

AMERICAN JOURNAL OF PHARMACY  
Volume 67, #12, December, 1895

Botanical Medicine Monographs and Sundry

**SOME FURTHER OBSERVATIONS ON  
CHERRY BARKS.**

BARK OF THE WESTERN FORM OF PRUNUS VIRGINIANA, LINNE.  
BY EDSON S. BASTIN.

In Brewer and Watson's Flora of California this is treated as a distinct species, under the name of *Prunus demissa*, Walters; but Prof. C. S. Sargent regards it as only a form, not even a distinct variety, of the Choke cherry, *Prunus Virginiana*. It is somewhat less diffuse, and more tree-like in habit, though seldom attaining a height of more than 12 feet. Its leaves are pubescent underneath instead of smooth, their bases frequently somewhat cordate instead of wedge-shaped, their texture rather more leathery, and the fruits are usually less astringent than those of the Eastern form. Differences such as these, however, are certainly not specific, especially as the Eastern form is known to vary considerably in the shape, texture and hairiness of its leaves and in the color and astringency of its fruit. If Prof. Sargent's view be correct, the Choke cherry is, as he says, the most widely distributed of any American species of tree, for, to quote his language: "It grows within the Arctic Circle, ranging across the continent from Labrador and the shores of Hudson's Bay to the valley of the Mackenzie River, in latitude 62°, and crossing the Rocky Mountains, reaches the Pacific Coast in Northern British Columbia; it extends southward through Eastern North America to southern Georgia, Louisiana, Texas, northern Mexico and along the mountain ranges of Western North America.

"In the Eastern States it is one of the most common of the large tree-like shrubs, growing usually along the margins of the forest; generally in rich, rather humid soil, and along highways and fence rows; in southern Oregon and northern California it inhabits low valleys, where, in rich, moist soil, in the neighborhood of streams, it attains a large and arborescent habit; on the mountain ranges of the interior of the continent, where it is confined to elevated valleys, in southern

California, and at the northern and southern limits of its range, it is a low shrub." (The Silva of North America.)

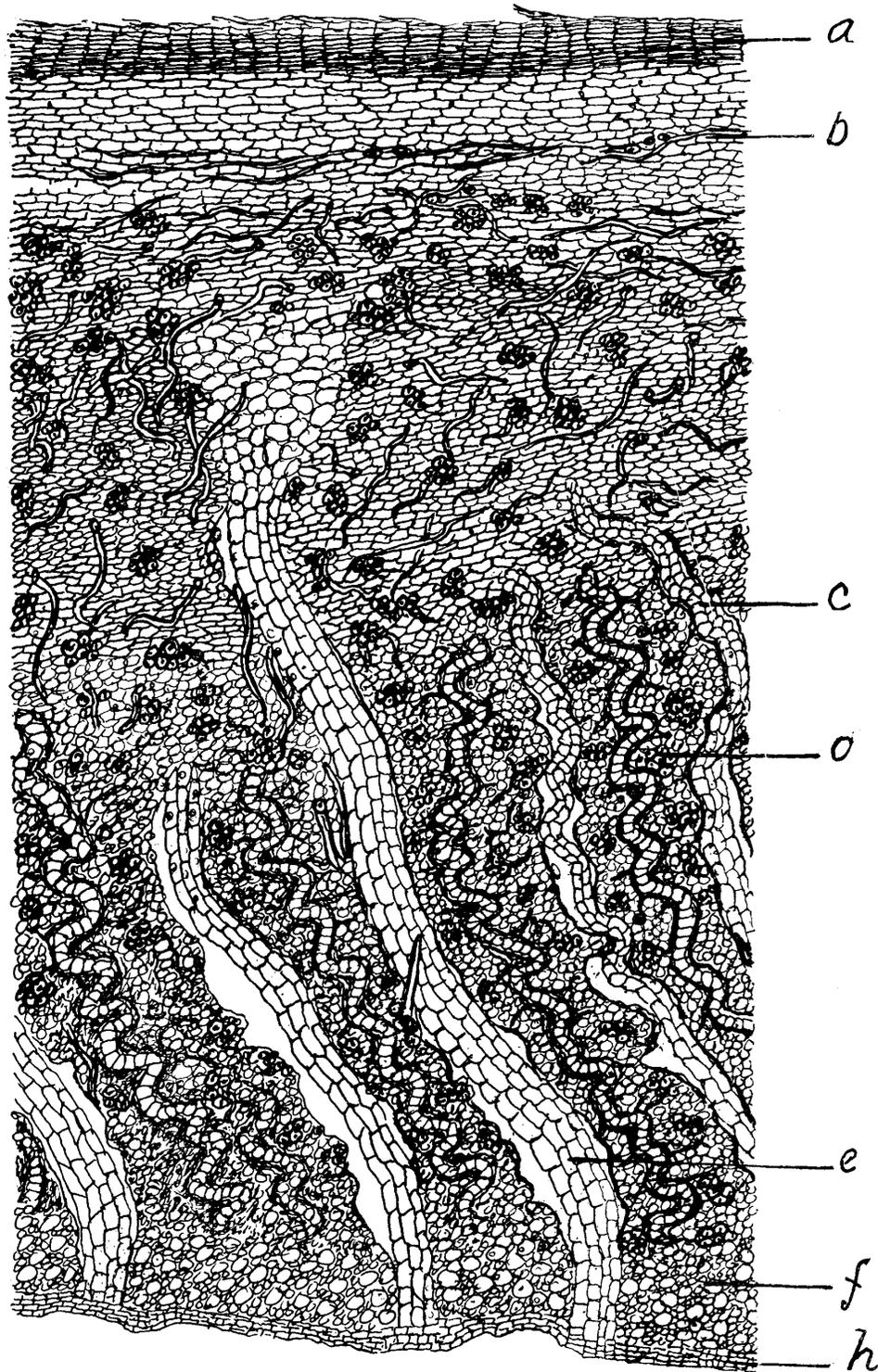


FIG. 1.—Cross-section of bark of *Prunus demissa*, magnified 100 diameters.

The specimens of bark examined by me were kindly supplied by Miss Alice Eastwood, of the California Academy of Sciences, and were obtained from Marin County, in that State.

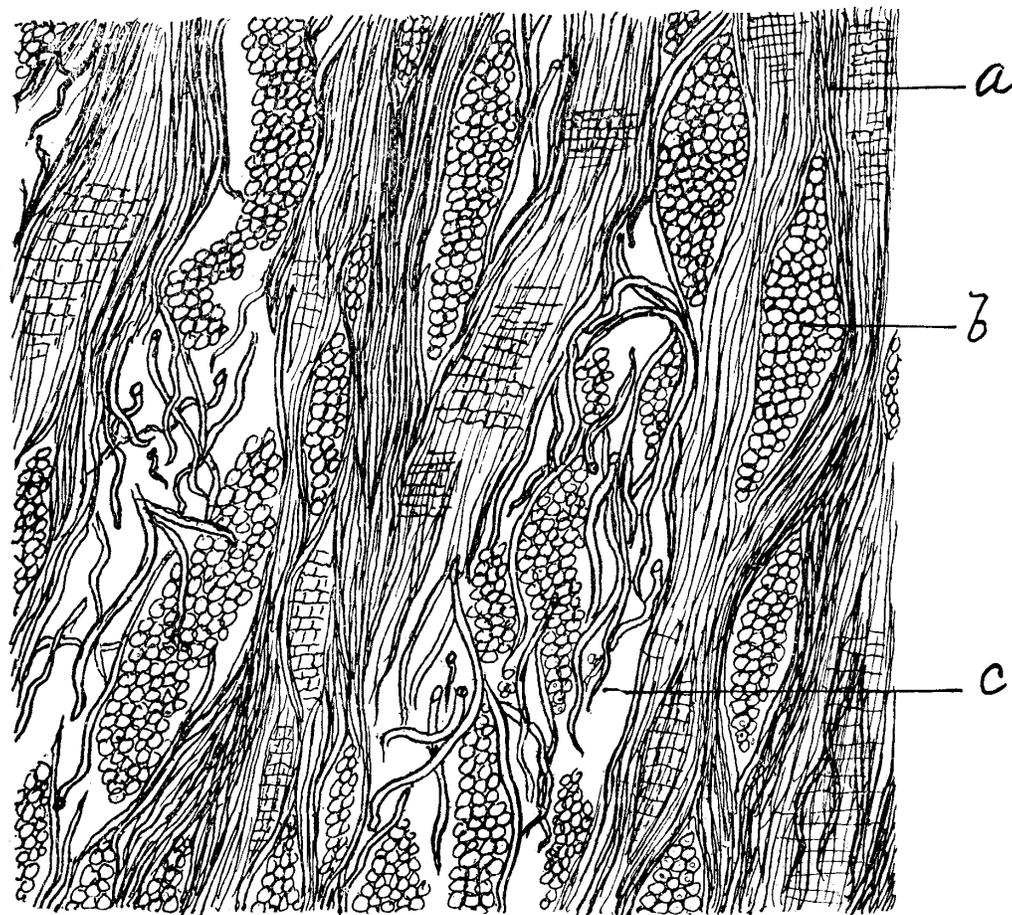


FIG. 2.—Longitudinal-tangential section of inner bark of *Prunus demissa*, magnified 100 diameters.

To the taste these specimens were less bitter, but quite as aromatic as good specimens of the bark of *Prunus Serotina*, excelling in the latter respect any specimens of *P. Virginiana* that the writer has before tested. This difference can easily be accounted for by differences in climatic conditions. No differences were observable between the bark of the Eastern and Western forms in the external markings, excepting the purely accidental one that the bark of older stems in the Western form was mostly covered with growths of crustaceous lichens, decking the surface with grayish and whitish patches and blackish dots and lines. The fracture and the color of the interior surface correspond closely with

those of our Eastern form.



FIG. 3.—Starch from the bark of *Prunus demissa*, magnified 1,200 diameters.

Furthermore, a microscopic study does not reveal any considerable differences between the Western form and ours. The slight differences revealed by the drawings may well be due to the widely different conditions of growth. There are the wavy and oblique medullary rays that characterize all the species of the group; but, as in our Choke cherry, the rays are less oblique than in the other species thus far studied. The bast areas between the rays show wavy, compressed sieve-tissues, with walls in the older portions, irregularly thickened, and numerous long, slender, lignified bast fibres arranged irregularly, singly or in clusters. These fibres are frequently not straight, but wavy, particularly in the neighborhood of the medullary rays.

Beyond the extremities of the medullary rays, in the cortex or middle bark, occur also numerous sclerenchyma fibres, a fact which was noted in my previous description of our Eastern form. These fibres are either clustered or single, and irregularly distributed. They are commonly wavy, and their position may be transverse or oblique, as well as lengthwise of the bark.

Stellate masses, as well as single crystals of calcium oxalate abound in all parenchymatous portions of the bark.

Starch in small quantities was also found in the parenchyma. As in other cherry barks, it is very small grained, but it differs from those in the others thus far studied, in the fact that the grains are mostly compound, the masses often consisting of a dozen or more granules. The

hilum of the individual granule is usually quite distinct and is centrally located.

The fact that the Western and Eastern forms are not to be regarded as distinct species, or even as distinct varieties, does not preclude the possibility that the former may be richer in medicinal constituents. Indeed, its more aromatic taste and odor suggest that it is so, and that it might repay chemical investigation.

### DESCRIPTION OF FIGURES.

Fig. 1, transverse section of the bark of the Pacific Coast form of *Prunus Virginiana*, magnified 100 diameters; *a*, periderm; *b*, sclerenchyma fibres in cortex; *c*, a secondary medullary ray; *d*, bast fibres; *e*, a primary medullary ray; *f*, later formed phloem elements; *h*, cambium tissue.

Fig. 2, longitudinal section of the same, made in a tangential direction well toward the outer layer of the bast; *a*, bast fibres; *b*, medullary ray near its outer extremity; *c*, fissure, with loosely arranged and much contorted bast fibres. Magnification, 100 diameters.

Fig- 3, starch grains from the same, magnified 1,200 diameters.

## NOTES ON THE RECENT LITERATURE OF BOTANY AND MATERIA MEDICA

### Vegetal Dissemination in the Genus *Opuntia*.

J. W. Tourney, *Botanical Gazette*, August, p. 356, calls attention to the persistence with which these plants retain moisture. A thick epidermis, with small sunken stomata and evaporating surface reduced to a minimum by their condensed form, enables them to remain green for months, even when exposed to the dry and scorching heat from the southwestern plains. Half of one of the segments of *O. basilaris* placed in a small box, without either soil or moisture, produced a slender branch 5<sup>^</sup> inches long, having lost only 15 per cent. of its total weight in that time. This branch subsequently developed a second branch for about 2 inches in length before drying up. If these segments fall to the ground even in the driest season of the year, the contained moisture is

sufficient to enable them to put forth roots, a new plant resulting.

The function of the spines in the Cactaceae has been generally asserted to be largely for protection; the writer claims that the cylindrical opuntias depend largely for dissemination upon the readiness with which the branches break off and upon the highly developed barbed spines. The flat opuntias are nearly all smooth, but here the usual habit is prostrate or semi-prostrate, so that the branches bending or creeping take root at the joints. The young branches of the plato-puntia are likewise more easily detached. This appears to be the prevailing method of dissemination, so much so that several species have almost lost the power of seed production, and even in species not sterile, owing to the unfavorable climate, the seed seldom germinate.

### Vanillas of Commerce.

Mr. R. A. Roife has monographed the genus *Vanilla*, and the *Kew Bulletin* for August, p. 169, abstracts the historical and descriptive account of the species yielding the commercial fruits. Four species appear to yield all the vanillas of commerce, and two other species are indicated as worthy of experimentation in this connection.

*Vanilla planifolia*.<sup>1</sup> Andr., Bot, Rep., viii (1808), t. 538.—A tall climber, with very long, somewhat flexuose, succulent, green stems, and slender, flexuose or twining, white, aerial roots, opposite to the leaves. Leaves subsessile, .oblong, acute or shortly acuminate, succulent, bright green, 4 to 9 inches long, 1 1/2 to 2 1/2 inches broad. Racemes axillary, 2 to 3 inches long. Bracts numerous, spirally arranged, oblong, sub-acute or obtuse, concave or conduplicate, 2 to 6 lines long, gradually diminishing upwards. Pedicels, 1 1/8 to 2 inches long; green. Sepals and petals linear, oblong and obtuse; 2 lines long; light, glaucous green. Lip

<sup>1</sup> As Salisbury's name, *Myobroma fragrans*, antedates that of Andrews, it is apparent that, if the law of priority be here applied, the correct binomial would be *Vanilla fragrans* (Salisb.). There were at least four binomials applied by earlier authors; but as several species were in each case confounded under the same name, it is difficult to decide positively which of these yet older names should be retained for this species. If, however, we accept the determinations of Roife, that these names in part referred to this species, and adhere to the priority rule, the synonymy would appear to be :

*Vanilla Vanilla* (L.), 1753.

*Vanilla Mexicana* (Mill.), 1761.

*Vanilla aromatica* (Su.), 1799.

*Vanilla fragrans* (Salisb.), 1807.

*Vanilla planifolia* (An dr.), 1808.

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trumpet-shaped, a little shorter than the sepals and petals, of the same color, united to the sides of the column to near its apex, and then convolute around it; apex three-lobed, mid-lobe longer and retuse, margin revolute and denticulate, nerves carinate, and those in front densely crenulate, verruculose, buff yellow; disc with a tuft of retrorse hairs about the middle. Column clavate; 1 1/8 to 1 1/4 inches long; hairy on the face. Capsule elongated linear, obscurely trigonous; 6 to 9 inches long; 6 to 7 lines broad.

Habitat, southeastern Mexico, in the Vera Cruz district, Misantia and Yucatan, also in British Honduras, Guatemala and Costa Rica. Cultivated in the Mascarene Islands, Java, the West Indies, and other parts of the tropics.

This species produces the true Mexican vanilla of commerce, which has been known ever since the discovery of America by the Spaniards, and which was described by Clusius as long ago as 1605, under the name of *Lobus Oblongus Aromaticus*. Its early history is much confused, as, for a long time, three or four species were confounded together, and, even when the present one was described, it was not known as the source of the vanilla of commerce, which was then, and for a long time afterwards, thought to be the *V. aromatica*, Sw. (i. e., *V. inodora* Schiede). It was introduced to cultivation about 1739, but was probably soon afterwards lost. The Marquis of Blanford reintroduced it about the beginning of the present century, and it flowered in the collection of the Right Hon. Charles Greville, at Paddington, in 1807, whence it can be directly traced to various continental gardens, to Java, where Blume re-described it under the name of *V. viridiflora*, and to Reunion, thus originating the present industry in that island. Salisbury's *Myobroma fragrans* (1807) was drawn from the same individual as the original *V. planifolia*, Andrews. *V. sativa* and *V. sylvesfris*, of Schiede, are chiefly known by the original descriptions, but are evidently forms of the same species, differing only in the length of the fruit; the former being a cultivated race, and the latter a wild original.

*Vanilla pheantha* Rchb. f.—General habit of the preceding. Bracts fewer and larger, broadly elliptical-oblong, sub-obtuse ; 3 to 7 lines long, 2 to 4 lines broad. Flowers larger; pedicels green. Sepals and petals, 2 1/4 to 2 3/4 inches long; greenish-yellow. Lip greenish-yellow, whitish in the throat, apex obscurely three-lobed and nearly truncate, nerves not carinate in front, disc with a pair of hairy lines extending from the

central tuft of hairs towards the base, Capsule linear-oblong, obscurely compressed; 3 inches long, 1/2 inch broad.

Habitat, West Indies, Cuba, St. Vincent, Trinidad. This is an indigenous species which has been confused with *V. planifolia*, Andr., though it is easily distinguished by its much larger flowers, lip without verrucose disc, and its much shorter fruit. It is cultivated in the Botanic Gardens of Jamaica and Trinidad, but there is no evidence of its fruit being of any commercial value.

*Vanilla Pompona* Schiede.—General habit of *V. planifolia* Andr, but leaves large, 6 to 11 inches long, 1 1/2 to 4 1/2 inches broad. Bracts larger and rather more fleshy; pedicels yellow-green; sepals and petals 3 to 3 1/2 inches long, greenish yellow. Lip bright yellow, nerves somewhat thickened, central tuft consisting of descending imbricated scales rather than hairs. Capsule linear-oblong, strongly trigonous, 6 to 7 inches long, 1 to 1 1/4 inches broad. Habitat, southeastern Mexico, Papantia and Colipa, valley of the Cordova, Nicaragua, Panama, Columbia, Tolima, Venezuela, Trinidad, British Guiana, Surinam, Cayenne. Cultivated in Martinique, Guadaloupe and possibly other localities. This species is much more widely diffused than *V. planifolia*, and its fruit has long been known as an article of commerce, being now usually sold under the name of West Indian Vanillons. It is the "Grosse Vanille " of Aublet, the "Baynilla de acguiles" of Humboldt, and the "Baynilla Pompona " of Schiede. The pods are more difficult to dry, and they fetch a much lower price in the market.

*Vanilla Gardneri* Rolfe.—Stems fleshy thick ; leaves sessile, oblong, obtuse, fleshy; raceme short, thick; bracts ovate obtuse, rigid, prominent; sepals petal-like, linear, lanceolate sub-obtuse; lip oblong sub-entire, faintly submembranaceous, nerves scarcely thickened; disc subpubescent crested, column clavate, capsule unknown. Habitat, Brazil, in dry, rocky places, Paranagua, Natividade, Perrasambuco, Para. A species allied to *V. Pompona*, Schiede, but with leaves about half the size, longer racemes, with smaller not reflexed bracts, and rather smaller, more membranous flowers. Gardner confounded it with *V. planifolia* Andr., and remarked: "This is the plant which yields the vanilla in Brazil, though, unfortunately, his specimens are without fruit. There are pods in the Kew museum labelled 'Brazilian or Bahia Vanilla,' which are 5 1/2 inches long by fully 1 inch broad, fleshy and distinctly triquetrous, and thus approaching those of *V. Pompona*, but

with a rank odor. These are probably produced by the present species. *V. appendiculata*, Rolfe, is indigenous to British Guiana. The fruit is aromatic, but it is uncertain if it has any economic value."

*V. odorata*, Presl, of Ecuador, Guayaquil, is only known from description. Presl remarks that, although fruits had been collected thirty-six years, they still retained their aromatic fragrance.

### **A False Chiretta.**

J. S. Ward, in the *Pharmaceutical Journal*, September 7, 1895, describes a false chiretta, which had been offered in the English market by a broker. The loose bundles resembled a parcel of dried broom tops. Each plant was complete, root and stem being perfect; the branches slightly broken, the leaves mostly absent. Intermixed were some extremely slender stems, panicles of pedicellate flowers, corolla and calyx, and glandular hairs ; a few leaves only could be found, which were slender and much broken. The stems are from 1/8 to 1/4 inch in thickness, near the base woody, quadrangular, furrowed, smooth, slightly knotty at the points from which the branches spring. The longitudinal furrows are continued through the roots, which have numerous fine radicles. The leaves are opposite, decussate; branches erect or forming an acute angle with the stem, terminal shoots extremely slender. The whole is a little more than 2 feet in length. The origin proved to be *Andrographis paniculata*, Nees. This plant belongs to the order Acanthaceae, and is described by Hooker as indigenous to a large portion of India. It is known there as Indian Chiretta.

### **Novel Uses of a Smut.**

An interesting *Ustilago* on *Zizania latifolia* is described by P. Hennings, in Hedwigia. It is sold in the markets of Tonkin as a vegetable. Japanese women are said to color the eyebrows and hair with the spores mixed with oil. These are likewise mixed with lac to produce rusty-colored wares.—*Botanical Gazette*.

### **Ipoh Poison.**

The Sakais living in the plains employ the Anharis poison; the Sakais of the hills use a poison prepared from three hill plants called *Ipoh Aker*, *Pruai* and *Lamong*. Dr. Stapf has determined that the Ipoh Aker is

probably from a new species of *Strychnos*, closely allied to *S. maingayi*. Prual is from a Rubiaceae, the *Coptosapelta flavescens*, Karth. An examination of the root bark, by Dr. Ralph Stockman, indicates that in future it must be classified among the poisonous plants.—*Kew Bulletin*, June and July, 1895.

## **A FEW REMARKS CONCERNING THE CASTOR-OIL BEAN.—*RICINUS COMMUNIS*, LINN.**

BY D. F. DAVENPORT.

Read before the Meeting of the Georgia Pharmaceutical Association, Savannah, 1895.

*Gentlemen of the Georgia Pharmaceutical Association:*—You have made a request of me to write a treatise on a subject which very few of us this far South and East know much about. The experiments which have been made in my locality have been made at my expense, and the "returns," on account of the cold, and of imperfect knowledge of their culture, has resulted rather disastrously. Still there are many reasons to believe that South Georgia, and especially Sumter County, is admirably adapted to this "bean."

The experiments began by loaning out seed to the farmers in various localities in small lots, and giving a guarantee of a price per bushel delivered in any quantity at Americus, after September 1, 1894. Only one farmer made a return of the seed, and one other was so delighted with the enterprise that he made his own shipments to the Northern market, and this year he has a considerable acreage in their culture. With the others the continued frosts killed the young plants, and very few came to maturity.

Sufficient to say, however, the plant assumes an enormous size, and yields abundantly in this soil and climate. As to the character of the seed: one large crusher said that the specimen sent from Sumter County was the finest he ever saw, and that if we could grow beans like the sample sent he would give a contract for several thousand bushels.

Just at this time, however, the "Wilson Bill" look 50 cents duty off of castor beans per bushel, and the West Indies up to date has "out-

classed" our section.

From meagre observations, however, I am sure that, if sufficiently understood and extensively cultivated, we have the advantage of that now rebellious district, even as it is.

One thing we must understand thoroughly, and that is their *cultivation*. All depends upon the knowledge of it. A few facts are given, gathered from the St. Louis market, which will be of great benefit to those who expect to engage in the enterprise in this locality.

Almost any soil that will produce wheat or corn will answer for the castor bean. When it can be had, a sandy loam is preferable. The soil should be dry. Wet, heavy soils are not adapted to its successful culture.

One important fact in connection with the culture of castor beans is that it is one of the most fertilizing crops raised. In this respect it surpasses even clover. Many farmers say, for fertilizing purposes, a crop raised upon poor land is worth several dollars per acre to the land, on account of the additional fertility gained by it.

#### PREPARATION OF THE SOIL.

The ground should be put in good condition for the seed, as for other crops. One thorough plowing, and three or four harrowings, with a heavy harrow, will be a sufficient preparation.

#### PLANTING THE SEED.

The ground is now laid off in rows, 5 or 6 feet apart, each way, except that between every sixth and seventh row, a distance of about 8 feet between the rows is left one way, to admit a horse and wagon or slide to pass, to take the beans when gathered. Hot water, somewhat below the boiling point, should be poured over the seeds, and they should remain in this water twenty-four hours before being planted. The temperature of the water will, of course, be gradually reduced to the temperature of the atmosphere. Applying the hot water once will be sufficient. If planted without this preparation, they are a great while in germinating, many of them not making their appearance for three or four weeks. With this preparation they will soon germinate and come up regularly. Some farmers put in each hill one-half of those which have hot water

poured over them, and one-half those which have not; so that if the cut-worms destroy the first that come up, a stand may be obtained from the others, which will come up a week or two later. Good, sound, plump seed should be selected for planting. A bushel will plant fifteen to twenty acres. Eight or ten seed' should be dropped in each hill. But one, or, at most, two plants are to be left in a hill. As the cut-worm is quite destructive to the plants, this number of seeds is recommended, so as to be certain of an even stand. Of course, replanting can be done; but it is better to avoid it, if possible, by planting plenty of seed. The seed should be planted as soon as all danger of frost is over. The plants are as easily destroyed by frost as our common bean, and, therefore, planting should be delayed till after the 1st of April.

### AFTER-CULTURE.

The cultivation of the plants consists in destroying the weeds and grass, and keeping the soil open and mellow. These objects are chiefly attained by using the horse and cultivator, or small plow, working between the rows both ways. It is also necessary to work among the plants with hoes, going over them two or three times, cutting the weeds away from the plants that cannot be reached with the plow or cultivator, and drawing a little mellow earth to the plants, gradually reducing the number to one plant in the hill, though two are occasionally left. One strong, vigorous plant, however, will produce better seed than two in the same hill, and as great a quantity of beans. After the plant is 2 feet high it is capable of taking care of itself, and grows rapidly. After heavy rains, however, it is still advisable to work between the rows with the horse cultivator, breaking up the crust that has formed on the surface of the ground, and opening and loosening the soil to derive a greater benefit from the atmosphere. It will be seen that the cultivation is as simple as that of corn or of the common bean.

### HARVESTING THE CROP.

About the first day of July the beans begin to ripen. They are produced in pods or husks, on spikes of various lengths, and should be gathered as soon as the pods begin to turn brown, to prevent loss by their popping out on the field, as beans, when ripe, pop or burst from the pod quite a distance. They are gathered by cutting off the entire spike. Each plant has a number of these, and they are produced and ripen in succession till frost. Of course, only those exhibiting brown pods should

be cut. These spikes are then thrown into a wagon or on a slide, passing through the broad rows, and hauled away to the

### DRY YARD,

which is made on a piece of land near the bean fields, sloping to the south, so as to get as much heat as possible from the sun to ripen the beans and cause them to burst from the husks. Cut off the sod, then roll the ground down hard, and make a fence around the yard by placing boards up against rails laid on crotched sticks or posts; though the fence is not necessary if the yard is made large enough to leave a space outside the beans of 12 or 15 feet, as many of the beans will pop that distance, and if the fence is not built, or the space left, many of the beans will be lost in the grass or field beyond the yard.

The spikes are occasionally turned over and exposed to the sun, until all the seeds have left the husks, when the old spikes are taken away and a new supply added. The same process is gone through with the entire crop. Great care should be taken to prevent the beans getting wet. Dirty beans command much less price, and sprouted beans are nearly worthless. When rain is anticipated, rake the spikes into a heap and cover them with straw, plank or tarpaulins; sweep the beans up, clean them with a fanning mill, and store in a dry place. Do not attempt to pop them out in pops over the fire, as it renders them almost worthless.

### BOARD FLOORS.

It will undoubtedly pay most farmers to make board floors for their "dry yard" to "pop out" their beans on. In this way they can keep the beans perfectly clean and free from lumps of hard dirt and small stones, which cannot be taken out by a fanning mill or screens. Such a floor can be made cheaply in sections, say 8 feet wide and 16 feet long, by nailing rough boards planed on one side to 2 x 4 scantling set on edges, to allow air and rain to pass underneath. These sections can be easily moved by wagon. In case of rain the unpopped beans can be raked into one or more piles on part of the floor, and the other section used to cover them. When the bean season is over they can be used for other purposes, say storehouse for grain, etc., or shelter for animals, and the next season for dry yard floor, and so on. It will probably pay to paint the floor with cheap black paint; black "draws the sun," which will quicken the "popping out" process. The paint will preserve the wood and also prevent

the rain from soaking into the floor, thus enabling the farmer to spread his beans again much sooner after the rain is over. No doubt the extra money received for the castor bean will soon pay the entire cost of the floor.

After the beans begin to ripen, the field should be gone over once or twice a week until frost. In hot, dry weather, they ripen more rapidly than in cool, wet weather. Children can perform this work, and a large family of children cannot be more profitably employed than in taking care of a crop of castor beans. The work is all light. With a steady horse, children might do all the work.

#### FROSTED BEANS.

Are worth from one-half to two-thirds the price of good beans, but must never be mixed with them when sent to the market, as a very few frosted beans in a lot of good will reduce the value very much, from the inability to separate them economically.

#### YIELD, PRICE, ETC.

The yield will depend much upon the culture bestowed upon the crop, upon the season, and the care exercised in gathering and ripening the seed. From fifteen to twenty-five bushels to the acre is an average yield. Some cultivators will yield considerably more, others less. Farmers will do well to pay attention to this crop, for which a certain demand exists, and at remunerating cash prices. It will pay better than raising cotton, corn, potatoes, wheat, barley, or almost any other farm produce. It is not a difficult crop to get to market, can be taken by team, or sent by railroad, with more profit than most crops, as the value is greater for the same quantity.

Castor beans have proven a profitable crop. Present market price is \$1.25 per bushel.

These directions for the cultivation of castor beans are intended to apply to our latitude. It is thought they are sufficiently explicit to enable any one to successfully attempt their culture.

We wish again to urge the farmers and dealers to thoroughly clean their castor beans before shipping to market. Well-cleaned beans will

always bring more, and it is a disadvantage to all but the railroad company to pay the freight on dirt, chaff and hulls.

Castor beans weigh 46 pounds per bushel. The principal markets for us are New York City and St. Louis. The freight rate per 100 pounds in bags or barrels is 79 cents.

There are fixed charges for inspecting castor beans in bulk as follows : two dollars (\$2.00) for every bulk car or part bulk car; two (2) cents per sack for every car sacks; three (3) cents per sack on less than carload lots, and that no inspection be less than twenty-five (25) cents.

#### GRADES OF CASTOR BEANS.

*Prime Beans* are such as are bright and uninjured, and weigh not less than forty-one (41) pounds to the measured bushel when cleaned.

*Number 2 Beans* are such as are bright and uninjured by rain, weight not less than thirty-eight (38) pounds to the measured bushel when cleaned, and shall be valued at five (5) per cent. less than the value of prime beans.

*Rejected Beans* are such as are slightly damaged by rain, and weight not less than thirty-eight (38) pounds to the measured bushel when cleaned.

*No Grade Beans* are such as are badly damaged by rains or damaged by frost, or weighed less than thirty-eight (38) pounds to the measured bushel when cleaned.

AMERICSU, GA.