected by young ladies, who make beautiful pompons of the freshly opened flowers by stripping off the outer green scales from the heads which allows them when dry to take the form of a soft downy ball. This species grows mostly in our glade regions, but is also found on dry pasture lands and fields in the northern and eastern parts of the State.

The plant is very prickly, the heads are larger than in any other of our species, and amply furnished with good size prickles and large leafy bracts at the base, the leaves are very prickly, regularly scalloped, and the stem profusely branched. This species is readily exterminated by cutting off the whole plant before blooming, close below the crown of the root.

108. **CANADA THISTLE.** (B.) *Cnicus arvensis* (L.), Hoffm.

This most execrable weed that has yet invaded the farms of our country, is not a native of Canada as might be supposed from its common name, but of Europe, where even as long ago as the time of Linnaeus, the first systematic Botanist of the world, it was



Canada Thistle.

considered "Vitium agrorum apud nos primum est" (the greatest pest of our fields.) The plant is slender, grows 1 to 3 feet high; has exceedingly prickly leaves, bears a large number of small rose-purple flower heads in clusters at the summits of its stem and branches, and is the lightest colored of all the thistles. This thistle is one of those particularly aggressive weeds that have the power of reproducing themselves from the root as well as from the seed, and on that account as well as the extreme vitality of the roots, it is very difficult to eradicate it when once it gains a footing.

Its advent in this State was supposed to be brought about through the mediumship of baled hay brought in by federal troops during the war. Though this may, and probably does account for its presence in some localities, yet from Mr. McMurrans's letter quoted below, it will be seen that it was known in Jefferson county at least, as early as 1840. In the western Pan Handle, it undoubtedly came by natural progression from south-western New York and western Pennsylvania. As to its distribution in the State, I have personally met with it in Jefferson, Randolph, Greenbrier, Brooke, Harrison and Monongalia counties; and have authentic

reports of its presence in Hancock, Ohio, Putnam, Lewis, Berkeley, Kanawha, Tyler, Upshur, Wood, Ritchie, Fayette, Preston, Grant, Hardy, Cabell, Clay and Doddridge counties.

To give our farmers some idea of what they will have to contend against if they do not now exert themselves to remove the comparatively small number of plants found growing in the State, I will quote the remarks of a few people from the thousands, who have looked with awe and dismay upon large areas of this most trying of weeds, and have delved in almost despair to rid their lands of its presence.

Prof. Seymour, of Wisconsin Experiment Station says: "The Canada thistle spreads locally by means of its running rootstocks. It may spread from a single plant and at length cover a whole field. In the heavy prairie soils of our Western States, it spreads more slowly than in the lighter, more sandy soils of the east, hence it is much less troublesome here. Cutting the rootstocks hastens the spreading, since it makes so many independent plants. Some of the pieces may be carried by the plow to a new place. Each piece grows with vigor, and thus for each break there is a new plant. Latent buds are forced into activity and new stems and leaves are formed."

"William Curtis, of London, gave the following account of an experiment with Canada Thistle or Field Thistle, as it is called in England, a hundred years ago: "I planted in a garden a piece of the root of this thistle, about the size of a goose quill, and two inches long, with a small head of leaves, cut off from the main root as it was springing out of the ground. This was done on the first of April; by the 2nd of November following, this small piece had thrown out shoots several of which had extended themselves to the distance of eight feet. Some had even thrown up leaves five feet from the original root. Most of the shoots were about six inches under ground. Others had penetrated to a depth of two and one half feet. The whole together, when dug up and washed from the earth, weighed four pounds. In the spring following it again made its appearance, on or about the spot from whence the original piece was dug. There were between fifty and sixty young heads, which must have sprung from the original planting that had eluded the gardner's search, though he was particularly careful in extracting them."

"To Mr. C. W. Palmer, of western New York," says the New York Tribune, "Much of the needful and beneficent discipline of life came in the common form of Canada Thistle in clover seed. Thus his farm became stocked thirty years since, with the worst of weeds. He tried many ways to get rid of them—mowing, hoeing, salting, etc.—but the plague multiplied until he had 'thistles in wheat, thistles in oats, thistles in corn, thistles in grass, thistles in everything raised.' But now his hundred acres of land, that 'five years ago was a complete mat of them' is wholly clear, the result of treatment carried on as follows: Plow the ground in June, drag twice in July and then gang-plough three times during August two or three inches deep, harrowing the ground every time. I plough

with a spring-tooth harrow, any tool that will cut off the tops the first, second and fourth weeks in August certainly uses them up here completely. No half way work will kill them. The tops must be cut off three times in August. A wet season is just as good as a dry one; only do it and do it well."

Mr. J. C. Plumb, of Wisconsin, had a little experience with this weed which was brought to him with a package of eastern trees; he says: "We carefully cut, hoed and ploughed them for the next two years, a process which we found increased them from a square yard to a square rod. We then proceeded to clean off every tree and bush from the infested ground, and gave orders to every man and boy to watch that spot and not let a living plant show above ground. This was done so effectually, by looking it over once or twice a week the first summer, that only a trace of the plant was visible the next year, and before midsummer even they were utterly destroyed, never to reappear. Such, and such only, can we recommend as specific treatment for this pest of the farm."

Many of our own Agriculturists in this State have tried their hand and patience already in subduing this weed, with what success the following letters will show: Mr. Joseph McMurrin, of Shepherdstown, says: "The Canada Thistle can be found in this vicinity in great abundance, and delights in a moist, low, marly soil. It is next to impossible to eradicate it when it once gets a good hold, as I can testify to my sorrow. I have been familiar with it ever since my boyhood. The first I remember of the thistle was in 1840 when my father bought some Timothy seed in Georgetown and sowed it in a meadow along a stream running through his farm. The next year he had as fine a crop of Canada Thistle as was ever seen. Every effort was made to exterminate it, but in vain. It is there yet, and from its seed, it is probable that it spread over this region."

Mr. J. C. Miller, of Wellsburg, says: "We have here on our farm a patch of Canada Thistles about six years old. In the first place it contained probably from 400 to 500 stocks. We have been fighting it by digging it up and burning it every season, but still it continues to spread although we have never allowed it to go to seed. It has spread diligently from the root and can now be found from 75 to 100 yards from the original patch."

Mr. James W. Benner, of Leetown, says: "I have had a patch of Canada Thistle on my farm which I first noticed in 1874 as a small area not more than 3 ft. square. It has been spreading since then until it now covers about one sixteenth of an acre. I am salting it with a sack of ground alum salt and placing the land in clover. I shall plough under and sow in wheat this fall, hoping to thus get rid of the thistle." We shall look anxiously for the results of this treatment fearful that it will meet with no success.

I could quote from hundreds who have given their experience with this weed to the public, and could even give my own painful and extended trials with it, but that in the small space at my command in this bulletin, I have already given a good idea both of the plant and the best methods of attacking it; and will

conclude by saying that, were it not that Nature tends in two ways to thwart its growth, agriculture would speedily become the most laborious and least possible means of gaining a livelihood; and I could almost imagine that international famine would be the natural result of its rapidly spreading growth. These two controlling forces of Nature are: First, that the thistle is given a two-formed existence, in that some plants produce good seed and others never can; second, that she has given it a preference for a heavy soil in which its eradication by man is most readily accomplished.

What emblem to commemorate the fall of Adam, the first Agriculturalist, could be more significant and appropriate than the Canada Thistle?

109. **False Dandelion.** (*P.*) *Krigia amplexicaulis* (Michx.) Nutt.

This is one of those wood-land plants that no one would have stopped to consider might have become a weed. It has generally kept close to its shaded haunts and moist banks, not venturing to spread into opens; yet along the river bottoms of the Little Kanawha, in Wood county, it is now becoming a weed in meadows and on pasture lands, scoring a point in aggressiveness that could hardly before have been credited to it. Its characters are: a bright yellow dandelion-like head on a long erect nearly naked flower stem, surrounded by several buds on shorter branches, and having a cluster of thin, almost entire leaves at the base.



False Dandelion.

This weed is not yet persistent enough in its new haunts, to withstand the hoe, which should be applied ceaselessly, whenever the plant is met with, to guard against its further development as a weed.

110. **CHICCORY.** (*P.*) *Cichorium Intybus*, L.

The Arabians not only initiated us in the use of a decoction of the fragrant and stimulating coffee bean as a beverage, but gave us its chief adulterant—the roasted root of this brilliantly blue astor-like plant—as well; which, being cultivated in various places for this purpose, has spread as a weed in many localities. Chiccory has a coarse, greatly branched growth from a deep root; beautiful double sky-blue flowers; and oblong, partly clasping, sharply cut, pointed leaves. As a weed in this State, I have met the plant only along the pike from Martinsburg to Shepherdstown. It should be prevented from spreading by the diligent use of the mattock yearly, before the flowering season, until it is eradicated.



Chiccory.

As regards the use of chiccory, Dickens, the English novelist, says in his "Household Words": "The great demand for chiccory has led to its very extensive cultivation in this country. * * *

The bleached leaves are sometimes used as a sub-

stitute for endive, and are commonly sold as an early salad in the Netherlands. The roots, after being taken up and packed in sand in a dark cellar, with their crowns exposed, will push out shoots and provide through the winter a very delicate blanched salad. When chiccory is to be used for coffee, the roots are partly dried, cut into thin slices, roasted and ground. It has not, of course, the true coffee flavor, but it makes a rich and wholesome vegetable infusion of a dark color, with a bitterish, sweet taste, which would probably be preferred by a rude palate to the comparatively thin and weak, and at the same time not very palatable infusion of pure coffee of the second and third quality. By the combination of a little chiccory 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 many people much more welcome as a beverage than pure coffee purchased at the same price." In times of scarcity chiccory certainly would make a better substitute than many other substances used, as, for instance, during the war of the Rebellion, beans, peas, rye, sweet potatoes, corn, cotton seed, peanuts, etc., were utilized.

III. DANDELION. (P.)

Taraxacum officinale. Web.

There are so many much more unsightly and obnoxious weeds than this, that, with the exception of its destructive effects upon the appearance of village lawns and public parks, it is very little considered. This is one of the many plants of this family that Nature has exceptionally supplied with means of carrying its seed into new localities. Each head of fruits produces from 77 to 407 seeds, with the average—of one hundred counted—of 249; and each seed is provided with a feathery sail by which is sustained in moving air for long periods, whence it is finally dropped seed downward to the soil. The root is very tenacious of life rendering eradication of the plant well-nigh impossible in grass lands where cultivation is out of the question. Should, however, the plant become too numerous, then thorough cultivation for successive crops is the only measure that will rid the soil of it.

The leaves in early spring are much used as a pot herb and as such are very palatable. The leaves are eaten raw or cooked, by the Digger and Apache Indians who value them so highly that they scour the country for many days journey in search of sufficient to appease their appetite. So great is their love for the plant, that the quantity consumed by a single individual exceeds belief. In many parts of Europe, especially in Germany, the dried roots are roasted and substituted for coffee by the poorer inhabitants, who find that an infusion prepared in this way can hardly be distinguished from that of the coffee berry. Medicinally, in this State, the root is used in liver trouble; (25, 188); as a blood purifier (11); and as a diuretic in kidney affections (21, 103, 104, 111, 124, 181).

112. SKELETON-WEED. NAKED WEED.

HOG-BITE. DEVIL'S GRASS. (P.) *Chondrilla juncea*, L.

This Old World weed is very little known in the United States except along the northern borders of our State, whence it extends into Virginia and Maryland. Although the distinction of growing this plant belongs almost wholly to us, we do not particularly pride ourselves in it as a production of our soil.



Skeleton Weed.

The common names of this plant as given by my correspondents more or less characterize its nature. It grows so rush-like, erect, and nearly destitute of leaves, that a clump of it has an appearance of striking nakedness not to be noticed in any other plant of our fields. This character, together with the prickly appearance of the stem near the root, and the copious milk that exudes from the stems when wounded, strikes one with the oddity of this plant, thus inviting questions by farmers as to its name and nature.

Its naked stems clothed only with a few small, close growing, yellowing flowers, are principally found in Monongalia, Preston, Marion, Mineral, Hampshire, Berkeley and Jefferson counties, though one observer reports it as a new weed in Summers (80). A sufficiently wide distribution to warn us of its aggressive character.

The following notes from our observers will give further insight into the character of this plant: "Though a new weed to me and only commencing to scatter in this neighborhood, I find that the skeleton-weed is an old inhabitant here. I think that it will be hard to conquer, as its deep roots are very brittle and thus difficult to extract from the ground" (119). "The naked weed is gaining on our farms and proves difficult to eradicate" (274). "A very troublesome weed has made its appearance here (Monongalia) within the last three or four years, which I think promises to be the worst pest we have ever had" (10). A sample of the weed mentioned by this correspondent proved it to belong to this species.

For the eradication of this pest summer fallowing with frequent plowing and harrowing, succeeded by a hoed crop, will probably prove efficient. At the same time, the greatest care should be taken to rid roadsides and waste places of this plant by the determined use of the mattock before its seeds are ripe.

113. Wild Lettuce. Horse-weed.

"Devil's Iron-weed." "Devil's Weed." (A. or B.)

Lactuca Canadensis, L.

Growing particularly in fence rows but in fields, meadows,

waste places and along roadsides as well, this plant becomes one of



Wild Lettuce.

our most conspicuous weeds; especially so on account of its tall, very leafy and erect growth; its lettuce-like top; and its wide distribution. It is considered, and justly, a bad weed wherever found, and, notwithstanding the fondness that horses and cattle often exhibit for it (172, 118), its aggressiveness is looked upon with dread by most of our farmers.

It is mostly found on the richest parts of the farm, and is a great robber of the soil. The several species being mostly annual or biennial should, and will, yield to the scythe if persistently applied just before the flowers open. If cut too soon, a second crop will cause the work to be done over again. After cutting the plants should be carefully composted as they are very valuable as a manure, yielding a large quantity of nitrogen and potash.

The milky juice of these species is rich in a substance analogous to opium, which has been pointed out as a probable substitute for the commercial product. Although narcotic, this substance hardly deserves a tithe of the reputation held for it by some medical writers.

114. SOW-THISTLE. (A)

Sonchus oleraceus, L.



Sow Thistle

A weed of our gardens, fields and waste places somewhat resembling in the character of its flowers the last species. It has, however, broader leaves which are less deeply incised and which partly clasp the stem by ear-like projections of the base; larger flowers, and a general color somewhat resembling that of the cabbage.

This weed is somewhat new on most of our lands, and should be kept from spreading by careful watchfulness and cutting the plants before the flowers expand.

BELLFLOWER FAMILY.

115. Lobelia. Indian Tobacco. Wild Ipecac. (A. or B.)

Lobelia inflata, L.

This well-known medicinal herb of low branching growth with small blue flowers, and comparatively large inflated papery pods filled with minute blackish seeds, is almost a universal autumn

weed of our grass lands and road-sides. On newly cleared unploughed lands, sown to grass, it springs up luxuriantly (273) and particularly enjoys hillsides and fallows. The only method by which it can be eradicated is late summer fallowing with frequent use of the harrow, as set forth in part 4 of this bulletin.

This plant has been suspected of causing slobbering of horses, which it would certainly do did they eat of it, as it is very acrid and poisonous, especially in a fresh state. Some of our farmers believe that it actually kills many horse and cattle (273.)

In domestic and medical practice, the emetic properties of this plant have been well known since our first acquaintance with the American Indians, who used the plant for that and other purposes. In very small doses, it is used to check vomiting (134) according to a well known principle of medical practice.

Lobelia has been recommended and used, in Botanic practice particularly, either alone or compounded with other drugs for almost every disease known, and has proven curative in some cases, palliative in more, useless in many, and a deadly poison in more cases than one. Its action is, as in all narcotics, principally upon the brain; thus making it anything but a desirable emetic. From the power it exhibits to relax the whole system, it has been found very valuable in spasms, lock-jaw, croup, whooping-cough, and even hydrophobia. Samuel Thompson claims to have discovered the virtues of the plant, though without doubt his first ideas upon it were gathered from the Indians.

EBONY FAMILY.

116. Persimmon. Date-plum. (P.) *Diospyros Virginiana*, L.

The persimmon is a very common and well-known tree in this State, and highly valued by some for its sweet fruits, which, though exceedingly astringent before being thoroughly frosted become pleasant and edible thereafter. In old fields and pastures, it often becomes quite troublesome from seeding in and sprouting where its presence is not desired. Fields in which this species and its associates become a nuisance should be cultivated and planted in successive crops as well as thoroughly fertilized.

Like many other plants and fruits containing much tannin, the fruit or bark of this tree is often used as an astringent in hemorrhages, and in catarrhal troubles of the upper air passages, and bowels.

MILK-WEED FAMILY.

117. "Rheumatism Weed." Indian Hemp.

Dog's Bane. (P.) *Apocynum androsaemifolium*, L.

This plant, known by its widely spreading habit, its reddish stems, small, pink flowers, milky juice, and peculiar curved cylin-



Indian Hemp

dricul pods growing in pairs and generally cohering by their tips; is a very common weed in meadows, pastures and old fields. As its seeds are of the parachute type, the plant should be grubbed out of such lands before its fruiting season, and composted with other refuse.

In domestic medicine, as well as in medical practice, this weed has gained considerable reputation when used in fresh decoction as a remedy for dropsy (222). Its use as a remedy in rheumatism is very extended in this State, either fresh (42, 148, 182), or preserved in whisky (48). It has also proved itself a good general tonic (59, 60), especially for dyspeptics (200), or where the liver is deranged (73), and constipation (201) results. It has also met with some use as a blood purifier (114); and a remedy for bronchial affections (236) and weak lungs (236, 266).

118. Pleurisy-Root. (P.)

Asclepias tuberosa, L.

This is one of the most striking of our Eastern and Central meadow and hillside weeds, its bunches of flame colored flowers being very conspicuous and noticeable. The flowers bear a strong resemblance in shape to those of the next species; the leaves are, however, longer and narrower, as well as much more curled on the edges; the whole plant is roughish hairy; and the resulting pods hoary and erect, while the milky juice so prominent in the next species is entirely absent in this. This weed prefers a sandy soil, but takes kindly to our dry pastures and meadow lands as well, whence it should be grubbed 'ere the pods ripen their downy seeds and scatter them to the wind.

Pleurisy-root gains its name from its use as a remedy for bad colds and lung complaints (239.) "From the successful employment of the pleurisy-root for twenty-five years," says Dr. Benjamin Parker, "I have imbibed such confidence that I consider it to possess the peculiar and almost specific quality of acting on the organs of respiration, powerfully promoting suppressed expectoration, and thereby relieving the breathing of pleuritic patients in the most advanced stage of the disease; also in pneumonic fevers, recent colds, catarrhs, and diseases of the breast in general."

119. Milk-weed. Silk-weed. "Wild Cotton." (P.)

Asclepias Syriaca, L.

A common plant of our road-sides, pasture lands and meadows; is distinguished by its stout, milky stem, thick, light green leaves, and



Milk-Weed.

large, warty pods, with flatish tufted seeds. The milk-weed grows preferably in sandy soils, but like last species, does not scorn to grow upon our thinnest soils and hardest clays; from which it should be cut twice every season to guard against spreading its seeds; this treatment will also tend to kill the roots in due season.

Economically, the young sprouts form a delicious pot herb in early Spring, one that I personally much prefer to asparagus when cooked in a similar manner. The seeds form a soft and pleasant filling for beds and pillows in lieu of feathers (142.) In an old number of Tilloch's magazine, a memoir on the cultivation of

this plant states its economic use in an early day: "Its chief uses were for beds, cloth, hats and paper. It was found that from eight to nine pounds of the coma of the seeds occupied a space of from five to six cubic feet, and were sufficient for a bed, coverlet, and pillows. The shortness of the fibre prevented it from being spun and woven alone; it, however, was mixed with flax, wool, etc., in certain stuffs to advantage. Hats made with it were very light and soft. The stalks afforded paper in every respect resembling that obtained from rags. The plant is easily propagated by seeds or slips. A plantation containing thirty thousand plants yielded from six to eight hundred pounds of coma."

The juice when applied to the skin forms a tough, adhesive pellicle; this has led to its use by the laity as a covering for ulcers and recent wounds to promote their healing; this milky juice is also stated to be an excellent curative application to parts afflicted by contact with the poison ivy (55). The plant has met with some use as a tonic in derangements of the stomach and liver, as well as a blood purifier (178); also as a remedy in simple fever (267); and as an astringent (169) and emmenagogue (154).

GENTIAN FAMILY.

120. Centaury. Pink Bloom. (A? or B.) *Sabbatia angularis*
(L.), Pursh.

This plant with its 4 angled and winged stem; its egg-shaped partly clasping leaves; and its large cymes of rose-pink flowers at the summit of the stem and branches, is one of our most beautiful flowering species; that in our rich bottom lands and glady meadows shows quite a tendency to become a pernicious weed. It should be gathered yearly by the children to form bouquets for household ornament, thus preventing the plants from going to seed.

The roots make a deservedly popular bitter tonic, similar in action to the Southern Colombo.

PHLOX FAMILY.

121. Wild Sweet William. (P.)

Phlox maculata, L.

Along the drainage ditches and other moist, rich spots of our farms, the tall, purple-spotted stems of this species surmounted by its pink-purple, sweet-william-like flowers form conspicuous masses of bright color. This plant shows some tendency, at least in Wirt and Gilmer counties to spread into the meadow lands, and for this reason should be watched and gathered for the compost heap, with the other trash of such places.

COMFREY FAMILY.

122. STICK-SEED. DOG-BUR. WOOL-MATT. (B.) *Cynoglossum* sp.

This family of plants produces a number of species whose seeds or fruits are provided with hooks or prickles by which they cling to the fur, fleece or hair of animals, and are thus facilitated in their distribution. Prominent among these is the species under consideration, and another closely related form known as Wild Comfrey (*C. Virginicum*).



Dog-bur.

The stock-seed illustrated here and in the plate accompanying the chapter on Weeds Injurious to Wool, is a softly-hairy leafy and bushy branching plant, with reddish or purple-brown flowers, bearing later in the season flat-ish nutlets armed with short rough spines. It is found along the roadsides, waste places and in pastures. This weed is particularly obnoxious, on account of the seeds becoming matted in the fleece of sheep and in the manes and tails

of horses, and should be eradicated by means of the mattock before its fruits develop.

The plant is used in domestic practice much like Comfrey, as an application to sprains (19), and as a demulcent in lung troubles (29). It is also said to aid parturition in cows (160).

123. Beggar's Lice. Stick-seed. (A. or B.) *Lappula Virginica* (Pluck.), Greene.

A rough, hairy, greyish herb with small blue flowers, narrow leaves and seeds bearing a double row of anchor-like prickles on the margins. This weed has become rather common in some localities where its nutlets speedily become a nuisance to shepherds and stockmen. It should be carefully grubbed out wherever met.

124. **STONE SEED. CORN GROMWELL. PUCCOON.** (A. or B.)*Lithospermum* sp.

Stone-seed.

This worthless, rough, hairy weed of our cultivated fields, with its red roots, erect stem, lance-shaped leaves, pale or greenish yellow flowers, and stone-like seeds; is as yet not particularly common in our State. To guard against its more extended presence, it should be handpulled before the fruits are ripe. Should a field be particularly infested with it, summer fallowing with persistent use of the harrow during August should completely rout it.

125. **BLUE THISTLE. BLUE-WEED. BLUE STEM.** (B.) *Echium*
Vulgare, L.

Of all the weeds of this State, none is in more complete possession of the unused fields of its principal locality than this miserable and unsightly foreigner. I have seen fields in Jefferson county so blue with it that at a little distance they appeared as if covered with a fabric of that color. This condition also existed in that locality certainly as far back as 1841, for Prof. Asa Gray then wrote as follows in his account of a trip up the Valley of Virginia: "From the moment we entered the valley, we observed such immense quantities of *Echium vulgare*, that we were no longer surprised at the doubt expressed by Pursh whether it were really an introduced plant. This, 'vile foreign weed,' as Dr. Darlington, agriculturally speaking, terms this showy plant, is occasionally seen along the road-side in the Northern States; but here, for the distance of more than a hundred miles, it has taken complete possession, even in many cultivated fields, especially where the limestone approaches the surface, presenting a broad expanse of brilliant blue. It is surprising that the farmers should allow a biennial like this so completely to overrun the land."



Blue Thistle.

A short description added to the illustration here given may be needed by farmers who live outside of the valley counties. Its flowers are deep blue, with buds varying from deep pink to purple upon the same plant; the hairs of the plant are stiff and stinging, requiring the use of gloves in handling it. It is an abundant seeder and bears flowers from early summer until the frosts of autumn. Blue Thistle makes an abundant and luxuriant growth, and will crowd out crops of oats or even of buckwheat. Outside of the valley counties, I have noticed this species in Randolph, Morgan, Mineral, Fayette, Kanawha, Greenbrier and Summers counties; and have authoritative reports of its presence in Grant,

Tunker, Pendleton, Pocahontas, Mercer, McDowell, Lewis, Barbour, Webster, Doddridge, Wetzel, Marshall, Roane, Taylor, and Clay counties.

Where the plants are few, they should be pulled from the soil when wet and before the flowers have matured, and composted or burned. Too much time can not be spent in this work whether upon your own farm or the roadsides of your neighborhood.

The only reported medical use of this plant is that of the root in dropsy (222).

Where fields are given up to this weed, they should be deeply plowed and summer fallowed for one season, then sown to a hoed crop for at least one season thereafter.

MORNING GLORY FAMILY.

126. WILD MORNING GLORY. (A) *Ipomoea purpurea* (L.), Lam.

This beautiful climber so often cultivated as a lattice and porch covering, has become a pestilential weed in many of our western and southern counties; where it infests cornfields and crops of all kinds with its tangle of stems and branches. I have seen fields of corn in these districts so matted with its growth that it was difficult to distinguish even a leaf of the crop among those of the weed. "It is not so prevalent on hill farms; but on the river and creek bottoms, it is the farmers worst foe" (31).

When the plants are present but not yet too common, they should be cut down as soon as detected to prevent their flowering; if left until then, it may be too late, as the fruits are rapidly formed those of the earlier flowers being ripe while the floral succession is advancing. Lands infested with the weed must be summer fallowed with repeated harrowing until all starting vegetation is entirely scratched from the soil.

127. Wild Sweet Potato. (P) *Ipomoea pandurata* (L.), Meyer.

This weed is sometimes called "Man-of-the earth" on account of the huge size of its root, which often grows nearly as large as a man's thigh. This herb has heart-shaped pointed leaves, twining or trailing stems, and large white morning glory-like flowers with purple in the tube. Wherever this plant grows, it is considered to be an obnoxious weed and one hard to exterminate on account of its deeply buried roots. In our heavier soils, however, it is much more readily dealt with than in the sandy or gravelly soils of some sections. Thorough cultivation for two or three seasons is generally sufficient in the first instance; but in the second it is almost impossible to kill out an old growth of this plant.



Wild Sweet Potato

128. **CLOVER DODDER.** (A) *Cuscuta Trifolii*, Weihe.

A parasitic plant without roots or leaves, with yellow wire-like stems, and globular clusters of white tubular flowers.



Clover Dodder.

Only one report of this dreaded parasite so detrimental to clover fields has come to me in this State; that from Greenbrier county (210) where it was probably imported in clover seed from England, as this plant is a native of Europe and generally brought to this country in that manner.

Of this plant Mr. Coville says, in the Report of the Secretary of Agriculture, U. S. 1890: "The dodder seeds germinate in the ground, sending up slender leafless stems, which twine about the clover and obtain nourishment from it through the disks that are soon developed. The lower part of the stem then dies and connection with the ground is lost. The yellow threads continue to develop rapidly until a circular patch of clover is covered by it, and the host becomes so weakened by the loss of its sap that it finally turns brown, dies and rots.

The remedy is first to obtain a pure quality of clover seed. Dodder seeds are similar to those of clover, but of smaller size and capable of separation by screening. If a meadow is but slightly infested, each patch containing the parasite should be mowed and destroyed as soon as seen, and if no plants are allowed to seed, the clover will be saved. When, however, a meadow is thoroughly sprinkled with dodder, the whole must be plowed and other crops planted for a few years, when all the dodder seeds will have germinated and died. Under no circumstances should an infested crop be saved for seed."

129 **Dodder.** (A.) *Cuscuta Gronovii*, Willd.

This peculiar parasitic plant that twines about weeds and low herbage in damp places, may be said to resemble a tangled skein of orange red yarn. Should this plant (which, rather than a weed, is often an enemy of them) attack crops, the drainage proper to reclaim and render the lands upon which it is found more productive, would doubtless prevent its reappearance.

POTATO AND TOMATO FAMILY.

This family of mostly narcotic poisonous plants, such as henbane, tobacco, and belladonna; also furnishes us with some of our most useful vegetables: the potato, tomato and egg plant.

130. **Nightshade. Bitter Sweet.** (P.) *Solanum Dulcamara*, L.

This common dooryard and garden weed that often escapes to ditches, moist banks, and fertile fields is characterized by its

dark green arrowhead shaped leaves and small blue flowers like those of the potato. Its fruit is a red, oval berry, very attractive to the eyes of children who are often tempted to eat them. The plant is sometimes known as "Deadly Nightshade," on the supposition that it is poisonous, which is probably true in some cases at least, as the following case of poisoning—reported in the *Lancet*—was undoubtedly from eating the berries of this species: A boy aged 4 ate of the berries, suffering no inconvenience until eleven hours thereafter, when he was attacked with purging and convulsions, followed by insensibility and death in about twenty-four hours. This should be sufficient to warn us that it is best to keep all trash from our farms by allowing no weed whatever to grow and ripen its fruit.

The leaves warmed in cream make an excellent curative application for poisoning by the poison vine.

131. **Common Nightshade** (A.) *Solanum nigrum*, L.

This species differs from the last in having no ear-like lobes to its pointed egg-shaped and insect perforated leaves, and in its blackish berries. It is more poisonous than the last, as attested by the numerous fatal cases placed on record in various medical publications. In all these cases horrible convulsions continued until death relieved the sufferers. The tomato-like flowers and pendant egg-shaped berries should serve to distinguish these two species, which should never be allowed to go to fruit upon the farm.

132. **Sand Briar. Horse-nettle. "Radical."** (P.) *Solanum carolinense*, L.

This exceedingly pernicious weed is rapidly spreading throughout the State; apparently from the West and South-west portions, eastward and northward. It is characterized by its deep running roots; straggling, branching, half shrubby growth; its stems, branches and leaves thickly armed with sharp, stout, yellow thorns; blueish-white or blue potato-like flowers, and greenish-yellow globular berries filled with pulp and seeds.

I have met with this weed all along the Ohio River bottoms, and the lands bordering the rivers and streams flowing into it; beyond this, its most plentiful territory, I have met it in Calhoun, Wirt, Gilmer, Randolph, Webster, Nicholas, Greenbrier, Summers, Monroe, Fayette, Kanawha, Monongalia and Jefferson counties; and have authentic reports of its presence in every other county in the State. It is considered a new pest in localities in Greenbrier, (223), Upshur in 1888, (238), Barbour (56, 122); Harrison, in 1889, (275), along the railroad tracks (90); Brooke (193), and in Doddridge (163) counties.



Sand Briar.

Although this weed prefers a sandy soil, and in such develops its greatest vigor, still there is no soil in the State in which it will not grow and thrive. It is so tenacious of life that it becomes almost impossible to get rid of it when it is once fully introduced in any given locality. I have met with it in such dense patches in pasture lands that cattle would not browse around it or pass through its formidable growth. In places where it is allowed to gain a good footing, it monopolizes the soil, and spreads its roots far and wide.

A special warning against this weed seems necessary, and were weed laws ever operative an especially stringent one should be enacted against this species; but as they are not, then let every farmer who sees this plant upon his land or roadside be a law unto himself and use his mattock skillfully; let him fight it as he would Satan and with as much courage and determination, for if he allows it to get the upper hand of him, woe be it unto his peace in the future. One of my correspondents says: that cutting three times a year will keep the weed under and prevent its spreading; but that one cutting has no material effect upon its growth or advancement. Where it is uncommon, each plant should be carefully dug up, and, if in fruit, burned. When it is prevalent, do not delay, but begin a rigorous course of summer fallowing; plow deeply as soon as possible in June, and harrow at least once every ten days until September; repeating this another season if necessary. If not, plant to a three year' succession of hoed crops 'ere you attempt to re-sod the the land for pasturage. This may seem a laborious and costly measure, but its results will amply pay, especially if the land is properly dressed with plaster and well rotted manure 'ere it is finally sown to grass.

133. **Ground-cherry.** (A. & P.)

Physalis sp.

Our sandy roadsides and garden spots serve as good grounds in which several species grow and increase. They are generally characterized by their tomato-like growth and flowers; and their 2-celled red, yellow, orange, or greenish berries enclosed in an inflated "hull" or "pod," which is really the enlarged calyx of the flower. How pernicious these weeds may become is not yet known; it is therefore best to clear them all out before the fruits are matured.

The berries are claimed to be edible, but any such use of them is unnecessary, and might prove to bear ill effects. The plants are all diuretic and may prove efficient in some forms of kidney troubles.

134. **APPLE-OF-PERU** (A.) *Nicandra physaloides, (L.), Gaertn.*

This plant bears considerable resemblance to some species of the last, but differs in the nearly entire border of the blue flowers, and in its 3-5-celled dry berry. It is a weed of gardens and waste places from whence it should be cut and removed before fruiting.

135. **JIMSON-WEED. JAMESTOWN-WEED.****THORN APPLE.** (A.) *Datura Stramonium*, and *tatula*, L.

Who is not acquainted with the rank odorous growth of this common weed, with its funnel shaped flowers and thorny, egg-shaped pods! It is a prominent weed of waste grounds about dwellings, a character that plainly evidences the ease with which it can be exterminated by cultivation or cutting before the seeds are ripe.



Jimson Weed.

This is one of our most poisonous weeds, and should be eradicated upon that account if no other. It has met with considerable use as a domestic remedy for various troubles but should be given with great care. The leaves either alone or with those of the elder are often used to prevent or heal galls in horses by being placed under that portion of the harness that is causing the trouble (98, 165, 284); also as a poultice for bruises, sprains, and inflammations (150, 277) its

action being anodyne in such cases (104). A salve made of the leaves steeped with lard (60, 261) is an excellent application for chapped hands (204), and for cuts and bruises (48). The dried root is often smoked as a remedy for asthma (201, 252).

The probability of this plant being a remedy for hydrophobia should be known in every household; I therefore quote the words of a Catholic Bishop of Singapore. This bishop says he thinks it his duty to publish, the remedies used in the missions of Tonquin for the cure of hydrophobia. These, he says, consist first, in giving as much star-aniseed as may be contained on a cent piece; and secondly, in making the patients take some water in which a handful of the leaves of the thorn apple have been infused. This will cause greater convulsions and delirium, during which the patient must be tied; but on the abatement of these, he will be cured. If the remedy acts too violently, either by too much being administered, or account of their being no virus of real hydrophobia, the consequences may be ameliorated by making the patient drink an infusion of licorice root, a most precious antidote against poisoning by stramonium.

MULLEIN FAMILY.136. **MULLEIN.** (B)*Verbascum Thapsus*, L.

This tall velvety leaved plant with its dense spike of yellow flowers though not particularly common in our State threatens to become more so, and should be dug up with the mattock from all dry hillside pastures and other situations whenever met.

In domestic practice, the mullein has been widely used as a remedy for colds, (4, 28, 67, 253), coughs (4, 27, 28, 39, 74, 88, 253, 271), sore throat (28), lung troubles (7, 105, 264), and

even as a relief to the dry irritating cough of consumptives (19, 150). A lotion of the leaves, or a poultice of the same is used for sprains (205, 249), and chafing of animals, as well as for galls (79, 264) and swollen joints (37, 184); also as a remedy for piles (160, 249). The oil distilled from the flowers has been proven to be an excellent remedy for ear-ache when applied warm to the cavity of the ear. The velvety leaves applied and bound to a bleeding cut will staunch the flow promptly, even if severe.

137. **MOTH MULLEIN.** (B.) *Verbascum Blattaria, L.*

This tall, wand-like species, with its green nearly smooth leaves, and long spikes of scattered yellow or white flowers with a purple center; is prominent as a weed in many places, and should be grubbed out with the last species.

138. **WILD FLAX. DEVIL'S FLAX. WILD TOBACCO. INDIAN HEMP. IMPUDENT LAWYER.** (P.)

Linaria vulgaris, L.

This vile weed is rapidly tending to become a nuisance in many parts of the State and should be dealt with as rigidly as the Sand-briar or Canada thistle. It is characterized by its narrow, light green leaves, and its dense tip of yellow snapdragon-shaped flowers. The plant is not only reproduced by its abundance of light winged seed, but where once established spreads rapidly by long, slender underground root-stalks much like quack grass.



Wild Flax.

The following remark of Prof. Beal describes its progressive character: "Not far from the Agricultural College (of Michigan) twenty years ago, was a single patch in the roadside, not more than a rod square; now the weed is abundant in many places along that and other roads, and has established itself in generous patches on six or seven or more different farms, and on some of them it makes

quite a prominent display, especially in old meadows and pastures. The owners of these farms are just beginning to realize that they have a strong foe to contend with. Thorough cultivation with some suitable crop is the best and easiest remedy."

This weed prefers a dry soil, thus seeking our roadsides and hilly pastures, as well as banks and railroad beds. As the roots are very tenacious of life, watchfulness and frequent use of the mattock should be expended upon it wherever found.

139. **Gypsy-weed.** (P.) *Veronica officinalis, L.*

A low, hairy, creeping plant throwing up erect spikes of blue flowers, found mostly in open woodlands, though frequently in dry, hilly pastures and meadow lands. It will be found to be one of those weeds readily exterminated by renewal of the soil.

In some parts of the State, this plant is recommended for colds accompanied by cough (73.)

140. **Speedwell.** (A.) *Veronica serpyllifolia, L.*
 This dainty little plant sends up in early spring its erect spikes of minute violet striped flowers from among the grass of lawns and meadows. It is of little moment to the farmer and simply mentioned here on account of its prevalence in some localities.

BIGNONIA FAMILY.

141. **Trumpet Creeper.** (P.) *Tecoma radicans, (L.), Juss.*
 This common plant with its flaming clusters of tubular flowers, becomes a decided pest in some localities; especially, however, along the Ohio river and the large streams emptying therein. The plants should be cut close to the root, yearly, until they yield.

VERVAIN FAMILY.

142. **White Vervain.** (P) *Verbena urticifolia, L.*



White Vervain.

(221), and amenorrhoea (114).

A weed of dry places, brookbeds, and waste grounds generally, characterized by its nettle-like leaves and numerous spikes of minute white flowers. This species is not as common with us as the next. When too common, and inclined to be a nuisance in pasture lands, they should be improved by thorough fertilization and cultivation.

This plant has some reputation in domestic practice as a remedy to break up fevers (69, 92), in their early stages; as a quieting decoction in nervousness (95) and nervous sick headaches (128) as well

143. **Blue Vervain.** (P.) *Verbena hastata, L.*
 This species grows in moister lands and better soils than the last from which it principally differs in bearing blue flowers instead of white. It should meet with the same treatment.

144. **LOW VERVAIN.** (P.) *Verbena angustifolia, Michx.*
 This small form with narrow leaves and a scitary or very few spikes of slightly larger flowers, is quite prevalent along roads, in dry fields and in pastures in Jefferson county. Cultivation will kill it out.

MINT FAMILY.

145. **MINT. SPEARMINT. JULEP MINT.** (P.) *Mentha viridis, L.*
 This well known mint, though a native of Europe, is now very widely naturalized in wet places throughout our State; where

it grows profusely both from the seed and runner-like offshoots of the root stock. Meadows affected by it can only be reclaimed by the drainage necessary to render them fertile.

The medical uses of this herb are much like those of the next species.

146. **PEPPERMINT.** (P.) *Mentha piperita, L.*

From being cultivated in this country for its aromatic odor and spiciness, this plant has escaped to moist, low grounds where it often spreads to considerable extent. It is distinguished from the last by its solitary, larger and more dense flower spikes, and its purplish stems.

This plant is cultivated for its oil, which is a well known remedy for stomach pains (98, 225); neuralgias (98); nausea (98, 103, 128, 134, 135, 181, 213, 249); colic (157); and colds with simple fever (12, 38, 43, 121, 186, 205, 228.)

147. **Mountain Mint.** (P.) *Pycnanthemum flexuosum (Walt) B. S. P.*

One of the most frequent weeds in the south-eastern mountain section of the State; growing on all old fields and in waste places in general. It is an erect, branching herb, with small, very narrow leaves and small flowers arranged in clusters at the summit of the stem and upper branches. The general treatment given in part 4, for the renewal of old fields will, if followed, remove this species with the other filth of such places.

148. **Basil.** (P.) *Calamintha clinopodium, Benth.*

A low, erect, hairy plant, with egg-shaped nearly entire leaves, and pale purple flowers in globular clusters. This is a weed of borderlands that is spreading into fields and meadows. Its advancement should be checked by closer cultivation.

149. **Balm. Horse Balm. Wild Bergamont.** (P.) *Manarda fistulosa, L.*

This tall plant with its tufted heads of purplish dotted flowers, rigidly erect 4-angled stems, and egg-shaped, lance-like leaves; grows profusely in clumps along the bottom lands of the Kanawha and other rivers of our State. As a weed, it seeks fence rows, roadsides and other waste places of the farm, where it forms a very rank and unsightly herbage, and should be gathered in with the other weeds of such places early in July.

As a family remedy for causing perspiration in fevers, and colds. it is used in hot decoction (46, 97, 113, 199, 154); also in this form for dysmenorrhœa (154, 135); for looseness of the bowels (155) and as a diuretic in kidney troubles (13, 126).

150. **Hairy Mint.** (P.) *B.ephilia hirsuta, Benth.*

A tall, very hairy mint-like plant, with long stemmed leaves, heart-shaped at the base, and small pale blue purple spotted flowers crowded in the axils of the leaf stems. This weed often be-

comes a nuisance in damp meadows and pasture lands, and should be kept down with the other weeds of such places.

151. **CATNIP.** (P.) *Nepeta Cataria, L.*

Every one is acquainted with this pale green branching plant, with its scalloped leaves, and interrupted many-flowered clusters around the tips of the branches. As a weed, it infests almost every dry-waste spot about the farmyard and garden. After gathering what is needed for the collection of herbs; the balance should be cut out annually to improve the appearance of the home surroundings.

In family medicine, a tea of this plant has a strong hold upon the housewife as a soothing draught for fretful babies (12, 204); a queller of colic (17, 135, 141); a sweat producer in slight fevers (97, 228); and in colds, (2. 16, 43, 45, 67, 115, 156).

152. **GILL. GROUND IVY.** (P.) *Nepeta hederacea (L.), B. S. P.*

Creeping extensively in gardens, orchards and damp shady places generally; this species with its dark green scalloped leaves and little blue-purple flowers becomes at times a serious nuisance (69), and should be hoed out diligently whenever it is a sufficient pest.

153. **Skullcap.** (P.) *Scutellaria lateriflora, L.*

This weed of moist lands may be known by its weak growth, square stem, egg-shaped toothed leaves, small, loose flower stems projecting from the point where the leaf stems join the stem, and its loose blue flowers. When troublesome, it shows that the land it infests is too moist for good crops and should be underdrained.

In domestic practice, the plant has some repute for nervous debility (123, 193); for simple fever (39); to break up colds (202, 260); as well as a blood purifier (186).

154. **Silky Skullcaps.** (P.) *Scutellaria canescens, Nutt.*
Scutellaria saxatilis, Riddell.

These two species bearing some resemblance to the last except in that the flowers are larger and are arranged in a dense panicle at the summit of the plant; inhabits drier grounds, pastures, and meadows, and in some sections near the Ohio river become very unsightly weeds. They should be cut down before their fruits form.

155. **Heal-all.** (P.) *Brunella vulgaris, L.*

This low mint-like plant with this dense, globular or cylindrical heads of deep blue flowers, may be found on all sorts of lands from which it should be cut or hoed out before going to seed. In an early day, this plant was used for all the troubles recorded under the different plants of this family; now however, it is seldom used at all.

156. **HOREHOUND.** (P.) *Marrubium vulgare, L.*

In many parts of the State, this bitter-aromatic plant has escaped and become a weed of considerable obnoxiousness. Its growth about the home for its medicinal use should be carefully kept within bounds by clipping off the flower heads before the fruits are ripe.

In domestic practice, this is one of the principal remedies for colds (4, 16, 45, 67, 73, 86, 115, 138, 163, 173, 175, 204); coughs (14, 79, 86, 94, 103, 138, 206, 227); fever (100); sore throat (45, 206); and lung troubles (121, 264). It is also often used in amenorrhœa and dysmenorrhœa (154).

157. **DEAD NETTLE.** (A or B.) *Lamium amplexicaule, L.*

In gardens and grass lands in many sections of the State this worthless little plant has become considerable of a nuisance and requires some attention to keep it hoed out 'ere it scatters its seed. It may be known by its clasping, scalloped leaves, square stem, and bright purple flowers.

PLANTAIN FAMILY.

158. **Common Plantain.** (P.) *Plantago Rugelii, Decne.*

This common and well known weed of the dooryard, garden, meadow and field, so persistently follows in the track of civilization that the Indians call it "White-man's Foot," believing that it springs up wherever a white man treads. Although so very common and general, it is not a particularly obnoxious weed, except on ornamental grounds and in dooryards, from whence it can only be eradicated by constant digging out of the roots before the fruits are formed. I have frequently noticed that cattle eat of it without distinction even when browsing in excellent grass.

This plant is said to be a good antedote for the effects of laurel on sheep (139); it also acts as an alterative and diuretic (123), and as a useful remedy for prolapsus in cattle (88). The leaves have been much extolled as a remedy for the bites of reptiles (41, 114), and insects (201). The fibrous stings of the leaf stems are said to be an excellent cure for toothache, if rolled in a ball and placed in the ear on the affected side. It is said that the ball turns black if the pain is relieved, but remains green if not.

159. **BUCK PLANTAIN. BUCKHORN PLANTAIN.**
RIPPLE. RIBWORT. ENGLISH PLANTAIN. (P.)

Plantago lanceolata, L.

There a few of our farmers who have not become too intimately acquainted with this miserable European immigrant that



Buck Plantain.

seems to be striving, and with much success, to take complete possession of our grasslands. The leaves are narrow and ribbed and unless much crowded spread out flat upon the ground, thus tending to choke out the clover or grasses in which it grows. The seeds are of about the same diameter the shorter way as those of red clover, thus being very difficult to separate from them; it is for this reason more than any other that Ribwort is becoming so rapidly a very pernicious and aggressive weed. Ground is prepared for clover; these weed seeds are planted in it in the most efficient manner; thus giving them every chance in the world to grow and multiply. It is particularly on account of this weed that I write the chapter on "Weeds and Market Seeds" in part 4 of this bulletin.

Several of our farmers have already rightly mistrusted clover seed sown by them as being the agent of the introduction of this weed (203); correspondent 119 says, "Of late, the rib-wort plantain has taken complete possession of several clover fields in this locality; this has been growing more prominent for the last three years."

Where this weed has become very prevalent, the land should be summer fallowed and deeply harrowed at least three times in August; then put in a cultivated crop for at least two seasons longer 'ere returning to grass or clover. Now see that the seed sown is clean.

160. **White Plantain.** (A. or B.) *Plantago Virginica, L.*

This whitish woolly little plantain growing from 2 to 9 inches high with leaves ranging from egg-shape to lance-shape, and dense, hoary spikes of flowers and seeds, is mentioned as a weed in several parts of the State (94, 110, 141.) Mr. Prickett of Marion county, says of it: "I find this plantain growing on very thin sandy and rocky ground. The way it spreads around makes me very fearful of it, and I am digging it up whenever I come across it." This is the proper measure against this weed, which is tending to become much more common annually.

AMARANTH FAMILY.

161. **Pig-weed.** (A.) *Amarantus sp.*

There are several species of this miserable garden and way-side weed, all of which bear more or less resemblance to the one here illustrated. They are all coarse annuals, with tufts of green or reddish minute flowers and bracts, either at the bases of the leaves or at the ends of the stems and branches. These weeds are all the natural result of careless gardening, as they would soon be eradicated if they were pulled up or even cut off with the hoe each year, instead of being allowed to go to seed as is usually the case.

162. THORNY AMARANTH. (A.) *Amarantus spinosus*, L.

Thorny Amaranth.

This species, introduced among our lands from tropical America, bids fair to become more of a pest in this State than all the other amaranths combined. It is distinguished from the others by its weaker growth and by the presence of spines at the junction of the leaves with the stem.

This plant is becoming a prominent feature of our waste places, gardens and fields; and should be cut out each season before it ripens its fruits.

GOOSEFOOT FAMILY.

163. LAMB'S QUARTERS. (A.) *Chenopodium album*, L.

This well known plant often called pig-weed like the last is distinguished by its light green foliage appearing as if dusted with flour, and its flowers being arranged in interrupted clusters about the ends of the stems and branches. It grows in waste places around dwellings, in barnyards, gardens, and even cultivated fields; whence its presence may be removed by a proper cutting off of all like trash twice yearly before they go to seed.



Lamb's Quarters.

The young and tender plants of the lamb's quarter, says Mr. J. R. Dodge, "are collected by the Navajoes, the Pueblo Indians of New Mexico, all the tribes of Arizona, the Diggers of California, and the Utahs, and boiled as herbs alone, or with other food. Large quantities are also eaten in the raw state. The seeds of this plant are gathered by many tribes, dried, ground into flour, and made into bread or mush. They are very small, of a gray color, and not unpleasant when eaten raw. The peculiar color of the flower imparts to the bread a very dirty look and when baked in ashes it is not improved in appearance. It resembles buckwheat in color and taste and is regarded as equally nutritious.

164. WORM-SEED. (A.) *Chenopodium ambrosioides*, var. *anthelminticum*, (L.), Gray.

Another member of this family noted for its strongly aromatic odor, and worm expelling properties. Its lower leaves are strongly toothed, the upper lance-shaped and entire; its flowers are little, bud-like growths clustered irregularly along stems projecting from

the axils of the leaves. This weed should be attended to at the same time and in the same manner as the last two species.

Its principal domestic use has been that of the leaves and seeds as a vermifuge for which it is considered one of the best known. The leaves steeped in vinegar make an excellent application for sprains, bruises, and local inflammations.

POKEWEED FAMILY.

165. **Poke-weed.** (P.) *Phytolacca decandra*, L.

This well known rank, red-stemmed and berried weed is useful in many ways, but especially when grubbed out of our farm lands, composted and returned thereto, as it shows the highest manurial value of any weed yet analysed (see page 123 part 1). The poke is one of our particularly troublesome weeds and should be grubbed up and composted annually before its fruits are formed; it will pay the farmer several times the value of the time so expended upon it. "Sheep eat the berries and leave the seed on the high points of their pasture where they lie at night. Some of our knolls thus become so thickly set with the plant that it kills out the grass. Cutting will not kill them on account of their large deep succulent roots." (121) Many species of birds are also fond of the fruit, and as many of the seeds pass them uninjured, they tend to distribute the weed widely if it is allowed to go to fruit.

Economically, the berries yield a magenta stain much used to dye the handles of cheap household utensils, as well as the rind of Edam cheese. I understand that the berries have been used by frugal housewives in the construction of pies, and have often half determined to try poke berry pastry myself; discretion has, however, always overruled my valor.

The medical uses of poke root were handed down to domestic and botanic practice by the Indians, who valued the plant not only as an emetic, but also as an efficient remedy in some forms of rheumatism. Poke root is recommended in veterinary medicine as a remedy for hog cholera (91.); Murain (37, 148); hollow horn (98); as a tonic appetiser (132); for scouring of horses (132), and as a poultice for caking and inflammation of the bag. In domestic practice the root is used internally, either alone or in whiskey, for rheumatism (122, 123, 205, 264), or externally with turpentine (98). It is also given in some cases of sore throat (110), and recommended as an excellent poultice for suppurating glands (14, 69).

BUCKWHEAT FAMILY.

166. **YELLOW DOCK. CURLED DOCK.** (P.) *Rumex crispus*, L.

The illustrations here given will serve as a method for distinguishing this and the next species from each other. The yellow



Yellow Dock.

purifier. A salve made of the root with lard or with cream is a well known application for the cure of itch (37, 160). The root is also used for sore mouth (189).

dock may be recognized by its narrower leaves curled at the margin, and by its denser spikes of larger fruits. Both species have large, deep roots very difficult to extract from the soil. They grow in the garden, yard, meadow, pasture, and waste spots of the farm; giving it a very unsightly and negligent appearance. They should be grubbed up annually and composted before the fruits are ripe. Persistence in this will in time rid lands of the pest.

The young root-leaves gathered in early spring form a well known pot-herb. The root has been used much like Turkey rhubarb for a tonic and alterative (104, 204); in jaundice (252); and with the next species as a blood

167. **BITTER DOCK.** (P.)

Rumex obtusifolius, L.



Bitter Dock.

This dock differs from the last in its broader and blunt leaves not curled on the edges; its less dense and smaller seeding panicles; and its more branching dark root, on which account, it is much harder to extract from the soil than the last, and luckily is also less prevalent. Remember in fighting these plants to anticipate the maturing of the seed by getting the docks out of the ground and into the compost heap before the last of July. Do not pull them up and leave them on the ground, as the roots store up sufficient vitality to mature the seed after they are out of the ground.

Bitter dock has proven itself to be tonic, alterative and cathartic, for which properties it is often used as a blood purifier (4, 14, 15, 57, 66, 69, 94, 213, 220.)

168. **HORSE SORREL. RED SORREL. "Red-weed."** (P.)

Rumex acetosella, L.

Little need be said in the way of description of this dock to



Horse Sorrel.

those who are but too well acquainted with "Red Lands," as thin illy-nourished fields are called when this weed has taken full possession as it often does, in such cases vieing with cinquefoil for the honor of complete ascendancy. We can not properly say in such cases that it kills out the grass; the better way of looking at the matter is that the land, though good enough for sorrel is not good enough for grass. Sorrel will, however, grow also in land that has been more or less properly prepared for forage plants or crops; in which cases, it has been known to choke out both wheat and clover (172, 178.)

The following account of the weed by the Hon. Thomas Laurence, and Prof. W. M. Van-Sickle, of Sussex county, New Jersey, gives an idea of some of the influences that work for and against the soil: "Enriched soil is not the natural home of the sorrel. On sandy, gravelly hills the plant seems to thrive at its best and is frequently an index of a soil not being able to bear profitable crops without manure or fertilizer. Climate is a ruling power. During the excessively dry seasons of a few years ago, farmers experienced no little difficulty in getting grass seeds to take. Hundreds of bushels of clover and timothy seeds were sown on the fertile fields of Sussex without any return for the work. But sorrel came and flourished. In many fields it was the abundant crop of the time. It could not be driven away. Year after year it made its appearance on hill and dale. Farmers grumbled and complained, but still the sorrel came. The dryless seasons of the past two summers have thrown a wet blanket upon the face of the earth, from which has sprung forth an abundant crop of grasses, crowding out the sorrel from its abiding place."

From what has gone before, it might be judged that the best method of eradicating this omnipresent weed is to prepare old pasture lands thoroughly during a wet season, and sow plentifully with plaster and clean pasture grass seed (not hayseed from a mow), roll it as carefully as you would grain, then give it a good chance to get a thorough stand before mowing or pasturing. This procedure should give the grass a better chance than the sorrel, thus changing the nature of things, making grass the enemy of sorrel instead of the opposite.

169. Smartweed. (A. & P.)

Polygonum sp.

There are a large number of species of smartweed in the State, most of which prefer a moist soil, where they flourish to the exclusion of most other forms of vegetation. They are characterized by their long, lance-shaped leaves, sheathed and jointed stems, and spikes of pinkish flowers. Some of the plants, especially those with nearly white flowers, bristle-fringed sheaths, and a dark patch near the center of the leaves, are noted for their hot, peppery taste;

it is these forms that are usually gathered for medicinal purposes. Renewal of fields affected by them, with under-drainage when too moist, will be ample protection for those who adopt the measure.

In family practice, the species known as "water-pepper" is most generally used. The fresh leaves bruised with those of the dog's fennel, to which is added a few drops of turpentine, form a promptly acting blister. A strong decoction of the fresh plant will produce perspiration in simple colds and fevers (258); and prove useful in some forms of colic (154). It is also an excellent remedy for cholera morbus (124), as well as for heaves in horses. A cold infusion has been found useful in nursing sore mouth, mercurial salivation, gout, dysentery, and externally as a wash for slow healing wounds and ulcers.

170. **Climbing Buckwheat.** (P.) *Polygonum dumetorum*, var. *scandens* (L.), Gray.

Climbing over low herbage and shrubbery about damp places and forming a dense tangle, this species will be readily recognized by its heart-shaped, light green leaves, and its long, drooping clusters of greenish white fruit. It is a profuse seeder and should be removed from the places it habits not only by gathering it all in before the fruits are ripe but by removing the useless shrubbery and draining off the ground on which it grows. This means the clearing out of all such places and rendering the land hitherto useless, profitable.

SPURGE FAMILY.

171. **Flowering Spurge.** (P.) *Euphorbia corollata*, L.

An erect, straight stemmed plant branching only at the summit, with close growing, entire egg-shaped leaves, and small white flowers disposed in an umbrella-like branching cluster at the summit of the plant and milky juice. This species is very common in meadows along roadsides and opens generally, especially in our central counties. As all species of this family are more or less acrid, it is well to use every means possible to prevent them from ripening and scattering their seeds, which they are particularly fitted to do by the bursting of their elastic pods.



Flowering Spurge.

The root of this species is a very good emetic, and has often been substituted for commercial ipecac. The powdered root is said to be emetic in 20, cathartic in 10, and diaphoretic in 4 grain doses.

172. **Spurge.** (A.) *Euphorbia Preslii*, Guss.

An erect or inclining very branchy herb, with reddish green

stems and branches, small egg-shaped leaves, oblique at the base and often red on the margin, and inconspicuous white or reddish flowers. This species grows usually on dry soils, yet I have met with it in rich meadow lands where it often grows in very large patches. On account of the acrid juice of this plant, it is credited with causing sore eyes and slabbering in cattle; this may be true as it has a particular action in that direction. Every means should be employed to prevent the plant from seeding. It should be cut as early in the season as possible and taken directly to the compost heap or the fire.

The plant is recommended in diarrhœa, leucorrhœa, and gonorrhœa. A half ounce of the dry leaves should be infused in a pint of boiling water and a tablespoonful taken before meals.

173. **Three-seeded Mercury.** (A.) *Acalypha Virginica*, L.

A common garden and dooryard weed noticeable from its tendency to turn purple or bright red after its flowering season has passed. This weed has no particular feature by which one not versed in plant characters might readily recognize it; to those, however, who keep all weedy trash out of their gardens and yards, it will not be much cause of annoyance.

NETTLE FAMILY.

174. **Nettle.** (P.) *Urtica gracillis*, Ait.

The common nettle whose character is too well known to every one by experience, is an inhabitant of damp shady places (one species) and of waste places and roadsides. It is known by its deeply toothed, egg-shaped leaves and its clusters of small, yellowish-green flowers. The species that grows in damp places will yield with other trash by drainage; that of the roadside should be cut out annually until conquered.

The root of the nettle is a well known remedy for mumps (160); and often proves beneficial in hives (103,105). The most ancient use of the nettle was flagellation, a practice of whipping paralyzed limbs with the plant, to bring the muscles into action. This practice extended also to a stimulation of impotent organs and to bring into action dormant energies. It was also resorted to in apoplexy and heavy congestions to bring the blood to the surface and thus relieve the more vital organs; in eruptive fevers, to bring out the eruption; and for various affections where a powerful irritation of the skin was considered necessary. For this the European Stinging Nettle (*Urtica urens*, L.), a plant that is becoming introduced as a weed in some parts of Hancock county, is most frequently used, as it has a more severe sting.

175. **Rich-weed. Clear-weed.** (A.) *Pilea pumila* (L.), Gray.

This weed of damp places is known by its thick, juicy, transparent stem and large thin coarsely toothed pointed leaves. It

grows in moist, cool, shaded spots, whence it should be removed by clearing out all such places on the farm.

The root has been used for gravel (139); but the most common use of the plant is that of the stems and leaves as a cooling application to inflamed places, and as a remedy for piles.

WILLOW FAMILY.

176. **WHITE POPLAR.** (P.) *Populus alba, L.*

The White Poplar is known by its greenish-white trunk and branches, and its leaves being silvery beneath. It is often cultivated for ornamental purposes about home grounds and in public places. This use of the tree is productive, however, of great labor on our stiff lands, as its roots creep far and wide close to the surface of the ground and send up leafy sprouts in all directions, thus becoming weeds of very obtrusive and unpleasant character. Do not plant the tree where lawns are to be kept up; and if planted elsewhere, keep the sprouts out as fast as they appear, to save multiplied labor later on.

LILY FAMILY.

177. **Greenbriar.** (P.) *Smilax sp.*

These shrubby, usually climbing plants, several of which are amply provided with thorns, are well known weeds in this State, so much so in fact that one of our finest counties takes its name from their extended presence therein. The leaves of all species are shiny, plainly ribbed, netted veined, and the fruit a small blackish berry growing in clusters. The only method of subjugation is to grub out thoroughly all places infested with it, and place the lands for a time at least in well fertilized, cultivated crops.

178. **FIELD GARLIC.** (A or B.) *Allium vineale, L.*

This pest of the wheat fields in the valley counties, and the pastures of many parts of the State, is supposed to have been brought to this country by some Welch immigrants to Pennsylvania, who planted it for early pasturage in their neighborhood. The presence of the little bulbs of this plant in wheat destroys the flour made therefrom; and pasturage infested with the plant ruins the milk and butter produced. The only way to get rid of the weed in lands infested by it is thorough tillage through a series of well fertilized and cultivated crops.

179. **DAY LILY.** "EVE'S THREAD." (P.)

Hammerocallis fulva, L.

This well-known white garden lily often becomes a great nuisance by escaping to fields, meadows and cultivated lands where plowing often scatters it far and wide on account of its roots being very tenacious of life. Where it has once made its inroads, very

thorough and watchful grubbing and removal of the roots to the compost heap only will subdue it.

180. **Wild Lily.** "Glade Lily." (P.)

Lilium Philadelphicum, L.

In our glade regions, this beautiful orange-red lily with purple spots in the throat, is a very common weed. It is also an inhabitant of dry fields, especially if sandy. This plant is an old field weed, however, and will seldom hold out against cultivation, which is the best method of eradicating it.

RUSH FAMILY.

A family of grass-like plants with hollow stems, and small heads of minute flowers.

181. **Poverty Grass.** (P.)

Juncus tenuis, Willd.



Growing thickly along roadsides, in fields, and many old meadows, this grass-like plant causes much comment among those who judge it to be a grass, yet one upon which cattle grow poor and almost starve. The leaves of this species will be found upon close examination to be tubular and very different from those of any known grass.

This species grows in damp places, and though it will yield to cultivation where the ground is not too moist, it generally shows by its presence that drainage is necessary. This measure properly carried out will kill out the weed.

Poverty Grass.

182. **Wood Rush.** (P.)

Luzula campestris (L.), DC.

On dry fields and borders as well as in opens, this species, with its flat grass-like leaves is often mistaken for some strange grass with peculiar straw-colored flowers. It is, however, a rush and of very little nutritive quality, and should be grubbed out or the fields renewed and put in cultivation until such plants yield.

CALLA FAMILY.

183. **Skunk's Cabbage.** (P.)

Spathyema foetida (L.), Raf.

This peculiar cabbage-like plant of low lands and wet meadows, the bruised leaves of which emit an odor strongly reminding one of the animal from which it has received its common name, throws up its peculiar purple calla-like flower in early spring, which is soon followed by the rapid growth of its immense leaves. The roots are large and deep, and the low growth of the spreading leaves crowds out everything in the vegetable line that grows near it. The plants should be grubbed out annually until they are conquered, un-

less the quantity of the growth is too great for such a measure, in which case, drainage should be resorted to, as these plants can not live without more moisture than is needed by grasses or crops.

The roots have long been known to form an excellent poultice when mashed and mixed with corn meal, for reducing the hardness and inflammation of caked breasts. The leaves are said to draw out the poison when applied to places bitten or stung by reptiles or insects (4). The juice of the root is also said to be a soothing medicine in consumption (160).

SEDGE FAMILY.

184. **Galingale.** (A. or P.)

Cyperus sp.



Galingale.

Plants of low moist ground and ditches characterized by their grass-like leaves and terminal branching clusters of peculiar flat-tish cheat-like fruits on cylindrical or triangular stems. These are all plants of low grounds, which can only be cleared of them with profit by proper underdrainage.

185. **Poverty Grass.** (P.)

Eleocharis tenuis(Willd.), Schult.

Another rush-like form quite similar in general appearance to weed 181, but with harsher leafless scapes surmounted by very small purplish heads of minute flowers, the whole springing from a matted running root stalk. The treatment of lands infested with this weed should be the same as that for 181.

186. **Bulrush.** (P.)

Scirpus, sp.



Bulrush.

The Bulrush is a well known form in this family growing in clumps in wet meadows and along runs where good grass can not thrive. Locations infested with this weed need thorough drainage. The only measure through which such lands could possibly be rendered profitable, and one which will kill out all of the weeds growing thereon.

187. Sedges. (P.)

Carex sp.

Sedge.

There are a large number of plants of this group, all characterized by their grass-like growth and more or less stiff heads of scale-like flowers springing from the side or summit of the mostly triangular culms. The leaves are generally sharp on the margin and keel, giving them more or less of a cutting edge. They are all useless as fodder for stock; and fields infested with them should be renewed through a series of well fertilized and cultivated crops.

GRASS FAMILY.

188. Tickle Grass. Old Witch-grass. (A.)

Panicum capillare, L.

This well-known and worthless grass flourishes in our driest and sandiest fields, as well as in corn lands, where at the end of the season the stems are broken off by the wind and the fruiting heads rolled along the ground scattering their seed as they go until they are finally collected in great numbers along the fence rows. Where this grass is plentiful, it should be prevented from going to seed by changing the crop amongst which it grows to one that will remove it through late cultivation.

189. Crab Grass. (A.)

Panicum sanguinale, L.

This is one of our richest and most nutritious grasses, and at the same time one of the most troublesome weeds in gardens and fields requiring high cultivation. The running and re-rooting stems and tufts of firmly anchored leaves are very difficult to pass the cultivator through if tillage is delayed. Lands infested with it should be cultivated frequently and this grass gathered and carted to the compost heap as frequently as possible, allowing none to go to seed.

According to the analysis of our chemist, this grass yields of:

Moisture	6.79
Ether extract	3.12
Fibre	29.72
Ash	10.15
Crude Protein	11.03
Nitrogen free ext.	39.97

Thus giving the high nutritive ratio of 1:4.26. When composted, its value as a fertilizer is also high as may be seen by referring to the table given in part I. of this bulletin.

190. **FOX-TAIL GRASS.** (A.) *Setaria glauca* (L.), Beauv.

Fox-tail.

This is the commonest late grass of wheat stubble and corn lands, known by its yellowish barbed heads and the profusion of its leaves. This grass, though rich in nutritive fodder qualities and relished by cattle before it goes to seed, is mostly considered a weed from its habit and choice of locality. The probable reason why cattle will not eat of this grass after it has headed out is on account of the sharply barbed awns which are said to often cause serious inflammation of the stomach. Poultry enjoy stripping the fruits from the heads, and should be allowed to carry out their good offices in this regard. The only profitable way to rid meadows and pasture lands of this weed is to fertilize them thoroughly and sow plentifully with early growing grasses that will make a good stand before July, thus choking out the Fox-tail.

191. **Broom Sedge.** (P.) *Andropogon scoparius*, Michx.

This miserable weed is becoming such a grave pest on our lands that methods of extermination will have to be rigorously adopted to save many pastures and meadows from absolute ruin.



Broom Sedge.

In many places in the South, this grass is cultivated for pasturage and hay; though I can not as yet see wherein we can utilize the plant on the soils of this State. With us, Broom Sedge is a poor fodder and only eaten by cattle and sheep while it is young and tender (238). However, as there is still a question, and as we have as yet had no opportunity to test the matter, I will quote at length two articles that cover the whole subject, and leave it to our farmers to decide which is the truest of their own conditions, and will serve their farms best.

Mr. W W. Hobson, in the Southern Planter, 1892, page 3. says: "Since I have turned my attention to live stock, and that very great pest, Broom Sedge, would come up in my grass fields, I commenced grubbing it out, but soon found this useless, as it was too formidable an enemy for me to contend with.

"My clover, timothy and herd grass fields were rapidly being taken by the Broom Sedge. When I was mowing the grasses, I had therefore to mow the Broom Sedge also, and this being made into hay, I watched to see how my animals liked it. Putting the clover, timothy and herds grass in the racks with the Broom Sedge, to my surprise I found the Broom Sedge was the first eaten. Now I am trying different experiments to ascertain the best way to keep the Broom Sedge fields in the best condition for hay, as nearly all the other grasses have disappeared. The Broom Sedge can be

mowed twice the same year, say last of June and then about the 15th of September. I have now one field which I have mowed the second time this year, and another field once mowed, now in very heavy growth, which I contemplate burning in order to see which is the best course.

“The great secret of making hay from Broom Sedge is: to cut at the right time, and that time is about the last of June or the first of July, just as the stem starts up, It is very tender, and should be carefully cured, never allowing the sun to burn it. To do this, I keep my rake very close to the mower; and now I am decidedly of the opinion, and that based on several years’ observation, that the once considered pest, will prove to be my very best friend, and will be in the near future, the great source from which our hay is to be gotten in Eastern Virginia.”

Notwithstanding the words of Mr. Hobson, I am of the opinion that it will be a poor policy to cultivate Broom Sedge for hay when much more nutritious grasses can be grown upon the same soil, with the same care and fertilization, and will result in less wear on the animal economy.

Prof. Massey, in the same Journal, page 71, says: “Broom Sedge, no doubt, has been the salvation of large areas of land in all parts of the South, which, but for its friendly cover, would have washed away to utter barrenness; but that it should be cared for as a hay crop in a country like Piedmont, Virginia, when it is so easy to get the land into the growing of better grasses, is something I never dreamed any one would advocate. Some varieties of Broom Sedge in a young state are really good pasture for awhile, particularly for milch cows, but others are never good. People speak usually of Broomsedge as one species of grass, while the fact is that there are in Virginia and North Carolina many species of this *Andropogon*. The tall growing sort, of which our country people make brooms, is never worth much for food for stock, while the shorter species, which abound in the uplands of the Piedmont country, are very palatable in the young state. When a man has more land than he can properly cultivate, and can not readily sell it, there is some excuse for outlying pastures of broomsedge, but the hay that can be cut from such lands must be scanty in quantity and hardly worth the labor of saving if a man has any cultivated grasses to attend to. I think that Mr. Hobson will find little trouble from broomsedge by adopting a shorter rotation, breaking his soil and liming well at least once in five years. On all the uplands of Virginia, east of the Blue Ridge, broomsedge will get the advantage if the lands lie in mowing or pasture too long without lime; not that lime is a specific cure for sedge, but used in connection with the buried sod, it produces conditions in the soil favorable to a dense growth of the better grasses, which easily choke down sedge until they become enfeebled. If these uplands are deeply plowed and subsoiled when the sod is broken, no disastrous washing will take place before they can be gotten back into grass again. Shal-

low, skim plowing, is responsible for more gullies on the Virginia hills than anything else."

Little more need be said of methods for killing out broomsedge than that embodied in Prof. Massey's article. Where but little of the sedge is present, however, grub it out before it ripens its feathery seed.

192. **WILD OAT GRASS.** (P.) *Arrhenatherum elatius* (L.), M. & K.

This tall grass is rapidly supplanting the better species in many parts of Monongalia county greatly to the detriment of our orchards and meadows. Our analysis shows it to yield of:



Wild Oat Grass.

Moisture	11.06
Ether Extract	3.21
Fibre	34.64
Ash	4.29
Crude Protein	4.61
Nitrogen free extract	42.19

which proves the nutritive ratio of this grass to be very low: only 1 : 10.88.

"This species is much valued on the continent of Europe for the food of all animals except horses. The herbage is very productive, very early, and rapid in its growth. When growing with other grasses, cattle and sheep eat it very well, but do not like to be confined to it alone."

193. "OLD WHITE-TOP." "FEATHER GRASS."
"VELVET GRASS." (P.) *Holcus lanatus*, L.

Although considered an excellent hay crop in some parts of the South, with us it grows in high clumpy tufts disfiguring not only the field but the surface level as well. Our analysis of the species gives it of:



Old White-top.

Moisture	10.34
Ether Extract	1.42
Fibre	31.01
Ash	6.64
Crude Protein	7.30
Nitrogen free extract	41.29

and a nutritive ratio of 1 : 6.12; making a very fair showing as a fodder. It may make a very good early hay crop when sown alone for this purpose, but when existing with other grasses, it ripens so early that it is absolutely worthless when the other hay is ready for the machine.

It is well to grub it out as it appears to prevent its seeding in when not desired.

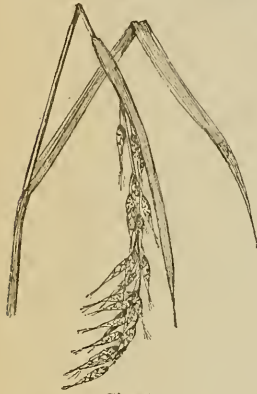
194. **DOG'S-TAIL GRASS. WIRE GRASS.** (P.) *Eleusine Indica* (L.), Gaertn.

This peculiar five finger grass of the walk, garden, lawn and

street is a bad weed to contend against and should be hoed out scrupulously whenever noticed. While it is fully as difficult to eradicate as crab grass, it is of much less use to the cultivator of the soil. Kill it out with the hoe before it seeds.

195. **Eragrostis.** (P.) *Eragrostis hypnoides* (Lam.), B. S. P.
This grass becomes a weed of the dry pasture and sandy roadside, and is obtrusive wherever it habits. It should be gathered with other trash and composted.

196. **CHEAT GRASS. CHESS.** (P.) *Bromus sp.*



Cheat.

This is a common group of grasses well known to all farmers from their resemblance to degenerated wheat, which in fact, many believe them to be. They bear no relation whatever to wheat (except mayhap to the stubble field) either in appearance or usefulness, and should be treated as weeds which they really are. The best method of subduing them is; First, a high culture; Second, a careful preparation and fertilization of the soil; and third, sowing of pure seeds.

197. **DARNEL. ENGLISH BLUE GRASS.** (P.) *Lolium perenne*, L.



Darnel

Although this grass is called English Blue Grass here, and often sold as a superior grass for lawns and meadows, it does not prove as valuable as many claim, and should not be purchased for use here where other well known nutritious grasses are so plenty. We should be sure at least, if we desire to try this new species, that the variety known as Italian Rye Grass is furnished. In meadows and especially lawn mixtures, it is well to avoid this species, replacing it with that much more white clover and blue grass.

- 198 **Horse-tail.** (P) *Equisetum arvense*, L.

Standing erect in the grass of low places in early Spring, many of the little arrow-like stalks and yellow heads of this peculiar plant may be seen, followed later by a green feathery herbage looking something like the scraggly tail of an old horse. These plants

are useless to the farmer and should be replaced by good grass. This may be accomplished by underdraining such places as are too much given to this weed.

FERN FAMILY.

199. **Brake Fern.** (P)

Pteris aquilina, L.

In many hillside pastures and meadows, large patches of this fern grow, affording a cover for rattlesnakes and choking out grass and other herbage. Such places should be cleared out by early grubbing followed by fertilization, and plentiful seed of some rapid growing grass.

The young sprouts which are curled like a shepherd's crook make an excellent pot herb in early spring.

MOON-WORT FAMILY.

200. **Moon-wort.** (P.)

Botrychium ternatum var. *bliquimo*
(Muhl.), Willd.

In old fields, meadows and pastures, this one-stemmed "fern" with a brown fruiting summit often becomes quite noticeable as a weed. It is not of sufficient importance to need particular attention except when growing in quantities, in which case, it is an indication that the field needs renewal.

CLASSIFICATION SUMMARY

	1st. Class Worst.	2nd. Class Bad	3rd. Class Indifferent	Total
Perennial	42	45	38	125
Biennial	13	6	1	20
Annual	27	17	11	55
Total	82	68	50	200

USES OF WEEDS DESCRIBED.

In these lists the numbers refer to the number of the weed in the foregoing list, not to the page.

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