

OKLAHOMA

AGRICULTURAL EXPERIMENT STATION.

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OKLAHOMA WEEDS.

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BOTANIST AND ENTOMOLOGIST.

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\* Died Dec. 22, 1895.

## OKLAHOMA WEEDS.

JAMES C. NEAL, PH. C., M. D., BOTANIST.

[The author of this Bulletin died December 22, 1895, soon after completing this, the last work he did for the Station, with which he had been connected since its organization—its Director until July 1, 1895.]

It may seem strange that there exists a necessity of presenting this very incomplete list of Oklahoma weeds, but in no section of our broad land do weeds seem more rampant and progressive so to speak, than in this new territory. With the subduing of the rich and virgin soil, not only have many native plants been stimulated to increased growth and wider limits, but scores of other plants from abroad, intruders, seemingly on the alert for greener fields and pastures new, are now contesting the rights of the aboriginal plants that for years have held their own against heat and cold drouth and storm, and are dividing the cultivated area with the crops we think worthy of protection and care.

Our fields and gardens have to contend with a new soil, with an unknown climate as well as with a diversity of both new and old insects, but weeds add the last straw to the burden, when the mildly-aggressive food-plant is crowded out of existence by the more vigorous, persistent, unwelcome weed that presses forward with a zeal worthy of a better cause, to take the food, the space and the light of the better plant.

With some propriety we may call weeds the Arabs of vegetable life, the robbers of plant-food, the highwaymen of crop-growth and, as such, they should be outlawed by every agriculturist, raising the cry of no quarter, and the warfare waged to the utmost all the time. Another definition is that of a "plant out of place," but there are degrees of badness among weeds that it may be well to notice in this connection.

Some plants have so many good qualities that one or two bad traits can be excused; others are so noxious that there seems to be no tenable reason for their existence, unless as a curse upon the idle farmer. But after all, much depends upon circumstances.

To a Southern cotton-planter, Bermuda grass is one of the most hateful of weeds; to the Southern lawn-maker, nothing gives better results for the yard or park.

A majority of answers from leading farmers and horticulturists of Oklahoma included crabgrass as one of the worst of weeds, but in Florida it is one of the finest of forage plants, giving tons of excellent hay at small expense, and it may become eventually as well liked here. Nobody, however, can see good in the coco grass, the sandspur grass, the buffalo bur, the Russian thistle or the Canada thistle, and such plants as the ragweed or careless weed have few admirers or apologists.

The new conditions just coming into existence in this section are most favorable for the rapid spread of these unwelcome plants. It is a common practice to plow the sod in the spring, allow it to lie fallow one or more seasons, and then plow and sow to wheat. This crop gathered, it again lies idle several months. Nothing could be better for weed sowing, and the result is that hundreds of acres are now covered with ragweed, purseley, crabgrass, careless weed and dozens of other worthless plants, and our farmers will realize, too late, that one year's seeding will mean ten years, weeding.

Many of our worst weeds are not natives. Some of the indigenous plants survive the plow and fire of the immigrant, but the weeds that threaten to overrun our fields are mostly naturalized foreigners that take so kindly to our soil and climate that many weeds become our worst foes, that in their homes in the eastern states are of little consequence. Careless experimenting with cheap and impure seeds perhaps is responsible for the introduction of many of the more common weeds in so many places at once apparently. Grass seed often contains foxtail and crabgrass seeds. Clover, alfalfa and turnip seeds bring in others, while wheat and oats introduce chess, dodder, cockle and wild oats. Many weed seeds are brought in with the packing of trees and plants, while freight trains bring in other than human tramps to forage on the land.

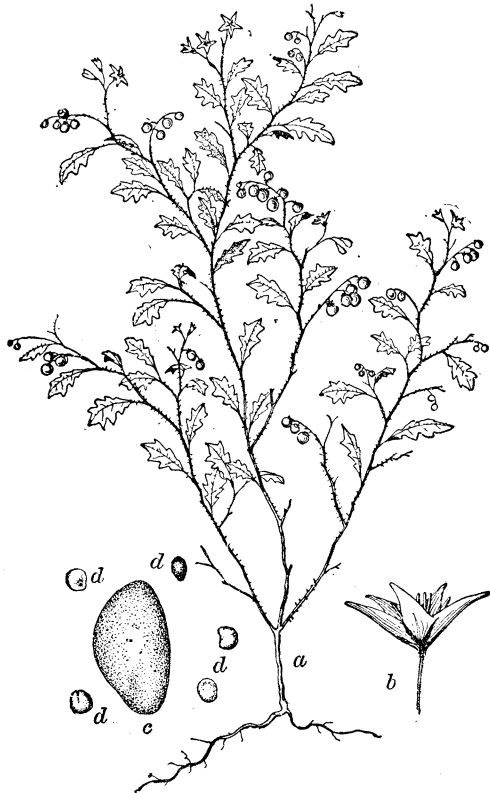
Abandoned claims, school sections, town lots and railroad reserves are a constant menace to the good farmer, for do as he will, these places are always like hot beds and propagating places for his enemies, both insects and weeds. It is the hope of the Oklahoma Experiment Station that this bulletin may in some way aid the

farmer to recognize the worst of these enemies, and direct him in his efforts to destroy them, or prevent their growth and spread.

In the following brief list, four classes have been arbitrarily made: aggressive weeds, timid weeds, weeds with a slight foothold, and weeds to be looked for. These last are tramps of the worst sort, that should be hit with the sharp edge of the hoe, whenever and wherever found. How to prevent the tremendous losses from weeds should be made the subject of proper legislation, as in some measure they are more inimical to public interests than many other objects of judicial censure.

### AGGRESSIVE WEEDS.

**BUFFALO BUR**—*Solanum rostratum*. This plant, often called bull nettle, easily stands at the pinnacle of weed eminence, combining persistence, poisonous qualities, and a wealth of spines rarely surpassed in the vegetable world. It is an annual, with rather pretty yellow flowers, followed by spiny burs that are filled with small black seeds. In the fall it becomes a "tumble weed" spreading its seeds far and wide as it rolls over the land. The careless habit, so prevalent in Oklahoma, of allowing land to lie fallow several months after harvest, favors this plant, and immense tracts are often thoroughly seeded with this weed in one season.



*Solanum rostratum*.

"b" flower. "d" seed. "c" magnified seed.

Figure, page 21 shows details of the plant.

**CARELESS WEED**—*Amarantus retroflexus*. This is one of our most common weeds, and when isolated becomes a huge tumble weed. The tap root is large, the leaves are long and wavy edged, the flower spikes are dull green, seeds small and black. In masses the plant grows tall and less branching.

**CARPET WEED**—Milkweed—*Euphorbia maculata*. This grows everywhere, the plant often covering four or more square feet; the leaves are small, often reddish, seeds very small. The plant luxuriates in our hottest weather.

**COMPASS WEED**—*Diodia teres*. This is a queer looking plant, having its opposite leaves arranged in pairs, forming right angles with the pair above and below. The flowers are small, and the plant spreads very rapidly if allowed any chance.

**CRABGRASS**—*Panicum sanguinale*. Not many immigrants have such tenacity of hold upon this new country, as this foreigner. It evidently has come to stay and grow up with the country. Everywhere it shows great adaptability of its habits to soil and climate, and may prove as great a pest here as it is in the older states, or it may be a blessing in disguise. Almost every farmer has tried grasses for pasture or lawn, and in much impure seed has sown crabgrass with the better grasses. The latter promptly died with the first continued drouth, the weed grass matured seed, and now but few localities are known where this grass cannot be found.

**DWARF PIG WEED**—*Amarantus blitoides*. This is one of the most common tumble weeds, much like the white amaranth, but the plant is low and spreading, and the seeds are much larger.



*Setaria glauca*.

**FOXTAIL GRASS**—*Setaria glauca*. This worthless grass is becoming very common. The long, hairy seed-heads suggest the name, and the long bristles aid in its dissemination.

**GUM WEED**—Rosin weed—**Asthma Weed**—*Grindelia squarrosa*. This is a common annual in rich ground. The leaves are rigid and with spiny edges, the flower-heads bright yellow, and the whole plant abounds in a resinous secretion having some value in the relief of asthma. The en-

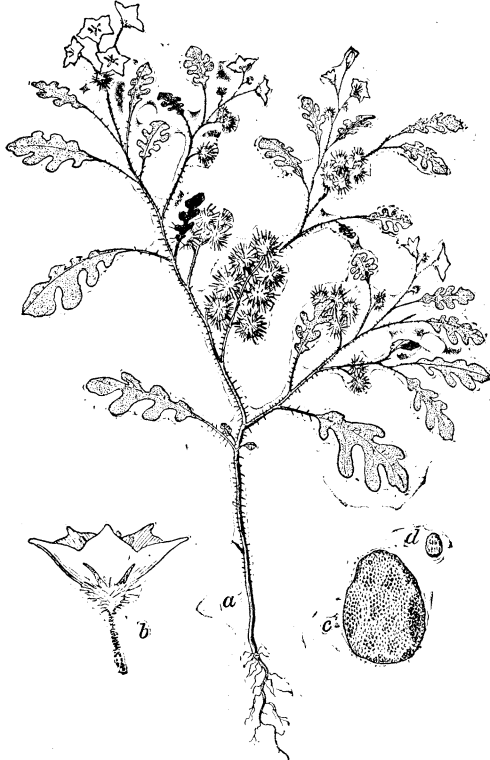
graving on page 23 shows the general idea of the plant. It may become a troublesome weed.

**HORSE NETTLE**—*Solanum Carolinense*. This plant prefers sandy soil along creeks and rivers. It is not as prickly as the buffalo bur, is perennial, has white flowers, leaves like the white oak, and small yellow berries. It is equally as persistent as any of the family, and in places is as bad as the worst of weeds.

**NUT GRASS**—*Coco*—*Cyperus rotundus*. This is properly speaking, not a grass but a sedge, closely related to the chufa wallow grass and others of this family, usually found in damp places. It has been reported as growing along the southern boundary of this territory, and may prove a formidable weed, as on account of its seeds and many small tubers, often very deep in the ground, it is difficult to keep from spreading. It is a well known pest in sandy lands in the Gulf states.

**PARTRIDGE PEA**—Sheep kill—*Cassia Chamæchrista*. This is a pretty native plant, flowers bright yellow, with a purple spot on the base of each petal. The leaves are quite sensitive, pods flat, and when dry the seeds rattle very like the warning of the snake. The whole plant is purgative, poisonous to sheep, and the flesh of cattle eating it is rendered unsafe for use as food. It covers many acres in Oklahoma, is aggressive, and should be kept down as a bad weed.

**FIG WEED**—*Amarantus chlorostachys*. This is a common weed, flowers in long spikes and, with the leaves, are a dull green. It is a tumble weed late in the season.



Horse nettle.—*Solanum carolinense*.  
"b" flower; "c" magnified seed; "d" seeds natural size.

PRAIRIE THISTLE—*Cnicus undulatus*. This prickly native finds a splendid chance to multiply in fallow grounds. It is an annual, and were it not that insects destroy most of the seeds, it would soon become one of our worst weed pests. Cutting before blooming would in a few years reduce this plant to a minimum.

PURSLANE—*Portulaca oleracea* and *Portulaca pilosa*. The first is a foreigner, with wedge shaped leaves and small yellow flowers. The other species is a native with purple flowers, awl shaped leaves, and is found along sandy roads and creek bottoms. Both have some value as hog food, but their vitality, spreading habits, astonishing profusion of seeds, and aggressiveness make them very undesirable plants in a field. They thrive during our greatest heat, and isolated plants grow to enormous dimensions. They are also the alternate food plants for a large caterpillar, the *Deilephila*, that often is found upon the grape.

RAGWEED. Several species of plants have this name in common, but the worst in Oklahoma is a perennial rooted species, *Ambrosia psyllostachya*. This grows everywhere on the prairie, often covering acres, but does best in fallow or uncultivated fields. Its slender root stalks fill the soil to the depth of over a foot. Its stems appear early in spring. The leaves are finely divided. The whole plant is of a very bitter taste, easily communicated to milk if eaten by cows. It blooms in September, and its long yellowish-green flower spikes shed an abundance of a very peppery pollen, making this section anything but Paradise to the unlucky hay fever subject.

RED CARELESS WEED—*Amarathus paniculatus*. Very similar to the green colored species, but the stems, panicle, and often the leaves are a bright red, purple or crimson. Very common and aggressive.

SAGE WEED—Bitter weed.—Wormwood.—*Artemisia Ludoviciana*. This grayish-green, hairy plant is common, and in habit very like the ragweed with which it is generally found. The leaves are cleft and divided, the heads small, whitish and many flowered. Plant very bitter.



SAND SPUR GRASS—Sand burs—Bur grass—*Cenchrus tribuloides*. This vile grass has not extended much yet in the



Sand bur.—*Cenchrus tribuloides*.  
2, flower spike. 3, bur.

territory, except along the Cimarron river, but it may become troublesome by reason of its burs. It has no redeeming qualities. It may be known in early spring by its flattened stems, its purple color and its bitter taste. This weed should be promptly suppressed.

SMARTWEED. Several species of *Polygonum* are entitled to this name, and one—*Polygonum Pennsylvanicum*—shows some tendency to spread away from its natural location, near wet lands. The flowers are bright rose color, in

heavy bunches, the flower-stems bright brown-red, and rough with blunt hairs; seeds flattened, black.

SPANISH NEEDLES—Bur Marigold.—*Bidens bipinnata*. This rather tall, well known weed is not uncommon in rich lands, and is a nuisance in the corn field at gathering time, its two toothed seeds cling closely to clothing. It spreads easily.

TUMBLE WEED—Several species of *Amarantus* form the bulk of the weeds that every fall scatter their seeds as they roll over the prairie before the wintry blasts. In some sections this claim may be disputed by the winged pig-weed, the buffalo bur and the lamb's quarter, but here the most common tumble weed is perhaps the *Amarantus albus*. This is found everywhere growing in sheltered positions, along ravines and timber, but is very persistent in entering old fields and neglected gardens, where it attains a surprising size, often becoming a mass three or four feet in diameter when dry. It is a constant menace to fences, hay stacks and pastures, especially during the progress of a prairie fire in the fall. The plant is a whitish green, leaves not very conspicuous or large, seeds very small, black, plant smooth, stems rigid, curved when dry, flowers in small clusters with the leaves.

WILD POTATO—*Solanum Torreyi*. This species is very common in Oklahoma, especially along the borders of alkali spots

and buffalo wallows. It readily spreads to cultivated fields. It is not as prickly as other species of *Solanum*, is of a peculiar ashy-green color, flowers lilac color, like the potato, berries often an inch in diameter, smooth, yellow.

WINGED PIGWEED—*Cycloloma platyphyllum*. A very much branched, small leaved tumbleweed, often the whole plant a purple color, with very small bunches of tiny queer flowers covering the plant. This is spreading eastward from the western sections of the territory.



*Panicum capillare*.—Tickle grass.

territory, and needs immediate attention.

WITCH GRASS—Tickle grass.—*Panicum capillare*. Late in the fall the much-branched panicles, or seed-heads of this grass break off and fly with the wind, often forming long windrows in "draws" and along fence lines. It is of little value when young, and when dry is a dangerous carrier of fire across fire-guards into barn-yards and haystacks. Gathered in hay, the brittle stems are troublesome to stock. It is spreading rapidly in this

### TIMID WEEDS.

ALKALI MUSTARD—*Oleomella angustifolia*. This is a tall, spreading plant, having much the appearance of mustard; found usually in barren alkali spots, and is mentioned here to call attention to the fact that it is one of the food plants of an insect pest of cabbages, the harlequin bug. This plant is of no value and should be destroyed where found.

BUNCHING PANIC GRASS—*Panicum dichotomum*. This is a perennial grass, very common around the margins of fields, roads and old gardens. It grows in dense bunches, stems quite hairy, leaves broad for their length, and is somewhat aggressive.

CATCH FLY—*Silene antirrhina*. This is a common, early

weed, tall and slim. Leaves grass like, flowers small, pink color, stems partly covered with a brown glutinous substance.

CHICK WEED—*Stellaria crassifolia*. This very spreading, thick leaved plant becomes very abundant in early spring, and contributes its share in preventing the growth of better plants.

COCKLE BUR—Jim Crow Bur—*Xanthium Canadense*. This well known plant is extending its sphere of growth into cultivated lands in every section of the territory, and should be exterminated before it becomes one of our worst weeds. Another species of this weed, the spiny clotbur, may be looked for, if not already here. This has dark green foliage, and at the base of each leaf, a three-pronged, slender, yellow spine. The burs of this new species are smaller than those of the *X Canadense*, and have two seeds in each bur.

COCKSPUR GRASS—Barnyard Grass—*Panicum crus-galli*. This is a common, coarse weedy grass, leaves rough margined, stems erect supporting a large panicle of bristly awned seeds. It has little value as food, and should not be allowed to fill up fields with its coarse stems.

DODDER—Love vine, Tangle vine—*Cuscuta sp.* All these parasitic plants are common on weeds and herbs, and spread into fields, especially of alfalfa. The general appearance is of yellowish, leafless, string like vines sprawling over plants, and they are found to be attached by expansions of the stems of the vine which adhere strongly to the host plant. They spread by their numerous seeds, and are a constant impurity in many garden and field seeds.

EVENING PRIMROSE—*Oenothera biennis*. *Oenothera sinuata*. Both these species have yellow flowers, and variously lobed and divided leaves, the first growing rather tall, the second spreading, often less than a foot high. In the fall these plants grow vigorously, forming a small rosette of leaves, and both bloom early in the spring. They delight in heat, and soon cover a neglected field, or fallow land.

GOAT WEED—Colic weed—*Croton Texensis*, *Croton monanthogymus*. These rusty-gray plants are common, and prone to cover fields. The hairs on these plants are expanded into star like forms, and under a low power of the microscope are very beautiful. The juice is extremely astringent, and has been used with good effect in checking nose bleed and other hemorrhages.

GOLDENROD—*Solidago juncea*, *S. nemoralis* and others. While these species are among our prettiest wild flowers, their habits include them many times among the plants out of place.

GREEN BRIER—*Smilax rotundifolia*, *Smilax bona nox* and other species. Along thickets, draws and lands adjacent to river and creek bottoms these prickly vines become quite weeds, as the rootstocks remain and sprout for some years after land infested is cleared of larger stumps.

HAIRY PLANTAIN—*Plantago Patagonica*. This very hairy, gray-green, grass like plant is becoming common in door yards with a tendency to spread into fields. In some places it has an unsavory reputation as a destroyer of lawn grasses.

HORSE WEED—Butter weed—*Erigeron Canadensis*. This fine leaved, tall and somewhat hairy plant is extending its usual limits of growth. The leaves are often given horses as a tonic.

KNOT WEEDS. Several of the family of *Polygonums* are entitled to these names, the most common in this region being the *Polygonum tenue*, though occasionally the eastern variety, *Polygonum aviculare* is found in waste grounds. The plant is smooth, the joints swollen, flowers small, general aspect like the smartweed.

LAMB'S QUARTER—*Chenopodium album*. This foreigner becomes very rampant with the least chance. It early adopts the habits of uninvited guests, growing to a height of four or five feet. Its leaves are scant and drop early in the season, the stems harden, and the plant seems a bundle of red, wiry stalks supporting a prodigious amount of beet like seeds, that scatter far and wide by the wind and the birds. In the spring the young plants are a fair substitute for spinach.

LEAD PLANT—Shoestring—Wild Indigo—*Amorpha canescens*. A small shrub, or woody plant; very common. The leaves and stems are covered with a whitish down; flowers purple, in a long, crowded head at the end of the limbs; leaves composed of from fifteen to twenty-five pairs of leaflets; root long and tough. This is a native, and very persistent on moist lands.

LIFE EVERLASTING—Everlasting plant—*Gnaphalium polycephalum*. This very woolly plant is one of our earliest weeds, very common around buffalo wallows and "draws," and spreads from these places.

PEPPERGRASS—*Lepidium Virginicum*. Everywhere, in the early spring, and is perhaps introduced in the impure grass-seeds. The small pods are oval, and have a little notch at the top.

PHYSIC ROOT—*Oxybaphus angustifolius*. This is rather a pretty perennial, coming up from a perennial root. The leaves are somewhat grass-like, thick and smooth; flowers bright rose color, in clusters, and very much like the four o'clock, only in miniature. The roots are large and thick and not easily plowed up. The plant spreads rapidly from seeds and roots, and is usually growing along creeks or in rich ground.

PRAIRIE DANDELION—*Pyrrohoppus scaposus*. This pretty weed is often mistaken for the true dandelion, but its flowers are larger, the color a brighter yellow and the roots are tuberous. The plant spreads rapidly by its plumed seeds.

PRICKLY BINDWEED—*Polygonum sagittatum*. A slender vine with four square, prickly, angled stems. The leaves are arrow shaped, the flowers white or pink, in loose clusters; the seeds three angled like buckwheat seeds.

RAKE GRASS—*Schedonnardus Texanus*. This is an awkward, sprawling early grass, with slender leaves and a flower spike something like a broken rake head. These long stems become tumble weeds, or adhere to clothing, cattle or wagon wheels. It is usually found along alkali spots or old roads, but spreads into fields.

SAGE WEED—Sage brush—*Artemisia Ludoviciana*. The whole plant gray with woolly hairs; upper leaves entire, lower three lobed and toothed; heads small, bell shaped; growing in company with ragweed, which it resembles, but its color distinguishes it easily.

SHEEP SORREL—Shamrock—*Oxalis violacea*. This pretty flowering plant is common. The bulbs are scaly, and in the early spring acres seemed filled with the clover-like leaves and dainty rose-colored flowers. It shades out many plants in the spring, and should be kept under control.

SHEPHERD'S PURSE—*Capsella bursa-pastoris*. This is also called peppergrass, and is one of the earliest of weeds. The pods are triangular. It is mostly found in gardens, and may become a weed in alfalfa fields, being often sown in impure seeds of this forage plant.

SHOESTRING PLANTS—*Baptisia leucophoca*. *Baptisia australis*. These are natives, having very long tough roots, that are hard to

exterminate the first and second years of plowing. The first named has a large cream white flower, like the sweet pea, the last a taller spike of blue pea like flowers. Both have large pods, and both, when the seeds are ripe, break off near the ground and become tumbling weeds, which seems to be the habit of most of the weeds of this section.

SUMACH—*Rhus glabra*, *Rhus copallina*, *Rhus typhina*. The first of these names is a smooth shrub, leaflets whitish under side; the second is dwarfish, with downy stems and is found along rocky hillsides; the third the common red fruited, velvety hairy stemmed species. They spread from seeds and rootstocks and are not poisonous.

SUNFLOWER—*Helianthus* sp. Hundreds of acres are now occupied by one or more species of this weed. It spreads by seeds, and has a bad record in many places.

WALLOW SEDGE—*Cyperus strigosus*. Several species of the sedge family grow in buffalo wallows and in moist lands, but the one named is perhaps most common. The leaves are triangular, the seed head umbrella-like, the roots very persistent and hard to exterminate.

### OCCASIONAL WEEDS.

GALL ROOT—Rattlesnake weed—*Prenanthes racemosa*. A conspicuous plant in the fall from its white, feathery heads. The root is a tough, very bitter tuber.

IRON WEED—Rich weed—*Vernonia Arkansana*. Several species of these tough stemmed, purple flowered weeds are common in rich soil, from which they spread easily into fields by seeds or root stocks.

LICORICE WEED—Cockle bur bush—*Glycyrrhiza lepidota*. This small bush is common around draws, and spreads by its bur like pods. The roots are slightly sweet, the foliage like the honey locust; flowers small, pea like, in clusters.

MISTLETOE—*Phoradendron flavescens*. This well known parasite will be troublesome in the future, when pear and apple orchards become common, as it grows well in such trees. It should be destroyed when found in the vicinity of an orchard.

MORNING GLORY—*Ipomoea pandurata*, *Ipomoea leptophylla*. Other plants are sometimes called morning glory, but the above are

most common. In both these species the roots are often immense, and the plants show some desire to spread.

SCREW POD—*Desmanthus brachylobus*. A fine leaved, low growing plant in pastures, bearing many small heads of greenish white flowers, followed by pods that form a spiral head. The roots are very persistent.

SENSITIVE PLANT—*Schrankia uncinata*. A prickly vine bearing heads of small pink flowers, the leaves sensitive to the touch, roots perennial.

WOOLWORT—*Froelichia gracilis*. This is a very woolly, slender leaved plant that grows vigorously in fallow fields, and in some places is quite a pest.

## WEEDS TO BE EXPECTED.

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BURDOCK—*Arctium lappa*. This coarse, aggressive weed is finding its way westward, and may become one of our common weeds along creeks and in rich lands, though it prefers moisture and some shade, and hence will not do as well here as in eastern states. The leaves are large, from a strong stem and a thick root. The flowers are purple, in a bur like, green, outer covering of leathery, hooked scales which enclose the seeds when ripe, and serve to aid in their dispersion.

CANADA THISTLE—*Cnicus arvensis*. In most places, this is one of the most pernicious of weeds, but the chances are that if it reaches this section, it will find the soil too dry to grow to its best estate, and that the insect that destroys the seed head of its cousin, the prairie thistle, will also be its enemy. The stems are creeping, the leaves prickly and slightly woolly beneath, heads small, rose purple, seeds plumed and very light.

CHESS—Cheat—*Bromus secalinus*. This plant has not yet been reported in our wheat fields, but no doubt will become one of the common impurities of wheat.

DOCKS—*Rumex species*. A few specimens of the curled dock have been seen in places near the Experiment Station, and the bitter dock has been reported as growing in Oklahoma. Other species will doubtless come later on.

DOG FENNEL—*Anthemis cotula*. This strong-scented annual may be expected as a common weed in the near future. The leaves are finely divided, the heads with yellow centers and white rays, much resembling the chamomile of gardens.

JOHNSON GRASS—Means grass—*Sorghum halapense*. This grass has been planted in several places in the territory for forage, and may succeed where other plants will fail, as its tough, wiry root-stocks penetrate to a great depth and resist drought exceedingly well. Whether it will become a weed and drive out better plants, or hinder farming, only time will tell. It has a tendency to run out, or become thin in places, so as to make an uncertain pasturage, but it is usually hard to exterminate if the ground is needed for other crops.

MEXICAN CLOVER—Ipecac weed—*Richardsonia scabra*. This very vigorous, spreading weed is reported in some places as growing in the guise of a new forage plant. It has a weak reputation in the extreme south for some food qualities, but it soon becomes a vile weed, and as long as a blade of grass is obtainable stock will not touch it. It is a pretty plant with small star like flowers that are very attractive to insects, but it may easily become a plant not wanted.

MULLEIN—*Verbascum thapsus*. This woolly biennial is found in some places within this section, but shows no signs of spreading, yet will bear watching.

OXEYE DAISY—White weed—Big Dogfennel—*Chrysanthemum leucanthemum*. This is a spreading perennial with the habit of the cosmos and large white flowers. It is a pernicious weed in most places, and should not be allowed to spread in Oklahoma.

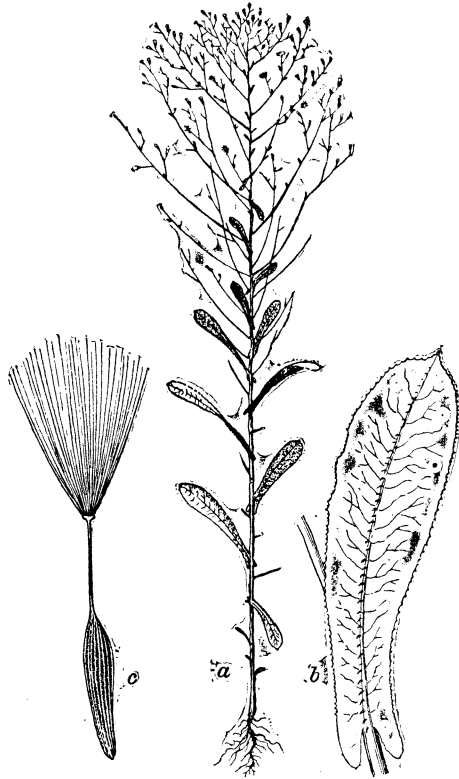


**PRICKLY LETTUCE**—*Lactuca Scariola*. From the rapid spread of this foreigner in Illinois, Indiana and some other states, it may not be long till it reaches this section. When young it looks like the common garden lettuce, but the leaves are prickly, and the stems when cut off, send up a new series of stems. The seeds fly with the wind and have special vitality.

**PRICKLY POPPIES**—*Argemone Platyceras*, and *Argemone Mexicana*. These are tall, spiny leaved annuals. The leaves are blotched with white, the pods spiny, flowers white or yellow, the plant juice is also yellow.

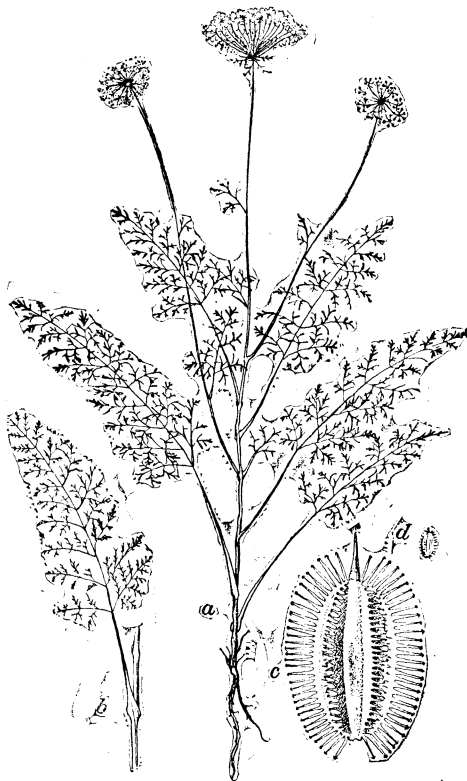
**RUSSIAN THISTLE**—*Russian Saltwort*—*Salsola Kali-tragus*. This weed has recently been found both north and west of this territory, and when it arrives, all other weeds may hide

their diminished heads, for with our school lands, draws, railroad reserves, town lots, sandy margined creeks and rivers, alkali spots and careless farmers, we shall never see the end of the trouble it will make. The engravings in this bulletin give a good idea of the general make-up of this plant, but it needs only contact with its prickly stems to dispel any illusion that it will be an easy matter to get rid of the intruder. At first it is a very humble plant, lying close to the ground, its leaves small and weak, but during the latter



Prickly Lettuce.—*Lactuca Scariola*.

"a" small plant; "b" details of leaf; "c" plumed seed.



Wild Carrot—*Daucus carota*.  
 "c" magnified seed; "d" natural size.

part of summer three sharp spines develop at each leaf, the stems become rigid, and with the first hard wind of winter the plant becomes a thorny tumble-weed. It has been so often described that only the hope is given that it will be regarded as a public enemy, be outlawed, and when seen, condemned to the fire without benefit of clergy.

WILD CARROTS—*Daucus carota*. This seems to be a retrograde form of a valuable cultivated plant, but when wild, its birdnest-like head of prickly seeds is very unpleasant to handle, and it soon crowds out better plants. Eastward it is rated as one of the worst of weeds.

## SYNOPSIS.

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The old proverb of prevention better than cure is especially applicable to weeds. Take a single instance:

A single plant of the pig weed was made the subject of some study recently. It was a very moderate specimen, like one of a hundred in the same field, but it had over forty thousand potent seeds, and one such plant could easily seed an acre, giving a plant to every square foot.

Preventing annuals from seeding for a series of years is manifestly the proper method of clearing the land of this class of weeds, and no better time could be chosen than just at the period of blooming, for few plants have vitality to begin over the task of collecting new material for stems and flowers.

In the case of perennials, constant plowing in dry weather, or smothering out with rapidly growing crops is indicated.

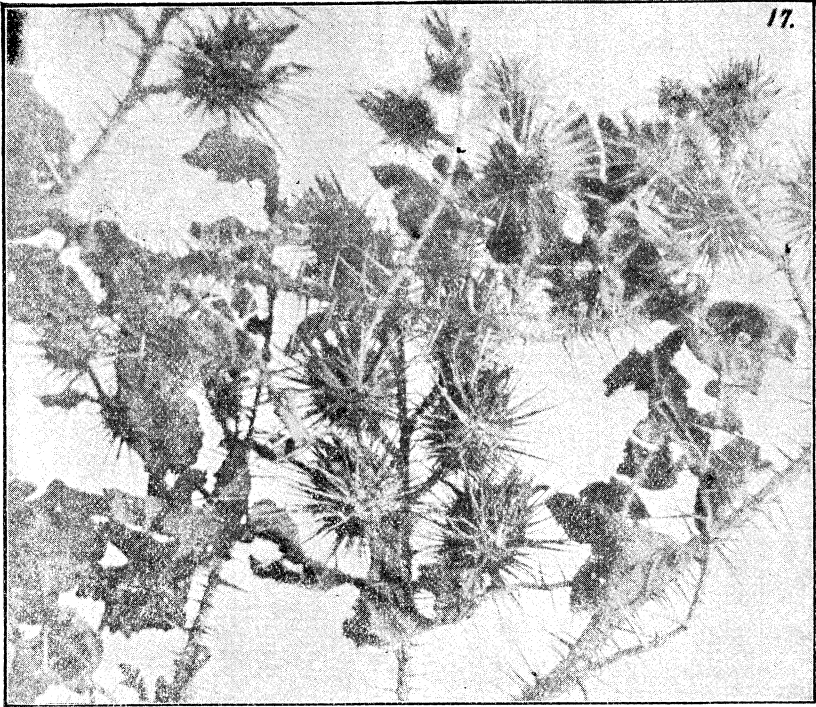
Many weeds seem to do better during dry weather, and thus have great advantage over most of our field and garden crops. However, plowing at such times, exposing the tender roots to the sun and wind, with few exceptions is fatal to the weeds. Constant vigilance is the price of clean fields, and if every suspicious plant were watched, and exterminated with the first signs of its worthlessness, much trouble would be averted in the future. Send specimens to the Experiment Station for identification and advice which will be gladly given.

[Thanks are due the Agricultural Department in Washington, D. C., and to the officers of the Experiment Stations of Colorado, Tennessee and Illinois for favors in making this compilation and furnishing illustrations.]

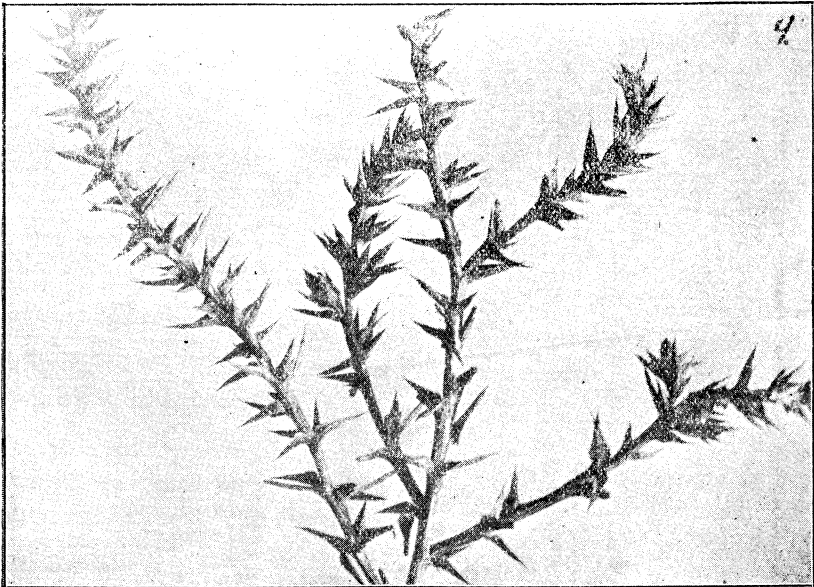
## EXPLANATION OF PLATES.

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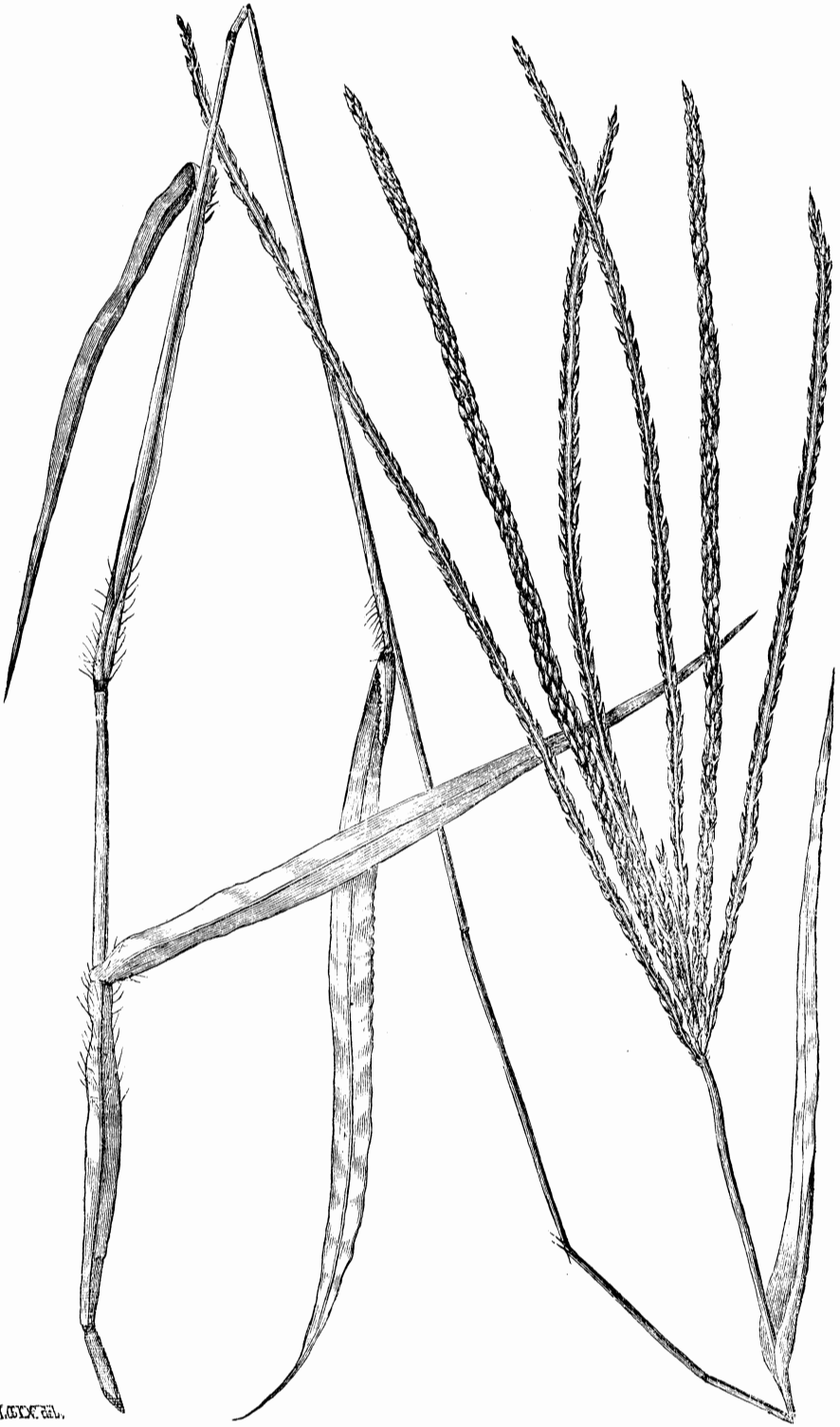
1. Pods of Buffalo Bur. *Solanum rostratum*
2. Branch of Russian Thistle.
3. Crabgrass. *Panicum Sanguinale*.
4. Asthma Weed. *Crindelia Squarrosa*.
5. Coco Sedge. *Cyperus rotundus*.
6. Cock's Foot Grass. *Panicum Crus-galli*.
7. Johnson Grass. *Sorghum halapense*.
8. Russian Thistle, fully developed.
9. Details of Russian Thistle in flower. *a*, plant; *b*, young plant; *c*, *d*, flowers; *e*, seed enclosed in husk (natural size shown on left); *f*, seed.

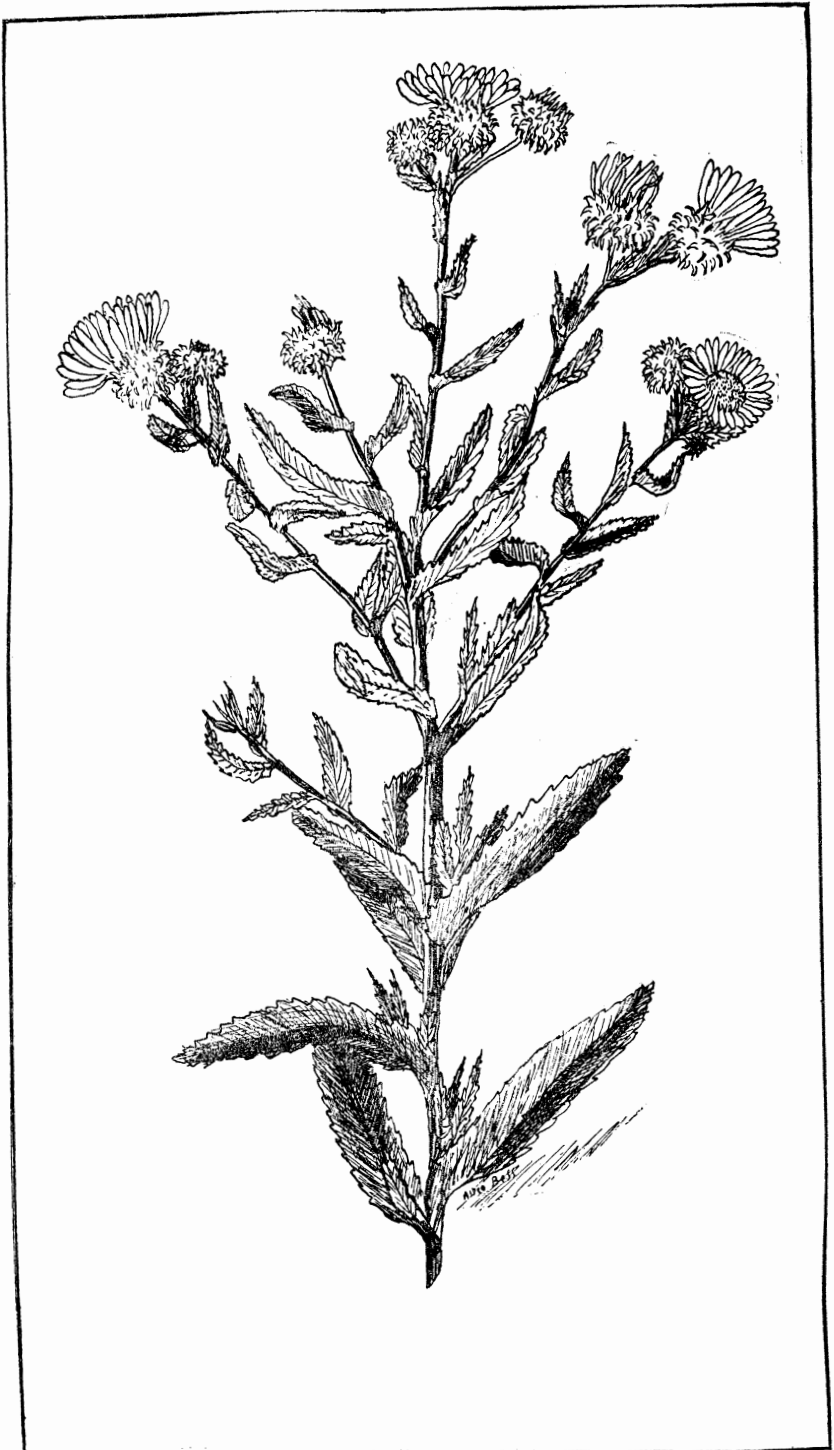


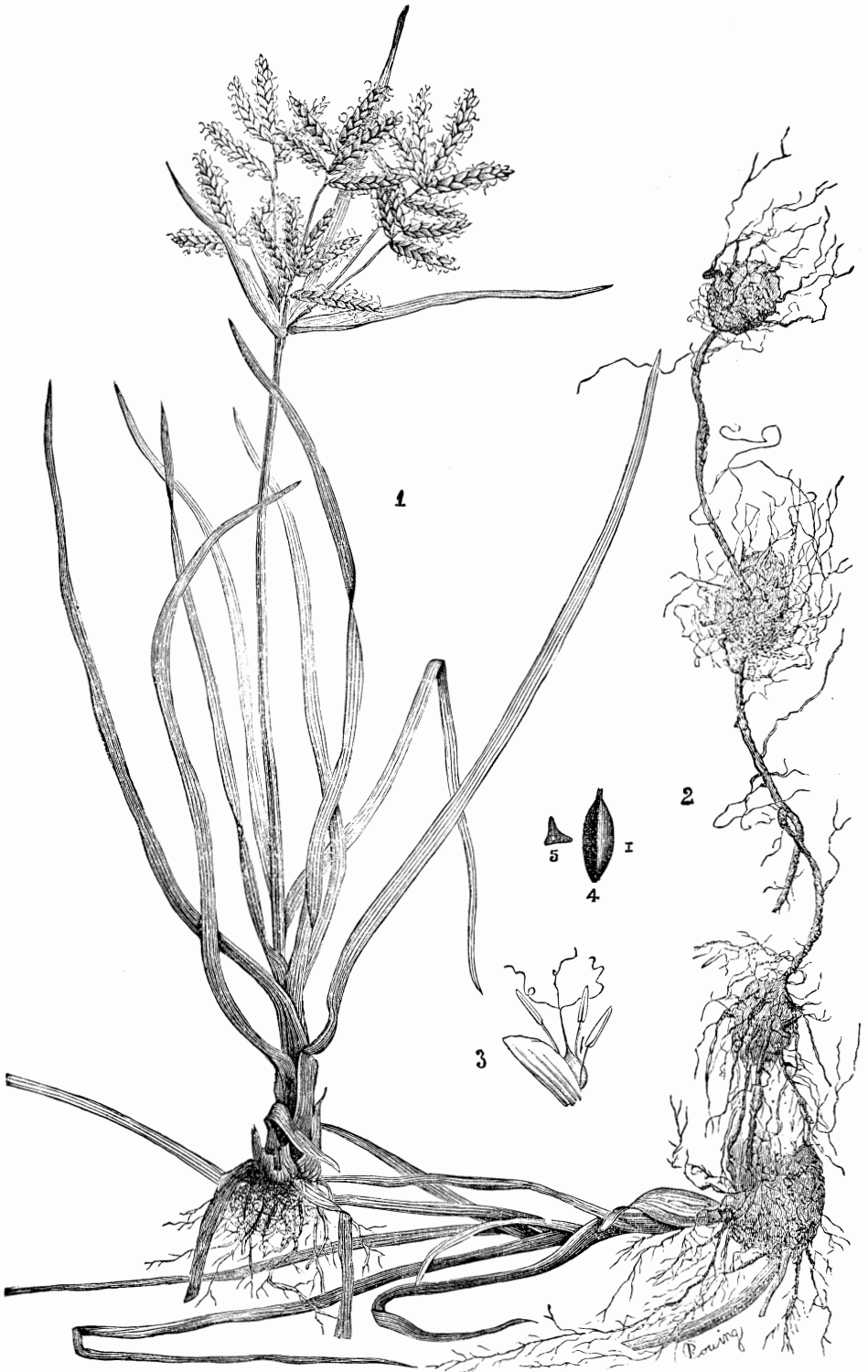
1—Pods of the Buffalo Bur.



2—Branch of Russian Thistle.

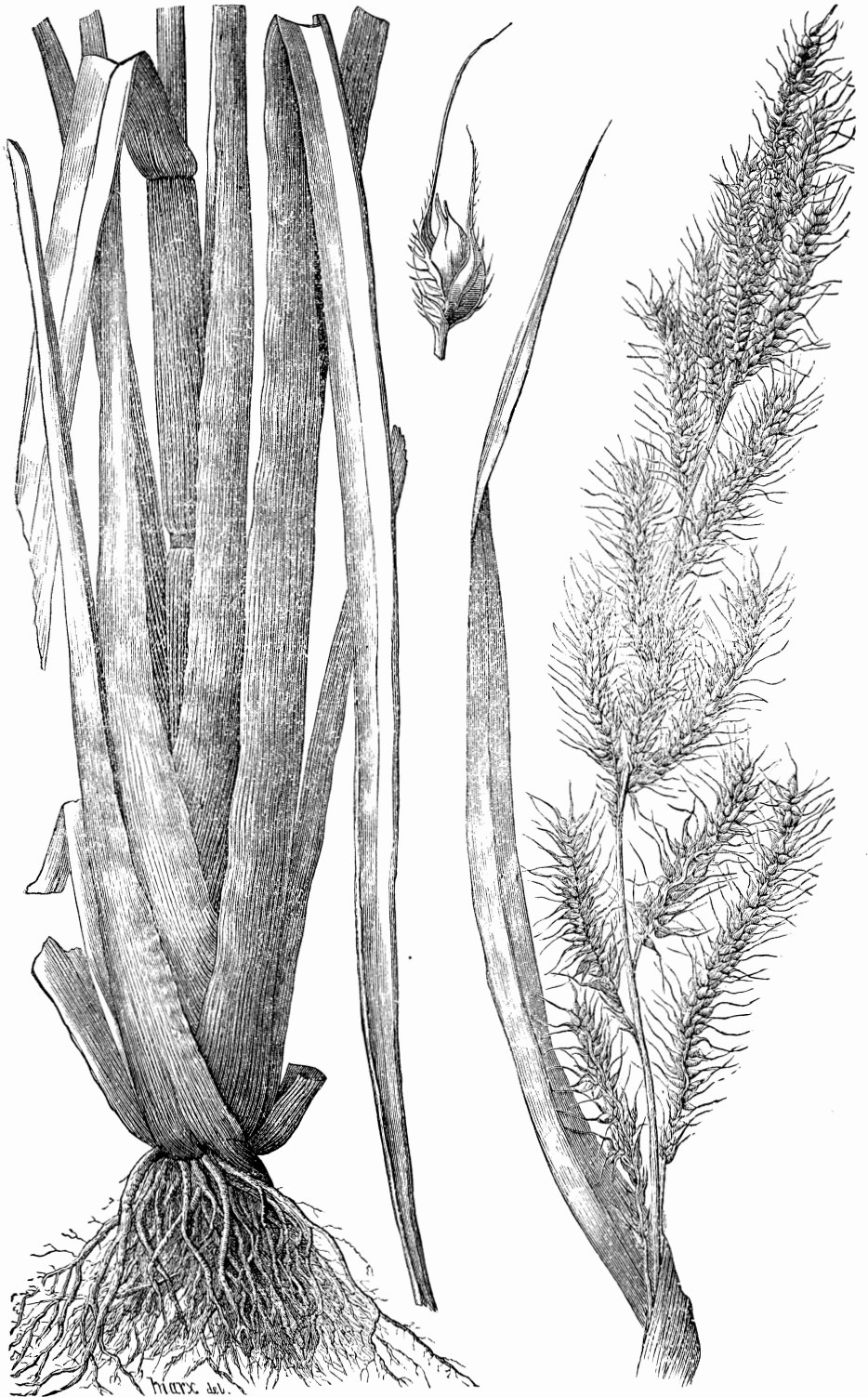




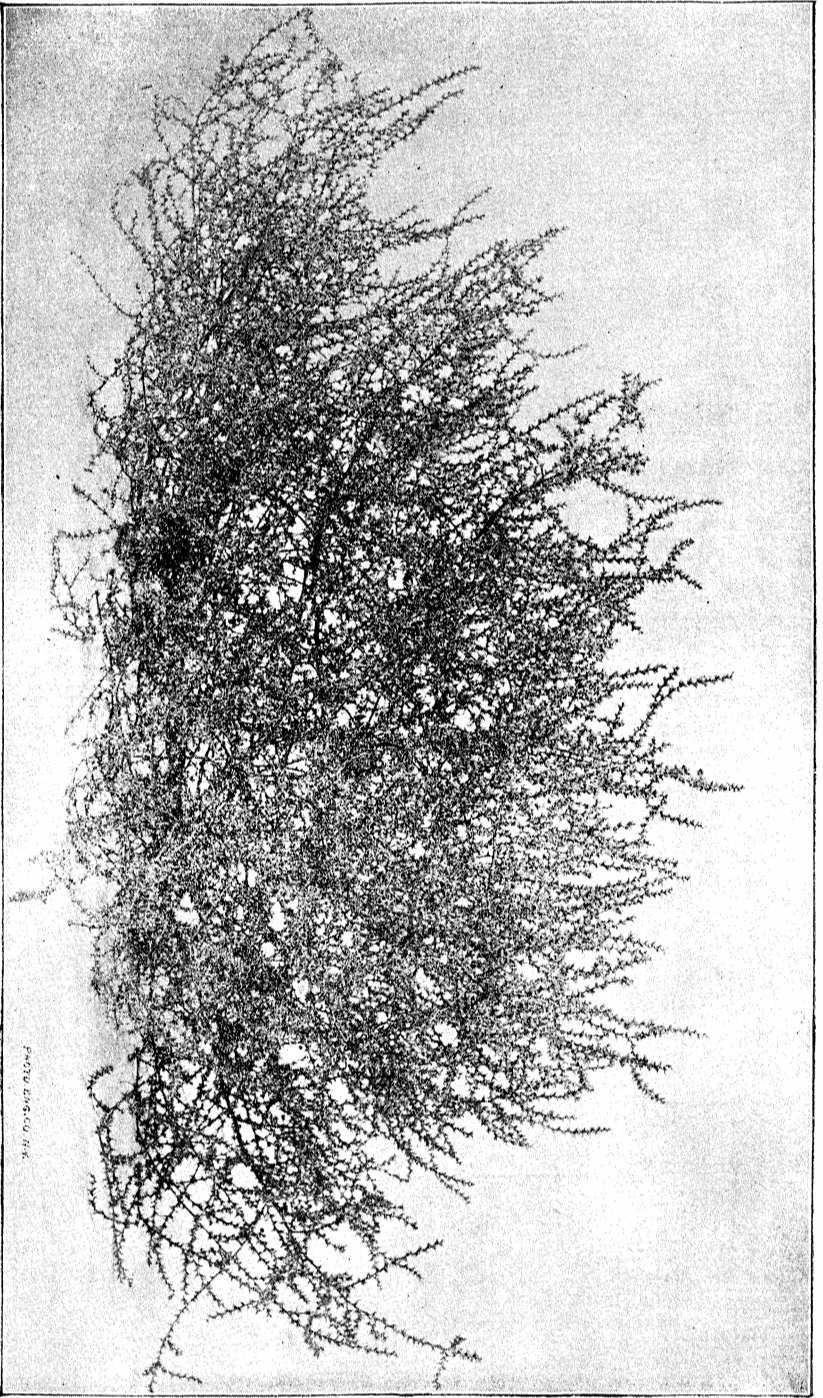


24 5—Nut Grass,—Coco. *Cyperus rotundus*. 2, tubers; 3 magnified flower; 4, seed enlarged the natural size shown on the right; 5, cross section of 4.

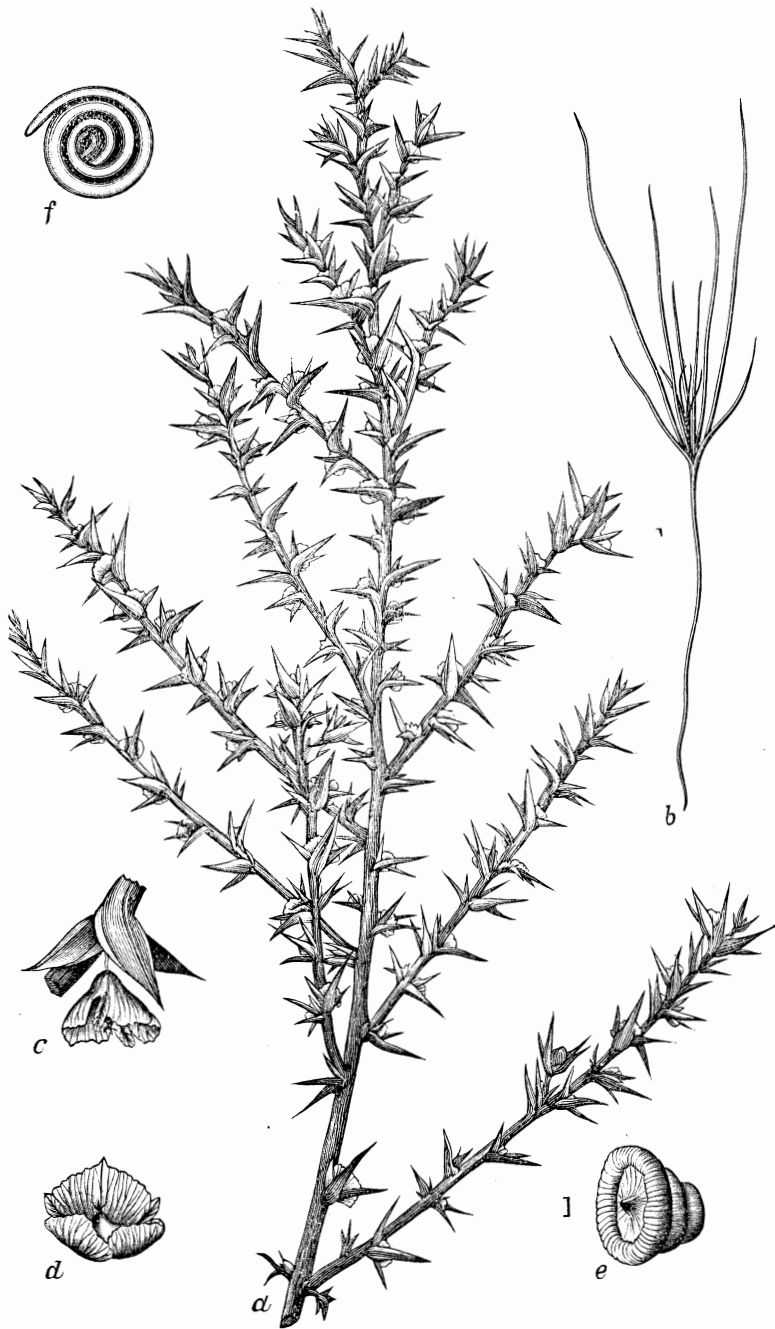








8—Russian Thistle, fully developed form.



9.—a, Russian thistle in flower; b, young plant; c and d, details of flowers; e, seed in husk; f, naked seed, natural size to left of e.