

1894

# Sweet potatoes, with illustrations

F H. Burnette

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SECOND SERIES,

No. 30.

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BULLETIN  
OF THE  
STATE EXPERIMENT STATION,  
BATON ROUGE, LA.

WM. C. STUBBS, Ph. D., DIRECTOR.

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SWEET POTATOES,  
WITH ILLUSTRATIONS

BY

F. H. BURNETTE, HORTICULTURIST.

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ISSUED BY THE STATE BUREAU OF AGRICULTURE.  
H. C. NEWSOM, COMMISSIONER.

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BATON ROUGE, LA.  
PRINTED AT THE TRUTH BOOK AND JOB OFFICE  
1894.

# LOUISIANA STATE UNIVERSITY AND A. & M. COLLEGE.

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OFFICE OF EXPERIMENT STATIONS, }  
Baton Rouge, La. }

Hon. H. C. Newsom, Commissioner of Agriculture, Baton Rouge, La.:

DEAR SIR—I hand you herewith a report upon Sweet Potatoes, prepared by Mr. F. H. Burnette, Horticulturist. This Bulletin, besides other field experiments, gives a description, with illustrations, of thirty-six varieties, several of these being direct importations from Java. I ask that you publish this report as Bulletin No. 30.

Respectfully submitted,

WM. C. STUBBS,

Director.

# SWEET POTATOES.

*Convolvulus Batatas* (Linn.) *Batatas edulis* (Choisy.)

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In 1891 a special bulletin on this subject was published, giving a description, with chemical analyses, of fourteen varieties. In 1892 further trials with an increased number (twenty-three) were made and results published in Bulletin No. 22. Since that time, by diligent effort, the number of varieties under cultivation has been increased to thirty-six, five of which have been imported from Java. Much time and expense have been spent in trying to properly classify these so called varieties, and adopt a nomenclature, which can be followed throughout the country, but so far, only with partial success. Differences in soil and climate have perhaps modified changes in the plant and hence complicated the prevailing conditions. We find slight differences in some varieties and yet these differences are emphatic and prohibit identical classification.

Strenuous efforts have been made to obtain true seeds, the blooms, (in the aggregate over 800) have been sacked and only eleven imperfect seed obtained. It is therefore believed that no mixing of varieties has occurred at Baton Rouge. At Audubon Park, the stiff, strong soil prevents, even with the greatest care, the removal of all the potatoes. The winters are mild and in the spring the old potato patches are covered with volunteer vines. From these vines are obtained cuttings for the future crop. In this way the potato crop has been propagated for several years. When first planted there were used only two varieties, one a red and the other a yellow potato, both inferior in quality. The next year a dozen or more vines of the Barbadoes, Hayman, Georgia and Sugar Yams were brought from Baton Rouge and planted among the others. Since that time the volunteer vines in spring have furnished plants for each year's crop. These vines in August and September are literally covered with blooms and it is believed that they have produced seed, which subse-

quently germinated in quantity; since the potatoes now on hand are unlike any of those originally planted, the red potato having disappeared entirely. These facts are given as indicating the true solution of the mixing of sweet potatoes when grown some time on same ground. It is hoped next season to propagate plan's from the true seed.

The extensive cultivation and use of this plant all over the Southern States renders a careful study and comparison of the different varieties, necessary from both an economical and dietetical standpoints. That the variations in yield as reported by the Bureau of Agriculture for 1893, from the different parishes, are due largely to the use of different varieties may be asserted without fear of successful contradiction, if one may judge from results at this station. The entire State is credited with a yield not far from 3,000,000 bushels, with a variation in yield from 75 bushels per acre in Caldwell, Concordia, Orleans and Washington parishes to 34 bushels in Lafayette. Even the maximum yields are far below the attainable; since our experiments at Baton Rouge indicate a yield of 400 bushels per acre possible for many varieties. The crop of sweet potatoes of this State for last year occupied about 50,000 acres and yielded a crop of about 3,000,000 bushels, which, at 50 cents per bushel, gives a valuation of \$1,500,000. While most of this crop is grown for home consumption, increasing quantities are yearly finding their way to Northern markets. The main crop at Baton Rouge was planted May 1. The land used was the same plot which had been in sweet potatoes, the two seasons previous, and no manure was used for the variety list. It was thoroughly prepared and ridges laid out three and one-half feet apart. They were kept clean by cultivating and hoeing, until the vines hindered work, after that no cultivation was given.

August 15, a second planting of all the varieties was made, using cuttings from the running vines. This was done, to find out, if at that late day any aid could be given to the farmers, whose lands by any means became overflowed.

In the table, which is to follow, will be found the record of the regular crop, together with the late crop, giving in the latter case the percentage of edible roots of each variety. As a crop they have produced very heavily this year, having no drawbacks, and not being affected by the drought.

TABLE SHOWING QUALITIES AND PRODUCTION OF EARLY AND LATE CROPS

No. Experiment.	VARIETY.	CHARACTER WHEN COOKED.			Time of Ripening.	YIELD IN BUSH- ELS—PLANTED MAY 1.			Yield in bushels when planted August 15.	Per cent. Merchantable.
		Color.	Hard or soft.	Wet or dry.		Merchantable	Culls.	Total.		
1	Barbadoes.....	Nearly white.	Soft.	Medium.	Medium.	499.9	32.04	531.94	36.3	Culls.
2	Bermuda.....	Nearly white	Hard.	Dry.	Late.	302.59	53.09	356.75	51.8	Culls.
3	Big Stem Jersey.....	Light yellow.	Hard.	Dry.	Medium.	296.6	24.8	321.4	31.1	Culls.
4	Canal.....	White.	Hard.	Very dry.	Medium.	336.	12.4	348.4	18.1	Culls.
5	Delaware.....	Light yellow.	Medium.	Moist.	Medium.	302.85	45.6	348.45	46.6	5 per cent.
6	Dog River.....	Dark yellow.	Hard.	Dry.	Late.	160.2	16.	176.2	93.3	Culls.
7	Early Golden.....	Yellow.	Medium.	Dry.	Medium.	514.4	16.02	530.42	145.2	50 per cent.
8	Georgia.....	Yellow.	Medium.	Medium.	Late.	560.05	20.8	580.85	67.4	5 per cent.
9	Gold Skin.....	Yellow.	Rather soft.	Medium.	Medium.	257.2	9.5	266.7	103.7	10 per cent.
10	Hayman.....	Light yellow.	Medium.	Fry.	Late.	638.8	12.4	651.2	155.5	10 per cent.
11	Matejito.....	White	Hard.	Dry.	Medium.	373.3	12.	385.3	13.	Culls.
12	Negro Choker.....	Nearly white.	Hard.	Dry.	Late.	489.5	35.2	524.7	10.3	Culls.
13	New Jersey.....	Nearly white.	Medium.	Medium.	Medium.	240.7	48.2	288.9	31.1	Culls.
14	Norton.....	Nearly white.	Soft.	Medium.	Late.	638.	16.	654.	114.	5 per cent.
15	Peabody.....	Yellow.	Hard.	Fry.	Late.	684.5	12.4	696.9	186.6	30 per cent.
16	Padisha.....	Yellow.	Soft.	Wet.	Medium.	340.18	8.29	349.47	197.	60 per cent.
17	Pumpkin.....	Yellow.	Hard.	Dry.	Late.	299.6	24.8	324.4	82.9	Culls.
18	Providence.....	Yellow.	Soft.	Wet.	Early.	1057.8	14.5	1072.3	124.4	80 per cent.
19	Red Nansemond.....	Yellowish white.	Medium.	Rather dry.	Late.	696.9	20.7	717.6	228.	75 per cent.
20	Southern Queen.....	White.	Rather hard	Dry.	Late.	622.2	18.6	640.8	114.	50 per cent.
21	Strasburg.....	Light yellow.	Rather hard	Dry.	Late.	352.6	35.2	387.8	186.6	50 per cent.
22	Spanish Yam.....	Light yellow.	Medium.	Medium.	Late.	501.9	18.6	520.5	114.	Culls.
23	Shanghai or California.....	White.	Hard.	Dry.	Late.	741.62	17.6	758.62	41.5	Culls.
24	Sugar or Creole.....	White.	Soft.	Moist.	Medium.	377.5	14.5	392.	82.9	15 per cent.
25	Southern Red Yam.....	White.	Hard.	Dry.	Medium.	539.3	16.02	555.32	134.8	20 per cent.
26	Southern Yellow Yam.....	Yellow.	Soft.	Wet.	Medium.	99.5	10.3	109.8	108.9	5 per cent.
27	Ticotea.....	White.	Soft.	Wet.	Late.	514.4	53.9	568.3	103.7	Culls.

28	Tennessee.....	Light yellow.	Soft.	Medium.	Medium.	124.4	45.6	170.	171.1	15 per cent.
29	Vineless.....	Light yellow.	Soft.	Rather moist	Early.	280.5	37.2	317.7	176.3	10 per cent.
30	Yellow Yam.....	Yellow.	Medium.	Medium.	Medium.	336.	45.6	381.6	114.	Culls.
31	Yellow Nansemond.....	Yellow.	Medium.	Medium.	Medium.	170.9	37.2	207.29	51.8	Culls.
32	Java No. 1.....	White.	Medium.	Medium.	.....	204.8	20.8	225.6	72.6	Culls.
33	Java No. 2.....	Pink.	Soft.	Wet.	.....	87.1	41.6	128.7	233.5	25 per cent.
34	Java No. 3.....	White.	Soft.	Wet.	.....	120.3	12.4	132.7	67.4	5 per cent.
35	Java No. 4.....	White.	Soft.	Wet.	.....	64.3	16.02	80.32	82.9	10 per cent.
36	Java No. 5.....	Dull white.	Soft.	Wet.	.....	194.9	24.8	219.7	103.7	30 per cent.



Extensive experiments were made for the past three years in determining the manurial requirements of this crop on this soil. The various forms of nitrogen, phosphoric acid and kainite were used alone and in combination. A strong application of barnyard manure was also used. The results are not conclusive, and further experiments are needed before decided recommendations can be made. It would seem, however, that a nitrogenous manure, mixed with acid phosphate, in the proportion of two of nitrogen to one of phosphoric acid, would meet the wants of the potato crop on most soils. A mixture of 1000 pounds cotton seed meal and 300 pounds acid phosphate per acre would nearly furnish the ingredients in the desired quantities.

#### DISTANCE IN ROW FOR PLANTING VINES.

It is the common practice to plant the vines very close in the row, from four to eight inches, and as there was much discussion in regard to it, experiments along the line of distance in the row have been carried on for the last three years. The following table gives the average of the products obtained during the last three years, with the exception of the last column, which gives the yield of this year only, when cuttings are planted twenty-four inches in the row. From this record, it will be seen that on this soil, the best distance at which to plant the cuttings is at or as near as possible, eighteen inches.

#### AVERAGES OF THE LAST THREE YEARS IN DISTANCE IN ROW.

No. Ex.	Distance.	Yield Per Acre in Bushels.	
		Merchantable.	Culls.
1	Eight inches.....	252.07	13.36
2	Twelve inches.....	258.31	11.01
2	Fifteen inches.....	275.01	10.48
4	Eighteen inches.....	281.82	11.71
5	Twenty-four inches (1893)....	249.08	15.96

#### HEIGHT OF ROW.

During the last two years five rows were carefully laid out and the heights carefully adjusted and maintained. The same clean culture was given to each. In the following record will b

found the averages for the last two seasons, both in merchantable and unmerchantable roots.

From this it will be seen that on this soil a ridge about sixteen inches high will give the best crop, other things being equal. The least amount of culls was produced on ridges 12 inches high and the largest on the level rows.

#### HEIGHT OF ROW—AVERAGE FOR TWO YEARS.

No. Ex.	Height.	Yield in Bushels.	
		Merchantable.	Culls.
1	On the level.....	130.03	33.57
2	Four inches.....	219.84	22.53
3	Eight inches.....	197.07	17.33
4	Twelve inches.....	221.59	16.45
5	Sixteen inches.....	261.18	25.45

The subject of lifting the vines during growth to prevent rooting at the joints has been tried during the last two years. The following table shows the results. These two rows were planted and cared for precisely alike except that one was lifted twice a week, and not allowed to become attached at any point, while the other was left entirely undisturbed, and left to take root where it might. The yield of merchantable and culls in both years was much increased where the vines were not disturbed. The vines on a third row during the past year were kept continually pinched and not allowed to extend over two feet. A record of this experiment is also included.

#### LIFTING EXPERIMENT.

No. of Experiment.	TREATMENT.	YIELD IN BUSHEL PER ACRE, 1892.			YIELD IN BUSHEL PER ACRE, 1893.		
		Merchantable.	Culls.	Total.	Merchantable.	Culls.	Total.
1	Vines left undisturbed.....	352.49	76.78	429.23	310.2	25.7	335.9
2	Vines lifted twice per week.....	226.85	20.94	247.79	294.5	20.	314.5
3	Pinched continually (to two feet).....	.....	.....	.....	257.2	16.5	273.7

The results given are on our soils. On strong, stiff soils, where the tendency to vine is great, contrary results might be obtained. On soils of similar character to ours as well as on poorer soils it would seem wise to let the growing vine severely alone and give it only such treatment as will insure cleanliness.

#### LENGTH OF CUTTINGS.

For two years experiments with different lengths of cuttings, and cuttings from different parts of the vine, have been made. For the former, lengths from six inches to two feet have been used, while the latter have been taken from terminals, butts, or middles of growing vine, all of the same length, twenty-four inches. With these have been grown experiments with slips directly from the bed, for comparison. The results would indicate that well rooted slips from bedded potatoes are most profitable for planting. They show also that terminals of vines are better than any other part, and that lengths of twenty four inches gave larger yields than shorter ones. The following are results :

#### AVERAGE FOR TWO YEARS IN EXPERIMENTS WITH LENGTH OF VINES, DIFFERENT PARTS OF VINES AND WITH SLIPS.

No. of Experiment.	TREATMENT.	YIELD IN BUSHELS PER ACRE.		
		Merchantable.	Culls.	Total.
1	Slips 6 inches long.....	210.92	24.71	235.63
2	Slips 12 inches long.....	201.96	33.48	235.44
3	Slips 15 inches long.....	277.45	23.22	300.67
4	Slips 24 inches long.....	315.31	21.78	337.09
5	Whole vines exposed every 15 inches.....	300.24	23.22	323.46
6	Whole vines covered all but leaves.....	190.09	16.18	206.37
7	Terminal end of vine.....	340.46	22.48	362.94
8	Middle portion of vine.....	329.97	15.89	345.86
9	Butt end of vine.....	264.63	21.48	286.11
10	Slips.....	322.60	33.10	385.70

In the matter of storing our experience has been varied. Our varieties have been always kept in open boxes inside the large

brick building, used by the Departments of Horticulture and Veterinary Science.

This building has walls five and one-half feet thick, having been a powder magazine belonging to the U. S. Barracks, and therefore its temperature as a rule is very even. During the early fall there was considerable rotting among the varieties, but this was very effectually dealt with by thoroughly sorting the potatoes, cleaning the boxes and dusting well both boxes and potatoes with *Fostite*. This we found to be all that was needed in regard to the rot among the seed potatoes. A full description of this fungicide will be given with the diseases. During the last winter the general crop kept splendidly, simply piled inside the stable, with no protection other than a light covering of hay.

A few important points must be observed in keeping potatoes, viz: absence of moisture and equable temperature above freezing point. Therefore potatoes should be dug in dry weather and put away securely against moisture and severe alterations of temperature. No bruised or cut potato should be left in those intended for preservation, as sooner or later it will become affected and inoculate the whole mass.

#### NEW VARIETIES.

During the spring six varieties of sweet potatoes were obtained from the Government Botanic Gardens of Java, but in their inspection in passing through the Custom House the names were confused. They were grown by number, however, and as soon as their proper names can be given them, will be sent out. Their chief merit so far seems to be in their earliness.

They have peculiar characteristic leaves and roots, and their behavior the present year is watched with considerable interest.

The Department of Horticulture also sent to Java twenty-three varieties, some of which did very well. The following is an extract from a letter received from the Director of the Botanic Gardens, Java:

"Some months ago you were so kind as to send us twenty-three varieties of sweet potatoes. Of these seventeen did very

well, only six had lost their germinating power. We are glad to be able to inform you that in our opinion some of those varieties which thrived well will prove in the future desirable acquisitions for the indigenous population here. I should like to try the other varieties also."

We have been at a loss to find a good scheme for classifying the varieties of sweet potatoes, but have decided to adopt in a measure that of Prof. Price, of the Texas Station, *i. e.*, classifying them according to their leaves. The popular idea of "yams" and "sweet potatoes" is very confusing. Generally by "yam" a variety is meant which has cut leaves and whose roots have a corded surface, and by "potato" an entire leaved, smooth rooted variety. But we have cut leaved varieties with smooth roots and entire leaved varieties with corded roots, and hence neither of these can be used as a distinguishing mark between a "yam" and "potato." Generally speaking the corded varieties may be eaten before the smooth rooted varieties, and I have no doubt that from this characteristic alone came this distinction. Therefore in the classification of the varieties to follow, for convenience, we have divided them into three classes:

I. Those having deeply cut foliage, which includes the following:

- |                 |                            |
|-----------------|----------------------------|
| 1. Barbadoes.   | 6. Southern or Yellow Yam. |
| 2. Georgia.     | 7. Sugar or Creole.        |
| 3. Java No. 1.  | 8. Tennessee.              |
| 4. Java No. 2.  | 9. Ticotea.                |
| 5. Spanish Yam. | 10. Vineless or Bunch.     |

II. Those having leaves more or less shouldered, including the following:

- |                  |                   |
|------------------|-------------------|
| 1. Bermuda.      | 5. Negro Choker.  |
| 2. Early Golden. | 6. Peabody.       |
| 3. Java No. 3.   | 7. Red Nausemond. |
| 4. Java No. 4.   | 8. Strasburg.     |

III. Those varieties having entire leaves, including the following.

- |                     |              |
|---------------------|--------------|
| 1. Big Stem Jersey. | 10. Norton.  |
| 2. Canal.           | 11. Padisha. |

- |                |                             |
|----------------|-----------------------------|
| 3. Delaware.   | 12. Providence.             |
| 5. Dog River.  | 13. Pumpkin.                |
| 5. Gold Skin.  | 14. Shanghai or California. |
| 6. Hayman.     | 15. Southern Queen.         |
| 8. Java No. 5. | 16. Southern Red Yam.       |
| 8. Matejito.   | 17. Yellow Nansemond.       |
| 9. New Jersey. |                             |

Following is a descriptive list of varieties grown this past season. The figures were made from photographs of typical roots, the inch marks indicating the size.

### I. Those Having Lobed or Deep'y Cut Foliage.

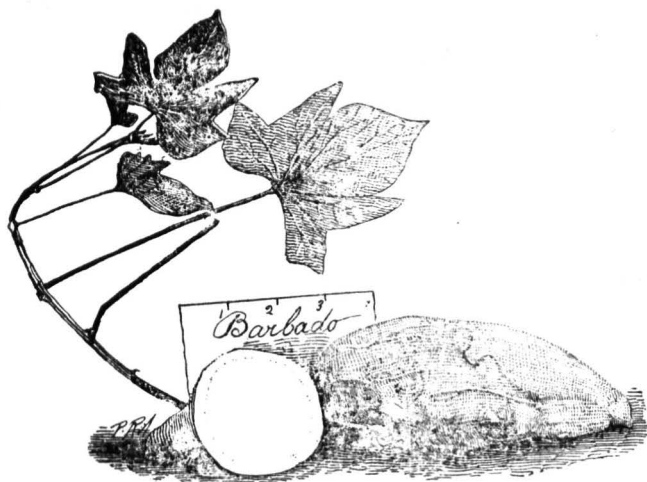


FIG. 1.

1. BARBADOES.—This variety is a good healthy grower vines slightly colored, leaf green and cut but not as deeply as the Spanish yam. Produces well. Nothing could be obtained as to its origin, but its name would indicate that it, like some of our other varieties, was obtained from the West Indies.

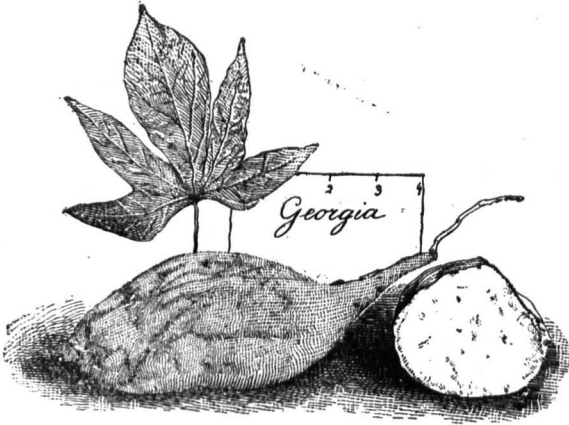


FIG. 2.

2. **GEORGIA.**—This old variety has been grown extensively in the South for years. It is a moderately vigorous grower. Vine and leaf light green; the leaf being deeply cut. This is the common "yam" grown throughout this section of this country.

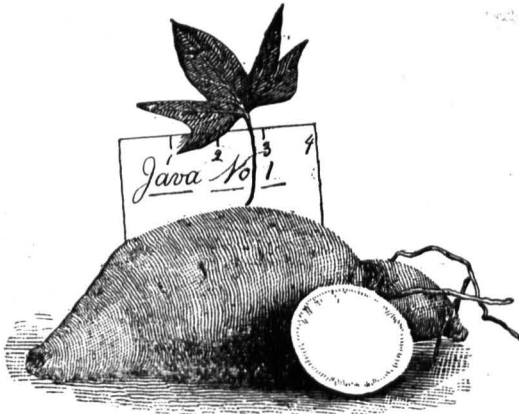


FIG. 3.

3. **JAVA No. 1.**—This was obtained from Java one year ago, and as it has not been sufficiently tested no extended remarks will be made. However all the varieties from Java seem to be much earlier than our varieties, and sprouts may be obtained from them much earlier in the season. The leaf is rather wide

and quite deeply cut. Tuber large and smooth. The vine, although could not be called "vineless," yet its tendency, as well as that of Java No. 2, is towards a bushy growth, covering a limited area.



FIG. 4.

4. JAVA NO. 2.—The leaf of this variety is very characteristic and does not resemble any of the others on account of its deeply cut spreading lobes. The tuber also is remarkable for its yellow-pink skin and dark, purple flesh. Its shape as seen in the cut is long and irregular. Altogether an interesting variety and possibly one of merit.

5. SPANISH YAM.—A healthy growing old variety from which no doubt some of our Southern varieties came. The leaf is very deeply lobed, and like the vine is of a deep green color. Is prolific and desirable. Roots often resemble the Georgia, but are of a much lighter color and not so heavily corded.



FIG. 5.





FIG. 6.

6. SOUTHERN OR YELLOW YAM.—This was obtained from Mississippi, and although it did not grow very strongly this last season it yielded well. It resembles strongly the Spanish yam, and its slight variations are no doubt due to conditions of soil, etc. Its root is quite smooth.



FIG. 7.

7. SUGAR OR CREOLE.—This variety has been proven to be the sweetest of our list. Professors Ross and Blouin two years ago obtained from it the greatest amount of sugar of any

of the thirteen varieties then analyzed. It probably is a sport from either the Spanish yam or Georgia, as it somewhat resembles them. Its growth is medium, vine and leaf light green, with the latter well cut and lobed, similar to both Georgia and Spanish yam. Root is rather short, plump, and has a pronounced corded surface. Is light colored, and as a rule does not keep well.

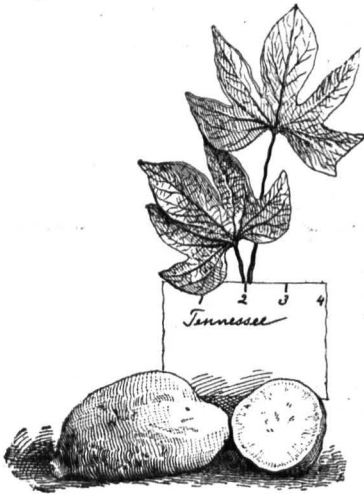


FIG. 8.

8. TENNESSEE —This variety was obtained from Prof. R. H. Price, of the Texas Experiment Station. It is not a strong grower nor does it yield heavily. Its leaf is cut and, like the vine, is entirely green. Skin is pale yellow and smooth; flesh is yellow and cooks rather dry. Its name would indicate its origin, as nothing of its history could be obtained. It resembles the Spanish yam in having a similar colored root and is like the Georgia in shape of leaf. In shape, however, it tends towards a short, plump type.

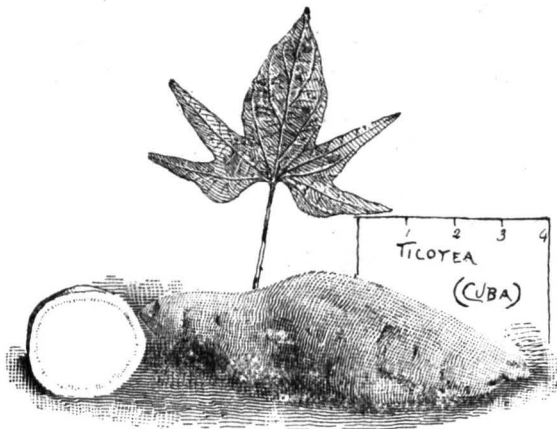


FIG. 9.

9. **TICOTEA.**—This variety was obtained two years ago from the late Horticulturist of the Georgia Experiment Station, Mr. Gustave Speth, and came originally from Cuba. It has widely cut leaves which are of a light green color, as are the vines also. It is a vigorous grower. Skin is nearly white, flesh light cream color, root long and smooth.

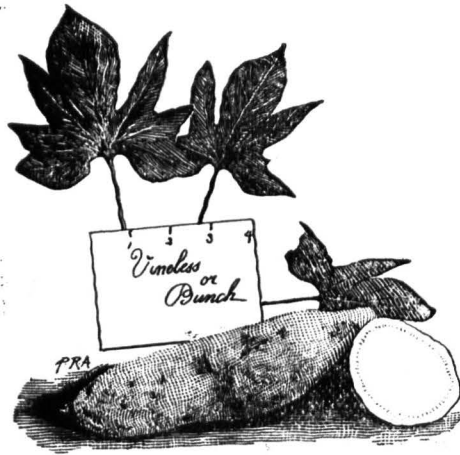


FIG. 10.

10. **VINELESS. (BUNCH, EARLY BUNCH, BUNCH YAM, TRUE BUNCH).**—This variety has been grown at the Station during the past four seasons. During the last season roots and plants were obtained from several parties throughout the South, under the various names given above, all giving the same variety. As already published, this is probably a sport of the common yams grown in Mississippi and Alabama. It was found on Mr. George Harvey's plantation, near Columbus, Miss., in 1884; since then it has gradually been distributed and propagated throughout the South. Its vines are short, never reaching three feet in length, and oftentimes not over two feet; very stocky and compact in growth. Leaves rather large and deeply cut. Both vine and foliage very dark rich green. Roots are medium in size, smooth and excel-

lent in quality. Quite productive and stands drought well. On account of the character of its vines it may be cultivated late in the season, oftentimes a very important factor in deciding the yield of the crop. We have chosen to call this variety the *Vineless*, as that is its distinguishing characteristic.

## II. Those Varieties Having Leaves More or Less Shouldered.

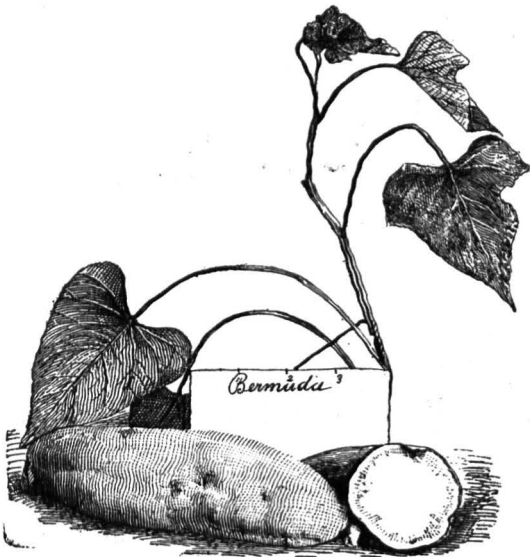


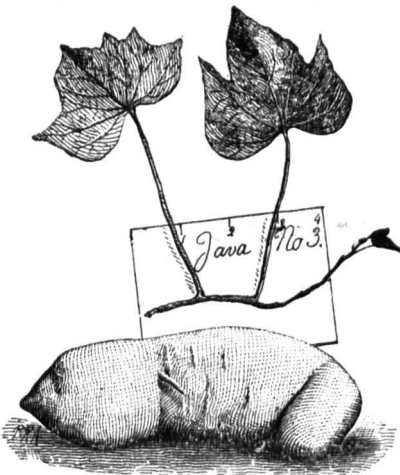
FIG 11.

1. BERMUDA. (RED BERMUDA).—This old variety has a deep red vine with red marked leaves; heart shaped, with slight shoulders, prominent oftentimes. Growth is very vigorous. Skin of root is very smooth and a very deep red color; flesh light colored and very dry. A variety whose history is obscure, but no doubt came to this country from the West Indies. A good variety for stock purposes, and keeps well.



FIG. 12.

2. **EARLY GOLDEN.**—This is a moderately vigorous growing variety, vines colored slightly with red ; leaves a rich green with veins slightly reddened. Root is rather short and stubby, surface corded slightly and of a light yellow color ; flesh yellow and rather dry. Leaf is well shouldered. Roots of this variety were obtained from North Carolina. The only note concerning its origin we find in Fitz Sweet Potato Culture, where he speaks of it as originating in Virginia and its being a sport of the old *Early Red*.



3. **JAVA NO. 3.**—This variety, obtained from Java last year, has very peculiar shaped leaves, as will be observed by looking at the cut. The vines are deep reddish purple and very vigorous in growth ; leaf somewhat fan shaped, with projections ; veins decidedly red. Root is smooth and inclined to be elongated. It is quite prolific.

FIG. 13.

4. JAVA NO 4 —Another Javanese variety quite similar to No. 3. Vine is medium red, vigorous, but not so healthy a grower as No. 3. Leaf more heart shaped and with green veins. Vine shaded. Root has a rougher surface than No. 3 and inclined to be corded.

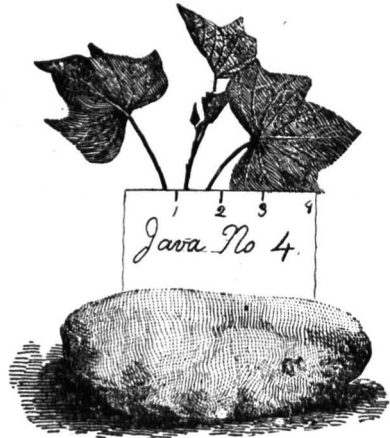


FIG. 14.

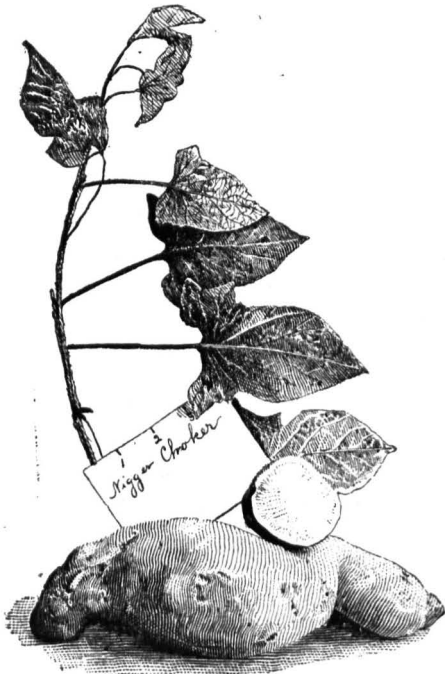


FIG. 15.

5. NEGRO CHOKER.—This is a very vigorous grower, with red vine and leaf stems. Leaf and veins dark green. Root is long and irregular in shape. Skin smooth and very dark analine red; flesh white. In some localities it is thought to be interchangeable with Bermuda, but its leaf is quite constant in its characteristic shape, and probably it is an improvement upon that variety from a changed soil and locality, or due perhaps to its being a sport. It keeps well and is very good for late spring use.

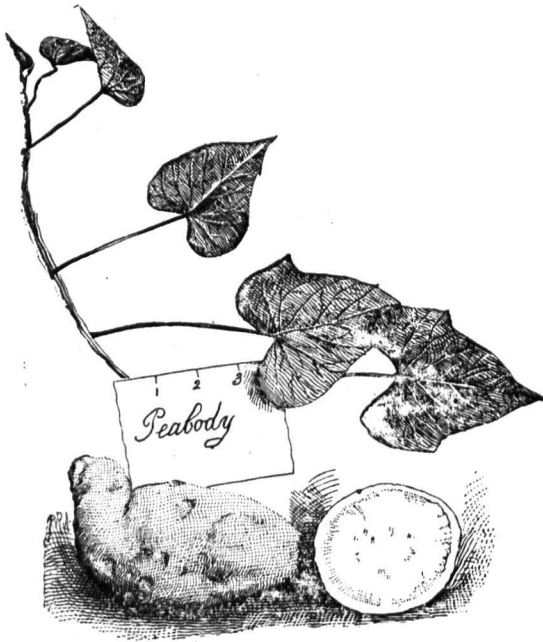


FIG. 16.

6. PEABODY.—A vigorous growing variety. Vine red, leaf heart shaped with slight pointed projections. Skin of the root pale red, flesh yellow and dry. This same variety was obtained from Mississippi by the name of Pumpkin yam, but which was entirely unlike this variety known in Louisiana as Pumpkin. It yields well, but is better as a stock potato than for table use. Originated by Mr. Charles Peabody, of Columbus, Ga.

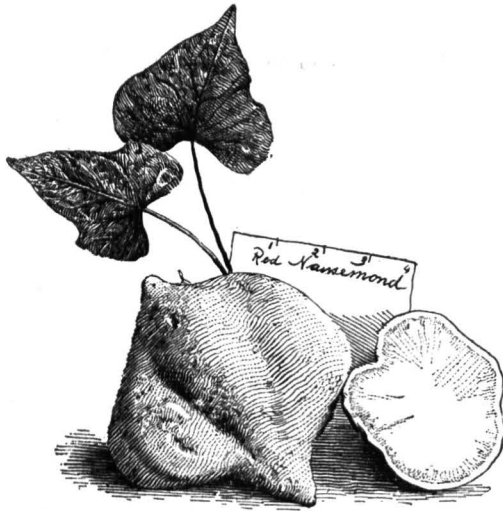


FIG 17.

7. RED NANSEMOND.—This variety is one of the oldest grown in the United States, and is mentioned in Fitz Sweet Potato Culture as an old and standard sort. It is a vigorous grower, vines red, leaves partially red veined, quite similar in shape to Peabody. Root is quite short and very thick, surface ridged ; color midway between the Peabody and Bermuda. The Southern Red yam, obtained from Mississippi, resembles the Red Nansemond very much, but its leaves are more constantly entire.

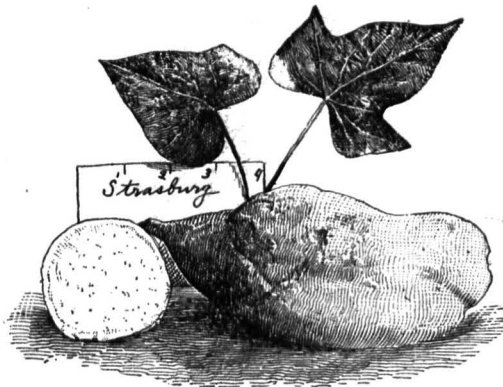


FIG. 18.



3 STRASBURG.—Plants of this variety were obtained from Mr. John C. Bridgwater, Mount Juliet, Tenn., who pronounces it "one of the best for the early market," and who also thinks "it is identical with the Early Golden." He has grown it for the last ten years and thinks it is undoubtedly a sport from the Bermuda. It is quite prolific and has light yellow roots.

### III. Those Varieties Having Entire Leaves.

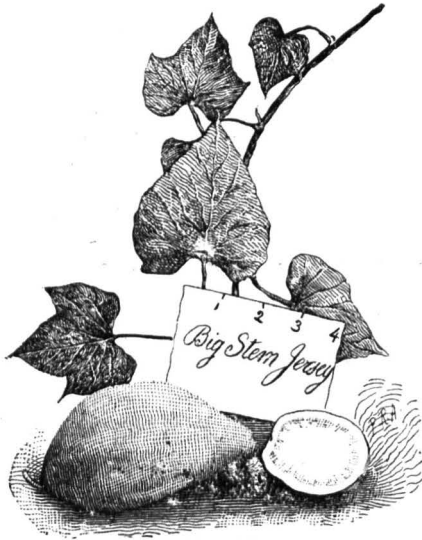


FIG. 19.

1. BIG STEM JERSEY.—These were obtained from North Carolina four years ago. It is a small grower; leaf and stem entirely green. Leaves quite variable, but the heart shaped predominate. Skin is deep yellow and very smooth, flesh nearly white slightly colored with yellow. It resembles the New Jersey, but has a darker colored root and is not as small in growth.

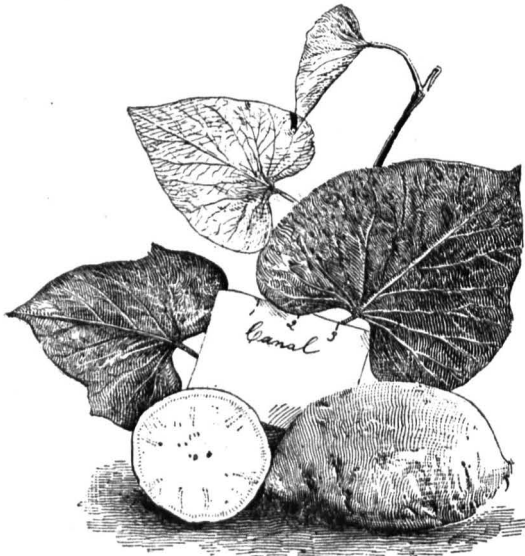


FIG. 20.

2. CANAL.—This came originally from Cuba, and was obtained from the late Mr. Gustave Speth, of the Georgia Experiment Station. In growth it is extremely vigorous, vines, leaf stems, veins and entire underside of the leaves are red. Leaf-very large and heart shaped. Root is medium in size, rather plump in shape. Skin smooth and dark red ; flesh light and dry.

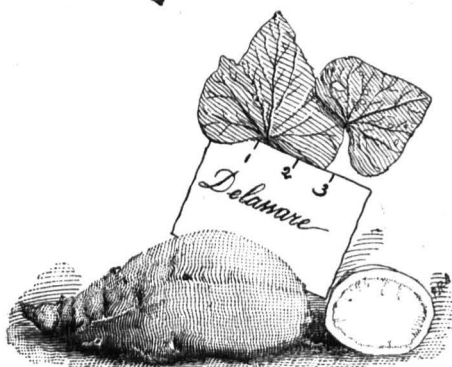


FIG. 21.

one grown more for the Northern markets.

3. DELAWARE.—No trace of the origin of this potato could be found. The vine and foliage is small; leaves small, green and heart shaped. A weak grower, and does not produce well. Color of the root is a rich yellow. Flesh is yellow and has an abundance of moisture when cooked. A fair table variety, but



FIG. 22.

4. **DOG RIVER.**—A variety grown extensively in Alabama and said to have taken its name from the section in which it was grown. Is rather a vigorous growing variety ; vines and leaves green, leaves large and nearly fan shaped, often having small side points. Roots are as a rule long, and although smooth skinned, the surface is often deeply ridged. Skin is rather dark, flesh is a peculiar shade of dark yellow, and cooks wet. Produces often a very large quantity of long roots. Is not a desirable variety for family use.

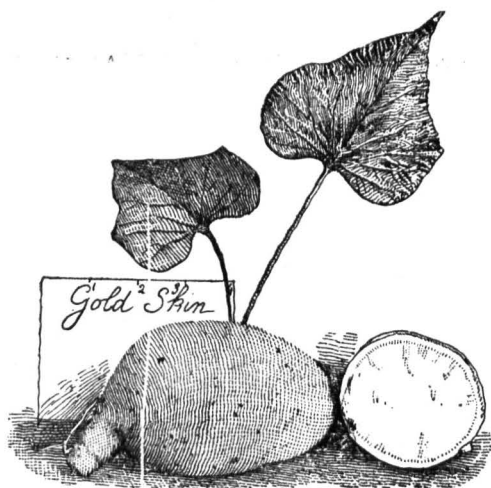


FIG. 23.

5. **GOLD SKIN.**—No history of this variety could be found anywhere. It has distinct habits, however, and is a fair grower. Vine and leaf are bright green ; leaf heart shaped, often with small prominent side points. Skin is dark yellow and smooth. Flesh very light yellow and cooks soft. Product is not scattered in the hill.

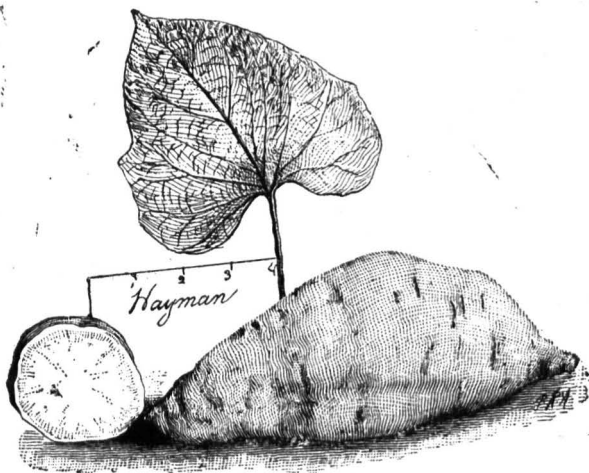


FIG. 24.

6. HAYMAN.—Is a very vigorous growing variety and a very heavy producer. Vine and stem is colored slightly with red. Leaf green and broad, and having small side points. Root medium to large in size; skin very light yellow, not exactly smooth; flesh light yellow and dry. This variety was obtained from Dr. W. R. Capehart, Avoca, N. C., who gives its history as follows: In 1856, Capt. Dan Hayman was master of the schooner "Harriet Ryan," freighting between the West Indies and Elizabeth City, N. C. While on one of these trips he purchased a supply of sweet potatoes at one of the West India islands. A Methodist clergyman on visiting the ship after its arrival in Elizabeth City was attracted by the fine appearance of the potato, obtained a few and propagated them. From this source came all the Hayman potatoes now grown in this country.

They are very prolific and make a fine appearance in market or on exhibit. Its soundness and plumpness held out to the last in the case of sweet potatoes sent by this Station to the World's Fair.

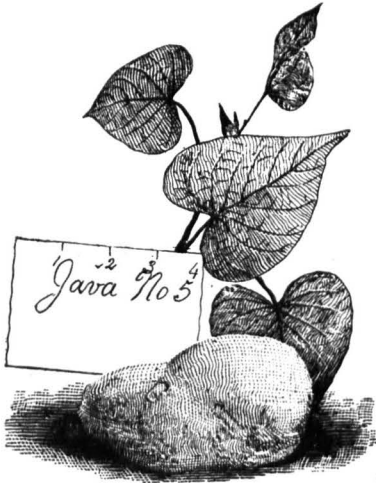


FIG. 25.

7. JAVA NO. 5.—Obtained from Java, and grown during the last year, It is quite similar to the Java No. 4, but has an entire leaf. Vines are of a lighter color and stockier. Root red and coarse.

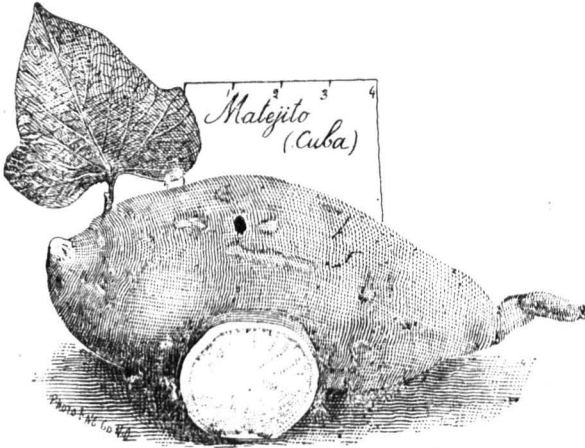


FIG. 26.

8. MATEJITO.—This Cuban variety was obtained from the late Mr. Gustave Speth, of the Georgia Experiment Station. The leaf is entire, pointed, and has regular notches on the sides. Color very dark green with veins marked with red. Vines grow very vigorously and are also colored with red. Skin very dark

red and smooth; flesh light yellow. Root large and apt to be coarse.

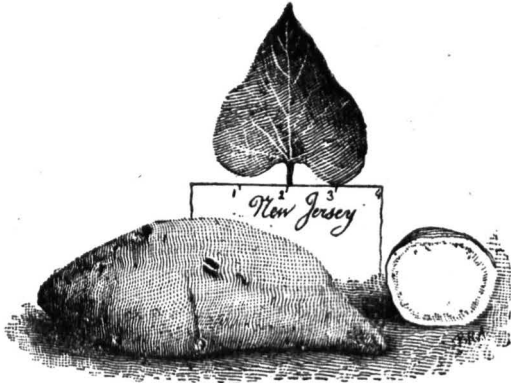


FIG. 27.

9. **NEW JERSEY.**—This is a small growing sort, with vine and leaf small and entirely green. Leaf is pointed and heart shaped. Root is small to medium in size; color light yellow and surface smooth. Flesh light yellow and inclined to be soft. Is not prolific, but is grown especially for Northern markets. No history obtained.

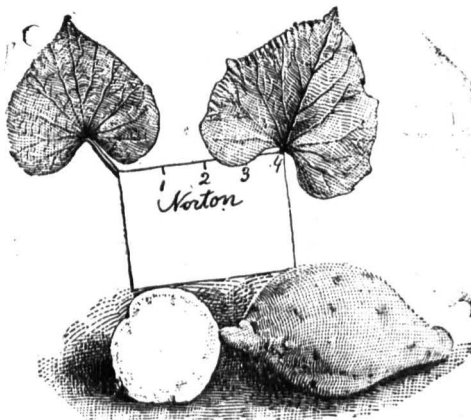


FIG. 28.

10. **NORTON.**—A very vigorous grower; vine tinged with red. Leaf green and entire, sometimes a few prominent side points. Root short and thick, skin white and smooth; flesh white and apt to be soft. Not very desirable as a table variety. No notes were obtained as to its history, but it is probable that it originated from the Southern Queen or Shanghai.

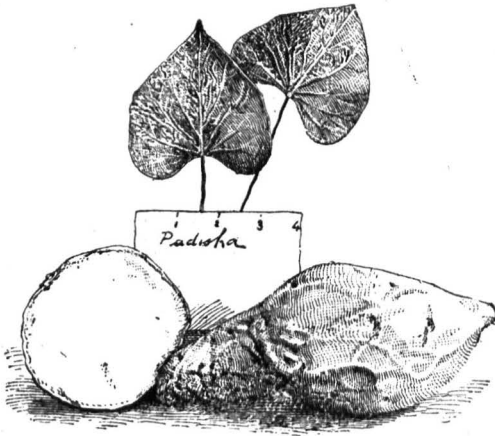


FIG. 29.

11. **PADISHA.**—This variety was obtained from Mr. John F. McConne'l, of Archer, Fla., and has been grown by him for the last twelve years. Originally they came from Georgia. They resemble the Pumpkin variety very much in leaf and root, but the quality of the flesh of the roots differs greatly. They are good growers; leaves are entire and heart shaped; vine and leaf green. Roots are very large, dark yellow and their surface is corded. Flesh yellow and coarse. Good for stock purposes.

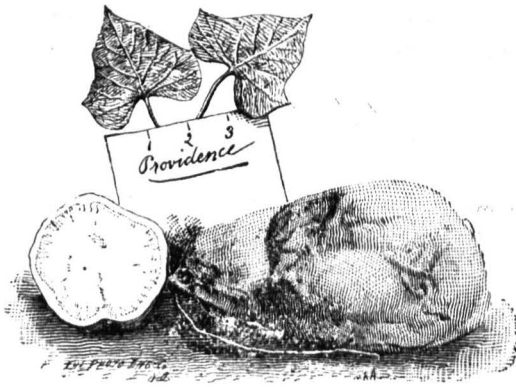


FIG. 30.

12. PROVIDENCE.—This variety also was obtained from Mr. McConnell, of Archer, Fla. It has a fairly heavy growth of vines and yields very heavily. In fact we never saw such returns as came from the Providence plot this year, yielding at the rate of over 1000 bushels per acre. Leaves are almost triangular in shape, having prominent points, and entirely green. Vine has a brown hue. Roots are large to very large, comparatively smooth yet somewhat corded. Skin nearly white, and flesh light colored; keeps well and is of good table quality. This variety is said to have been found in South Florida when that section was first settled. A settler found it growing wild, and being in great need of the roots it so abundantly yielded that he called it the Providence. It grows well and yields a good product both for table and stock. Does not as a rule keep well.

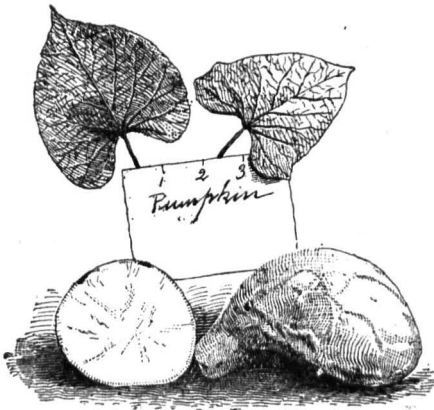


FIG. 31.

13. PUMPKIN.—One of the varieties long grown in this State. Growth is not very vigorous; vine and leaf are green, the latter being heart shaped. Root fair size and somewhat rough. Skin is light yellow and somewhat rough. Flesh is dark yellow, and cooks moist and soft.



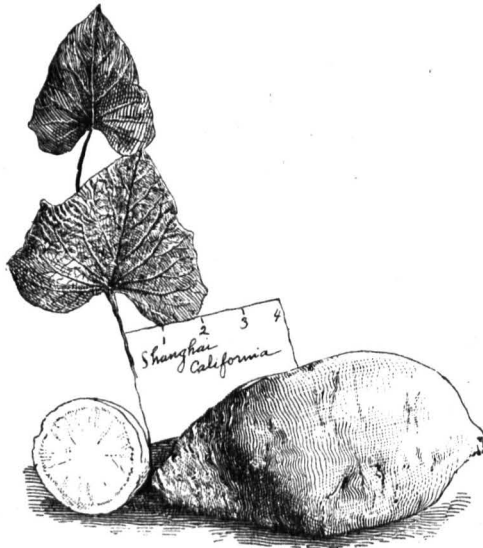


FIG. 32.

14. SHANGHAI OR CALIFORNIA.—This is one of the strongest growing varieties we have in our whole list. The vines attain to a great length and spread vigorously. Vines are colored slightly. Leaves are very large and nearly heart shaped, often having side points prominent. Roots are very large; skin white and rather rough; flesh nearly white and dry. They keep well and are used in late spring. Are coarse in texture, however, and are not as desirable for the table as for stock. This is probably the same potato that Fitz mentions as the "White California."

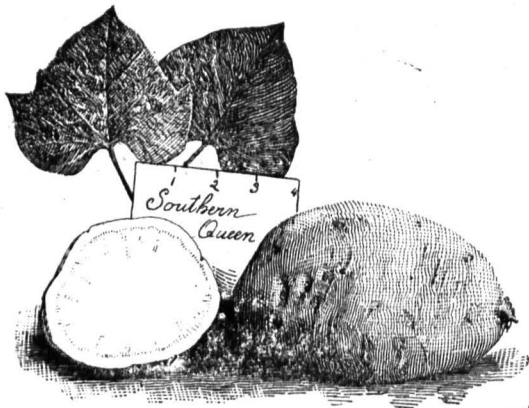


FIG. 33.

15. SOUTHERN QUEEN.—This variety is said to have been introduced into this country many years ago from South America. It is a very strong grower and resembles much the Shanghai in this as well as color of root. Vines are large and green, as are the leaves also; the latter are broad, rather bluntly pointed, and have side points. Roots are large and more or less globular, white and smooth. Flesh is nearly white and rather dry. A very popular variety and good producer.

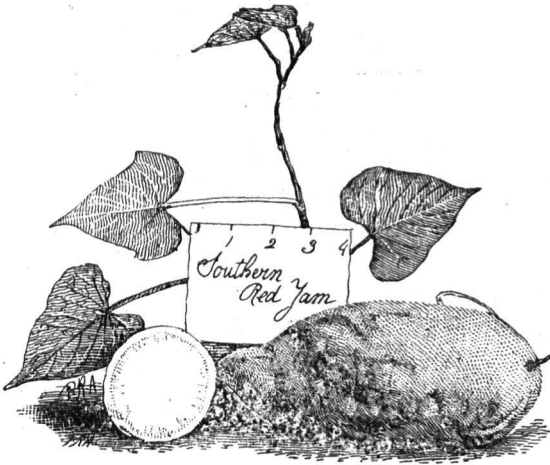


FIG. 34.

16. SOUTHERN RED YAM.—This somewhat resembles the Red Nansemond, but has different shaped roots. The "Red Yam" is spoken of by Fitz. and perhaps this is the same potato. It was obtained from the Mississippi Experiment Station, and is a good growing variety. Vines somewhat red, leaves green and heart shaped. Root inclined to be long, with surface corded; color pale red.

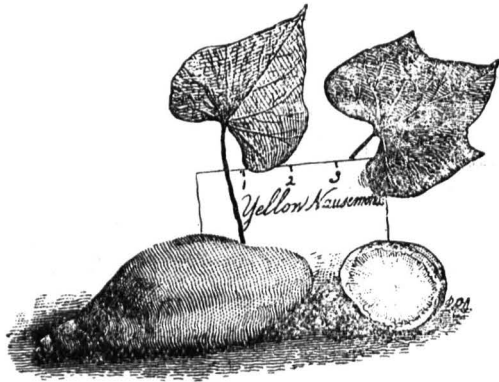


FIG. 35.

17. **YELLOW NANSEMOND** (Mississippi Yellow).—This has been cultivated for many years and takes its name from the section in Virginia where it is said to have originated. It is a weak grower, vine and leaf being small and light green, the latter being pointed, heart shaped and oftentimes having side points. Roots are medium in size, elongated, smooth and of a dark yellow color; flesh full yellow and rather soft. It is not a heavy producer, but its roots have a fair table quality. Like the New Jersey, it is grown more for supplying the markets of the North.

#### REMARKS.

By far the greatest acquisition in sweet potatoes obtained so far is the Vineless. It is very easily cultivated, prolific, early, keeps well, and has high table qualities, making it one of the most desirable varieties in our whole list. This is our choice for first place. The next variety demanding especial attention is the Providence, noted above all others for being prolific, and at the same time being well suited for either the table or stock. It does not keep so well as the Hayman or the Southern Queen, but has better table qualities.

For late spring use the Hayman serves well. There are other old sorts which are desirable and popular, namely, the Georgia. Spanish yam and the Nansemonds (for Northern markets). But the Vineless, Providence and Hayman offer such additional ad-

vantages that it seems in our judgment they will give more and better returns for labor expended.

#### INSECT RAVAGES.

No insect ravages have taken place with us, but as the sweet potato borer is annually moving in our direction we naturally feel a great deal of anxiety. This dreadful pest is mentioned and described in Prof. Morgan's report for 1893, with remedies, etc.

#### DISEASES OF THE SWEET POTATO, PREVALENT IN LOUISIANA.

Of the eighteen recorded diseases of the sweet potato only two have become serious in Louisiana, namely, the Soft Rot and the Black Rot.

Although some original work has been entered upon by the Station, it is not ready for publication, hence what is found in this bulletin regarding these diseases has been mainly compiled from the works of Dr. B. D. Hulsted and Prof. D. G. Fairchild as found in the New Jersey Bulletin No. 76, and the Journal of Mycology, Vol. VII., No. 1. These sources of information have been the only ones available, so far as our Station literature goes.

There have been but few complaints regarding these diseases, but the vigor of their ravages was seriously felt by this Department, during the last season, some of the varieties having been nearly ruined before the right remedy was applied. No diseases were noticed in the field, all the damage resulting from attacks was confined to the store room, where sweet potatoes had been kept continually for the last three years, and where the spores no doubt remained. The first one of these diseases before mentioned, which we will take up, is the

SOFT ROT.  
(*Rhizopus nigricans*, Ehr.)



FIG. A.

This is one of the moulds, and although it is found sometimes in the field, is always more destructive to the roots soon after being harvested. Fig. A represents a root one-half its natural size, severely attacked by this disease. In describing this Dr. Halsted says: "The mould has penetrated for nearly the whole length of the potato, as indicated by the somewhat shriveled and shrunken appearance of the infested portions. As a rule the mould effects an entrance through the upper end of the potato, where it was separated from the main root, the rind, on account of its toughness, generally prevents the entrance of the rot fungus. Should there be a break at any point, as at *a* in the cut, this provides a suitable place for attack."

This causes the petals to become soft, and when broken offensive, and as seen in the cut, any bruised or cut place on the root affords a place of entrance for the disease, besides, the disease after developing in the potato, takes advantage of these same broken places in order to throw out its spore bearing filaments, which give it a mouldy appearance, and from which spores are thrown off by the million to spread and continue its round of life. Oftentimes a potato having no abrasion of the skin will be entirely soft within, and have no mouldy appearance anywhere; however, should this same potato be broken these spore bearing filaments (making the mouldy appearance) would be formed, and in a few hours would be maturing their

spores, throwing them off and making a source of danger for all potatoes near. "The mould fungus which causes soft rot is very contagious by contact," says Dr. Halsted, and this must be taken into account in caring for the crop. All cut, bruised, or injured roots should never be found in the general pile, as one diseased potato would endanger the whole. Frequent examinations, where the disease prevails, and every soft root removed as soon as found. "As this fungus also thrives on other root crops, as well as fruit, these too should be frequently inspected.—(New Jersey Bulletin No. 76.)

Our next serious disease to be dealt with is the

#### BLACK ROT.

(*Ceratocystis fimbriata*, E. & Huls.)

This is our worst sweet potato disease in Central Louisiana, and it gets its name from one of the stages of its growth in the root. So far as we have observed it has not troubled us in the field or hot bed, but this is probably due to the great care exercised in selecting for seed only perfectly healthy specimens. But soon after digging its effects commence to be seen, and small patches are formed which gradually enlarge and finally take in the whole root.

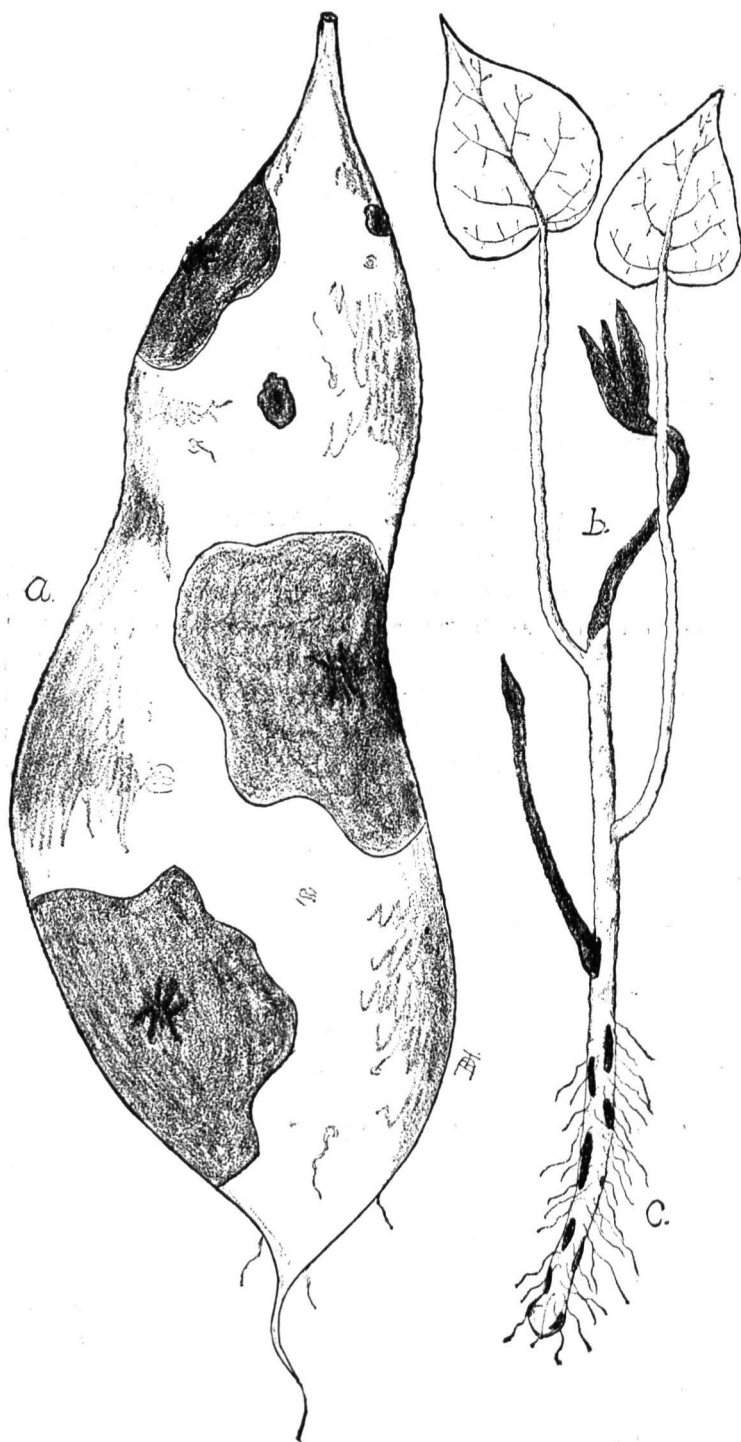


FIG. B.

These patches are slightly shrunken and dark colored, and when about "the size of a half dollar or so they begin to break up at the centre, as indicated by the darker irregular places in the middle of each decayed spot, illustrated in the engraving." After a time the entire root becomes filled with a dark fungous growth, which characteristic gives it the name of Black Rot. Still further along in its course of development a stage is reached in which the whole inner substance assumes a charcoal-like condition. This is called the *sclerotical stage*, and seems to be the most common condition in which we find potatoes affected by the disease here.

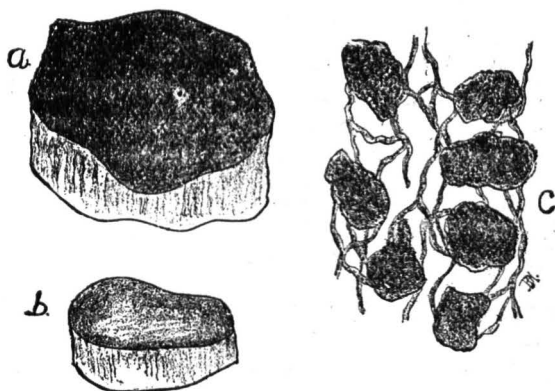


FIG. C.

Fig. C represents a cross section of an affected potato in the above mentioned stage of the growth of the disease.

a, Is a portion fully blackened (sclerotical stage).

b, Is the same, much younger.

c, Is a magnified portion showing the smaller black nodules which make up the great bulk of a.

Unlike the *soft rot*, it is dry and does not have an offensive odor, but like it, is highly contagious, as many laboratory experiments have fully proven.

It has often made its appearance in the seed bed, especially among the growers of New Jersey, of which Dr. Halsted says: "The young sprouts furnish a tender substance particularly favorable for the growth of the fungus, and therefore if the



roots are not free from the disease the sprouts are quite sure to become infested." A sprout thus affected is shown at *b*, Fig. B.

It is when unnoticed, though slightly affected sprouts are used, that the disease becomes disseminated and causes such serious damage, for not only does it injure the crop, but it infects the soil so that for several seasons it will not be safe to plant sweet potatoes on that same field. It is not known just how long the spores will remain in the soil inactive. When the trouble is in the field there is no satisfactory treatment other than the preventive treatment of using perfectly healthy seed and avoiding infected fields.

In the way of treating these diseases in the store room only two substances were used :

1. Sulphur, used with equal parts of lime, and
2. \*Fostite (*La Sulfosteatite cuprigus*).

Fostite is simply copper sulphate thoroughly mixed with soap stone ground to a powder, in other words is, copper sulphated soap stone powder, and adheres well to the surface to which it is applied.

In treating the roots, all diseased, cut or bruised specimens were removed, and the box thoroughly cleaned and dusted with the respective powders before placing the potatoes therein. Afterwards the powder was applied to the roots also. It was found necessary to soon sort those treated with sulphur, while those treated with Fostite were comparatively free from disease. Finally all were treated with Fostite and with an occasional affected root no more loss was sustained, the disease being effectually controlled by its use.

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\* Imported and sold by C. H. Joosten, 3 Coenties Slip, New York.