Bulletin No. 10.

HAWAII EXPERIMENT STATION.

UNIVERSITY of IDAHO

AGRICULTURAL

Experiment : Station

Department of Agriculture.

IDAHO AGRICULTURE, DESCRIPTIVE AND EXPERIMENTAL.

By C. P. FOX.

1897:
NORTH IDAHO STAR,
MOSCOW, IDAHO.

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STATION COUNCIL.

The more effectually to carry forward the lines of work contemplated in the Act, as indicated by the regulations of the Department of Agriculture of the Federal Government, the Board of Regents has created a Station Council, consisting of the President of the University, the Professor of Agriculture, the Professor of Civil Engineering, the Professor of Botany, the Professor of Biology, the Professor of Chemistry, and the Instructor of Physics.

The province of the Station Council is to provide the Director of the Experiment Station with the services of experts in the various lines of scientific investigation, and to enlist in the experimental work the active and cordial co-operation of the scientific departments of the University.

In the publications of the Station each member of the Council is responsible only for the matter that appears under his name.

STATION STAFF.

The experimental work of the station is prosecuted by the Station Staff, consisting of the following officers and professors of the University:

F. B. Gault.....Director.
.....Agriculturist.
John E. Ostrander.....Irrigation Engineer.
Charles W. McCurdy.....Chemist.
Louis F. Henderson.....Botanist.
John M. Aldrich.....Entomologist.
John E. Bonebright.....Meteorologist.
Fred A. Huntley.....Horticulturist.

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By Chas. P. Fox, *Agriculturist.*

Introduction.

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The organization of the Agricultural Division of the Station and the prosecution of its legitimate scope of work has been attended with many difficulties.

In the first place the nature of the work needed had first to be determined, and then fitted to the conveniences at hand. Then came the battle with the elements that did not always leave the victory with us; unlooked for obstacles have sometimes checked the work. These drawbacks go hand in hand with Station work and must be accepted as the inevitable.

The object of our Station work should be not to follow the footsteps of others but to direct its energies towards solving questions that are closely related to the people of its own state.

While the work of an Experiment Station is intended to be educational, yet there is a wide difference between the functions of an Experiment Station and those of an Agricultural College. The duties of the former are experimentation and establishment of facts by actual investigation.

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The avenue of dissemination of the results of station work is the "Bulletin." This publication is for free distribution among the interested citizens of the state.

Sec. 2, of the Hatch Act, defines the work of the Experiment Station as original investigations along the several lines of agricultural husbandry.

With the work of the Station clearly defined it does not seem consistent to issue bulletins wholly upon theoretical subjects without a backing of facts founded upon actual work.

Since July, 1893, we have endeavored to collect together and verify by actual field work facts concerning the agricultural crops of the state.

Logically the first thing to be done in a country as new as this state, is to find out (1) What will grow? and (2) How to grow?

To arrive at definite conclusions concerning the first question has been our main effort. Our work in this direction has been slightly hindered by lack of land at the central station. The University campus turned out to be unsuitable for experimental work on account of limited area and soil not being of uniform quality.

While the funds at the disposal of this division have been ample to conduct the work if concentrated at one point, yet when it came to division with the three sub-stations the amount to run each was wholly inadequate to get the best results.

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This step is, in fact, made necessary by the nature of the duties of this office. To this office come the many letters of inquiry from citizens of the older states asking about homes in Idaho. This state has no Board of Agriculture to look after such matters; we have no long list of documents descriptive of the resources of the state for reference. Each request for information must be answered individually. In order to reduce the work of the office we add this short sketch of Idaho.

The general outline of the state is triangular. Geographically speaking, Idaho lies approximately between the 42nd and 49th parallels, North, and is included within the 111°—117° of longitude, West. The boundaries are the British possessions on the North; Montana and Wyoming (portion) on the East; Utah and Nevada on the South; Oregon and Washington on the West. The width of the state at its northern boundary (pan handle) is about 50 miles. The extreme width is 300 miles. The airline distance between the extremes of the state is close to 600 miles. To reach these points by rail one has to travel about 800 miles. This extra distance is due to the railroads following the valleys. A spur of the Bitter Root Mountains runs across the state and divides it it into North and South Idaho. This barrier prevents direct railroad connection between the two sections. The area of the state is about 87000 square miles or 55,680,000 acres.

When compared with other states it will be seen that our state is about one-third as large as Texas and one-half as large as California. It is larger than the combined areas of West Virginia, Maryland, Vermont, New Hampshire, Massachusetts, New Jersey, Connecticut, Delaware and Rhode Island. It will make two states the size of Ohio. It is seventy-five times larger than Rhode Island. The landed area of the state is divided as follows:

Sixteen million acres of agricultural land. Two-thirds of this is in the arid belt.

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Ten million acres of forest land (mostly mountain and foothill land). A large portion of this land will make second class farming land when cleared.

Eight million acres of mountain (not covered with forest) and lava-bed land. This is practically worthless for agricultural purposes.

(*a*) *Historical.*

What is now within the limits of Idaho was originally inhabited by numerous bands of Indians. Among the principal tribes were the Spokanes, Nez Perces, Shoshones, Blackfoot, etc. These were the inhabitants found by the daring explorers, Lewis and Clarke in the early part of the present century. It is quite possible that these were the first white men that set foot on Idaho soil. Then came the traders and trappers, followed by the missionaries—Whitman and Spaulding.

The discovery of rich gold fields in the sixties attracted great numbers of miners, many of whom yet remain. Since the early eighties immigrants from the older states have sought homes on the fertile farms of Idaho.

Idaho was organized into a territory March 13th, 1863. Under this Act parts of Washington, Dakota and Nebraska were included. In 1868 the area of the territory was reduced by the creation of the new territories of Montana and Wyoming.

Idaho became a state July 3rd, 1890. At present the state is divided into twenty-one counties as follows:

Ada, Bannock, Bingham, Bear Lake, Blaine, Boise, Canyon, Cassia, Custer, Elmore, Fremont, Idaho, Kootenai, Latah, Lemhi, Lincoln, Nez Perce, Oneida, Owyhee, Shoshone and Washington.

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Ada.

Central. Created 1864. Named in honor of Miss Ada Riggs. Area 1500 square miles. Population 12000. Principal industries are fruit farming, sheep raising, and mining. All crops are grown by irrigation. Largest valleys are those of Boise river, Indian and Mason creeks. Outside of the valleys the land belongs to the mesa class.

The valley and bench lands are well adapted to fruit culture. This is one of the largest apple producing counties of the states. The acreage of peaches, apricots, and prunes is also important.

Boise is the county seat, and capital of the state. It is also the largest city in the state. It is situated at the terminus of a branch line of the U. P. system, connecting with the main line at Nampa in Canyon county.

Bannock.

Southern. Created from Bingham March 6th, 1893. Named from a tribe of Indians. Area about 5000 square miles. Population 7000. Large part of county is covered by the Fort Hall or Bannock Indian Agency. Surface is rather rough. The valley soils are gravelly. Mesa soils do not differ from those found in similar sections. Largest streams are Bear and Port Neuf Rivers. At and around Soda Springs are many mineral springs.

Stock raising is the most important agricultural pursuit. General farming is carried on under ordinary irrigation methods. Fruit culture has not advanced much.

Pocatello is the county seat. It is on the main line of the Union Pacific, and also connected with Butte and other Montana points by the Utah Northern R. R. McCammon is a promising railroad town. Soda Springs is a summer resort.

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Idaho City is the county seat. It is thirty miles from Boise City; connected by stage line.

Bingham.

Southeastern. Area 3000 square miles. Population 5000. General farming is carried on extensively. Soils belong to first and second, classes. Surface comparatively level. Large portions of county occupied by lava beds, desert and unsurveyed land. Most important river is the Snake. Farming country well watered by numerous canals. The soil (much of it is valley soil,) being rather loose and sandy, is well adapted to the production of potatoes. Apples do very well. Blackfoot is the county seat. Idaho Falls is the leading commercial center. Both towns are on the Utah Northern R. R.

Bear Lake.

Southeastern. Named from Bear Lake, a large body of water lying within its boundaries. Area of county about 1100 square miles. Population close to 7000. Settled by Mormons.

Dairy farming and stock raising are well developed. The soils are of great variety. The altitude of the farms is nearly 6000 feet. Much of the water supply is taken from local mountain streams. The irrigation works are owned by small companies of farmers. This method of saving and distributing water is said to be perfectly satisfactory and economical.

The general surface of the greater part of Bear River valley is very level. Much of the land on each side of the stream, owing to poor drainage, is covered with water a portion of the year. For this reason the land is permitted to remain in meadow. The

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XXIII.—Peppers.

Not a certain crop in this section. Can be grown in favorable seasons if plants are started in hot bed. Requirements same as for egg plants.

Vaughn's Sweet Mountain Pepper.

Results:

Moscow. 1894. The "Cayenne Long Red" (Vaughn) a small red variety ripened its fruit. The large growing sorts did not mature fruit suitable for pickles.

Crop in 1895 and 1896 did not mature on account of frost.

Idaho Falls. "Did not mature."

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Nampa. Favorable report from this section. All varieties bore large quantities of green fruit suitable for use as pickles.

STUFFED PEPPERS.—Requires to 6 green peppers, ¾ cup hot steamed rice, ½ cup cold cooked meat (cut in small dice), ⅓ cup of stewed tomatoes (strained), 1 tablespoon melted butter and a few drops of onion juice, salt and pepper. Cut off pieces from

CORDINAL PEPPER.

stem ends of peppers. Remove seeds and partitions; par boil 8 minutes. Fill with rice, meat and butter, well mixed, and seasoned with onion juice, salt and pepper. Place in a pan, add one and one-half cups of water or stock, and bake forty-five minutes in a moderate oven.—[Fannie Farmer, Boston Cooking School Cook Book. Little, Brown & Co.]

MANGOES.—Prepare as in preceding recipe. Soak in strong brine for two days; wash in cold water and pack in a jar. Pour

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PEPPER SAUCE.—Is made by placing small green or red peppers in vinegar. After standing a few weeks filter the liquid. The peppers may be washed and added to the clear liquid.

XXIV.—PARSLEY.

Descriptive.—A low herb with highly ornamental foliage. Leaves used for garnishing; roots and leaves used for flavoring soups, etc.

Culture.—Sow seed in well prepared seed bed. If late in season or in time of drouth soak the seed in warm water before sowing. Cultivate during growing season. Provide a covering of straw before severe frosts begin. The covering should be regulated by the weather. A too heavy covering in warm wet weather will cause decay of the stems.

There are several varieties. As far as flavoring is concerned, one variety is but little better than another. The Moss Curled has very handsome foliage.

PEAS.

Plant early in season. Soil should be of good quality. Dwarf varieties are best. Distance between rows will depend upon extent of plantation. For field crop rows should be about thirty inches apart.

RESULTS:

Moscow. 1894. Crop did not do well on account of drouth, the soil being rather clayey, and on a south hillside. The largest yielders were Marrowfat, Champion of England, Sterling, Alpha, Tall Grey Sugar and Dwarf Blue Imperial.

1895. Fifty-seven rows planted April 13th. Several of these were duplicates. The earliest varieties were American Wonder, Premium Gem, and Sterling, (marketable on July 1st.) Latest

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Moscow. 1894. Crop did not do well on account of drouth, the soil being rather clayey, and on a south hillside. The largest yielders were Marrowfat, Champion of England, Sterling, Alpha, Tall Grey Sugar and Dwarf Blue Imperial.

1895. Fifty-seven rows planted April 13th. Several of these were duplicates. The earliest varieties were American Wonder, Premium Gem, and Sterling, (marketable on July 1st.) Latest

varieties were Pride of the Market, Duke of Albany, Telegraph, Champion of England, American Champion, McLean's Advance, Canada Field, Blue Imperial, New Echo, Echo, Renown, Grey Sugar, and Early Marrowfat, (marketable Aug 2d.)

The largest yielders, based on weight of peas in pods were: Bush Long Podded, Melting Sugar, Renown, Maud S, Blue Peter, Sterling, Dwarf Champion, Dwarf Sugar, Stratagem, Little Gem, American Wonder, Horsford's Market Garden, Heroine, Pride of the Market, Abundance, and First and Best. The varieties in this list are about equal. Some of the lowest yielders were Juno, McLean's Advance, Blue Imperial and Lawton's Alpha.

Varieties yielding largest number of pods from a single vine were Melting Sugar, (150); Lawton's Alpha, (130); Blue Imperial, (284); Canada Field, (200); McLean's Advance, (142); Blue Beauty, (120); New Echo, (164); and Champion of England, (140).

Longest vines were produced by Sterling, (5.5); Canada Field, (5.2); and Saunders Marrow, (5). The shortest vines were from McLean's Little Gem, (1.60); Little Gem, (2); Blue Peter, (2.3); and Canada Field, (2.8).

1896. Ninety-four plats grown. The seed used was from Idaho grown peas, (original seed from Vaughn 1894 and Livingston 1895,) and from Burpee, Philadelphia.

Earliest Varieties. Figures indicate number of days to produce green peas.

Burpees Extra Early, (58); Maud S, (58); Tom Thumb, (59); Alaska, (58); (two years on Idaho soil,) Sterling, (62); Laxton's Earliest of All, (60); and Wm. Hurst, (60).

Among the latest varieties were Shropshire Hero, (79); Juno, (79); Abundance, (79); Champion of England, (77); Yorkshire Hero, (77). Renown, (77); and Paragon, (77).

YIELDS:

Highest.—Yield of dry peas from twenty feet of row. Canada Field, (1094 grams); Royal Dwarf White Marrowfat, (1133 grams;)

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YIELDS:

Highest.—Yield of dry peas from twenty feet of row. Canada Field, (1094 grams); Royal Dwarf White Marrowfat, (1133 grams;)

Dwarf Blue Imperial, (1024 grams); Burpee's Profusion, (1025 grams).

Lowest.—Bishop Long Podded, (581 grams); Telegraph, (405 grams); Little Gem, (639 grams); American Champion (651 grams).

N. B. An ounce is equal to about 30 grams.

HEIGHT OF VINES [in inches].

Tallest. Sander's Marrow, (55); Royal Dwarf Marrowfat, (50); Telegraph, (48); Lawton's Alpha, (48); Duke of Albany (48); and Champion of England, (48).

Shortest.—American Wonder, (16); William Hurst, (14); Notts Excelsior, (16); Tom Thumb, (18); Premium Gem, (20); and Burpee's Quality, (20).

Grangeville. 1895. Crop planted May 15th. Twenty-eight varieties grown. The following varieties are reported as very good: Duke of Albany, American Champion, Horsford's Market Garden, Abundance, Telephone, Telegraph and Melting Sugar.

Earliest varieties were First in the Market, American Wonder, First and Best, Alaska, and Dwarf Sugar. These were ready for the market by July 22d.

The latest varieties were Melting Sugar, American Champion, Everbearing and Pride of the Market (Aug. 3 to 6.)

Largest yielders were, Melting Sugar, First in the Market, Paragon, Dwarf Sugar and Champion of England.

Idaho Falls. 1895. Thirty-one varieties grown. Planted April 22d.

Earliest varieties were, Alaska, McLean's Little Gem, First in Market, First and Best, Ex. Ea. Premium Gem, New June, and Blue Beauty (June 28th to July 4th.)

Latest varieties were, Sterling, Telegraph, Tall Sugar, Horsford's Market Garden, Stratagem and Everbearing.

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1896. Planted April 28th, 8 varieties grown. Alaska and Abundance were earliest. Champion of England, Alaska and Sterling were largest yielders.

Conditions suited for growth of the crop, yield, size and quality good. Any variety does well, but for general use, Alaska, Abundance, Champion of England and Horsford's Market Garden are recommended.

Nampa. Ten varieties grown in 1894; thirty varieties in 1895, and three varieties in 1896. The best varieties are about the same as at the other stations. The yield on all varieties is low.

PUREE OF PEAS.—One pint of boiled peas, one oz. of butter, one tablespoon of cream, pepper and salt. Rub the peas through a sieve, return them to the saucepan with the batter, etc, and stir over the fire until quite hot.—[Amy G. Richards, Cookery, E. Renouf, Montreal.]

XXV.—POTATOES.

This vegetable is of American origin. Cultivated by the Indians at the time of discovery by Columbus. Evidently introduced into Europe by Spanish and English (1535–1585. Cultivated for the tubers. Propagated by the tubers. New varieties are obtained by planting the seeds (potato balls.)

Culture.—The soil should be fertile yet an excess of nitrogen will tend to produce a large growth of vine rather than tubers. Root crops, as a rule, require considerable potash. Soil must be put in good condition by proper cultivation. This will require judgment in plowing and cultivating. Rows should be three feet apart. The crop will require lots of moisture. To attain this or at least to retain the supply already in the soil the furrows should be deep. Drop the tubers at proper distance apart, and cover with three to four inches of soil. As the season advances and the young plants appear add more earth. In this manner the furrow is gradually filled.

Best results are obtained by planting one or two eyes in a hlll. If the seed potato is large cut so as to give the eye as large a

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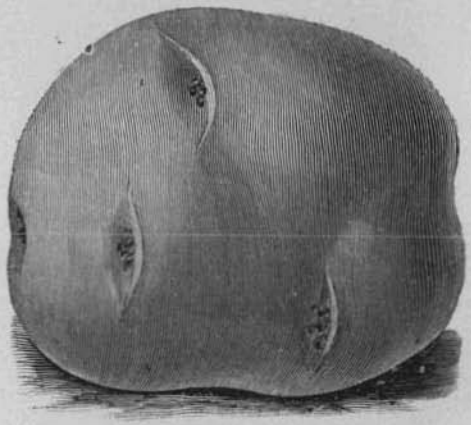
piece as possible. The large piece is necessary to furnish the young plant with food while the organs of growth (leaves and root) are being developed. Small pieces of cut potato when planted in dry soil lose water and in this way retard the growth. This is one of the reasons why failures sometime attend the planting of "potato eyes." It has been recommended to dip the raw surface of the eye in plaster of Paris to prevent loss of water.

When small potatoes are used for seed cut off and reject the "seed end."

If the method of preparing the seed as indicated above be fol-



lowed, the product will be large but the number of potatoes will be small. Many eyes to the piece or hill will give a number of small potatoes.

The result of an experiment made in 1895 illustrates the point made in the discussion. A large potato weighing 30 ozs was planted whole. The yield was 76 ounces. Another potato of same variety weighing 28 ounces was cut into 15 pieces and planted 15 hills. The yield was 496 ounces.

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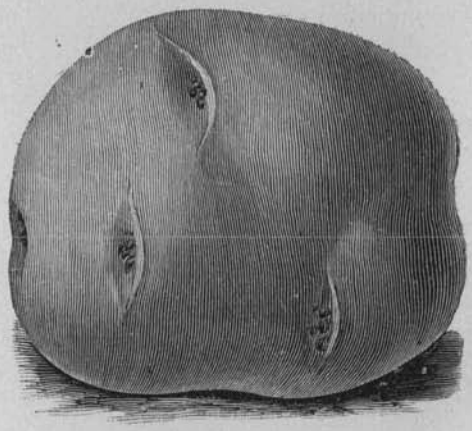

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For treatment of potato scab see Bulletin No. 17.

RESULTS OF VARIETY TESTS.

Moscow. 1894. One hundred and twenty-eight plats. One pound of each kind planted.

Ten highest yielders were as follows: American Wonder (46), Burbank (44), Beauty of Hebron (34), Algonia (33), Early Oxford (33), Morning Star (33), Woodhull's Seedling (28), Delaware (27), Brownell's Winner (30), Troy Seedling (28). Figures following name indicates number of pounds produced from one pound of seed.

1895. One hundred and seventy-three plats planted. Seed from those grown at station in 1894, and from J. B. Swan, Loveland, Colorado. Specimens from the best varieties were exhibited at the Spokane Fruit Fair.

A cooking test was made on a number of the varieties grown this year. A cube one inch in size was cut from potatoes of equal size and cooked in boiling water. The time required to cook and the quality of the cooked potato was noted. White Star, Garfield, Pride of America, Early Rose, Woodhull's Seedling, Jumbo, were reported as *very good.* Time to cook, 15 minutes. Nineteen varieties were reported as *good.* Great West, Early Oxford, Acme Seedling, World's Fair and Early Northern, were reported as "washy." The shortest time required to cook was 12 minutes, White Star. The longest was 20 minutes, Early Northern. The majority of the varieties required 15 minutes.

STARCH.—The percentage of starch in 59 samples of potatoes was determined by the Chemical Department of the University. Forty-six of these samples represented as many different varieties. The highest was from Everette (27.27 per cent.) The lowest was from Great West (13.91 per cent.) The average of all varieties was in the neighborhood of 22 per cent.

Rural New York No. 2 (standard late variety) contained 24,14 per cent; Early Rose (early) 22.38 per cent; and Tomer's Pride of Idaho 21.53 per cent.

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Some of the best varieties were Tomer's Pride of Idaho, Houlton's Rose, Gem, Mayflower, New Standard, Thorburn, Beauty of Hebron, Brownell's Winner, Algonia, Paris Rose and Reed's 86.

Twenty of the best varieties grown in 1895 were planted on a large scale this season. Of this number the five best were Early Six Weeks, Koshonong, Burbank, White Seed and Bill Nye.

Grangeville. 1895. Fifty-four varieties grown. Peach Blow, Early Six Weeks, Harbinger, Rural New Yorker No. 2, Acme Seedling, and Early Ohio were reported as *very good.*

1896. Fifty-three varieties planted May 28th. Cultivated twice. Rows 36 inches apart. Plants 18 inches apart. Dug Oct. 16th and 17th.

Ten best varieties as selected by Mr. McCready.—Beauty of Hebron, Bolly's Northern Spy, Early Oxford, Chas. Downing, Mount Carbow, Brownell's Winner, Rural New Yorker, No. 2, Early Northern, Crown Jewell and Rural Blush.

Early Ohio, Early Wisconsin, Polon's Garfield and Early Six Weeks are early varieties.

Vines of Beauty of Hebron, Bolly Northern Spy, Early Oxford, Brownell's Winner, Rural New Yorker No. 2, Early Northern, Crown Jewel and Rural Blush were cut down by frost.

Idaho Falls. 1894. Planted May 8th. Dug Oct. 15th. Rows, 3 ft apart; hills 16 inches apart. Seed cut with an Aspinwall cutter into pieces weighing 1 oz. One to three eyes to a piece. About 20 per cent. of pieces without eyes. Cultivated five times. Irrigated July 9th, 20th, August 13th and 16th. Nearly all were free from scab. All were mature Oct. 15th. But little difference in date of ripening. This remarkable fact is due evidently to irrigation. Quality of potatoes good. Soil seems well adapted to this crop.

Varieties recommended for market are: Salzer's Iron Clad, 509

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bu. per acre, white; Hoffman, 427 bu. per acre, brown; Chas. Downing, 396 bu. per acre, white; Rural New Yorker No. 2, 304 bu. per acre, white; Lee's Favorite, 403 bu. per acre, white.

1895. One hundred plats grown this year. Yield is very low on all of the varieties; estimated as only about $\frac{1}{5}$ of the average yield in this locality in an ordinary season. Varieties recommended: Maggie Murphy (for earliness), Late Ohio, Napoleon, A. C. Seedling (all pink), Stoneroad's No. 2, Chas. Downing, Salzer's Iron Clad, Early White Prize, Halo of Dakota and Star Seedling. Last six are recommended for a general crop.

1896. Forty-eight varieties grown. Season more favorable than the preceding.

Best White Varieties.—Rural New Yorker, No. 2, Salzer's Iron Clad, Hoffman and Handen's Seedling.

Best Pink Varieties.—Early Ohio and King of Roses.

NAMPA. 1895. Fifty-five varieties grown.

Early Varieties.—Planted May 15th. Best Varieties. Early Rose, Early Oxford, Early White Prize, Everett and Houlton Rose.

Late Varieties.—Planted May 23rd. Best Varieties: Bill Nye, Rural New Yorker No. 2, Great West, Rugent's Perfection, Beauty of Hebron, Brownell's Winner and Mt Carbon.

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Late Varieties.—Five best were Beauty of Hebron, Henderson's Restaurant, Polaris, Vick's Perfection and Bill Nye.

Potatoes may be prepared for the table in a score of ways. The interested reader is advised to consult any of the standard cook books quoted on preceding pages of this bulletin.

POTATO PUFF.—Whip mashed potatoes light and soft, with much butter and two raw eggs; season with pepper and salt, and beat in a few spoonfuls of powdered cheese. Pile upon a bake

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Paris is the county seat; has daily stage connection with Montpelier. The latter place is the principal trading point. It is on the main line of the Union Pacific R. R.

Blaine.

Central. Named in honor of James G. Blaine. Created from Logan and Alturas, March 5th, 1895. Area..... Population 6000. Principal occupation is mining and stock raising (sheep).

Wood river is the largest stream. Hailey on the Wood River branch of the Union Pacific system, is the county seat. The hot springs in the vicinity of Ketchum are rapidly growing in favor as summer resorts.

Canyon.

Western. Created from Ada in 1891. Area 1400 square miles. Population 9000. Fruit and general farming interests are very important.

Soils.—Mesa soils are of volcanic origin with lava bedrock. Valley soils are sandy and well adapted for fruit culture.

Boise and Payette rivers; Mason, Indian and Willow canals furnish water for irrigation purposes. Caldwell is the county seat. Sub-Station No. 3 of the Idaho Experiment Station was located near Nampa. Both of these towns are on the main line of the Union Pacific R. R. and consequently are supply points for the Owyhee mines.

Large orchards of apples, prunes, peaches and other fruits are growing at Middleton and Emmet.

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Southern. Area 4,500 square miles. Population about 6000. Chief occupation is mining and stock raising. The soils and other natural conditions do not differ materially from those found in this section.

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POTATO CROQUETTES.—Take six good sized potatoes, boiled and mashed, one egg, one oz. of butter, one tablespoon of milk, pepper, salt and bread crumbs. Add yolk of egg, milk, butter, pepper and salt to potatoes, form into cone shapes, roll in white of egg and bread crumbs, and fry in hot fat to a golden brown.—[Amy G. Richards, Cookery. E. Renouf, Montreal.]

LONG BLACK SPANISH.

CAL. MAMMOTH WHITE WINTER

XXVI.—RADISHES:

Descriptive.—The several varieties of this vegetable may be grouped (1) according to season viz. Spring or winter, (2) according to shape, viz., long, half long and globular, and (3) according to color; red, white and the various shades produced by combining these colors being represented.

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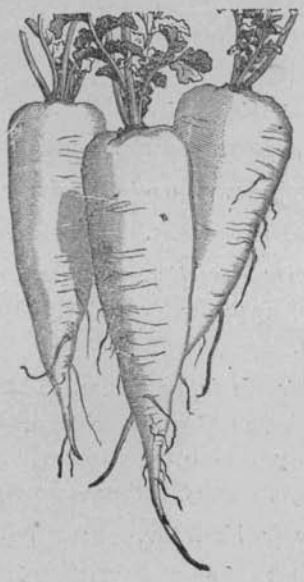

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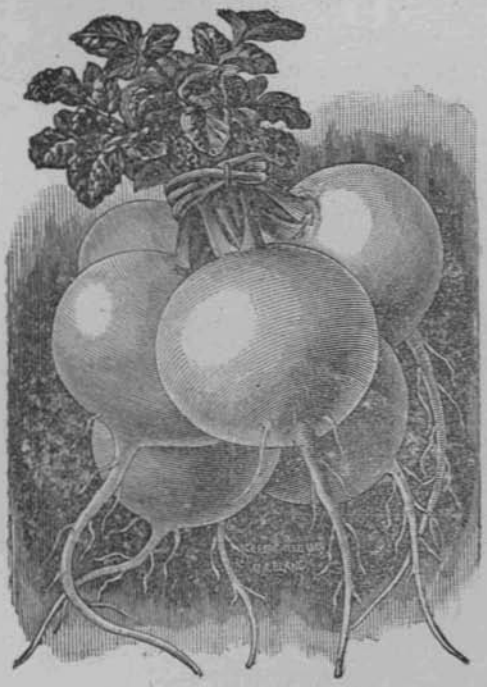
Culture.—Soil should be fertile and contain plenty of moisture.

Sow early. For very early crop sow in fall. A succession may be obtained by sowing every ten days. For the family garden we advise the use of a mixture of varieties. This can be obtained from any reliable seedsman.



PHILADELPHIA MAMMOTH BOX.

RESULTS:

This is a crop that can not be judged altogether by its yield. Flavor, tenderness and season each count, for as much or even more than yield. Color and shape will also exert their influence. These elements will have an important bearing upon the commercial value. Every thing considered it is a hard matter to select the *best* variety of the radish.

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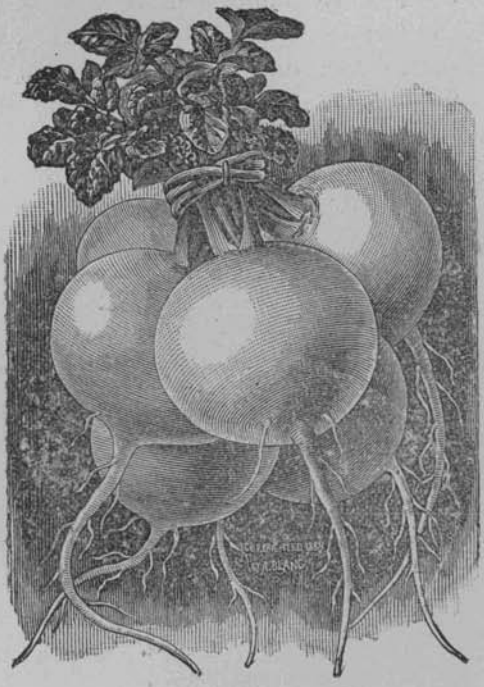

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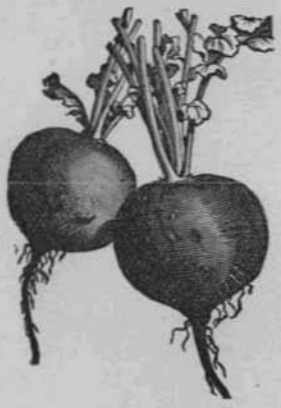
Six early, twenty-six summer and six winter varieties. All sown April 12th. Earliest varieties were Wood's Early Frame, White Box, New Improved French Breakfast, (this variety was not any earlier than the old French Breakfast), Early Fireball, Early Scarlet Globe, Early Scarlet Turnip, Golden Dresden and many others. In fact nearly all of the varieties were ready for the table at about the same date (May 26th—28th), the latest variety was Chartier Long White (June 6th). Long standing varieties were Early Scarlet Turnip, Scarlet Globe, Large White Summer, Cincinnati Market, White Olived Shaped, Golden Dresden and Chartier White Turnip. Our choice of the entire list is as follows:



ROUND BLACK SPANISH.

TURNIP SHAPED TYPES: *White.*—New Chartier Large, White Summer, White Box and Early White Turnip.

Red.—Scarlet Turnip, Early, Scarlet Globe and Early Round Dark Red.

LONG TYPE: White.—Chartier Long White, White Stuttgart and White Lady Finger.

Red.—Wood's Early Frame, Long Scarlet Short Top and New Cincinnati Market.

HALF LONG TYPE: *White.*—Olive Shaped and Golden Globe.

Red.—French Breakfast and Earliest Carmine.

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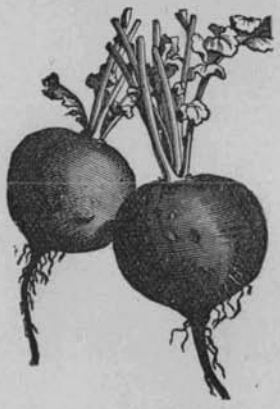

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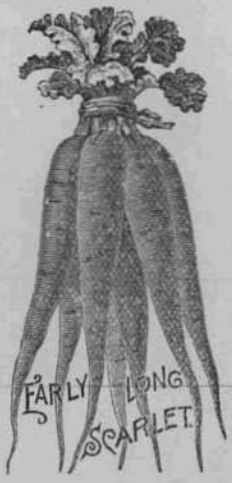

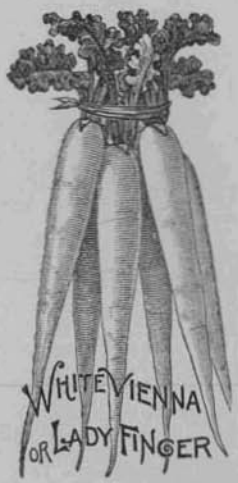

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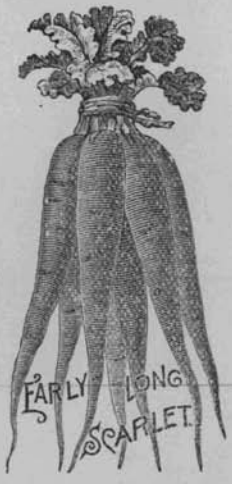

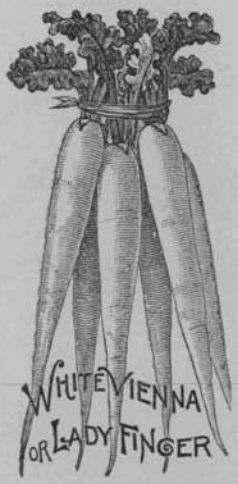

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MAMMOTH RHUBARB.

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Owing to the length of time to get results from planting the seed we have no report to make on this plant. In answer to inquiries it may be necessary to add a few words about culture. Easiest way is to propagate it by root division or cuttings.

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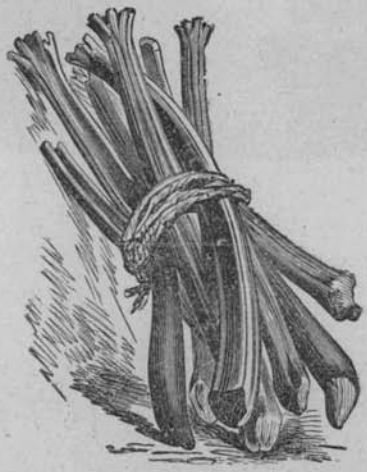

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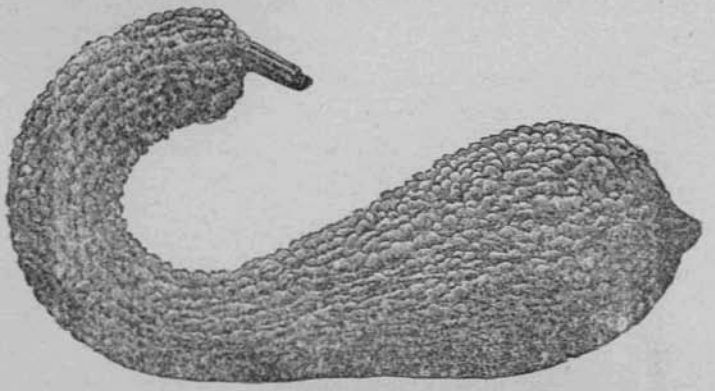

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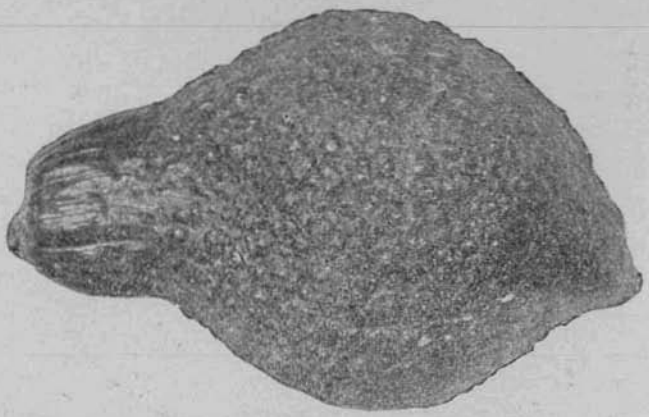

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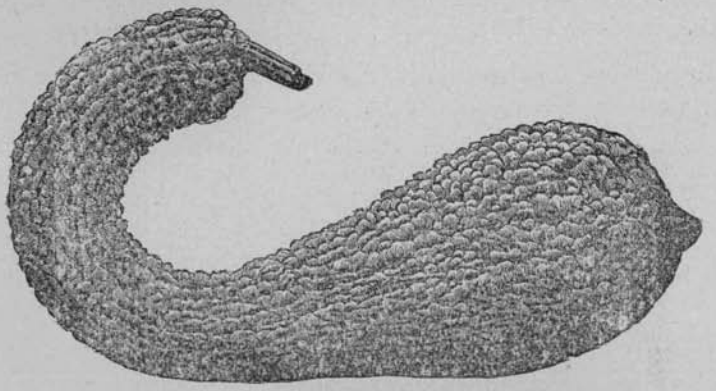

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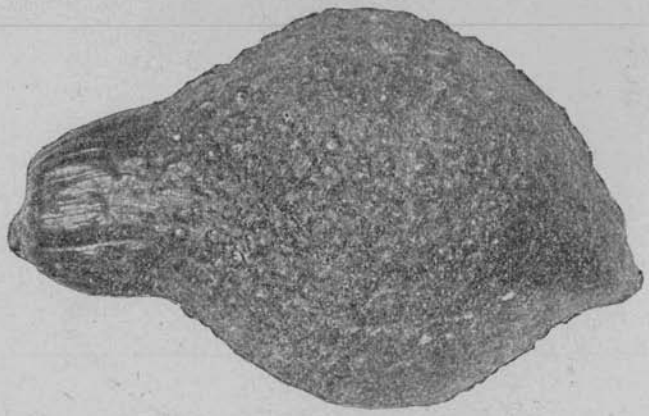

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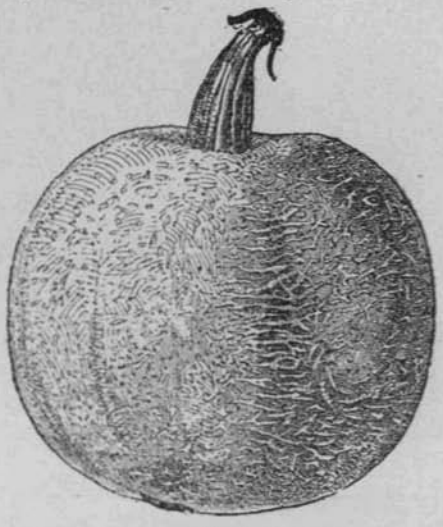

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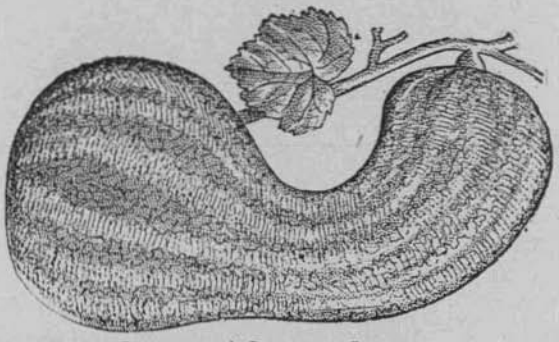

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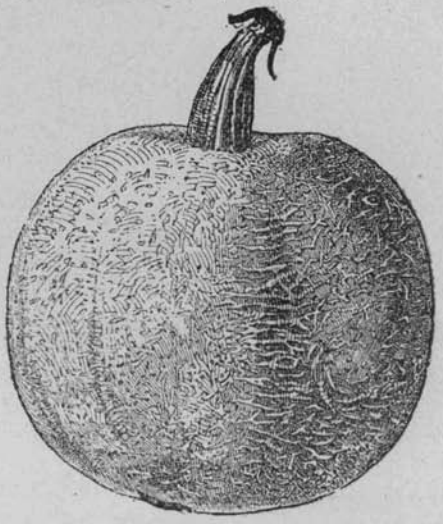

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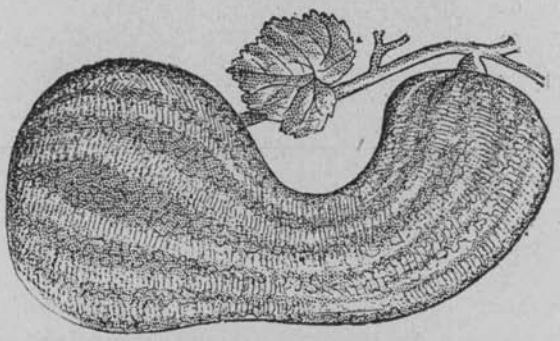

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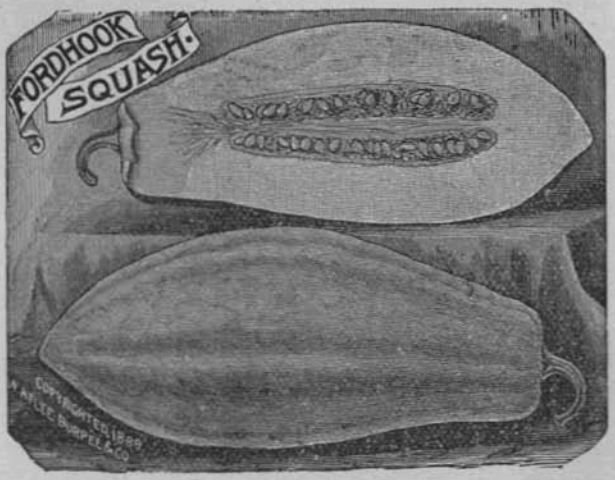

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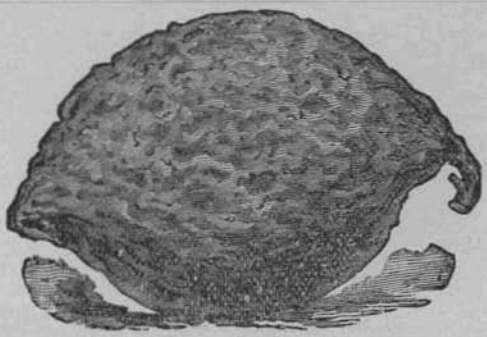

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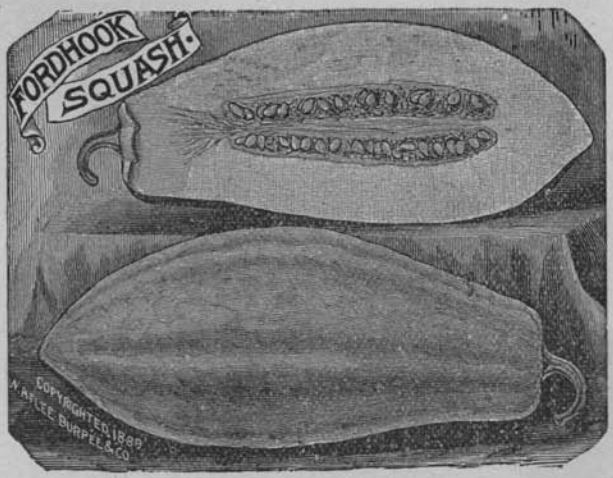

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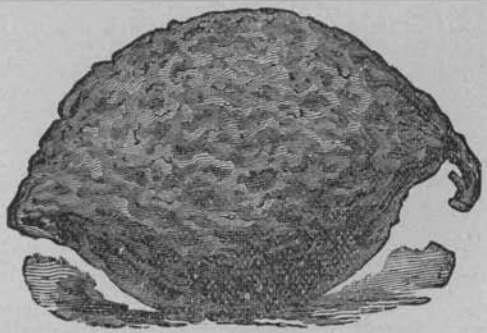

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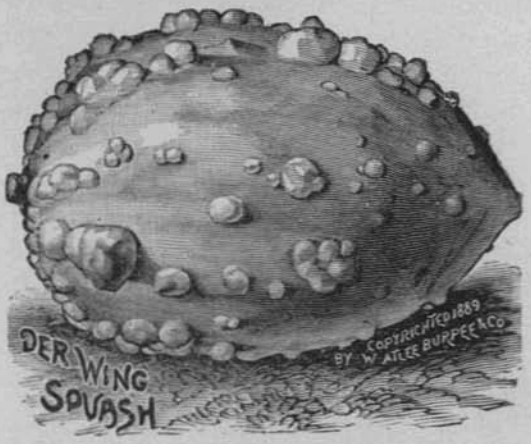

Fordhook, Turban and Summer Crookneck. This crop does remarkable well. Specimens weighing 45 pounds (Fordhook) have been grown. Three to ten to a hill.

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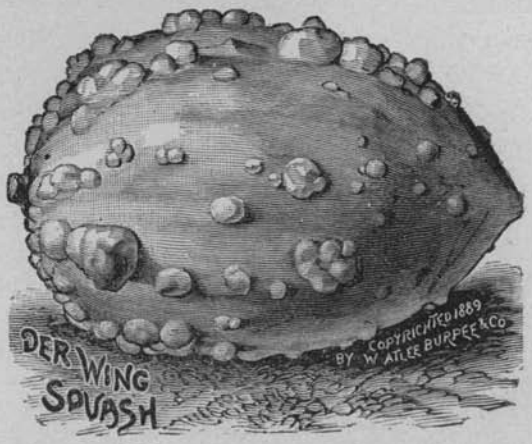

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QUAKER PIE PUMPKIN.

SQUASH.—Unless very tender it is best to pare them, cutting away as little of the meat as possible. Remove seeds, quarter, and lay pieces in cold water. Boil until tender; drain well, pressing out all of the water. Mash soft and smooth, seasoning with butter, pepper, and salt. Serve hot.—[Common Sense in Household, Marion Harland. Scribner & Son, New York.]

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Albion is the county seat. A very successful Normal school is located there. Albion is about thirty miles, by stage, from Minnidoka, the nearest railroad station.

Fruits do very well near Oakley.

CUSTER.

Central. Named in honor of Gen. Custer. One of the oldest counties in the state. Area 3,500 square miles. Population about 4000. A mining county. Considerable stock (sheep and cattle) is kept on the ranges. The most important agricultural sections are Lost River Valley and Round Valley. The altitude of these farming lands is said to be over 5000 feet. The mines afford a ready and good market for the sale of agricultural products. The uncultivated bottom lands yield large crops of wild hay. The mountain forests supply lumber.

Challis is the county seat. It is sixty-seven miles north of Ketchum, and one hundred and thirty miles from Blackfoot. These are the nearest railroad points. Connection is made by stage.

ELMORE.

Southern. Area 6000 square miles. Population 4000. Sheep raising is one of the most important industries. Elmore is the largest wool producing county in the state. Large orchards (peaches and apples) have been planted along Snake river, in the southern part of the county. Many of these are now bearing, and yield large crops of excellent fruit.

The soils are of the sandy loam type, rich in organic matter.

The important supplies of water are from Camas, Cat, and Rattlesnake creeks. Mountain Home is the county seat. It has a large wool market. It is the supply point for Bruneau Valley and other Owyhee points.

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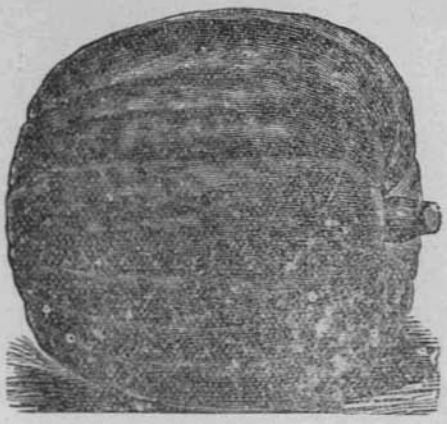

MAMMOTH CHILI SQUASH.

BAKED SQUASH.—Cut in pieces two inches square, remove seeds and stringy portion, place in dripping pan, sprinkle with

MAMMOTH WHITE BUSH SCALLOPED SQUASH.

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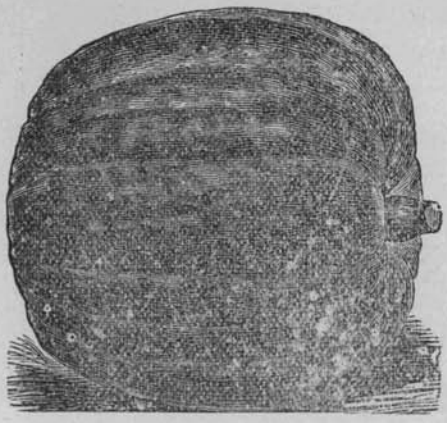

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soft, in a moderate oven, keeping covered the first half hour of cooking. Serve in the shell.—[Fannie Farmer, Boston Cooking School Cook Book. Little, Brown & Co.]

XXIX.—SALSIFY.

Descriptive.—Sometimes called Vegetable Oyster Plant. This name is given on account of the resemblance of the flavor of the root to that of the oyster.

Culture.—Sow in rows 30 inches apart. Thin out until plants stand 6 inches apart. Some care should be given to the preparation of the seed bed. The soil must be deep and in good condition or the roots will be divided into branches. Under the name Salsify, we have two kinds. The common Salsify (white rooted) and the Black Spanish, sometimes called Mammoth Sandwich Island (long, black root).

Both kinds do very well in this section. The root of the common kind is liable to be full of branches and there is much waste in cleaning. The root of the other variety is much better.

Scalloped Salsify.—Boil the Salsify until tender, mash it and add 1 oz. of butter, 1 tablespoon cream, a pinch of celery, salt and pepper. Sprinkle some buttered scallop-shells with browned bread crumbs. Fill in with the puree, sprinkle with more bread crumbs, put a little piece of butter on each, and brown quickly in the oven. —[Amy G. Richards. Cookery, E. Renouf, Montreal.]

Salsify Friters.—Cut boiled salsify into slices, dip into flour, then into frying batter, and fry in hot fat for three minutes.—[Amy G. Richards, Cookery. E. Renouf, Montreal.]

XXX.—TURNIP.

This crop belongs more to the field than to the garden. For a full discussion of this subject the reader is referred to the bulletin on Root Crops.

The earliest variety is the Early Milan. As a rule better results are secured by growing the globular-shaped varieties as they do not grow woody as quickly as the flat kinds.

soft, in a moderate oven, keeping covered the first half hour of cooking. Serve in the shell.—[Fannie Farmer, Boston Cooking School Cook Book. Little, Brown & Co.]

XXIX.—SALSIFY.

Descriptive.—Sometimes called Vegetable Oyster Plant. This name is given on account of the resemblance of the flavor of the root to that of the oyster.

Culture.—Sow in rows 30 inches apart. Thin out until plants stand 6 inches apart. Some care should be given to the preparation of the seed bed. The soil must be deep and in good condition or the roots will be divided into branches. Under the name Salsify, we have two kinds. The common Salsify (white rooted) and the Black Spanish, sometimes called Mammoth Sandwich Island (long, black root).

Both kinds do very well in this section. The root of the common kind is liable to be full of branches and there is much waste in cleaning. The root of the other variety is much better.

Scalloped Salsify.—Boil the Salsify until tender, mash it and add 1 oz. of butter, 1 tablespoon cream, a pinch of celery, salt and pepper. Sprinkle some buttered scallop-shells with browned bread crumbs. Fill in with the puree, sprinkle with more bread crumbs, put a little piece of butter on each, and brown quickly in the oven. —[Amy G. Richards. Cookery, E. Renouf, Montreal.]

Salsify Friters.—Cut boiled salsify into slices, dip into flour, then into frying batter, and fry in hot fat for three minutes.—[Amy G. Richards, Cookery. E. Renouf, Montreal.]

XXX.—TURNIP.

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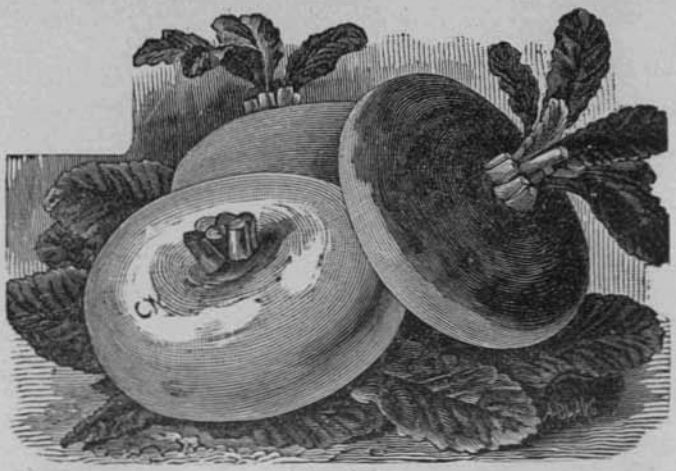
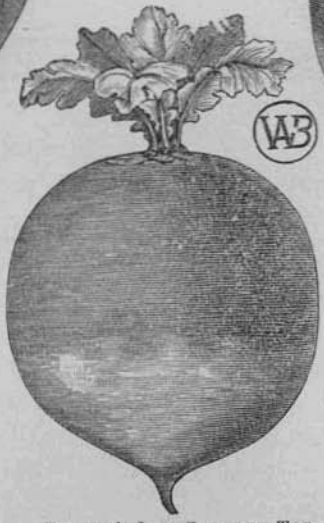
The earliest variety is the Early Milan. As a rule better results are secured by growing the globular-shaped varieties as they do not grow woody as quickly as the flat kinds.



FLAT TYPE.

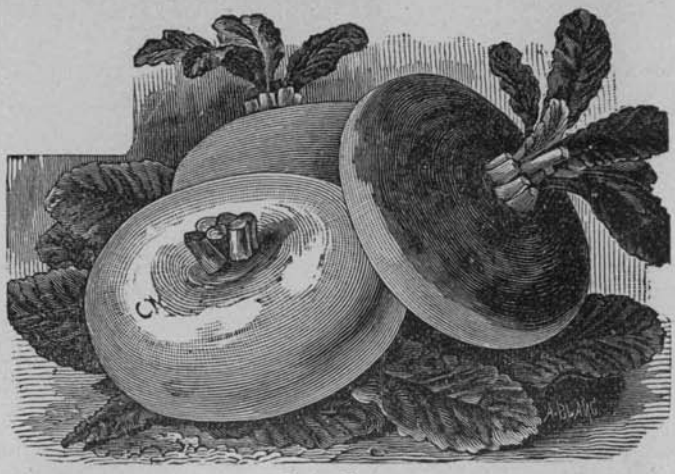
BROAD RUTABAGA.



BURPEE'S IMP. SCARLET-TOP.

MONARCH OF N. ENGL'D.

SOME MEMBERS OF THE TURNIP TRIBE.



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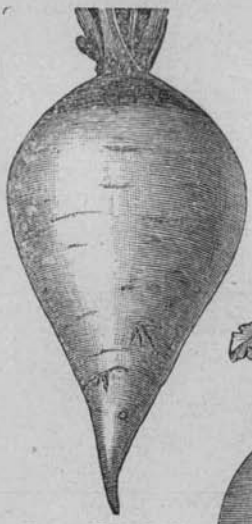

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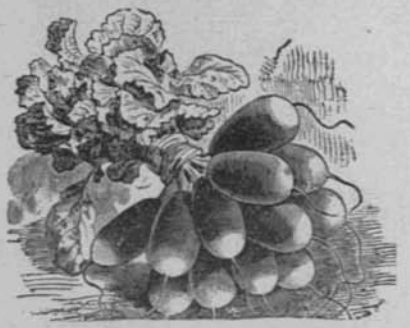
Mashed Turnips.—Wash and pare turnips, cut in slices or quarters and cook in boiling, salted water until soft; drain, mash, and season with butter, salt and pepper.

Creamed Turnips.—Wash turnips, and cut in one-half inch



IMPERIAL EARLY BREAKFAST.

WHITE GLOBE.

cubes. Cook three cups of cubes in boiling, salted water twenty minutes or until soft. Drain, add one cup white sauce.

Turnip Croquettes.—Wash, pare, and cut in quarters new French turnips. Steam until tender, mash, pressing out all water

YELLOW PURPLE-TOP RUTABAGA.

PURPLE-TOP STRIPE-LEAVED.

that is possible. This is best accomplished by wringing in cheese cloth. Season one and one-fourth cup with salt and pepper, then add yolks of two eggs slightly beaten. Cool, shape in small co-

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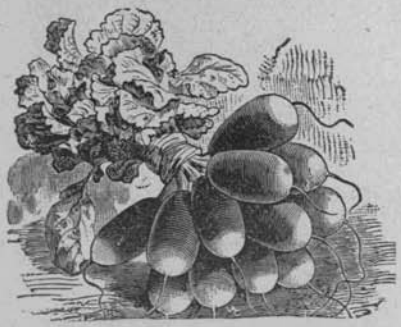

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quettes, dip in crumbs, egg and crumb again, fry in deep fat, and drain.—[Fannie Farmer, Boston Cooking School Cook Book, Little, Brown & Co.]

TOMATO.

Culture—A very uncertain crop. Not grown to very great extent.

FORDHOOK'S FIRST TOMATO.

Safest way is to sow in hot bed and transplant. Date of transplanting will depend upon section. At Moscow the last killing frost may occur about last week in May or first week in June. It is well to protect the young plant, after transplanting, from frost with an old tin can or other shelter.

RESULTS:

Moscow. 1894. Only one variety, Early Ruby, ripened.

1895. Forty-two varieties grown. Seed sown in hot bed April 8th, and transplanted May 7th.

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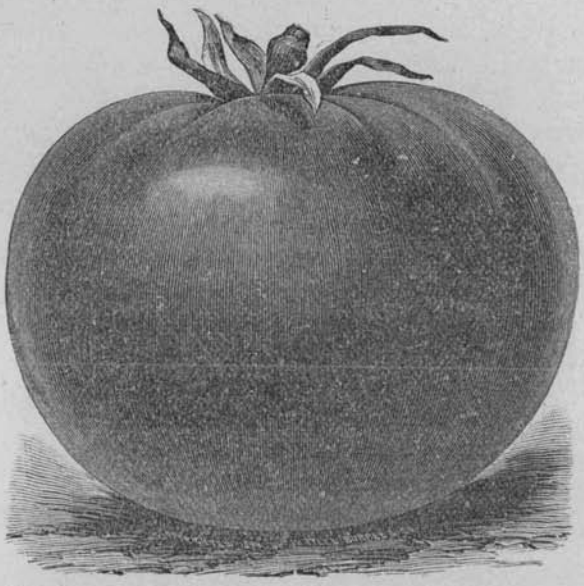

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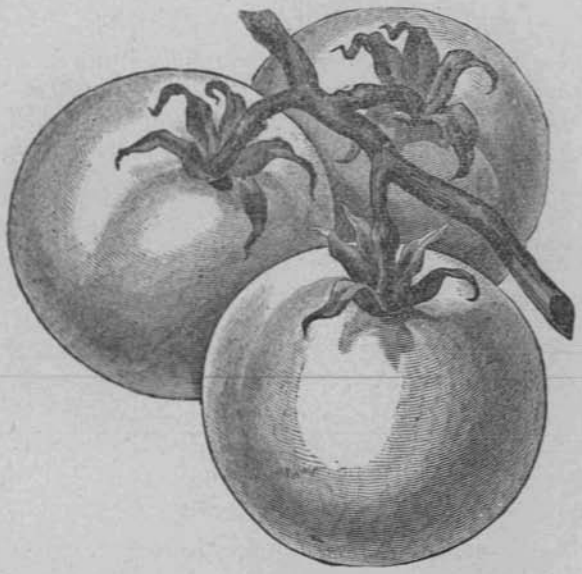
Earliest varieties were Canada Victor, Yellow Plum, Yellow Cherry, Peach, Red Cherry, Ponderosa, Red Currant, Tree, Red Pear Shaped, Early Ruby, Early Acme, and Atlantic Prize.

The best varieties for family use were Early Ruby, Early Acme and Essex Hybrid. Points governing the selection were earliness, size, shape, uniformity, and productiveness.

For preserving, the Yellow Plum, Yellow Pear Shaped, Red Cherry and Red Pear Shaped are best. The Red Currant is most too small.



PEACH TOMATO.

The new peaches (red and yellow) are good varieties. Although the fruit is small it is smooth and very uniform.

1896. Planted in hot bed May 15th. Transplanted June 24th. Vines made a very vigorous growth and set large quantity of fruit. But very few ripened fruit on account of frost.

Same varieties as recommended in 1895 are again recommended.

Grangeville.—1895.—Planted out June 20th. Frosted Sept. 19-21. Nine varieties represented.

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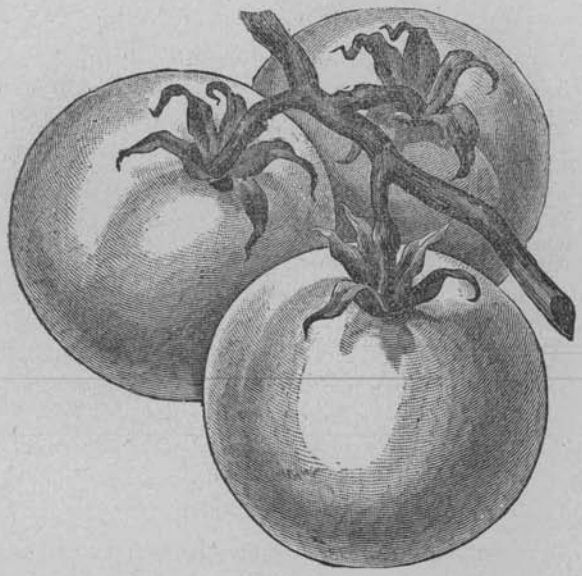

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Idaho Falls.—Enormous yields of green fruit (75 pounds to a single plant). Only a few ripened.

In 1895 the Husk Tomato or Ground Cherry ripened.

Nampa.—1895.—Eight varieties planted. Very few ripened fruit.

Baked Tomatoes.—Select smooth, medium-sized tomatoes; make a small hole in the stem end; remove the pulp and seeds with a spoon and put into a sieve to drain. Chop equal parts of cold chicken and veal and one green pepper; add a well beaten egg, half a cup of grated bread crumbs, piece of butter, pepper, salt, sage and a trace of onion; mix well together, moisten with some of the juce, fill the tomatoes and bake half an hour in a moderate oven.—[Favorite Dishes. Carrie V. Shuman, Chicago.]

Fried Tomatoes.—Slice, dip in flour, season with pepper and salt, and fry on each side to a nice brown.

Tomato Hash.—Place in a baking dish alternate layers of sliced tomatoes and chopped cold meat well seasoned and pour two beaten eggs over the top.—[Quick Cooking. Putnam's Sons, New York.]

MISCELLANEOUS GARDEN PLANTS.

Plants used for salads and greens.

Spinach.—The most important member of this group is spinach. Sow in fall or very early in spring. The fall sowing should be covered lightly with straw. Soil should be rich and in good condition. As the crop will need but very little cultivation the plants may stand quite close together. The large leaves are the parts used. In hot, dry weather the plants run to seed quickly and soon become useless.

Moscow.—Best varieties are New Leaved Round Summer, Prickly Seeded, (winter) and Large Round Leaf. There was only two days difference between the varieties on the score of earliness.

The Prickly Seeded is difficult to sow on account of the seed.

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Orach. A plant belonging to the same family and closely resembling spinach. Sometimes called mountain spinach. The seed of one variety was received from the California station in the spring of 1896. Does exceedingly well here.

Sorrel. This plant resembles the weed "sour dock" of the fields. Its leaves are used for greens. The plant is of easy culture, does not require very rich soil, stands the drouth well and is an abundant yielder.

SWISS CHARD.

Dandelion. Similar in growth and habits to the wild dandelion. Leaves are used for greens. They may be blanched. Propagated by seed.

Corn Salad. Leaves of this plant used for greens. Three years' experience at this station indicates that it is not suitable for dry situations.

Rape. This is properly a forage plant. Belongs to the cabbage family; resembles collards in manner of growth. It is by far the best plant for greens. Sow in fall or early spring. Requires but little care or cultivation.

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Two types or classes, the Tall Kale and Dwarf Kale. For the ordinary garden the Dwarf Kales are best.

Requires about same cultivation as cabbage. Sow seed early. Thin or transplant until the proper distance is secured between plants. During winter cover with straw.

Varieties.—The Moss Curled Winter (green) gave best results in 1896. The Dwarf Curled Scotch was second best. The Tall Green Curled was the best tall variety. The Dwarf Purple did not do well.

Sea Kale (Swiss Chard). This plant belongs to the beet tribe. It differs in the fact that in the Sea kale the leafstems are used for greens. Give same culture as required for beets. Soil should be richer. In fall cover with straw. This will aid an early growth and help blanch the stems. This is a very valuable plant and should be cultivated more extensively.

Mustard.—The leaves of all varieties of mustard are used for greens. The white is a few days earlier. The difference between any of the varieties is too small to be of any importance.

In growing this plant care must be taken to prevent it from running to seed, and thereby spreading as a weed.

CRESS.

Water Cress.—This must be sown along water courses. No experiments conducted. Is grown successfully in the irrigated section.

Upland Cress.—This kind can be grown on dry ground. Leaves used for greens and salads.

At Moscow the Curled (planted May 17th, marketable June 18th,) gave better results than Fine Curled. This crop is reported as making a very vigorous growth at Idaho Falls. Also as being one of the few plants not injured by rabbits, gophers, etc.

CHICKORY.—Leaves used for greens and salads. Roots used as a substitute for coffee. Soil must be rich and well cultivated to allow development of root. The plant is perennial. Best results will be gotten the second season from sowing. Leaves should be

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The Large Rooted is one of the best varieties.

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Soils are very similar to those of Bingham county. Watered by Snake river, Birch creek, Teton river and several smaller streams.

St. Anthony is the county seat. Rexburg is in the heart of a fertile agricultural section.

IDAHO.

Northern. It is the largest county in the state. Population 6000 to 7000. All branches of agriculture, cattle raising and mining employ its people. Stock raising is a very important factor in this section.

Camas Prairie (North Camas) is a fine body of level land of about 600 square miles in extent.

The soil is a rich clay loam intensely black in color and rich in the elements of soil fertility. The agricultural land on the mountains is more clayey in character and of a reddish color.

The hardier classes of fruits do well on the prairie. On the warmer slopes and in the valleys (Clearwater and Salmon) peaches, apricots, melons, etc., are successfully grown.

Mt. Idaho is the county seat. Grangeville is the supply point for Elk City, Florence, Warrens, and other mining towns. Grangeville is sixty miles from Lewiston, the nearest freight depot. There is a daily stage connection. A new wagon road connecting Grangeville with Kendrick (on N. P. R. R.) is in process of construction. Cottonwood has a large pork packing establishment. Denver is located in a rich agricultural section. A portion of the Nez Perce Indian Reservation (recently thrown open to settlement) lies within this county.

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UTAH
MONTANA
WYOMING
HELENA
Butte
Missoula
Lewiston
Moscow
BOISE CITY
Idaho Cy.
Hailey
Ketchum
Bellevue
Idaho Falls
Pocatello
Shoshone
Montpelier
Blackfoot
Weiser
Nez Perces Ind. Res.
Ft. Hall Ind. Res.
Snake
Salmon
Shoshone Falls
American Falls
Malad Cy.
Oakley
Three Creek
Grand View
Dillon
Red Rock
Camas
Market Lake
Eagle Rock
Rock Cr.
Albion
Bridge
Thompson
Flathead
Deer Lodge Cy.
Anaconda
Boulder
Gallatin
Virginia City
Freedom
Warren
Challis
Clayton
Mountain Home
Nampa
Caldwell
Payette
Mayfield
Bonner's Ferry


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Ketchum
Shoshone
Challis
Grangeville
Weiser
Nez Perces Ind. Res.
Coeur d'Alene Ind. Res.
Ft. Hall Ind. Res.
SNAKE RIVER
Big Payette L.
Dillon
Bozeman
Virginia City
Montpelier
Malad Cy.
Shoshone Falls
American Falls
Salmon Falls
Mountain Home

KOOTENAI.

Most northern county. The name is of Indian origin. This section is often called the "pan handle of Idaho."

Area 5600 square miles. Population 6000. Surface is very diversified.

The leading industries are mining, lumbering and farming. Considerable attention is paid to fruit raising. Irrigation is not necessary.

Soils are sandy. Large deposits of muck are found along certain streams. This, with proper care in application, will prove to be a valuable fertilizer.

Situated in this county are several beautiful lakes. The largest are Pend d' Oreille and Coeur d' Alene. The largest streams are Spokane, Coeur d' Alene and St. Joseph rivers. Rathdrum on the main line of the N. P. R. R. is the county seat. Coeur d'-Alene (Fort Sherman) on the margin of the lake is an enterprising, as well as a beautiful place. It is on a branch line of the N. P. R. R. twenty eight miles from Spokane.

LATAH.

Northwestern. A favorite Indian name. Area 1100 square miles; population 14000. An agricultural county, the banner grain county of the state. Fruit interests are well developed throughout the county. Pears, apples, prunes and berries do well in every portion. The above named kinds, together with peaches, nectarines, grapes, etc., do well in the famous Potlatch district.

The soil is the rich deep black clayey loam characteristic of the Palouse country. The mountains are covered with good timber. The mountain soil is of the usual type and makes, when cleared of its original forest, good orchard sites.

Moscow is the county seat and largest town. It is eighty-seven miles from Spokane. Both Northern Pacific and O. R. & N. roads run into Moscow. The Idaho Agricultural Experiment Station, a department of the State University, is located here.

KOOTENAI.

Most northern county. The name is of Indian origin. This section is often called the "pan handle of Idaho."

Area 5600 square miles. Population 6000. Surface is very diversified.

The leading industries are mining, lumbering and farming. Considerable attention is paid to fruit raising. Irrigation is not necessary.

Soils are sandy. Large deposits of muck are found along certain streams. This, with proper care in application, will prove to be a valuable fertilizer.

Situated in this county are several beautiful lakes. The largest are Pend d' Oreille and Coeur d' Alene. The largest streams are Spokane, Coeur d' Alene and St. Joseph rivers. Rathdrum on the main line of the N. P. R. R. is the county seat. Coeur d'-Alene (Fort Sherman) on the margin of the lake is an enterprising, as well as a beautiful place. It is on a branch line of the N. P. R. R. twenty eight miles from Spokane.

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The Experiment Station farm (Thaer*) is one mile west of town. Kendrick and Juliaetta on the N. P. R. R. twenty-five miles southeast of Moscow are shipping points of the Potlatch fruit district. Genesee on the Uniontown branch of the N. P. R. R. is a grain center.

LEMHI.

Eastern. Created in 1869. Probably named in honor of a Mormon Prophet. Area 5500 square miles. Population 6000.

A mining county. The agricultural portion is the valleys of the Lemhi and Salmon rivers. The usual crops of grain, fruit and vegetables are raised. Considerable stock is kept on the native range. The mines consume most of the agricultural products.

Salmon City is the county seat. Nearest railroad station is Red Rock, Montana. A seventy mile stage line connects with Salmon City.

LINCOLN.

Southern. Created from Logan and Alturas, March, 1895. Named in honor of President Lincoln. Area ..... Population 2000.

Stock raising is the leading industry.

Soils, excluding those belonging to the valley class, are of the volcanic ash type. Irrigation is practiced.

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* Named in honor of Dr. Albrecht Thaer (born in Celle, Province of Hanover, May 14th, 1752; died at Moeglin, Prussia, Oct. 26, 1826.)

Thaer, although educated a physician, was an enthusiastic lover of farm life and did much to improve the condition of agriculture in his time. He was the founder of one of the first agricultural schools. He should be regarded as the father of the modern agricultural college.

His aim was to aid agriculture by the application of science in practice rather than in theory. His interest and perseverance is shown by the fact that, although, confined to his bed during the last year of his life his classes received instruction at his bedside.

A great factor in his success as a teacher of agriculture depended upon his ability to treat rich and poor alike. "He met all with a truly cordial and hospitable reception; he made no distinction between high or low, rich or poor, provided they conversed with him on agriculture or breeding of cattle, and had some knowledge of the subjects."

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Orchards of apples are doing well near Bliss.

Shoshone is the county seat. It is situated on the main line of the Union Pacific R. R. at the junction of the Wood River branch.

Nez Perce.

Named from an Indian tribe. Area ..... Population 9000.

Agriculture is the leading industry. In this county we have greater diversity in agricultural pursuits than can be found in any other county in the United States.

The altitude ranges from 600 to 3000 feet.

The fruit industry is very important. Peaches are an excellent crop. Large quantities of wine are made from the enormous crops of grapes. Owing to warm currents of air along the Snake and Clearwater rivers the necessary conditions are supplied for growing almost every kind of fruit.

The soils belong to the several classes peculiar to the state. Those of the valleys are fertile sands. The soil on the highlands south of the Clearwater, Tammany Flats, is very similar to those of the southern counties. The soil north of Lewiston (over the Clearwater) belongs to the "black clayey loam" class. The mountain soil does not differ from that found under similar conditions in other sections.

Oneida.

Southwestern. Area about 2,700 square miles. Population in the neighborhood of 7000.

Stock raising and general farming are the leading branches of agriculture. The best farming section is in the Malad Valley.

Malad city is on the Malad River, and is the county seat. It is 32 miles from Preston the nearest railroad station. At American Falls, Snake river descends one hundred and fifty feet in fifty yards. Here is a vast amount of water power awaiting development. Preston and Franklin are surrounded by agricultural communities.

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Southern. Area 7,800 square miles. Population 6,000. Most important industry is mining. Mines are rich in gold ore. The famous Delamar mine is near Silver City. The agriculture is represented by stock raising.

Silver City is the county seat. It is about fifty miles from Nampa, Canyon county (nearest railroad station); connected by daily stage.

Shoshone.

Northern. One of the oldest counties. Named from the Shoshone Indians. Area 4,400 square miles. Population 10,000.

Mining is the chief occupation. Farming section confined to the valleys. Farm products are sold in the mining camps.

The soil is very similiar to that common to northern Idaho.

Murray is the county seat. The famous Coeur d'Alene mines are in this county. Mullan, Wardner, Burke and Wallace are lively mining towns.

Washington.

West central. Named in honor of George Washington. Area 2700 square miles. Population 5000.

A county of wonderful natural resources. The leading occupations are farming (fruit and general), stock raising (mostly sheep) and mining. The agricultural lands are mostly confined to the valleys. The most prominent sections are near Weiser, Mann's Creek, Middle Valley, Salubria, Indian Valley, and Council Valley. In the lower altitudes at Weiser and Mann's Creek peaches, apricots and melons do nicely. At higher altitudes (Middle Valley, Salubria, Indian Valley, etc.) only apples can be grown. More honey is produced in Washington county than any other county in the state. Sheep are ranged in the mountains near Payette lakes during the summer and wintered on the lowlands where hay (alfalfa) can be secured abundantly and cheaply.

The principal mines are located at Mineral and in the Seven Devils district. Weiser on the main line of the Union Pacific is

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the county seat. Salubria thirty five miles from Weiser is an important trading point. A state wagon road runs from Weiser to Salubria, through the Seven Devils, crosses the mountains by way of Florence and comes out at Grangeville in Idaho county. This road is passable during the summer months.

B. *Natural Conditions.*

A. SOIL.—The soils of Idaho may be divided into four classes:

CLASS 1.—*Bottom or Valley Soil.*—Found along streams and old river beds.

CLASS. 2.—*Prairie soil (Plateau or Mesa.)*—Two kinds: (*a*) Black; a heavy clay soil peculiar to north Idaho and part of eastern Washington. (*b*) White; volcanic ash soil of south Idaho.

CLASS 3.—*Mountain Soil.*—Found on mountain slopes in all parts of the state.

CLASS. 4.—*(a) Alkali Soil.—(b)Foothill Soil.*

I. VALLEY SOILS.—This class is confined to the immediate neighborhood of streams.

It consists of rock material of varying degrees of fineness owing to the amount of erosion or attrition to which the substance has been subjected.

These soils have been deposited by the streams at some past time and often when the stream occupied a higher level. If the flow of the stream was rapid the particles of soil will be large and it is said to be gravelly. A sandy soil is where the particles are small. This variety is found where the current became very slow in its motion.

All kinds of rock material may be found in these soils; but the products of the granites being harder and more durable are often found in the majority.

Granite is composed of quartz, mica and feldspar. The two former are too common and too well known to need description. The feldspar is more important. There are several varieties of

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this mineral. The most important to agriculture are orthoclase (potash feldspar) and albite (soda feldspar). They are valuable on account of the potash and soda they yield.

These sandy soils are well drained soils, and hence ready for early work in spring. In late summer they are often affected by drought. The rapid percolation of water through them often times robs them of the elements of fertility. This explains the fact that these soils do not stand up well under continuous cropping. This is well shown in the soils in the Spokane and Snaker River valleys where there is a lack of phosphoric acid. H. S. Back of Cœur d' Alene City working under the direction of the Station has demonstrated that the application of small quantities of phosphates restores the soil to its original fertility.

The cheapest form of phosphates to use on these soils would be an application of raw bone meal in the fall or dissolved bone for spring crops. A good application of barnyard manure is the next best thing and in the long run probably the cheapest for Idaho farmers.

The largest bodies of this class of land are found in the following valleys:

300,000 acres in the Snake Valley.
250,000 acres in the Payette Valley.
180,000 acres in the Salmon Valley.
115,000 acres in the Boise Valley.
75,000 acres in the Weiser Valley.
48,000 acres in the Wood River Valley.
102,000 acres in the Bear River Valley.
160,000 acres in the Potlatch Valley.
102,000 acres in the Palouse Valley.
67,000 acres in the St. Joe Valley.
400,000 acres not given. (In small valleys.)
Total acreage 1,800,000.

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At these stations complete meteorological observations have been taken since the beginning of 1894. The data taken by the employees of the Experiment Station under the supervision of the Meteorologist is a contribution to the U. S. Weather Bureau. We are indebted to the "Monthly Weather Review" (a periodical publication of the U. S. Weather Bureau) for the tabulation of the results.

(a) TEMPERATURE.—Idaho has a reputation in the East of having an almost frigid climate. The following lines portray the feeling to a nicety:

IN JULY.

IT'S so tarnal roarin' hot
Things are sizzlin'. Ain't no air
Stirrin'; over in the lot
All the critters huddlin' there
'N under one ole spindlin' beech.
There's one locust somewhere round
Grindin' out a gaspin' screech,
An' there ain't no other sound.

I've fetched out a rockin'-cheer,
An' a mug o' lemonade,
An' a pa'm-leaf fan, out here
By the laylocks, in the shade
O' the north wing; got my vest
Off, an' barefoot—folks have b'en
Gawpin' at me—an' I 'm jest
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I was up in Idyho
Oncet, an' druv ten solid mile,
An' it twenty-nine below;
One my ears would freeze awhile,
An' then t' other; got my nose
Nipped, an' fingers, two er three;
Biggest part o' me was froze.
What few folks I met, there'd be

Great white frost-bit spots somewhere;
I was 'feerd my hoss 'd freeze
Right in his tracts; fer his hair
Sort o' riz up, an' his knees
Fa'rly shook; I did n't know
Whether we'd get home or not
'Fore we friz there in the snow
Stiffer 'n pokers—Gol! it 's hot!

Emma A. Opper.

These figures will show nearer the actual truth:

	Moscow.	Grangeville.	Idaho Falls.	Nampa.
Coldest day, 1894,	— 8	— 3	—28	— 7
" " 1895,	— 1	2	—32	2
Hottest day, 1894,	96	95	96	102
" " 1895,	96	92	94	102

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This table shows the maximum and minimum temperatures for these years in other parts of the United States in the same latitude. It is useful for the purpose of comparison.

Station.	Altitude.	Highest Temp.		Lowest Temp.	
		1894	1895	1894	1895
Portland, Maine	103	97	93	—14	—11
Northfield, Vt.	872	93	90	—31	—17
Boston, Mass.	125	97	96	— 7	— 6
Albany, N. Y.	85	97	97	—11	—12
Rochester, N. Y.	323	99	94	— 8	— 8
Cleveland, O.	740	92	94	0	— 6
Duluth, Minn.	656	94	89	—24	—27
Bismark, N. D.	1681	42	98	—33	—39
St. Paul, Minn.	850	100	96	—25	—26
La Crosse, Wis.	720	101	97	—19	—24
Des Moines, Iowa.	869	104	98	—27	—18
Pierre, S. D.	1470	108	106	—28	—27
Helena, Mont.	4108	95	94	—26	—17
Miles City, Mont.	2374	103	101	—30	—32
Cheyenne, Wy.	6105	94	92	—17	—20
Lander, Wy.	5377	94	91	—28	—28
Baker City, Ore.	3430	94	94	— 7	— 3
Spokane, Wash.	1930	98	95	— 2	8
Walla Walla, Wash.	1018	108	104	6	11
Seattle, Wash.	119	88	90	21	27
Portland, Ore.	157	94	97	18	25
Moscow, Idaho	2500	96	96	— 8	— 1
Grangeville, Idaho	3500	95	92	— 3	2
Idaho Falls, Idaho	4742	96	94	—28	—32
Nampa, Idaho	2750	102	102	— 7	2

Rainfall.—The sensible moisture of the air may be in form of rain or snow and is noted as precipitation.

Besides the air currents, rainfall is influenced by mountains, forests, etc.

This is the reason why the precipitation is heavier in the foothills than on the open plain.

The rainfall during the year 1894 at the above mentioned sta-

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tions is expressed in tabular form. The amount is stated in inches.

1894.	Moscow.	Grangeville.	Idaho Falls.	Nampa.
January	6.01	4.86	1.81	.99
February	3.10	1.37	1.16	.87
March	3.43	3.37	2.24	.74
April	1.38	1.85	1.55	1.84
May	1.53	2.30	1.34	1.92
June	1.23	4.65	2.27	.27
July	.12	.66	.07	.08
August	.38	.25	.58	.02
September	.90	3.39	1.13	.41
October	3.80	3.62	1.28	1.69
November	2.21	1.25	.03	.06
December	1.15	2.04	1.16	1.27
Total,	25.34	29.61	14.62	10.16
Average,	2.11	2.46	1.21	.84

Altitude.—Agriculture in Idaho is practiced at altitudes ranging from a few hundred feet at Lewiston to nearly 6000 in Bear Lake and Custer counties.

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This wide range permits of great variety in agricultural products.

The altitudes of the more important sections are given below.

TOWN.	COUNTY.	ELEVATION. FEET.
Albion	Cassia	4400
American Falls	Oneida	4320
Atlanta	Elmore	5525
Bellevue	Blaine	5200
Bennington	Bear Lake	5798
Blackfoot	Bingham	4523
Bloomington	Bear Lake	5985
Boise	Ada	2800
Big Camas Prairie	Alturas	5000
Big Camas Prairie	Idaho	3500
Bonanza	Custer	6400
Burke	Shoshone	3900
Caldwell	Canyon	2372
Clifton	Oneida	4893
Centerville	Boise	4825
Challis	Custer	5400
Custer	Custer	6560
Franklin	Oneida	4516
Fish Haven	Bear Lake	5932
Florence	Idaho	8000
Granite Valley (head)	Bannock	5245
Georgetown	Bear Lake	5800
Glenn's Ferry	Elmore	2564
Hailey	Blaine	5350
Idaho Falls	Bingham	4720
Idaho City	Boise	4263
Ketchum	Blaine	5700
Lewiston	Nez Perce	680
Lapwai	Nez Perce	2000
Long Valley		3700
Liberty	Bear Lake	6060
Murray	Shoshone	2750
Malad City	Oneida	4700
Market Lake	Fremont	4795
Montpelier	Bear Lake	5793
Nampa	Canyon	2487
Oneida	Bannock	5700

This wide range permits of great variety in agricultural products.

The altitudes of the more important sections are given below.

TOWN.	COUNTY.	ELEVATION. FEET.
Albion	Cassia	4400
American Falls	Oneida	4320
Atlanta	Elmore	5525
Bellevue	Blaine	5200
Bennington	Bear Lake	5798
Blackfoot	Bingham	4523
Bloomington	Bear Lake	5985
Boise	Ada	2800
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TOWN.	COUNTY.	ELEVATION. FEET.
Ovid	Bear Lake	5760
Oxford	Bannock	4862
Paris	Bear Lake	5836
Pocatello	Bannock	4512
Quartzburg	Boise	5115
Rathdrum	Kootenai	2000
Rocky Bar	Elmore	5200
St. Charles	Bear Lake	5932
Salmon	Lemhi	4030
Shoshone	Lincoln	3973
Weston	Oneida	4600
Weiser	Washington	2340

NOTE.--The above figures are taken from report of Governor (Shoup) of Idaho for 1889; Union Pacific Time Card and the United States Geological Survey of Idaho (Hayden).

POPULATION AND MARKETS.—The population of Idaho, today, is about 150,000. The heads of the families are mostly engaged in farming, mining, commercial business and light mechanics.

We have plenty of raw material but only a few factories.

For the next twenty years Idaho must rank as an agricultural and mining state. We can produce from our mines and fields an almost inexhaustable supply of metals and meals.

Our greatest need is a market for our produce.

The favored farmer who resides near a mining camp sells his produce to a profit. The distant farmer cannot compete with him. The community that can produce enough fruit or other products to ship by the carload to the mines of Montana or eastearn cities like Chicago receive handsome returns. The profits of small lots are eaten up by transportation charges. These are the conditions that, to a great extent, elect special instead of diversified systems of farming. Diversified farming is all right pro-

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THE EXPERIMENT STATION.—*Object.*—The Experiment Station is operated under the Hatch Act of 1887.

It was organized October, 1892, and has since remained a department of the State University at Moscow.

The laboratories of the Station are located in the University buildings. Until within the last few months the only facility at the University for agricultural experiments was the campus. This was entirely too small and irregular in location and character to produce good results.

The original idea was to conduct the experimental work on farms situated in several parts of the state, and representing the various types of soil and climatic conditions. Accordingly three tracts of land were secured (by donation from the citizens of the respective localities) and organized as "Experimental Stations".

No 1 was located one and one-half miles east of Grangeville in Idaho county. Altitude 3500 feet. Soil a heavy black clay.

No. 2 was located three miles south of Idaho Falls in Bingham county. Altitude 4500 feet. Soil is sandy (old river bed of Snake). Irrigation is necessary.

No. 3 was located one mile east of Nampa in Canyon county. Altitude 2487 feet. Soil of volcanic origin, white, with hard white subsoil or hard pan.

Each farm was a quarter section. Two of them were (at time of organization) covered with sage brush. The Grangeville farm had been under cultivation for several years.

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B. Experimental.

PART I: Garden Crops.

[Bulletin, No. 10.]

1 ARTICHOKE. *Globe Artichoke. Cardoon.*

(*a*) *Description.* A large thistle-like plant belonging to the natural order *Compositæ*.

In the warmer parts of Europe it has been grown as a vegetable for several centuries. In South America it has become naturalized and causes considerable trouble as a weed.*

(*b*) *Culture.* Requires a rich and rather loose loamy soil with plenty of moisture during the growing season. Plants should not be shaded. The start is obtained by planting the seed. Succeeding plantations may be propagated by means of suckers obtained from old plants. The rows should be at least 3 feet apart. The distance between the plants about 30 inches. The plant being a perennial, considerable care should be given to the preparation of the bed. The cultivation should be deep. Future fertility must be maintained by heavy applications of manure. Weeds must be kept down and the ground loosened by cultivation during the growing season.

During the cold season (in this latitude) the plants must be covered with straw. The plantation at the University was killed out by the rather mild winter of 1894—95.

The crop of the first year will be light. After the first season the average yield will be about 6 good heads per plant. Plantation will last about five years.

*DECONDOLLE—*Origin of Cultivated Plants.*

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(*c*) *Varieties.* There are two types as determined by the shape of the heads. In one class the head is conical and in the other the shape is globular.

The best variety is the "Large Green."

(*d*) *Economic Use.* The plant yields three products:

(1) The scales of the undeveloped flower heads.

(2) Chards.

(3) Gobbo.

(1) HEADS: This is considered the most important product. The yield has been stated above. The bottoms and scales of the head are used.

Prepare as follows:

Trim off the hardest bottom leaves and remove the inside of the head (choke). The remainder of the head is boiled until the leaves (scales) pull out easily. Cut into halves or quarters and serve with White Sauce.

FOOD (page 183) gives this receipt for Stuffed Artichokes.

"Trim and wash four artichokes, remove the choke found in the center. Make a stuffing of bread crumbs nicely seasoned with a preparation made as follows: Mince half a pound of ham, warm it, and add a dozen canned mushrooms chopped fine, a teaspoonfull of chopped parsley, a few blades of chives, salt and pepper. Add the crumbs and moisten with clear soup or hot water; work all to a paste, and fill the artichokes with it. Tie each artichoke neatly, put them in a pan with a little butter to prevent burning and a pint of clear soup, cover the pan and let them steam in their own vapors until tender."

(2) CHARDS: After the first heads are removed cut back the leaves and stems to within a few inches of the ground. When the new shoots have reached a height of 18 to 24 inches tie them in bunches and blanch with straw and earth. The

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blanching process will require about six weeks. The blanched leaves are known as "chards" and are used for salads, etc.

(3) GOBBO. Italian gardeners bend the stems down to a right angle and cover as in blanching. There is formed on the stem an enlargement. This lump is eaten raw with salt and forms a substitute for radishes. It is known as *Gobbo*.

2 ARTICHOKE, JERUSALEM.

Historical and Descriptive: This plant belongs to the same botanical family as the preceding. It is closely related to, and resembles the wild sunflower. It is probably a native of North America. Early colonial writers mention it as a food much used by the Indians. According to DeCondolle the English name is due to a corruption of the Italian, *Girasole*, sunflower combined with an allusion to the artichoke flavor of the root.

In general appearance the plant is rather coarse looking; grows to a height of 5—6 feet; leaves rather large; stems branching; flowers sulphur yellow.

Cultivation. Will grow in almost any situation. Prepare ground in spring (young plants will stand more frost than potatoes). Plant 3 feet apart in rows of the same distance, using one tuber or two pieces (with eyes) to the hill. Furrows should be rather deep; cover with four or five inches of soil. Cultivate same as potatoes.

Harvest as soon as growth is checked by frost.

Store in root cellar or cover with earth to prevent freezing. When exposed to air for a time the tubers turn black. When frozen, unless in the ground, they spoil rapidly. When designed for stock hogs it is better to leave crop in ground and let the hogs dig the tubers. This will give plenty of exercise, and keep the stock healthy.

Harvest the crop cleanly or a volunteer crop will give trouble in the future. The tops should be burned or composted.

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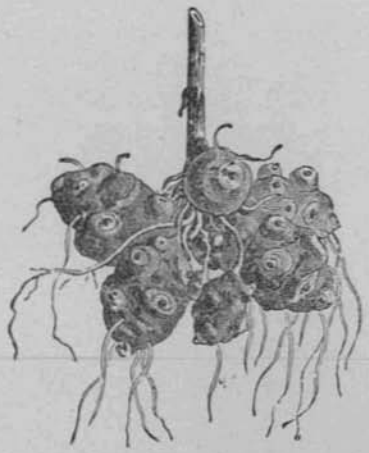
Varieties: The varieties are determined by the color of the tubers. There are white, red and purple kinds.

Yield: Our experiments were conducted with the white variety.

On upland clay soil in North Idaho we secured a yield of 500 bushels per acre.

At Idaho Falls, on sandy soil, the yield in 1894, was 427 bushels; in 1895, the yield was 312 bushels; in 1896, the yield was 509 bushels.

The average time to grow crop was a little over 5 months.



The crop was not regularly irrigated but received some waste water.

On the volcanic ash soil at Nampa, one-half bushel of seed produced 412 pounds, or at the rate of 220 bushels per acre.

The crop was cultivated once and irrigated five times.

Enough remained in the ground to produce a yield of 218 bushels per acre the following year.

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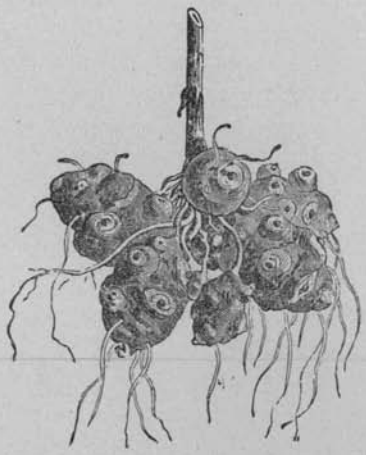

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"Wash and scrape the artichokes, throw them into cold water, and soak two hours, then cover them with boiling water, and boil until tender; watch closely or they will harden again. Serve with cream sauce."—[Mrs. Rorer's Philadelphia Cook Book, Arnold & Co., Philadelphia.]

Pickled Artichokes. Boil the artichokes as directed in preceding recipe, drain and put them in a stone jar. To every quart of artichokes allow one pint of cider vinegar, one bay leaf, one slice of onion, four whole cloves, and a blade of mace. Put the vinegar in a porcelain-lined kettle with all the other ingredients, stand it over a moderate fire, and bring slowly to boiling point, then pour it over the artichokes, and stand away to cool. They will be ready to use in twenty-four hours, and will keep two weeks. —[Mrs. Rorer's Philadelphia Cook Book, Arnold & Co., Philadelphia.]

Cream of Artichokes:—Melt two ounces of butter in a sauce pan and fry in it half an onion, two young turnips, and a quart of Jerusalem Artichokes, peeled and sliced. Add gradually a quart of clear soup, and simmer until the vegetables are tender, add one pint more of stock, salt and pepper to taste, strain and press the vegetables through a seive. Keep warm on stove. Beat the yolks of two eggs, add to them a pint of luke warm milk; when hot serve.—[Food, page 148.]

3. BEANS.

(*a*) *Descriptive.* This important vegetable belongs to the legume family (nitrogen gatherers). Its native home is not definitely known. Certain kinds are supposed to have come from Southern America (DeCondolle).

Members of the genus Faba probably came from Egypt.

The several kinds of beans may be divided into two groups.

Group I. The True Beans (Phaseolus vulgaris).

Group II. Broad or English Beans (Vicia faba).

The members of the first group are more important and are too

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Class A. Bush or Dwarf Beans.

Class B. Pole or Running Beans.

The Bush class may be again sub-divided into (a) Green Podded Varieties, (b) Yellow or Wax Podded Vatieties, and (c) Bush Lima.

The Broad beans are grown mostly in England. In this country they have not received the attention that they merit. In growth and general appearance they differ materially from the members of the preceding groups.

The stems are large with an upright growth. Height 3–4 feet.

The seeds are large flat disks. There are two classes, viz: "White Seeded" and "Green Seeded."

The Lima varieties are distinguished by the short wide pods and large flat seeds. There are two classes, viz: Pole Lima and Bush Lima. They do not do well in this section.

(b) *Culture:* Select a warm situation for the crop. Soil should be, at least, moderately rich. Prepare soil as for other garden crops. For a field crop mark out rows far enough apart for horse cultivation. For bush varieties the seeds should be 2–4 inches apart. Broad beans should be 9–12 inches apart. Plant the pole varieties in hills two feet apart.

Do not plant until all danger of frost is past.

Give plenty of level cultivation.

Harvest by pulling or cutting the vines.

If rain threatens store in open piles under shelter.

Thresh with machine, or tramp out with horses. Small quantities may be beaten out with a flail. Clean with a fanning mill.

Varieties. The varieties selected will be an important factor in being successful with the crop.

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The results of varietal tests covering a period of three years are now given.

BROAD BEANS.

Moscow. The best variety is the Broad Windsor. The Large Lima, (not a true lima) is a larger bean, but not so productive. It is also a few days later. The yield of the Broad Windsor in 1896, was seven bushels per acre.

LIMA BEANS.

(*a*) *Bush Lima. Moscow.* Representative varieties were planted in 1894, 95, 96.

Killed by frost the first two seasons.

Failed to mature in 1896.

No data reported from sub-stations.

(*b*) *Pole Lima. Moscow.* Out of a dozen varieties planted June 10th, 1896. Only one, Horticultural Lima, matured. It yielded at the rate of 13 bushels per acre.

The bean crops of 1894-95 were destroyed by frost.

Nampa. In 1894 six varieties were planted May 15th. Only one, Child's Lima, matured. The yield was 50 pounds per acre.

POLE OR RUNNING BEANS.

Moscow. Crop of 1894 was a failure on account of the combined influence of frost and drought. The plats were located on a south hillside where the soil was rather poor.

The crop of 1895 was injured by the frost during the latter part of May. Only a partial stand was secured and not enough to give exact figures as to yield.

In 1896 sixteen varieties were planted June 10th. Eleven of these failed to mature. They were:–Burpee's Sunshine Wax, Giant Red Wax, Golden Cluster Wax, Horticultural or Wren's Egg, Improved Prolific Dutch Runner, Lazy Wife, Red Speckled Cut

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In 1896 sixteen varieties were planted June 10th. Eleven of these failed to mature. They were:–Burpee's Sunshine Wax, Giant Red Wax, Golden Cluster Wax, Horticultural or Wren's Egg, Improved Prolific Dutch Runner, Lazy Wife, Red Speckled Cut

Short, Scarlet Runner, White Dutch Case Knife, White Dutch Runner, Yard Long or Cuban.

Idaho Falls. Crop planted May 26, 1894. None ripened on account of gophers and rabbits. Only the earlier varieties are adapted to this locality. The following, given in order of earliness, are sutiable to plant for string beans: White Creaseback, Lazy Wife and Dutch Case Knife.

Nampa. Crop planted May 14, 1894.

	Color.	Shape.	Size.	Yield pr acre
Dutch Caseknife	White	Kidney.	Large	⅓ bu.
Early Golden Cluster Wax	.....	.....	.....	⅙ bu.
Giant Red Wax	.....	.....	.....	½ bu.
Horticultural Cranberry	Speckled	.....	Large	½ bu.
Kentucky Wonder	Dun	Kidney.	Medium	5⅓ bu.

The Scarlet Runner did not mature.

1896. Owing to wet weather at the time of planting the ground baked and only a very poor stand was secured. Kentucky Wonder yielded at the rate of 1⅙ bushels per acre. White Creaseback yielded at the rate of 2¼ bushels per acre.

The following table gives the yield and other data of the varieties maturing. The yield per acre is estimated on a row 20 feet long, the rows being 30 inches apart.

Name of Variety.	Color.	Shape.	Size.	Yield pr acre
Burpee's White Zulu	Black	Flat	Large	10 bu.
Cornfield Runner	White	Kidney	Small	21 bu.
Kentucky Wonder	Dun	Kidney	Medium	24 bu.
New Golden Wax Flageolet	Dark Red	Kidney	Medium	11 bu.
White Creaseback	White	Kidney	Small	23 bu.

Short, Scarlet Runner, White Dutch Case Knife, White Dutch Runner, Yard Long or Cuban.

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The shortest period required to mature crops was 103 days (Cornfield Runner).

The longest period required to mature crop was 124 days (Kentucky Wonder.)

Grangeville: *General Statement Concerning All Varieties*—1893. Number of varieties not given. All ripened prematurely in August.

1894—Ten varieties. Destroyed by frost June 10, 11th.

1895.—Fifty-five kinds (including synonyms) planted. Thirty-six of these matured.

Those failing to ripen are:—Prolific German Wax, Cut Short or Corn Hill, Golden Cluster Wax, Ex. Early Jersey, Yard Long, Black Eyed Wax, Violet Flageolet, King of Garden, Kidney Shaped Lima, Dreer's Improved Lima, Mammoth Pod Lima, Kidney Shaped Lima, Dreer's Bush Lima, New Bush Lima, Large White Lima, Challenger Lima, Scarlet Runner and White Runner.

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Those maturing yielded as follows:

Name of Variety.	Yield in oz., row 33 feet.
Pride of Newton	19½
White Creaseback	16
Improved Dwarf Horticultural	26
Round Pod Six Weeks	23
Best of All Dwarf	37
Prolific German Wax	30
Kentucky Wonder	12
Southern Prolific	14
Speckled Cranberry	12
Yosemite Mammoth Wax	2
Rust Pro. of Golden Wax	19
German Black Wax	11
Refugee	19
Black Eyed Wax	6
Early Warwick	18
Detroit Wax	4
Long Yellow Six Weeks	22
Prolific Tree	4
Ferry's Golden Wax	21
Golden Eyed Wax	18
Wardwell's Kidney Wax	21
Crys of White Wax	20
Speckled Wax	18
Extra Early Round Pod Valentine	23
White Seeded Wax	12
Challenger Black Wax	18
White Valentine	16
Early Mohawk	24
Giant Red Wax	4
White Marrow or Flageolet Wax	36
Broad Windsor	34
Royal Dwarf	18
Extra Early Refugee	18
White Dutch Caseknife	20
Lazy Wife	24
Emperor William	8

Bush Beans.

Green Podded Varieties. Moscow.—In 1896, the following results were obtained:

Name of Variety.	Yield in oz., row 33 feet.
Pride of Newton	19½
White Creaseback	16
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Refugee	19
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VARIETY.	DESCRIPTION OF SHELLED BEANS.			NO. DAYS TO MATURE.	YIELD PER ACRE.
	COLOR.	SHAPE.	SIZE.		
Best of all	Cream, red speckled	Kidney	Medium	111	13 bu
Canadian Wonder	Dark scarlet	Long Kidney	Large	106	16 bu
China Red Eye	White, red eyed	Thick Kidney	Medium	91	16 bu
Cranberry	Dark scarlet	Plump	Medium	100	26 bu
Early Mohawk	Dark, speckled	Kidney	Medium to large	108	19 bu
Early Warwick	Red, speckled	Plump	Medium	91	20 bu
Emperor William	White	Flat	Medium	101	13 bu
Ex. Ea. Round Pod Valentine	Red, speckled	Kidney	Medium	92	18 bu
Goddard or Boston Favorite	Cream, red speckled	Kidney	Large	122	16 bu
Improved Dwarf Horticultural	Cream, red speckled	Plump	Large	92	22 bu
Improved Navy	White	Plump	Small	97	16 bu
Improved Tree	White	Plump	Small	110	.....
Long Yellow Six Weeks	Straw	Kidney	Medium	84	19 bu
New Champion	Scarlet	Plump	M large	98	17 bu
New Prolific Tree	White	Plump	Small	106	16 bu
Ne Plus Ultra	Yellow ochre	Kidney	Medium	83	17 bu
Pride of Newton	Straw	Kidney	Medium	81	19 bu
Prolific Tree	White	.....	Small	126	22 bu
Red Valentine	Red, speckled	Kidney	Medium	91	18 bu
Refugee, Round Podded	Dark blue or cream	Plump Long	Small	106	18 bu
Extra Early Refugee	Blue, speckl'd	Kidney	Medium	83	20 bu
Round Six Weeks	Straw	Short	Medium	87	18 bu
Small Red Cranberry	Pale scarlet	Short	Medium	106	43 bu
New Stringless	Brown	Kidney	Medium	100	15 bu
White Marrow	White	Very pl	Medium	106	21 bu
White Marrowfat	White	Plump	" to sm.	102	15 bu
White Valentine	White	Kidney	Medium	106	.....

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Summary: Number of plats grown 72. Number of varieties represented 27. Highest yield was 43 bu. per acre. (Small Red Cranberry.) Lowest yield was 13 bu. per acre. (Best of All.) Longest period required to mature crop was 126 days. (Prolific Tree.) Shortest period required to mature crop was 81 days. (Pride of Newton).

Idaho Falls: Ten varieties were planted in 1894. The following were fit for use as string beans before August 20th.:

Low's Champion, Yellow Six Week's, Improved Red Valentine, Refugee, Jackson's Wonder, and Boston Favorite.

Nampa: 1894. Eleven varieties were planted May 15th. Cultivated twice and irrigated four times. Very poor crop. These yields were obtained in 1896.

Royal Dwarf Kidney yielded 20 lbs per acre. China Red Eye yielded 70 lbs per acre. Improved Navy yielded 175 lbs per acre. The soil was wet and baked hard.

BUSH BEANS.

Wax Podded Varieties. Moscow. 1896. Forty-one plats were planted June 9 and 10. Those synonyms which are similarly named are averaged up. Others which are propably synonyms are arranged together in the table.

Summary: Number of plats grown 72. Number of varieties represented 27. Highest yield was 43 bu. per acre. (Small Red Cranberry.) Lowest yield was 13 bu. per acre. (Best of All.) Longest period required to mature crop was 126 days. (Prolific Tree.) Shortest period required to mature crop was 81 days. (Pride of Newton).

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VARIETY.	DESCRIPTION OF SHELLED BEANS.			NO. OF DAYS TO MATURE.	YIELD PER ACRE.
	COLOR.	SHAPE.	SIZE.		
Dw'f German Bl' W'x	Jet Black.....	Kidney	Medium	92	15 bu
New Prol'fc Ger. Wax	" "	"	"	96	18 bu
Burp's Sad'l B'k Wax	" "	"	"	99	23 bu
German Black Wax..	Bluish Black..	"	"	79	20 bu
Prolific German Wax	" " ..	"	"	79	26 bu
Chal'ngr Dw'f B Wax	" " ..	"	"	80	29 bu
Flageolet Wax.....	Brownish Bl'k	"	Large..	106	14 bu
Burp's Perfect'n Wax	" "	"	"	96	10 bu
Yosemite Mam. Wax..	Black.....	"	Medium	122	6 bu
Scarlet Flageolet Wax	Dark Scarlet..	L'ng K'y	Large..	103	15 bu
Speckled Wax.....	Flesh, speckl'd	Kidney	Medium.	99	18 bu
Black Eyed Wax	White bl. eyes	"	"	89	14 bu
Keeney's Rustless Golden Wax.....	White and blue	"	"	96	16 bu
Detroit Wax.....	" purple eyes	Plump..	"	86	22 bu
Ferry's Golden Wax..	" " "	"	"	85	16 bu
Rust Pro. of " "	" " "	"	"	85	17 bu
Dwarf Golden Wax..	" " "	"	"	87	16 bu
Kidney Wax	White pur. eye	Kidney	"	95	16 bu
Golden Eyed Wax.....	" and golden	"	"	84	15 bu
Crystal White Wax.....	White		Small...	84	13 bu
White Seeded Wax.....	"	Short ...	Small...	94	18 bu
New Dw'f W'x (Burpee)	"	Plump ..	Medium	122	24 bu
Blue Podded Butter...	Ash.....	Flat Kid'	Medium	122	24 bu

Summary of Results: Number of plats grown, 41. Varieties represented, 23. Highest yield was 26 bushels per acre (Prolific German Wax). Lowest yield was 6 bushels per acre (Yosemite Mammoth Wax). Time to mature crop varied from 79 days (German Black Wax) to 122 days (New Dwarf Wax).

Idaho Falls. 1894. The Black Eyed Wax, Challenger Black Wax, Speckled Wax, Giant Yosemite Wax and Dwarf Golden Wax are recommended in the order named.

Nampa. 1894. The entire crop was a failure. Reason not reported.

Economic Use.—A very important food.

Certain varieties of Broad Beans are fed to horses.

The kinds most highly prized as food for man belong to the

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Burp's Sad'l B'k Wax	" "	"	"	99	23 bu
German Black Wax..	Bluish Black..	"	"	79	20 bu
Prolific German Wax	" " ..	"	"	79	26 bu
Chal'ngr Dw'f B Wax	" " ..	"	"	80	29 bu
Flageolet Wax.....	Brownish Bl'k	"	Large...	106	14 bu
Burp's Perfect'n Wax	" "	"	"	96	10 bu
Yosemite Mam. Wax..	Black.....	"	Medium	122	6 bu
Scarlet Flageolet Wax	Dark Scarlet..	L'ng K'y	Large..	103	15 bu
Speckled Wax.....	Flesh, speckl'd	Kidney	Medium.	99	18 bu
Black Eyed Wax	White bl. eyes	"	"	89	14 bu
Keeney's Rustless Golden Wax.....	White and blue	"	"	96	16 bu
Detroit Wax.....	" purple eyes	Plump..	"	86	22 bu
Ferry's Golden Wax..	" " "	"	"	85	16 bu
Rust Pro. of " "	" " "	"	"	85	17 bu
Dwarf Golden Wax..	" " "	"	"	87	16 bu
Kidney Wax	White pur. eye	Kidney	"	95	16 bu
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Idaho Falls. 1894. The Black Eyed Wax, Challenger Black Wax, Speckled Wax, Giant Yosemite Wax and Dwarf Golden Wax are recommended in the order named.

Nampa. 1894. The entire crop was a failure. Reason not reported.

Economic Use.—A very important food.

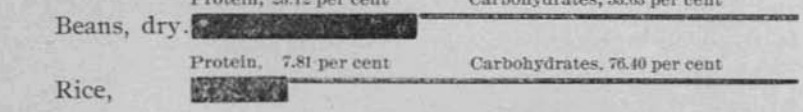
Certain varieties of Broad Beans are fed to horses.

The kinds most highly prized as food for man belong to the

"kidney shaped" group. Its great value as a food depends upon the high per centage of protein (flesh or muscle forming ingredient.)

In rice the carbohydrates (heat formers) predominate.

This is well shown by the following diagram:



BEAN RECIPES.

STRING BEANS:—Remove carefully all the strings; cut the beans into one-quarter inch pieces, laying a number together, and cutting a number at one time; or cut each bean lengthwise into four strips, and lay them evenly together. Place them in salted boiling water, and boil uncovered until tender; drain off the water, and season with salt, pepper and butter, or mix with them just enough white sauce to coat them well."—[Century Cook Book—Mary Ronald. The Century Co., N. Y. City, Publishers.]

BEAN SOUP:—"Soak some beans over night, boil for one hour; add an onion when nearly soft, rub them through a colander into a tureen into which have been already placed some onions fried in butter or lard, and add water if too thick."

BOSTON BAKED BEANS:—[Mrs. E. C. Langworthy, Favorite Dishes.] Soak one quart of small, dry beans over night. Parboil in the morning and place in earthen jar, with salt and pepper to taste. Add one-half teaspoon soda and two tablespoons of molasses; also add a small piece of salt pork. Cover with water and bake eight hours, adding boiling water as needed.

BOILED BEANS:—One pint of beans, 1 oz. of butter and 1 tablespoon of chopped parsley. Soak beans over night. Put them into a sauce pan with three pints of cold water and one teaspoon of salt. Boil gently for two hours, and strain. Melt the butter in a sauce pan, add the beans, sprinkle the parsley over and shake

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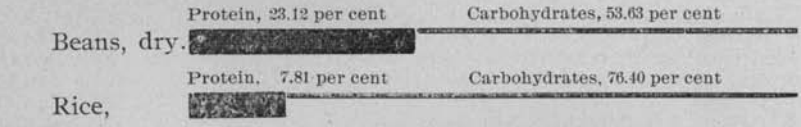

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the pan over the fire for a few minutes, then serve.—[Cookery: Amy G. Richards. E. M. Renouf, Montreal.]

STEWED BEANS:—Two pints of boiled beans, 1 gill of brown sauce, 2 ozs. of fat bacon and 1 small onion. Cut the bacon into dice, pour boiling water over it, stand five minutes, then drain, and brown in a stew pan, add the minced onion (which should be first boiled five minutes) and sauce. Cook slowly ten minutes, add the beans and cook ten minutes longer.—[Cookery: Amy G. Richards. E. M. Renouf, Montreal.]

BEAN CROQUETTES:—One pint of white soup beans, 1 tablespoon of molasses, 1 tablespoon of vinegar, 1 tablespoon of butter. Salt and cayenne to taste. Boil the beans as in recipe for "boiled beans." "When done, drain, and press the beans through a colander, then add the other ingredients. Mix well and stand away to cool. When cold form into small balls, drip first in egg and then in bread crumbs, and fry in boiling fat."—[Mrs. Rorer's Cook Book.—Arnold & Co., Philadelphia, Pa.]

PUREE OF BEANS:—One quart dried beans, 1 bay leaf, 1 carrot, 1 pound ham, 1 onion, 1 tablespoon of butter, salt and pepper to taste. Wash and soak the beans in lukewarm water over night. In the morning, drain, cover with fresh cold water, boil one hour, drain again, and just cover again with fresh boiling water, add a quarter teaspoon of bicarbonate of soda, the ham, bay leaf, onion and carrot; boil until they mash easily under light pressure. When done, remove the ham and press the beans through the colander. Return them to the kettle, add the butter and sufficient cream to make the puree the desired thicknsss. Season with salt and pepper, let boil once and serve.—[Mrs. Rorer's Cook Book. Arnold & Co., Philadelphia, Pa.]

STRING BEANS IN SALAD:—String the beans and boil them whole; when boiled tender, and they have become cold, slice them lengthwise, cutting each bean into four slices; place them neatly, the slices all lying in one direction, crosswise on a platter. Sea-

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LIMA BEANS.—Put the beans into salted boiling water, and cook until tender, then drain off the water. Moisten them with butter, and season with salt and pepper; and add, if convenient, a little hot cream, or cover with white sauce.—[Mary Ronald's Century Cook Book. The Century Co., New York City.]

ASPARAGUS.

Descriptive:—This popular and valuable vegetable needs but very litte description. It is a native of Europe, where it may be found growing wild along the borders of sea marshes. Certain species are grown as ornamental plants. The undeveloped stem is the part used as food.

Culture: Propagated by means of seed. The seed may be bought of seed dealers or taken from the small red berries found in autumn upon the mature stems of old plants. If the latter method is adopted proceed in the following manner: Select the largest and nicest branches; pick off the berries and gently mash; wash out the pulp with water and dry the seed. Sow the seed in early spring in rows wide enough to permit cultivation.

Plants should stand about 3 to 5 inches apart. Select a rather rich soil for the seed bed.

The young plants may be transplanted in the permanent bed the following spring, or the transplanting may be deferred until the second spring.

Too much care can not be given to the preparation of the permanent bed. Select an open situation where plenty of sunshine falls. Naturally, the plant prefers a damp situation, but can be made to thrive very well on dry soil if proper cultivation is given. The soil should be rich. Subsoil or trench the bed, adding large quantities of manure (well rotted cow dung is preferred).

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LIMA BEANS.—Put the beans into salted boiling water, and cook until tender, then drain off the water. Moisten them with butter, and season with salt and pepper; and add, if convenient, a little hot cream, or cover with white sauce.—[Mary Ronald's Century Cook Book. The Century Co., New York City.]

ASPARAGUS.

Descriptive:—This popular and valuable vegetable needs but very litte description. It is a native of Europe, where it may be found growing wild along the borders of sea marshes. Certain species are grown as ornamental plants. The undeveloped stem is the part used as food.

Culture: Propagated by means of seed. The seed may be bought of seed dealers or taken from the small red berries found in autumn upon the mature stems of old plants. If the latter method is adopted proceed in the following manner: Select the largest and nicest branches; pick off the berries and gently mash; wash out the pulp with water and dry the seed. Sow the seed in early spring in rows wide enough to permit cultivation.

Plants should stand about 3 to 5 inches apart. Select a rather rich soil for the seed bed.

The young plants may be transplanted in the permanent bed the following spring, or the transplanting may be deferred until the second spring.

Too much care can not be given to the preparation of the permanent bed. Select an open situation where plenty of sunshine falls. Naturally, the plant prefers a damp situation, but can be made to thrive very well on dry soil if proper cultivation is given. The soil should be rich. Subsoil or trench the bed, adding large quantities of manure (well rotted cow dung is preferred).

If the plantation is large the rows should be at least 2 feet apart. Put the plants 12 inches apart.

The roots of the plant must be spread out equally in all directions. This is best attained by constructing a small mound of earth in the center of the hole, place the plant upon the top of the mound and let the roots extend down the sides. Cover with earth and firm with the foot. The crown of the plant should be two inches under ground. During the growing season cultivate and keep down all weeds. At end of season cut off the tops and cover the bed with coarse manure. Remove the litter in early spring. Cut the young shoots at the surface of the ground using a strong bladed knife.

Varieties: The following varieties do well: Barr's Mammoth, Conover's Collossal and Palmetto.

May be prepared for table use in several ways.

ASPARAGUS SOUP.

"Take 50 heads of asparagus—one quart white stock—pepper and salt, and one small lump of sugar. Soak the asparagus, in water, cut off the heads and boil till tender. Boil together the stock and stalk, rub through a seive, add the asparagus heads, seasoning and cream, and boil." [COOKERY:—Amy G. Richards. E. Renouf, Publisher, Montreal.]

CREAM OF ASPARAGUS SOUP:

"Requires one bunch of asparagus, one quart of milk, two tablespoonfuls of corn starch or flour, one tablespoonful of butter, salt and pepper to taste.

"Wash the asparagus, tie it in a bunch, put it in a sauce-pan of boiling water, boil gently three quarters of an hour, take it from the water, cut off the tops, put them aside until wanted. Put the milk on to boil in a farina (double) boiler. Press the asparagus stalks through a colander, add them to the milk. Rub the butter and corn starch (or flour) together until smooth, add to the boiling milk and stir constantly until it thickens. Now add the

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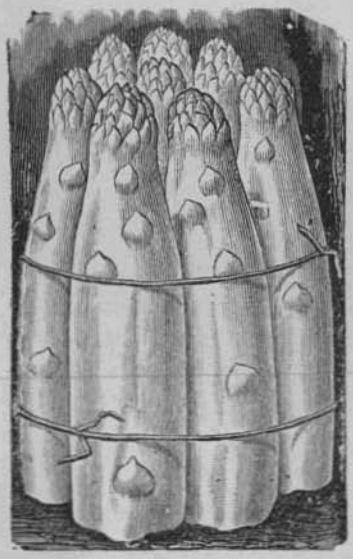
asparagus tops, salt and pepper and serve. [Mrs. Rorer's Philadelphia Cook Book.,'—Arnold & Co, Publishers.]

STEWED ASPARAGUS:

"Wash the asparagus well in cold water, then cut it in pieces about an inch long, rejecting all the tougher parts. Put it in a kettle, covering with boiling water, and boil thirty minutes; then put it in a colander to drain. Now put it in a sauce pan, pour over it a half-pint of cream, add a tablespoonful of butter, salt and pepper to taste, boil, and serve." Mrs. Rorer's Philadelphia Cook Book Book.—Arnold & Co., Publishers.]



ASPARAGUS IN AMBUSH:

"Cut off the tender tops of fifty heads of asparagus; boil and drain them. Have ready half a dozen (or more) stale biscuts or rolls, from which you have cut a neat top slice and scraped out the crumbs. Set them in the oven to crisp, laying the tops beside them, that the cavities may be well dried. Meanwhile, put into a sauce-pan a sugarless custard made of a pint (if so much is needed) of milk, and four well-whipped eggs. Boil the milk first, before beating in the eggs. Set over the fire and stir until it thickens, then add a great spoonful of butter, a little salt and pepper, and lastly, the asparagus tops, minced fine. Do not let it boil but take from the fire as soon as the asparagus is fairly in; fill the rolls with the mixture, put on the tops, fitting them accurately; set in the oven three minutes, and arrange on a dish. To be eaten while hot."—[Marion Harland: Common Sense in the Houshold. Scribner & Sons, New York.]

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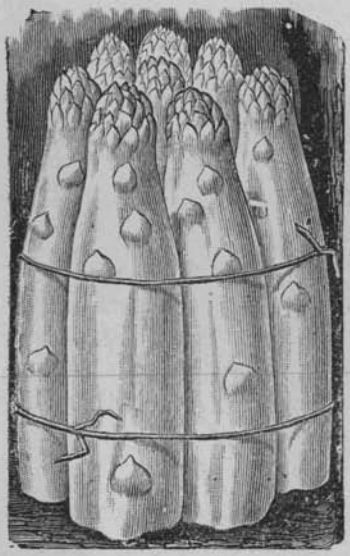

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ASPARAGUS SALAD:

"Trim the asparagus and tie them in bundles. Put in boiling water with a little salt and soda, boil until the heads are tender. Drain, and serve on buttered toast with whitesauce." [Amy G. Richards: Cookery. E. Renouf, Montreal.]

ASPARAGUS SALAD:

"Boil one pint of tops in salted boiling water for fifteen minutes, drain, throw into cool water, and let stand until ready to use. Then dry carefully with a soft napkin, put them into a salad dish, pour over the French dressing; let stand about ten minutes, and serve." [Mrs. Rorer's Philadelpha Cook Book.—Arnold & Co., Philadelpha.]

ASPARAGUS:

"Tie the stalks in bundles keeping the heads one way, and cut off the stalks, so that they may be of equal length. Put them into well-salted boiling water, and cook until they are tender (no longer). While boiling, prepare some thin slices of toast; arrange the asparagus, when well drained, neatly upon it, and pour over a white sauce, as for cauliflower. The *sauce* Hollandaise is especially nice for asparagus. From 15 to 20 minutes will be required to cook the vegetable." [Mrs. Henderson's Practical Cooking. Harper & Bros., N. Y.]

BOILED ASPARAGUS:

"After cutting the tough ends from the asparagus, wash it in cold water and tie it again in bundles. Put it into a stew-pan with salted boiling water, a teaspoonful of salt to every quart of water, and boil for twenty-five minutes. On taking off the fire, drain off the water. Now untie the bundles, and place the asparagus on slices of toast. Season with butter and a little salt. Or, the asparagus may be cut in two-inch pieces and boiled as directed. Drain off all the water. Put the asparagus in a dish, and season with butter and a little salt." [Miss Parloa's Kitchen Companion.—Estes & Lauriat, Boston.]

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ASPARAGUS WITH EGGS.

"Use two bunches of asparagus, half a dozen eggs, three table spoonfuls of butter, and three level teaspoonfuls of salt. After cutting off the tough ends, wash the rest of the asparagus, and cut it in pieces about two inches long. Place it in a saucepan with enough boiling water to cover it, and boil for twenty-five minutes, adding two teaspoonfuls of salt at the end of the first quarter of an hour. When done, take from the fire and drain off all the water. Place the asparagus in a dish (escalop or gratin). Spread half the butter on it, and then set the dish where the aspargus will keep hot while the eggs are being beaten. Beat them till rather light; then add a teaspoonful of salt and the remainder of the butter, broken into bits. Pour this mixture over the asparagus, and set the dish into a moderate oven for four minutes. Serve very hot." [Miss Parloa's Kitchen Companion. Estes & Lauriat, Boston.]

V. BEETS:

Deseriptive: The vegetable cultivated under the name of beets belongs to the genus Beta. The common garden beet of today is an offspring of B. vulgaris, a native of southern Europe. The great difference in varieties is due to improvement by selection. Probably no other plant responds so readily to the influence of cultivation and soil as does the beet. The most important product is the root. The color of the root is usually red, although there are white rooted varieties. The white ones are not, as a rule, preferred for table use. The leaves of certain varieties are highly ornamental and are used for garnishing. The Sea Kale (Beta maritina) is grown for the thick mid-ribs of the leaves; these

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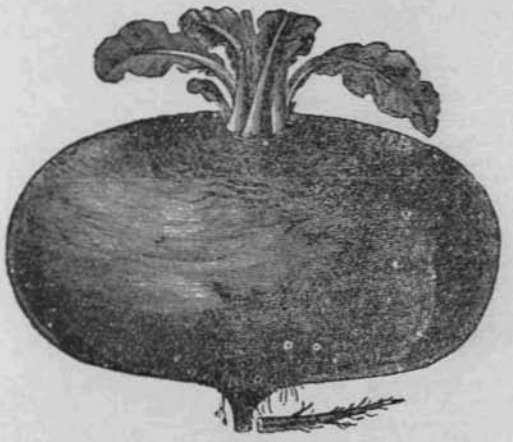
are used as a substitute for asparagus. The leaves are used as early "greens".

Cultivation: This crop requires a deep rich soil. Distance between rows will depend upon the extent of the crop. For the family garden the rows can be close together. Sow the seed in shallow drills. Seeds should be one to two inches apart. If the seeds germinate well and a thick stand is secured thin out the plants to four or five inches apart. Plant when the soil becomes warm. Beet seed is inclined to rot in cold wet soil. At the end of the season, and on approach of cold weather dig the roots, remove the tops, and store in root cellar or bury in the earth away from frost.



TURNIP-SHAPED TYPE.

Tops and rejected roots may be fed to the cattle. If the small black beetle gives trouble dust the plants with ashes or a mixture of fine ashes and a small quantity of Paris green.

Varieties: According to shape of the root we may divide beets into two classes, viz., Long Rooted and Globular. If color is made the basis of classification we have red, white and yellow kinds.

Moscow. 1894. Best varieties grown were Eclipse (Vaughn)

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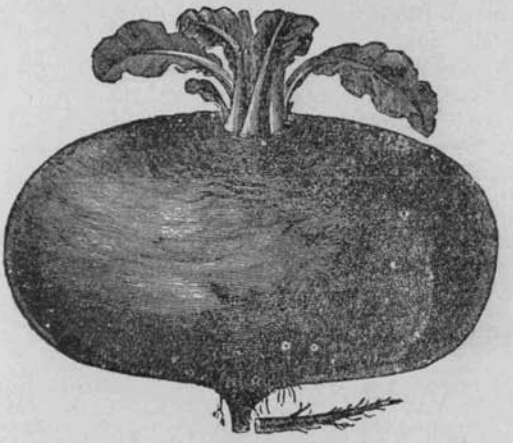

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Moscow. 1895.—Crop planted April 25.

Numbers 1, 2, 5, 6, 7, 8, 11 and 13 failed to germinate and were resown May 29.

	Name of Variety.	Description.		Average Weight in Ounces.	Yield per acre in tons.
		Shape.	Color.		
1	Crosby's Imp. Egyptian	Turnip	Deep Red	4.6	7
2	Early Egyptian	"	" "	6.7	7
3	Early Blood Turnip	"	" "	13.4	15
4	Dewing's Imp. Bl'd Turnip	"	" "	13.5	26
5	Eclipse	"	" "	5.8	16
6	Long Smooth Blood	Long	" "	4.3	8
7	Bastian's Ea. Blood Turnip	Turnip	" "	7.3	15
8	Arlington Favorite	"	" "	10.0	15
9	Bastian's Half Long Blood	"	" "	9.0	9
10	Ea. Flat Red Bassano	"	" "	10.3	18.5
11	Edmand's Turnip	"	" "	5.9	13
12	Mitchell's Blood Turnip	"	" "	11.0	21
13	Lentz	"	" "	8.0	14
14	Dark Stinson	"	Dark Red	7.2	4
15	Crosby's Egyptian	"	Dark Red	6.9	

Moscow. 1896.—Planted May 21. Rows, 30 inches apart; beets, 8 inches apart in row.

	Name of Variety.	Description.		Average Weight in Ounces.	Yield per acre in tons.
		Shape.	Color.		
1	Dark Stinson	Th'k Tur.	L't Red	34	27
2	Burpee's Early Turnip	" "	Red	16	11
3	Bastion's Ex. Ea. Red Tur.	Turnip	D'k Red	32	25
4	New Eclipse	Spherical	Red	27	21
5	Ea. Egyptian turnip	Flat turnip	"	22	17
6	Edmand's Ex. Ea. Bld Tur.	Spherical	"	40	32
7	Dewing's Imp. Bl'd Turnip	Spherical	"	23	18
8	Bastian's H'lf L'ng Bl'd "	Half-long	D'k Red	21	17
9	Ea. Blood Red Turnip	Th'k Tur.	" "	46	37
10	Long Smith Blood Red	Very long	" "	43	34
11	Columbia	Turnip	Red	35	28
12	Burpee's Imp. Blood Tur.	Spherical	Red	30	24
13	Ea. Yellow Turnip	Spherical	Copper	42	33

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Grangeville. 1895. Thirteen varieties planted May 13th. No yields reported.

Any of the varieties can be grown successfully on Camas Prairie.

Idaho Falls. 1896. Crop planted April 29. Rows, 2 feet apart, beets, 8 inches apart in row.

	NAME OF VARIETY	YIELD PER ACRE
1	Imperial Mammoth Long Red	8 tons.
2	Long Smooth Dark Red	6 "
3	Blood Turnip	5 "
4	Half Long Blood	5 "

Nampa. 1894. Best varieties were Early Flat Bassano and Dirego Blood Turnip. All varieties do well in this section.

GLOBULAR TYPE.

Conclusions: In selecting the best beet for table use the yield cannot be used as a guide. The highest yielders will give a product of inferior quality. The size of root can be held down by growing thickly in row. For summer use grow an early maturing variety. Use a late variety for winter use. The dark red varieties give better satisfaction than the pale colored ones. During the growing season the entire root should be covered with soil.

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For garnishing grow the "Ornamental Chilian." For Sea Kale, see Kale.

METHODS OF COOKING.

Wash the beets well, but do not break the skin, or they will lose their color in boiling. Cook for one hour if young, for two to three hours if old. When done throw them into cold water, and remove the skins. Season with butter, salt, and pepper. Serve them whole if small; cut into slices if large." [Mary Ronald's Century Cook Book.—Century Publishing Co., New York.]

LONG-ROOTED TYPE.

HALF-LONG TYPE.

"Prepare as above but serve cold with vinegar instead of hot and with butter, etc. Pieces may be cut into dice and mixed with other vegetables for a winter salad. [Mrs. Henderson, Practical Cooking, Harper Bros. N. Y.]

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Beet Saute: "Boil young sweet beets until nearly done, skin and slice them. Put into a saucepan with a minced shallot and parsley, two tablespoonfuls melted butter, a like quantity of vinegar, some salt and pepper, set on the fire and simmer twenty minutes, shaking the sauce pan now and then. Serve with the gravy poured over them." [Marion Harland, Common Sense in the Kitchen.—Scribner & Sons, N. Y.]

Beets, Sugared: "Take four hot boiled beets, three tablespoonfuls of butter, one and one-half tablespoonfuls sugar and one-half teaspoonfuls salt. Cut beets in ¼ inch slices, add butter, sugar and salt, reheat for serving."—[Fannie Farmer, Boston Cooking School Cook Book. Little, Brown & Co. Boston.]

Beet Salad: Slice, and cut into dice, sufficient cold boiled beets to make one pint. Heap them in the center of a salad dish and cover with a half-pint of sauce Tartare. Garnish with parsley and serve very cold.—[Mrs. Rorer's, Philadelphia Cook Book. Arnold & Co Philadelphia.]

Boiled Beet Greens: Wash thoroughly and scrape roots, cutting the ends. Drain, and cook one hour or until tender in a small quantityof boiling salt water. Season with butter, salt and pepper. Serve with vinegar.—[Fannie Farmer, Boston Cooking School Cook Book. Little Brown & Co. Boston.]

VI. Brussels Sprouts:

Descriptive: A member of the cabbage tribe. Characteristics are a long central stem surmounted by an open head of leaves, and numerous small heads (½ inch, or larger in diameter) arranged, around the stem in the axils of the leaves. These small heads are termed "sprouts". The vegetable originated in Belgium and has been cultivated extensively around Brussels since the thirteenth century.

Culture: Requires the same treatment as cabbage. Soil must be rich. Requires considerable moisture. The small sprouts must grow rapidly or they will be tough. Sow seed in hot bed

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Boiled Beet Greens: Wash thoroughly and scrape roots, cutting the ends. Drain, and cook one hour or until tender in a small quantityof boiling salt water. Season with butter, salt and pepper. Serve with vinegar.—[Fannie Farmer, Boston Cooking School Cook Book. Little Brown & Co. Boston.]

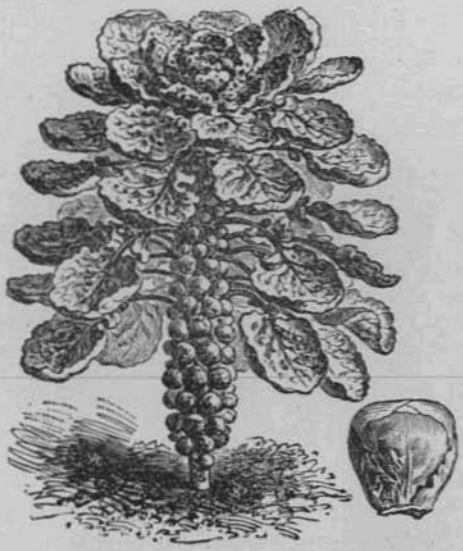
VI. Brussels Sprouts:

Descriptive: A member of the cabbage tribe. Characteristics are a long central stem surmounted by an open head of leaves, and numerous small heads (½ inch, or larger in diameter) arranged, around the stem in the axils of the leaves. These small heads are termed "sprouts". The vegetable originated in Belgium and has been cultivated extensively around Brussels since the thirteenth century.

Culture: Requires the same treatment as cabbage. Soil must be rich. Requires considerable moisture. The small sprouts must grow rapidly or they will be tough. Sow seed in hot bed

and transplant, or scatter seed in hills and thin. Plants must have plenty of room. Rows should be thirty inches apart and the plants not closer than two feet. Ordinary culture will suffice. Some authorities advise that the sprouts should be frosted before using. Our experience is that it causes a bitter taste. Sprouts half-inch in diameter are said to be much more palatable than the large ones. The top leaves are sometimes used as greens.

The aphis gives considerable trouble. The best treatment is a thorough washing with soap suds.



BRUSSELS SPROUTS.

Varieties: Number of varieties is small. The Improved Dwarf, Improved Matchless, and Paris Market are among the best.

PREPARATION FOR THE TABLE.

BRUSSELS SPROUTS.

Pick over, wash carefully, cut off the lower part of the stems and lay in cold water, slightly salted, half an hour. Cook quickly in boiling water with a little salt, until tender. This will be in

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BRUSSELS SPROUTS SAUTE:

Use one quart of sprouts, three tablespoonfuls of butter, one teaspoonful of sugar, one tablespoonful of salt, one tablespoonful of flour, and one quarter of a teaspoonful of pepper. After ridding the sprouts of the loose hanging leaves, soak them in cold water for half an hour; then wash them, and put them on the stove in a stewpan containing two quarts of boiling water. Boil for half an hour, adding a teaspoonful of salt at the end of the first ten minutes. At the end of the half hour drain off all the water, and add the sugar, butter, pepper, flour and one teaspoonful of salt. Shake the pan over the fire until the sprouts become slightly colored, say for about four minutes; then turn the vegetables into a warm dish, and serve at once.—[Miss Parloa's Kitchen Companion. Estes & Lauriat, New York.]

BRUSSELS SPROUTS IN WHITE SAUCE:

Pick over, remove wilted leaves, and soak in cold water fifteen minutes. Cook in boiling salted water twenty minutes, or until easily pierced with a skewer. Drain, and to each pint add one cup white sauce.—[Fannie Farmer, Boston Cooking School Cook Book. Little, Brown & Co., Boston.]

BRUSSEL SPROUTS WITH CHEESE SAUCE:

Boil a sufficient quantity of sprouts and drain them. Put them into a dish in which they are to be served, pour over enough cheese cream sauce, sprinkle with browned bread crumbs, and bake in a moderate oven for about ten minutes. Serve very hot. [Amy G. Richards, Cookery.— E. Renouf, Montreal.]

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VII.—CABBAGE.

Cultivation: Cabbage requires a deep, rich, soil and plenty of moisture. Sow seed in hot bed or cold frame early in the spring. For late cabbage the seed may be sown directly in the permanent bed. This saves transplanting, and in this section will give better results on account of dry weather at transplanting time. Several seeds should be sown in a hill and then thinned to one plant. For early use select some early varieties. For winter use grow the large late kinds. Rows should be 3 feet apart, hills about 30 inches apart.

EARLY TYPE.

If the aphis (cabbage louse) gives trouble, treat the affected plant with soap suds; this may be applied as a wash or as a spray. Dissolve one pound of soap (good hard soap) in three quarts of water. Dilute with water to sixteen gallons. If hard water is used, add a little soda. When applied as a fine spray under a good pressure, sixteen gallons will be sufficient for 250 half grown heads. About one minute will be required to treat one head. The cost of labor will fall below one half cent per plant. On new ground the wire worm may give trouble; this trouble may be prevented by placing a collar made out of a bottomless tin can around the plant, one end of the collar being sunk into the ground about 2 inches. A safer way is to place the can in position, and then

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sow the seeds within the can. The can will act as a protection against both worm and weather; it is also a protection against the cut worm. Another way, where the plant is transplanted, is to wrap the root (with adhering soil) in a piece of paper and then set firmly in the soil. The paper will last until the danger is past.

Varieties.—The earliest varieties are known by the small conical heads. Representatives of this type are Early Express and Early Jersey Wakefield. The summer and fall varieties, usually, have larger heads of a globular shape.

The red or purple varieties are used for pickling,

The Savoys are large growing sorts with rather open heads.

SAVOY TYPE.

The leaves are dark green with surface beautifully dimpled, giving it the appearance of netting.

RESULTS:

Moscow. 1894. Only a few varieties were grown. The season being late and the ground unsuitable the results were very indefinite.

1895. This season thirty-eight varieties (including synonyms) were planted. The seed was sown in hot bed April 6th, and transplanted out from April 27, to June 1st.

The following list gives the order of appearance of the first marketable heads in a few of the varieties.

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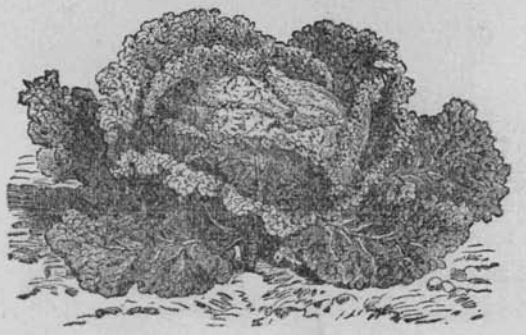

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Aug 1st.—Hollander, Mammoth Marblehead, Cannonball, and Early Estampes.

Aug. 5th.—Luxumberg, Fottler's Improved, Reynold's Early, Early All Head.

Aug. 10th.—Vandergaw, Dwarf Flat Dutch, Henderson's Early, Large Drumhead, All Season, Fielderkraut, Marvin's Savoy, Early Winningstadt, Warren.

In arrangement according to the size of heads, beginning with the largest heads (dressed) will give this list:

RED TYPE.

Luxumberg, Mammoth Marblehead, Danish Ball Head, Autumn King, Early All Season, Henderson's Early, Red Drumhead, Flat Dutch, World Beater and Succession.

1896.—Thirty-four varieties grown. Seed sown April 30th. Transplanted June 1st.

The earliest varieties were Earliest Estampes, (Aug. 7); Early Jersey Wakefield, (Aug. 6); Early Express, (Aug. 7); Henderson Early Summer, (Aug. 9); Early Cannonball, (Aug. 10th); Early Deep Head, (Aug. 18.)

Grangeville. 1894. Twelve varieties grown. No material difference could be noticed between the varieties.

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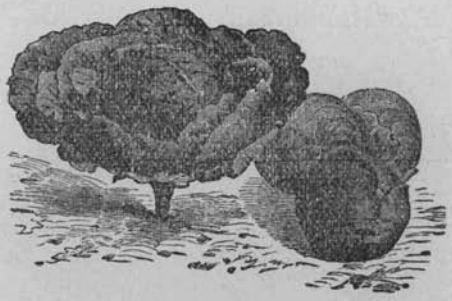

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The results of the two years work are best shown in tabular form.

	Date Planted.	Date of Harvest.	Yield Pr Acre in Pounds.	Per Cent Plants Heading.	Av. Weight of Heads.	Solidity on Scale of 5
EARLY CABBAGE.						
1895. Ea. D'wf Fl't Dutch	May 27	Aug. 20	10400	95	2 3/8	2
Ea. Peerless.....	May 27	Aug. 25	9620	92	2	2
Ea. Winningstadt...	May 27	Aug. 20	16800	96	3 5/16	4
Ea. Paris Savoy.....	May 27	Aug. 25	4800			
1896. Ea. Express.....	May 10	Aug. 22	7600		2	
Henders'n Ea. Sum	May 10	Sept. 1	8126		2½	
LATE CABBAGE.						
1895. Burpee's Surehead	May 3	Sept. 16	21600	100	4½	3
Vandergaw.....	May 3	Sept. 24	33600	95	7	5
Gregory H'd Hd'ng	May 3	Sept. 28	45520	100	7¼	5
Danish Ball Head...	May 3	Sept. 20	28800	100	6	4
1896. Late Drumhead.....	May 10	Oct. 1	10964		3	
All Seasons.....	May 10	Sept. 20	8678		2½	
SAVOY CABBAGE.						
1895. Marvin's Savoy.....	May 3	Sept. 4	8640	72	1½	1
Perfection Drumh'd	May 3	Sept. 18	9600	68	2	1
Ea. Paris Savoy.....	May 3	Sept. 1	4800	90	1	1
1895. Globe Savoy.....	May 10	Sept. 20	7020		1½	

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Conclusions.—The points to be drawn from these figures are that if this crop is to be grown on a commercial scale, some care must be given to the selection of varieties. Some of the factors determined by a variety are (1) quality, (2) yield and (3) heading.

The heads should be solid. This will give weight instead of bulk. The solid heads will also keep better. The heads should also be uniform. It is better to have the heads of nearly the same size. Heads of medium size are to be preferred to large heads.

The yield in weight will be next in importance, and this depends upon the solidity. Mr. Cash has carefully determined the solidity and his figures show that the highest yielders have a high rank on the scale.

Another point not to be lost sight of is the tendency to head. In one or two instances less than 75 per cent. of the plants failed to head. The savoys are poor headers. It is very good cabbage as far as table use is concerned, but it is not a commercial success.

METHODS OF COOKING.

BOILED CABBAGE.—Pick off the outer green leaves, quarter, examine carefully to be sure there are no insects in it, and lay for an hour in cold water, then put into a pot with plenty of boiling water, and cook fifteen minutes. Throw away the water, and fill up the pot from the boiling tea kettle; cook until tender all through; three-quarters of an hour will do for a good sized cabbage when young. Late in the season you must be guided by the tenderness of the stalk. Drain well, chop, and stir in a teaspoonful of butter, pepper and salt. Serve very hot. If you boil corned beef or pork to eat with cabbage, let the second water be taken from the pot in which this is cooking. *Always* boil the cabbage in two waters.—[Common Sense in the Household, Marion Harland, Chas. Scribner's Sons, New York.]

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Put the cabbage into a stew-pan, and after adding the salt and butter, lay the slices of pork on top of the cabbage. Pour the boiling water into the pan, and cook for an hour. Add some Indian dumplings at the end of that time, and cook fifteen minutes longer.

INDIAN DUMPLINGS.—These require a cupful of Indian meal, one-fourth of a cupful of flour, one cupful of milk, one level teaspoonful of salt, one teaspoonful of baking powder, and a small egg. Mix all the dry ingredients, and rub them through a sieve. Beat the egg until it is light. Add the milk, beat both thoroughly. Drop from a spoon upon the boiling cabbage; and after covering the stew-pan, cook for a quarter of an hour.—[Miss Parloa's Kitchen Companion. Estes & Lauriat, Boston.]

CABBAGE SOUP.—2 pounds of lean beef, chopped, and the same of mutton bones well cracked; one firm white cabbage; 1 onion; bunch of sweet herbs; 1 cup of milk, heated, with a pinch of soda; 1 tablespoonful of butter, rubbed in one of flour, pepper and salt; 3 quarts of water. Cook beef, onion and bones, in the water four hours, boiling slowly. Boil the cabbage in two waters; let it get cold, and shred only the white parts into rather coarse dice. Cool the soup, and take off the fat. Put over the fire with pepper and salt and the chopped herbs. Having boiled it one minute, skim, and put in the cabbage. Heat the milk in a separate vessel; stir in the floured butter; boil until it thickens, and pour into the tureen. When the cabbage-soup reaches the boil, pour it upon the milk and stir up well.—[The Dinner Year Book. Marion Harland. Chas. Scribner's Sons, New York.]

FRIED CABBAGE.—Chop cold boiled cabbage, and drain very dry, stirring in a little melted butter, pepper and salt, with three or four tablespoonfuls of cream. Heat all in a buttered frying-pan, stirring until smoking hot; then let the mixture stand just long enough to brown slightly on the under side. It is improved by the addition of a couple of beaten eggs. Turn out by putting

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CREAMED CABBAGE.—For six persons use two quarters of sliced raw cabbage, two tablespoonfuls of butter, one of flour, one teaspoonful of salt, one-fourth of a teaspoonful of pepper, and one cupful of milk. After letting the sliced cabbage stand in cold water for an hour, drain it, and put it into a stew-pan with two quarts of boiling hot water. Cover closely, and boil gently for

ALL SEASONS.

ten minutes; then pour off all the water. Cover the pan, and set it where its contents will boil gently for an hour and a half; then drain off all the water, and chop the cabbage rather coarse. Put it into a frying-pan with the butter, salt, and pepper, and stir over the fire for five minutes; then cover, and set back where the mixture will cool slowly. Mix the milk gradually with the flour, and when a smooth mixture has been formed of the two ingredients, pour it over the cabbage. Draw the pan forward where the dish will only simmer for the next ten minutes. Serve hot.—[Miss Parloa's Kitchen Companion. Estes & Lauriat, Boston.]

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ESCALOPED CABBAGE.—Cook the cabbage as directed for creamed cabbage, using a generous supply of milk. Turn the cooked mixture into an escalop-dish, and sprinkle over it a pint of grated bread crumbs and one tablespoonful of grated Parmesan cheese. Bake for half an hour, and serve as soon as it comes from the oven.—[Miss Parloa's Kitchen Companion. Estes & Lauriat, Boston.]

STUFFED CABBAGE.—Take a good firm cabbage and let it lie in water with a little salt and vinegar for an hour. Scoop out the centre and fill with sausage meat, tie up securely with tape, put in a sauce-pan, cover with good stock and cook until tender. Remove the cabbage, add 1 teaspoonful of rice flour to ½ pint of the stock, cook two minutes, and pour it over the cabbage.—[Amy G. Richard's Cookery. E. M. Renouf, Montreal.]

LADIES' CABBAGE.—Boil a firm white cabbage fifteen minutes, changing the water then, for more from the boiling tea-kettle. When tender, drain and set aside until perfectly cold. Chop fine, and add two beaten eggs, a teaspoonful of butter, pepper and salt, three tablespoonfuls of rich milk or cream. Stir all well together, and bake in a buttered pudding-dish until brown. Eat very hot. —[Common Sense in the Household, Marion Harland. Chas. Scribner's Sons , New York.]

GERMAN CABBAGE.—Slice red cabbage and soak in cold water. Put one quart in stew-pan with two tablespoonfuls of butter, one-half teaspoon salt, one tablespoon of finely chopped onion, a few gratings of nutmeg, and a few grains of cayenne; cover, and cook until cabbage is tender. Add two tablespoons of vinegar and one-half tablespoon of sugar, and cook five minutes.—[The Boston Cooking School Cook Book, Fannie M. Farmer. Little, Brown & Co., Boston.]

COLD SLAW.—1 quart cut cabbage, ½ cup cream (sour is best) 2 tablespoons of vinegar, 2 eggs, 1 teaspoon of salt, a little pepper and butter the size of a walnut. Cut the cabbage very fine

ESCALOPED CABBAGE.—Cook the cabbage as directed for creamed cabbage, using a generous supply of milk. Turn the cooked mixture into an escalop-dish, and sprinkle over it a pint of grated bread crumbs and one tablespoonful of grated Parmesan cheese. Bake for half an hour, and serve as soon as it comes from the oven.—[Miss Parloa's Kitchen Companion. Estes & Lauriat, Boston.]

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COLD SLAW.—1 quart cut cabbage, ½ cup cream (sour is best) 2 tablespoons of vinegar, 2 eggs, 1 teaspoon of salt, a little pepper and butter the size of a walnut. Cut the cabbage very fine

and put it in an earthen bowl. Beat the eggs until light, add to them the cream and butter. Now add to these the boiling vinegar. Stir over the fire until boiling hot, add the salt and pepper, and pour over the cabbage, and it is ready to serve when very cold.—[Mrs. Rorer's Cook Book. Arnold & Co., Philadelphia.]

HOT SLAW.—Slice cabbage as for cold slaw, using one-half cabbage. Heat in a dressing made of the yolks of two eggs slightly beaten, one-fourth cup cold water, one tablespoon butter, one-fourth cup hot vinegar, and one-half teaspoon salt, stirred over hot water until thickened.—[The Boston Cooking School Cook Book, Fannie M. Farmer. Little, Brown & Co., Boston.]

SAUERKRAUT, PREPARATION.—Shred the cabbage fine. Line the bottom and sides of a small keg with the green cabbage leaves, put in a layer of the cabbage about three inches thick, cover with four ounces of salt and pound down well, then another layer of cabbage and salt, and so on until the keg is full. Put a board on top of the cabbage, and on this a heavy weight, and stand in a moderately warm place to ferment. The cabbage sinks when the fermentation begins, and the liquor rises to the surface over the cover. Skim off the scum and stand the keg in a cool, dry cellar, and it is ready to use. Cover it closely each time any is taken out. When you use it, wash it in warm water, and boil it with corned beef or salt pork the same as cabbage.—[Mrs. Rorer's Cook Book. Arnold & Co., Philadelphia.]

SAUERKRAUT, COOKING.—For five persons wash one quart of the sauerkraut in warm water. Put in the stew-pan and add enough warm water to cover, cook moderately for about two hours, adding more water as required. After cooking the required time put one tablespoon of lard into another dish, and in it brown an even tablespoon of flour. Pour this on the kraut and stir well to mix thoroughly. Serve hot.

BOILED DRESSING FOR COLD SLAW.—Boil half a cup of vinegar with two teaspoonfuls of sugar, half a teaspoonful each of salt

and put it in an earthen bowl. Beat the eggs until light, add to them the cream and butter. Now add to these the boiling vinegar. Stir over the fire until boiling hot, add the salt and pepper, and pour over the cabbage, and it is ready to serve when very cold.—[Mrs. Rorer's Cook Book. Arnold & Co., Philadelphia.]

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BOILED DRESSING FOR COLD SLAW.—Boil half a cup of vinegar with two teaspoonfuls of sugar, half a teaspoonful each of salt

and mustard, and half a saltspoonful of pepper. Rub a quarter of a cup of butter to a cream, with one teaspoonful of flour, and pour the boiling vinegar on it. Cook five minutes, then pour it over one well beaten egg. The yolk only may be used, and the white saved for clearing coffee. Mix this dressing, while hot, with one pint of red cabbage, shaved or chopped.—[Mrs. Lincoln's Boston Cook Book. Roberts Bros., Boston.]

"Of all flowers I like Cauliflower best."—Johnson.

VIII.—CAULIFLOWER.

Descriptive.—Another of the cabbage tribe. With this vegetable the edible portion consists of the young flower heads. This vegetable is in season during summer and autumn. Broccoli is very similar to Cauliflower, but is much later in the season, (winter cauliflower.) The flavor is not as fine as that of the cauliflower.

Culture.—Requires a deep rich soil, and plenty of water. Growth must be rapid. Cauliflower seed should be sown early in hot bed. Plants to be transplanted as early as possible. Rows 3 feet apart, plants 30 inches apart. Broccoli seed should be sown during May. Cultivation same as cabbage: When the heads appear, the leaves should be tied over the heads forming a cap. This will render the heads compact and will keep them tender and white.

Broccoli must have some winter protection in way of straw or other coarse litter.

The aphis often ruins this crop. There is no successful remedy as the insect takes refuge in the cavities of the head.

Varieties.—Best varieties are: Henderson's Early Snow Ball and Algiers, [late.]

RESULTS:

Moscow. 1894. A few plants of Vaughn's Snowball were planted. These headed out nicely. Irrigated.

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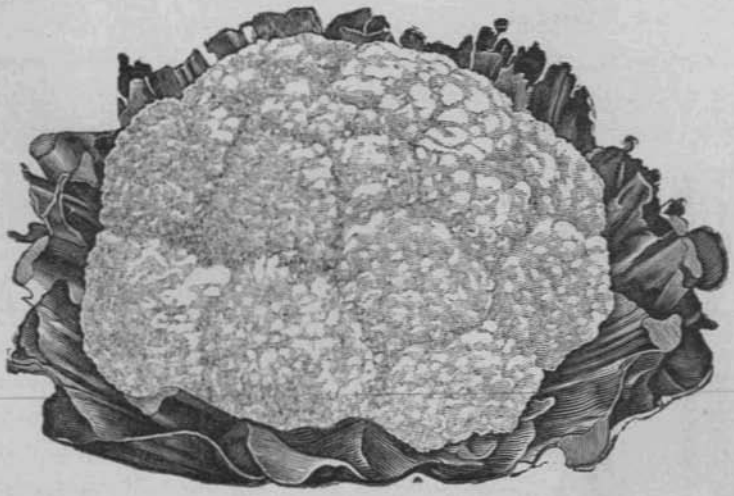
Grangeville. 1894. Six varieties were sown. All made a vigorous growth, but only one variety, Snowball, headed out.



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Idaho Falls. 1895. Early Snowball planted May 3d, and harvested July 30th is the only variety that has done at all well. Forty per cent. formed heads, extra good and averaged nearly three pounds.

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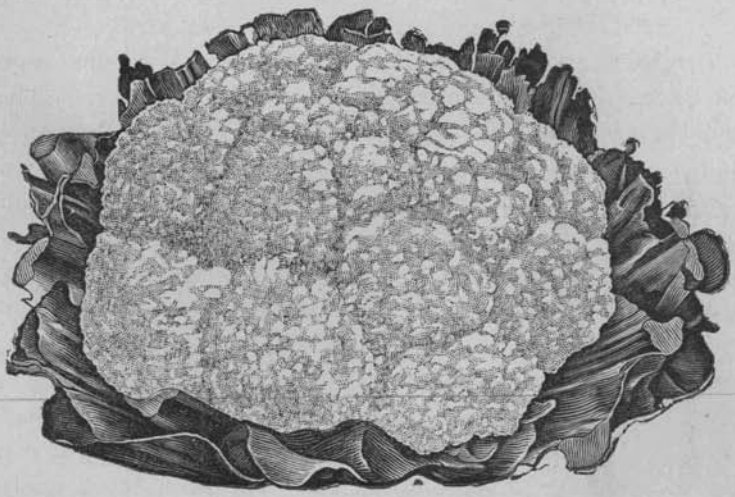

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RECIPES.

BOILED CAULIFOWER.—Pick off the outer leaves and cut off the stem close to the bottom of the florets. Wash well in cold water, then soak with the top downward in clear, cold water for one hour. Tie it in a piece of cheese cloth, to prevent breaking. Stand it in a kettle of boiling water with the stem downward, add a teaspoonful of salt, cover the kettle, and boil twenty or thirty minutes, until tender. When done remove from water, undo the cloth, and stand in a round shallow dish, stem downward. Serve with cream sauce.—[Mrs. Rorer's Philadelphia Cook Book. Arnold & Co.]

STEWED CAULIFLOWER.—Select heads that are close and white. Prepare as in the preceding recipe, excepting that the head is divided and that the cloth is not used. Toast squares of bread, butter them while hot, arrange the cauliflower neatly on them, and serve with Allemande sauce.—[Mrs. Rorer's Philadelphia Cook Book. Arnold & Co.]

CAULIFLOWER WITH CHEESE.—Cook as in stewed cauliflower. Add to the usual white sauce plenty of grated cheese (cup of cheese to pint of sauce).

Cauliflower is valuable as a salad, with the *Mayonnaise* dressing, or, mixed with other cold vegetables, with the French dressing.—[Mrs. Henderson, Practical Cooking. Harpers & Bros., New York.]

SCALLOPED CAULIFLOWER.—Boil until tender, clip into neat clusters, and pack, stems downward, in a buttered pudding dish. Beat up a cupful of bread crumbs to a soft paste with two tablespoonfuls of melted butter and six of cream or milk; season with pepper and salt, fried with a beaten egg, and with this cover the cauliflower. Cover the dish closely and bake six minutes in a quick oven; brown in five more, and serve very hot in the dish in which they were baked.—[Marion Harland, Common Sense in the Kitchen. Chas. Scribner's Sons, New York.]

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CAULIFLOWER FRITTERS.—Take cold cooked cauliflower, season with salt and pepper and dip in a batter prepared as follows: Use one cup bread flour, one-half teaspoon salt, few grains of pepper, two-thirds cup of milk and two eggs. Mix flour, salt and pepper, add the milk gradually, and eggs well beaten.—[Fannie Farmer, Boston Cooking School Cook Book. Little, Brown & Co., Boston.]

CREAM OF CAULIFLOWER SOUP.—Requires: 4 cups of hot white stock No. 2 or 3, 1 cauliflower, ½ bay leaf, ¼ cup butter, ¼ cup of flour, 1 slice of onion, 1 stalk of celery, 2 cups of milk, salt and pepper. Prepare and cook the cauliflower according to the recipe for "boiled cauliflower." Reserve one-half the flowerets, and rub the remaining cauliflower through a seive. Cook onion, celery, and bay leaf in the butter for five minutes. Remove bay leaf, then add flour and stir into the hot stock; add cauliflower and milk, season with salt and pepper, then strain, add flour, etc., and reheat.—[Fannie Farmer, Boston Cooking School Cook Book. Little, Brown & Co., Boston.]

IX.—CARROTS.

Descriptive.—This crop belongs more to the field than to the garden. The carrot is but little used as a human food in this country. The methods of culture will be discussed here and such varieties as are suitable for table use will be described. The remainder of the subject will be taken under the subject of Field Crops.

Culture.—The soil need not be rich. High fertility causes too large a growth of tops. A deep, well cultivated soil is required. Rows should be 24 inches apart. Plants should stand about 4 to 6 inches apart. Seed must be fresh; old seed does not germinate well. Sow early in season. The seed should be soaked over night for late sowing. Use plenty of seed (about 5 pounds per acre.) Weeds must be kept down, thin out until the proper dis-

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tance between plants is secured. Cultivate throughout the season, and store the roots in root cellar, or bury in earth.

Varieties.—For the garden use the Early French Forcing or Half Long Red.

RECIPES.

CARROTS WITH BROWN SAUCE.—Take young carrots for this dish. Leave them whole. Fry together 2 oz. butter, 1 small onion, 2 oz. ham and 1 oz. of rice flour, add 3 gills of brown stock. Cook fifteen minutes, then strain, add the carrots, and cook until tender. Serve with broiled beef steak.—[Cookery, Amy G. Richards. E. Renouf, Montreal.]

GLAZED CARROTS.—Cut some carrots into slices and boil ten minutes, drain away the water and cover with strong stock, add a pinch of salt, pepper and sugar, also a teaspoonful of meat extract to each ½ pint of stock. Cook until the stock is reduced to glaze, shake the pan from time to time, so that all the carrots may be covered with the glaze.—[Cookery, Amy G. Richards. E. Renouf, Montreal.]

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MASHED CARROTS.—Wash, scrape and lay in cold water awhile. Boil very tender in hot water, slightly salted, drain and mash with a beetle or wooden spoon, working in a large spoonful of butter, with pepper and salt. A little cream will improve them. Mound as you would mashed potatoes, and stamp a figure upon them, or mark in squares with a knife.—[Marion Harland, Common Sense in the Kitchen. Chas. Scribner's Sons, New York.]

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X.—Celery.

Descriptive.—This plant belongs to the parsnip family. It is a native of Europe. Its native habitat is along the edges of marshes. The wild plant is said to be poisonous.

Culture.—Requirements are a deep, rich and moist soil. Plenty of moisture is an essential requirement. One horticultural authority remarks that celery is one plant that does well with wet feet.

Celery.

Sow early in hot bed or other slightly protected place where plenty of moisture can be given. Seed should be soaked over night. Thin out the plants so that they will grow thick-set and bear transplanting.

A north hillside slope will give best results. Soil must be in good condition. Set out in trenches about 8 or 9 inches deep. As the plants grow gradually fill in with fine earth. After the trench is filled the soil is ridged up around the plant. Some

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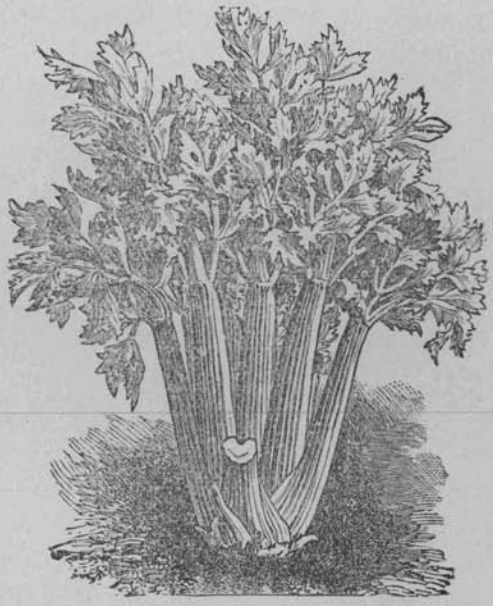

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growers make a long narrow box out of boards to hold the soil. This is easier than ridging. Drain tile may also be used. The quality will depend much upon the blanching. In the fall the plants are taken up and stored in a cool cellar to protect against severe weather and to finish the blanching process. Place a layer of damp sand upon the floor. Pack the plants close together in an upright position. Keep the room cool and dark. It may also be stored in trenches outside. Dig a deep trench (2 feet) with walls nearly perpendicular. Place the plants in the trench packing them together closely. The green tops should be on a level with top of trench. Cover gradually as winter approaches with straw. Celery will stand considerable frost. In this climate where considerable rain falls during the winter, it is well to construct a ∧ shaped covering of boards to place over the trench. Too much covering will cause decay.

Varieties.—Celery is grown for the blanched stems. Dwarf varieties are preferred. Celeriac is grown for the enlarged bulbous root.

RESULTS.

Only moderate success has been attained with this vegetable. Considerable trouble has been experienced in getting the seed to germinate. For these reasons we can not make any recommendations concerning varieties.

STEWED CELERY.—Trim and scrape one bunch of celery and cut into inch lengths. Stew in clear water until tender. Add 1 cup of milk and as soon as this boils, add one spoon of butter, and season with salt and pepper. Serve very hot.—[Marion Harland, Common Sense in the Household. Chas. Scribner's Sons, New York.]

Celery is also an ingredient of Celery salad.

FRIED CELERY.—Cut celery in three-inch pieces and parboil until soft. Drain off liquid, sprinkle with salt and pepper, dip in batter, (See Batter No. 1, under Cauliflower) and fry in beef fat.

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CURLED CELERY is used as a garnish.

The roots of CELERIAC are used in soups.

X.—COLLARDS.

Descriptive.—A kind of cabbage grown for its leaves, which are used for "greens." It could also be used for a soiling crop, but is not equal to rape either as a yielder or a source of nutriment. Give same treatment as recommended for cabbage.

Variety.—Seedmen give only one variety, the True Southern.

XII.—SWEET CORN:

"And still later, when the autum
Changed the long green leaves to yellow,
And the soft and juicy kernels
Grew like wampum, hard and yellow,
Then the ripened ears he gathered,
Stripped the withered husks from off them
As he once had stripped the wrestler,
Gave the first Feast of Mondamin,
And made known unto the people
This new gift of the Great Spirit."

—*Longfellow.*

Descriptive.—Indian corn, Maize, probably originated in Central America. It was an important food of the Indians at the time of the discovery of America. Investigation into the homes of the Cliff Dwellers revealed that they also depended upon it for food. Grains of a peculiar variety of corn are reported to have been taken from an earthen jar found in a mound in southwest Missouri. According to the Indian legend corn was a gift of the Great Spirit who came to earth ages ago as a youth dressed in splendid garments of green and yellow and promising them great good should he be wrestled with and overthrown. Hiawatha, fasting, leaped from his bed of branches and for seven nights contested with the youth in physical combat. At last he slew

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Stripped the withered husks from off them
As he once had stripped the wrestler,
Gave the first Feast of Mondamin,
And made known unto the people
This new gift of the Great Spirit."

—*Longfellow.*

Descriptive.—Indian corn, Maize, probably originated in Central America. It was an important food of the Indians at the time of the discovery of America. Investigation into the homes of the Cliff Dwellers revealed that they also depended upon it for food. Grains of a peculiar variety of corn are reported to have been taken from an earthen jar found in a mound in southwest Missouri. According to the Indian legend corn was a gift of the Great Spirit who came to earth ages ago as a youth dressed in splendid garments of green and yellow and promising them great good should he be wrestled with and overthrown. Hiawatha, fasting, leaped from his bed of branches and for seven nights contested with the youth in physical combat. At last he slew

him. He buried the wrestler and tenderly watched his grave for many moons, keeping away the ravens and insects,

"Till at length a small green feather
From the earth shot slowly upward,
Then another and another,
And before the summer ended
Stood the maize in all its beauty
With its shining robes about it,
And its long, soft yellow tresses."

—*Longfellow.*

In North Idaho corn matures only on very high land. Does best on south slopes. In South Idaho at altitudes of 2500 feet it can be grown as a field crop. The early maturing sweet or table varieties may be grown almost anywhere in the state.

Culture. Select an early soil on high ground. In damp undrained soil the grain will rot; wire worms are liable to give trouble in such soils. Plant in hills three feet apart each way using 4 to 5 grains to the hill. Thin out to 3 stalks. Give plenty of shallow cultivation.

RESULTS:

Moscow. 1894. Seventeen varieties planted between May 12th nd 20th, in field immediately north of grove. The soil was in very bad condition. Only about 25 per cent stand was secured on account of wire worms. None of the varieties produced perfect ears, and none matured.

1895. Twentynine varieties planted May 9th. This time the soil selected was much better. Wire worms again gave trouble. Missing hills were replanted with corn treated in various ways to drive off the worms. Paris Green, London Purple, Corrosive Sublimate, Blue Vitrol and Tobacco in solution (when possible) and as a paste were used. Owing to the lateness of the season the pest had probably disappeared by the time of replanting and no conclusions could be drawn from the experiments. Thorough cultivation of the soil and the distruction of wild oats will aid

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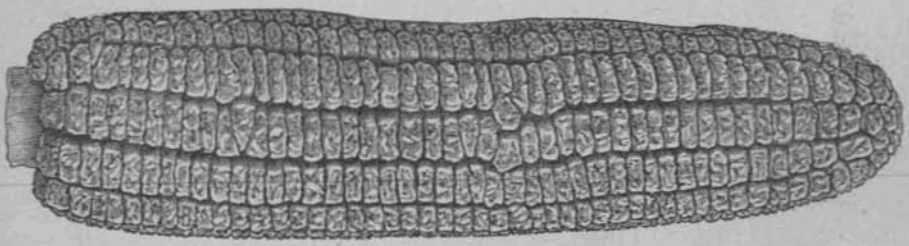
greatly in driving out the pest. None of the varieties ripened. The growth of fodder from all was fair. Nearly all the varieties produced and matured "roasting ears". The ears were poorly filled. Less than ten per cent were marketable. Stowell's Evergreen was one of the best.

1896. Season favorable; soil in good condition. Fortytwo plats representing about 20 varieties were grown. Planted May 23rd. The varieties matured in the following order:

Aug. 15th to 20th. First of All, Ea. Fordhook, Ex. Ea. Vermont, Ea. Cory, Ea. Maine, Ea. Marblehead, Ea. Adams.

August 25th—30th. Early Minnesota, Shaker's Early.

September 1st.—5th. Crosby's Early Twelve Rowed, Potter's Excelsior, Russel's Prolific, Perry's Hybrid, Black Mexican, Early Mammoth.



September 5th—10th. Henderson's Red Cob Evergreen, Early Bonanza, Stabler's Evergreen, New Everbearing.

September 10th—20th. Mammoth Late, Country Gentlemen, Ne Plus Ultra, Pee & Kay, Hickox, Stowell's Evergreen.

September 20th—30th. Livingston's Evergreen, Egyptian, Amber Cream.

Grangeville. 1893. Leeks Early and "Squaw Corn", a native or local variety, matured.

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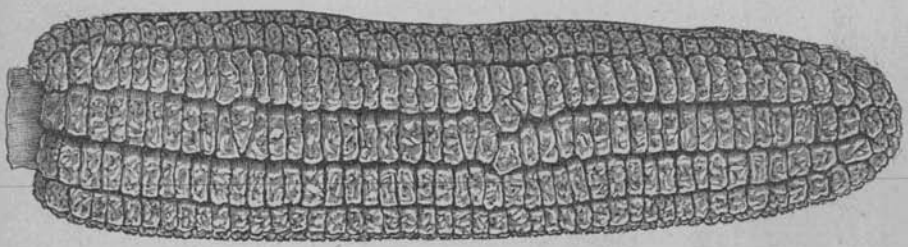

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1896. About a dozen varieties were planted. Early Marblehead was one of the best. The following notes show the run of the crop: "Hills, 36 inches by 24 inches; height, 45 inches; average number of stalks (and suckers) in hill, 6; 10 hills gave 34 ears. 50 per cent. were marketable. The average length of the good ears was 6 inches. Ninety per cent. of the marketable ears well filled."

Idaho Falls. 1895. "Not a very sure crop. Conditions unfavorable to corn, and climbing cut worms do the rest." Nine varieties planted May 22nd. Adams Early, Country Gentlemen, Egyptian, Old Colony, Late Mammoth, Early Cory, Hickox, Zig Zag Evergreen and Shaker's Early. All were ready for use August 16th to 20th.

1896. Crop destroyed by frost, cut worms and gophers.

Nampa. 1894. The following varieties of sweet corn, planted May 12th, were successfully grown. Pee and Kay, Early Cory, Burbanks, Early Maine, Gold Coin, Triumph, Late Mammoth Sugar, Improved Hickox, Red Evergreen and Perry's Hybrid.

1895. Twentyfour varieties were grown. Planting was done May 3rd. Early Marblehead, Red Evergreen, Perry's Hybrid, Ex. Ea. Adams and Early Bonanza are reported as very good. First of All, Early Mammoth, Burlington Hybrid and Egyptian were named as good varieties. Fair varieties were Early Large Eight Rowed, Country Gentlemen, Pee and Kay, Potter's Excelsior, Triumph and Stowells Evergreen. The poor varieties were Mammoth Sugar, Ne Plus Ultra, Shakers Early, Early Minnesota and New Cory.

CORN DISHES.

Boiled Green Corn. "Select full grown ears but not too hard. Proper degree of ripeness is determined by testing with the finger

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CORN DISHES.

Boiled Green Corn. "Select full grown ears but not too hard. Proper degree of ripeness is determined by testing with the finger

nail. The milk should escape in a jet and not be thick. Remove husks and silk, cook in boiling salted water. Another way is to partially remove the covering pick off the silk and then replace the husks, tying at tip if necessary. Boil as above directed. By this method the ears are not discolored and much of the flavor is retained."

Succotash. This dish is composed of green corn and green beans (shelled or stringbeans.)

Corn Fritters. Grate the corn, and allow one egg and a half for every cupful, with a tablespoonful of milk or cream, beat the eggs well, add the corn by degrees, beating very hard; salt to taste; put a tablespoonful of melted butter to ever pint of corn; stir in the milk, and thicken with just enough flour to hold them together—say a tablespoonful for every two eggs. You may fry in hot lard as you would fritters, but a better plan is to cook upon a griddle, like batter cakes. Test a little first, to see that it is of the right consistency.—[Marion Harland, Common Sense in the Kitchen. Chas. Scribner & Sons, New York.]

Corn Oysters. Grate raw corn from cobs; to one cup of pulp add one well beaten egg, one-fourth cup of flour, and season highly with salt and pepper. Drop by spoonfuls and fry in deep fat, or cook on a hot, well greased griddle. They should be made about the size of large oysters.—[Fannie Farmer, Boston Cooking School Cook Book, Little Brown & Co., Boston.]

Roasted Green Corn. Turn back the husks upon the stalk, pick off the silk, recover with the husk as closely as possible, and roast in hot ashes of a wood fire. Eat with butter, salt and pepper. An outing dish.

Corn Soup. Requires one can of corn, one pint of boiling water, one pint of milk, one slice onion, two tablespoons butter, two teaspoons flour, one teaspoon salt and a few grains of pepper. Chop the corn, add water, and simmer twenty minutes; rub through a seive, scald milk with onion, remove onion, and add

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XIII.—CUCUMBER.

Descriptive.—The green or immature fruit of Cucumis sativus, an annual herbaceous creeping vine belonging to the Natural Order Cucurbitaceae. The melons, gourds and pumpkins, belong to the same family.

Culture.—Select rich soil (high ground preferred on account of frost). If manure is used it must be well rotted and mixed with the soil; too much manure near the roots will cause the plants to burn (drying out the soil.) Hen manure is best. If soil is in good condition the plants will do well throughout the dryest season without water. With irrigation however, the crop can be increased tenfold. A good way to irrigate is to provide a tin can for every hill. Place a strip of flannel or other cloth in the can to act as a syphon. Fill the can as required. The water will be supplied gradually and with economy.

Hills should be at least four feet apart each way. Three or four vines per hill are sufficient. Sow 8 to 10 seed and thin to above number. Date of planting will depend upon locality, season, etc. In sections where late frost is liable to occur the seeds may be sown in hot bed or other protected place and then transplanted out after all danger is past. The best way to do this is to

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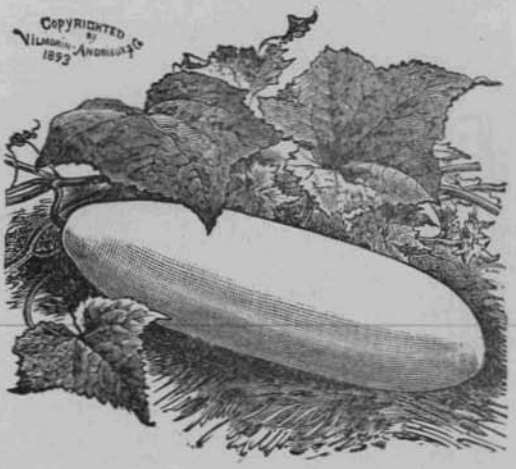
use old berry boxes, fill these with good soil, plant the seeds and give the usual attention until time of transplanting. Carefully remove the box and transfer soil and roots to the prepared beds. Pieces of sod may be substituted for the boxes. In harvesting remove the fruit with knife or scissors. Do not break or trample the vines. The work is best done in the latter part of the day. If *pickles* are the object care should be given to clean picking; one or two left to become cucumbers soon reduce the number of pickles.



WHITE PEARL.

RESULTS:

Moscow. 1894. Two plantings were made. The first was in soil that was plowed wet and consequently was in very poor condition. Those plants that survived did very well. The second planting was made May 31st; these were irrigated. Of twenty varieties planted, one, West India Gherkin, did not germinate.

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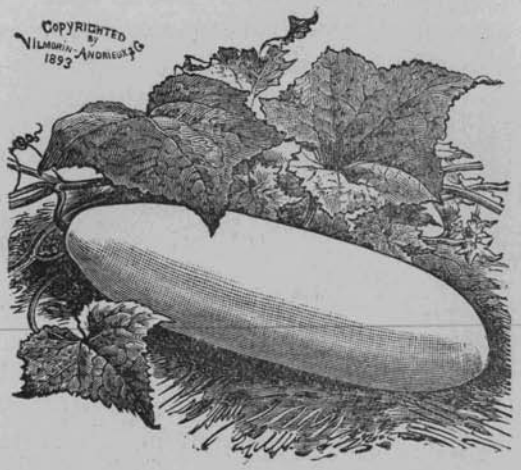

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They did fairly well as to quantity of yield. It was impossible to determine the best variety on this point alone. By taking into consideration the earliness, prolificacy and quality one might select Giant White, Everbearing, Early Cluster, Nichol's Medium Green, and White Pearl as among the best.

1895. Planted April 26th and May 10th. Thirty varieties grown. Not irrigated portion of crop was fertilized with commercial fertilizer containing equal parts of nitrate of soda, phosphates, and muriate of potash. No definite results from treatment. Best varieties were Green Prolific, Extra Early White Spine, Nichols Medium Green, Early Green Cluster, and Thorburn's Everbearing. This is a very close agreement with the results obtained in preceding year.

1896. Twenty-six varieties grown. Planted June 15th and 16th. The earliest varieties were Early Frame, Early Russian, Early Green Prolific. Some of the late varieties are New Giant White, Japanese Climbing and Cool and Crisp. The largest yielders are Early Frame (produced 4.4 pounds from one vine), Snake (produced 3.3 lbs from one vine) and New Pickling (produced 2.9 lbs from one vine.) The smallest yielders were New Giant White and Japanese climbing.

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OBSERVATIONS.

The "Snake" or serpent is so named on account of its serpentine shape. In its young state it makes very fair pickles but rapidly grows too large for use. Will grow to a length of 3 to 4 feet. It is a curiosity

The fruit of the Gherkin is globular in shape, about ¾ inches in diameter, and is covered with sharp spikes. It is very prolific. Makes excellent pickles.

The "Japanese Climbing" should be provided with some form of trellis.

PICKLES.—Pick every other day. Use for pickles only the small ones (½ inch in diameter and 2 or 3 inches long, or smaller). Use while fresh.

CUCUMBER CATCHUP.—Grate the cucumbers and strain off the water through a collander. Add six large onions (chopped fine) to a gallon of the grated and strained cucumbers. Add vinegar, salt, cayenne pepper and horse radish to taste. Bottle it without cooking.—[Mrs. Henderson, Practical Cooking. Harpers Bros., New York.]

FRIED CUCUMBERS.—Pare the cucumbers, cut them into slices about one-sixteenth of an inch thick, season them with salt and pepper, dip them first in egg then in bread crumbs. Put two tablespoonfuls of lard or drippings into a frying pan; when brown and crisp on one side, turn and brown the other. Take out carefully, drain on brown paper, and serve very hot.—[Mrs. Rorer's Philadelphia Cook Book, Arnold & Co.]

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XIV.—EGG PLANT.

Descriptive.—A plant cultivated for the egg-shaped fruit. Belongs to the same family as tomato, pepper, potatoes etc. It being rather tender and difficult to grow, it is but a little more than a stranger in many of our gardens. It certainly deserves more attention.

Culture.—Seed may be sown in hot bed and transplanted out after all danger of frost is over. A better way is to sow seed in their permanent situation about the middle of May. An old tin

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can will furnish protection if frost should come. Plant in hills about 2 feet apart. Soil must be rich. If plants can be irrigated so much the better. Liquid manure (made by soaking stable manure in water; most conveniently done by placing manure in a gunny sack and suspending same in a barrel of water. This permits the sack to be recharged from time to time and prevents litter from getting into the nozzle of the watering can) can be used to good advantage.

Varieties.—There are several varieties as determined by the shape and color of the fruit. The shape varies from oval to oblong. In color we have dark purple, scarlet and white.

RESULTS.

Moscow. 1894. Improved New York Purple, ripened a few fruit. The seed were sown in hot bed last of April and transplanted out about the middle of June.

1895. Four varieties planted. All failed to mature fruit on account of frost.

1896. Early Round Dwarf Purple ripened fruit Oct. 13th. The seeds planted May 22d. Plants transplanted July 1st.

Idaho Falls.—Crop may be regarded as a failure. Only a few specimens of New York Purple obtained.

Nampa.—Some very good specimens obtained in 1894. Names of varieties not reported.

BROILED EGG PLANT.—Cut the Egg Plant in halves and sprinkle them with pepper, salt, mustard and finely chopped ham, roll in fine bread crumbs, and broil over a clear fire for about ten minutes.—[Amy G. Richards, Cookery. E. Renouf, Montreal.]

FRIED EGG PLANTS.—Cut the egg plants in slices, sprinkle with pepper, salt and melted butter and stand one hour. Roll in egg and bread crumbs, and fry in butter.

STUFFED EGG PLANT.—Cook egg plant fifteen minutes in boiling salted water. Cut slice from top, and with a spoon remove pulp, taking care not to work too closely to skin. Chop pulp and

can will furnish protection if frost should come. Plant in hills about 2 feet apart. Soil must be rich. If plants can be irrigated so much the better. Liquid manure (made by soaking stable manure in water; most conveniently done by placing manure in a gunny sack and suspending same in a barrel of water. This permits the sack to be recharged from time to time and prevents litter from getting into the nozzle of the watering can) can be used to good advantage.

Varieties.—There are several varieties as determined by the shape and color of the fruit. The shape varies from oval to oblong. In color we have dark purple, scarlet and white.

RESULTS.

Moscow. 1894. Improved New York Purple, ripened a few fruit. The seed were sown in hot bed last of April and transplanted out about the middle of June.

1895. Four varieties planted. All failed to mature fruit on account of frost.

1896. Early Round Dwarf Purple ripened fruit Oct. 13th. The seeds planted May 22d. Plants transplanted July 1st.

Idaho Falls.—Crop may be regarded as a failure. Only a few specimens of New York Purple obtained.

Nampa.—Some very good specimens obtained in 1894. Names of varieties not reported.

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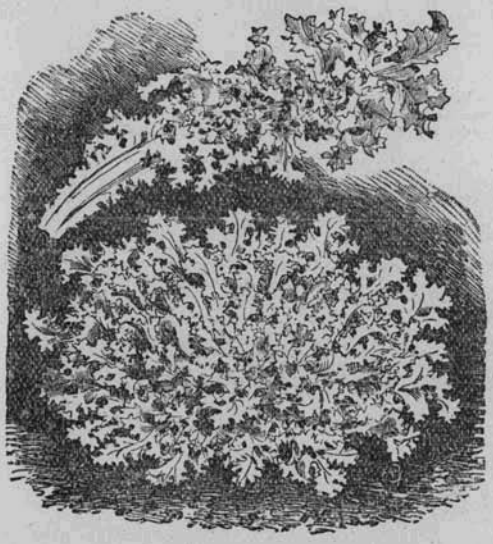
add one cup of soft stale bread crumbs. Melt two tablespoons of butter, add one-half tablespoon finely chopped onion and cook five minutes; or try out three slices of bacon, using bacon fat in place of butter, add to chopped pulp and bread, season with salt and pepper, and if necessary moisten with a little water; cook five minutes, cool slightly, and add one beaten egg. Refill egg-plant, cover with buttered bread crumbs, and bake twenty-five minutes in a hot oven.—[Fannie Farmer, Boston Cooking School Cook Book. Little, Brown & Co.]

XV.—ENDIVE.



Descriptive.—A vegetable very similar in general appearance and manner of growth to lettuce. Its leaves are used for salads. It is a favorite vegetable among the French and Germans. It differs from lettuce in that the leaves of endive are, in their green state, bitter and harsh and require blanching before they are fit to eat.

Culture.—Sow same as lettuce only later in the season. Early sown plants are liable to run to seed in hot weather. When

add one cup of soft stale bread crumbs. Melt two tablespoons of butter, add one-half tablespoon finely chopped onion and cook five minutes; or try out three slices of bacon, using bacon fat in place of butter, add to chopped pulp and bread, season with salt and pepper, and if necessary moisten with a little water; cook five minutes, cool slightly, and add one beaten egg. Refill egg-plant, cover with buttered bread crumbs, and bake twenty-five minutes in a hot oven.—[Fannie Farmer, Boston Cooking School Cook Book. Little, Brown & Co.]

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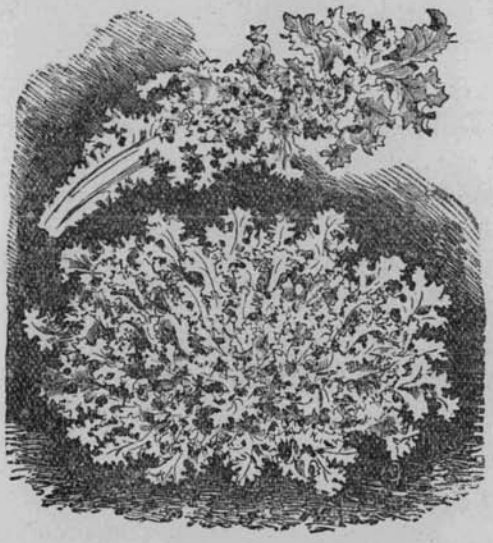

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Culture.—Sow same as lettuce only later in the season. Early sown plants are liable to run to seed in hot weather. When

large enough the leaves must be tied together at tops with a soft string. The blanching process can also be accomplished by covering with boards, tiles or thick paper.

Varieties.—All varieties grow well in this section. The Green Curled and Moss Curled are the heaviest yielders.

RESULTS:

Moscow.—Three years experience show that it is no trouble to secure a crop. If planting is done during April or May the plants will run to seed by last of August.

Grangeville.—Even White Curled is reported as the best variety.

Idaho Falls.—It is reported as not making good growth.

Nampa.—Poor crop in 1894.

Used only for salads. For "Salad" recipe, see Lettuce.

DIPPER GOURD.

XVI.—GOURDS.

Very poor success has been achieved with this plant. In 1895 a few specimens of the White Nest Egg variety were ripened at Nampa. As a rule the vines grow very well, but the season is not long enough. This has been the experience at Moscow, Grangeville and Idaho Falls.

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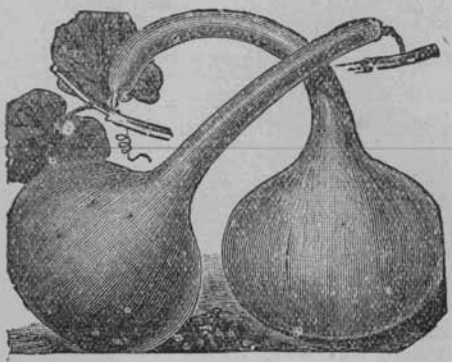

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XVII.—HERBS.

Descriptive.—To this group belong a number of plants hardly recognized as vegetables in the common use of the term, yet of sufficient importance to entitle them to a corner in the family garden. The herb garden or "patch" is too often considered a worthless gift or fashion handed down from grandmother's day. In every well ordered garden there should be a few of the common herbs. The same conditions concerning care, cultivation, etc., will answer for all.

The site selected should be out of the way so that it may not be disturbed. As the bed is to be permanent it should be made fertile and cultivated deeply. In sowing classify according to whether they are annuals or perennials. The plants may be grown from seed but whenever possibe, propagation by root division is much more easy and certain. In autumn before frost the leaves and stems of those desired for winter use should be gathered, tied in small bunches and hung up to dry in an airy room. Where the seed is desired, it should be allowed to ripen and harvested.

Many of the herbs have medicinal value. We will discuss only those used in cookery.

ANISE.—Annual. Leaves used as a garnish. The seeds are the source of Anise oil. This plant grows well and gives a good yield of seed. Seeds should be soaked over night in warm water and sown thickly.

CARAWAY.—Biennial. Grown for the seed, which is used to impart flavor to cakes. Used by some in sauerkraut. Sow in fall. Plants should stand from 10 to 12 inches apart.

CORIANDER.—Annual. Grown for the seed. The leaves are sometimes used in soups, etc. In this section (Moscow) if sown in April it will ripen seed in good season. Plants should be at least 10 inches apart and rows about 18 to 24 inches apart.

SAGE.—An ever green shrub-like plant. Perennial. One of the most important of herbs. May be grown from seeds, but the easiest way is to obtain cuttings of the roots.

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SAGE.—An ever green shrub-like plant. Perennial. One of the most important of herbs. May be grown from seeds, but the easiest way is to obtain cuttings of the roots.

A light dressing or covering of straw should be used in winter on the perennials.

XVIII.—Horse Radish.

Descriptive.—This is probably one of the most neglected of common garden crops. When time is given in growing the crop it yields well and the returns are equal to any other crop grown. It can be grown in almost any section of the state. Besides its value as a condiment, its leaves find a place in the domestic materia medica as a valuable counter-irritant.

Culture.—For the home garden a few plants placed along the shady side of the fence will be sufficient. For the commercial plantation it is necessary to proceed on an entirely different basis. The root being the product sought the soil must be deep and rich. The plant is propagated by root cuttings. These should be about the size (in diameter) of a lead pencil and 4 to 5 inches long. If the crowns (removed top) are planted (as often advised) there will be produced a number of small rootlets instead of one large root. The crop is often grown as a second crop and after some early garden crop. In this section it should be planted out by middle of April, and it will be ready to use by last of October. Roots from two year old plants are liable to be hollow and fibrous, causing a large waste and extra labor in cleaning. In preparing for the market, trim off all the small rootlets, store them from freezing and save for planting next season. In planting out make the holes with an iron bar, insert the cutting and press the soil around the cutting, and cover with an inch or more of soil. Rows should be 30 inches apart. The plants should be about 18 inches apart.

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Horse Radish.

HORSERADISH SAUCE.—Take three tablespoons of cracker crumbs, ⅓ cup grated horse radish root, ½ cup of milk, three tablespoons butter, ½ teaspoon salt and ⅛ teaspoon pepper. Cook first three ingredients twenty minutes in a double boiler. Add butter, salt and pepper.—[Fannie Farmer, Boston Cooking School Cook Book. Little, Brown & Co., Boston.]

The usual way of preparing the condiment is to mix the fresh grated root with vinegar.

KOHLRABI.

Descriptive. The peculiarity of this cabbage-like plant is the abnormal developed stem and leaf petioles. The enlarged growth is solid and resembles the flesh of the Rutabaga.

KOHLRABI.

Culture. The requirements are about the same as for cabbage. Soil need not be so rich and the plant will thrive on less water than any other member of the group. Very hardy. The plants should stand about fifteen inches apart. For table use the plants must be used while young (2 or 3 inches in diameter). Old plants are tough and stringy, and are fit only for stock feeding.

Varieties. Only a few varieties. Early White Vienna and Early Purple Vienna. Both are good varieties. There is a preference in favor of the white one.

RESULTS.

At Moscow it has done very well each year. In 1895 some very large specimens were obtained. At Grangeville it is reported as not doing well on account of aphis.

Idaho Falls. Planted May 28th. Harvested Sept. 20th. Average weight 3½ pounds. No difference between the varieties. The quality is reported as poor.

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Nampa. An estimated yield of 9400 pounds per acre for Purple Vienna, and 9450 pounds per acre for White Vienna, is reported.

White Vienna is recommended as best for cooking, and being more uniform in shape.

Prepare for the table in same way as turnip. Sometimes served (uncooked) in slices like radishes.

XIX.—LETTUCE.

Descriptive.—This common garden vegetable needs no introduction. Its freedom from the ravages of insects and plant diseases, its easy culture, hardiness and rapidity of growth tend to make it popular with the masses.

Culture.—Sow as early as possible. Fall sowing is recommended for early crop. For succession sow every 10 days. Soil should be rich. The richer the soil the more rapid the growth. The rapidity of growth will have a marked influence upon the character of the product. Where the "head" varieties are grown it is advisable to thin out or transplant until a sufficient distance between plants is secured.

Varieties.—The number of varieties are large. The varietal names and their numerous synonyms are so confusing that a classification is almost impossible. A classification based upon color, tendency to head, etc., is unsafe owing to the local influences of soil, etc. A complete description of each variety is unnecessary at this time. Perhaps the simplest way to dispose of the matter, is to divide the varieties into two groups, viz:

Group I. Heads compact.

Group II. Heads open.

RESULTS:

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The Oak-Leaved did not do well.

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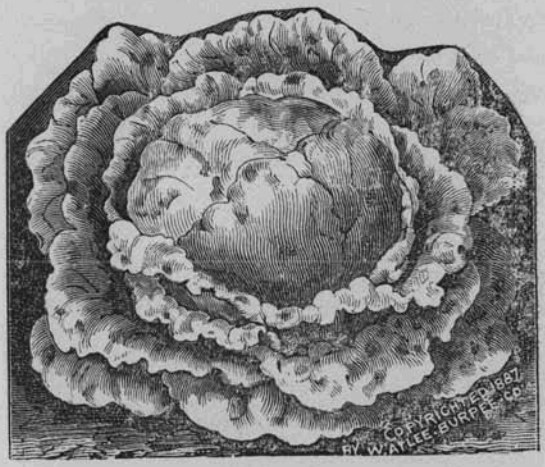
As to the comparative earliness of the several varieties but very little was determined. The difference in time between many of the varieties was so small that it would have no practical bearing to the grower.

On July 9th and before any of the varieties showed a tendency to run to seed, average plants were selected from each variety and weighed.



COMPACT HEADED TYPE.

The heaviest stalks were obtained from the following varieties: Paris Cos. (24 oz.), Perpetual (15 oz.), Chartier (12 oz.), Black Seeded Simpson (12 oz.), and Trianon Celery (8 oz.)

The lightest stalks were from Yellow Stone Head (1 oz.), Gold Ball (1 oz.), Philadelphia Butter (1 oz.), Tennis Ball (1 oz.), Oak-Leaved (1 oz.), and Butter Cup (1 oz.) The average weight of all varieties was about 5 oz. per stalk.

The most showy kinds (based on color) were in our judgment, Grand Rapids (light green; fringed), New York (dark green; leaves slightly crinkled and slightly fringed), Butter Cup (yellow,

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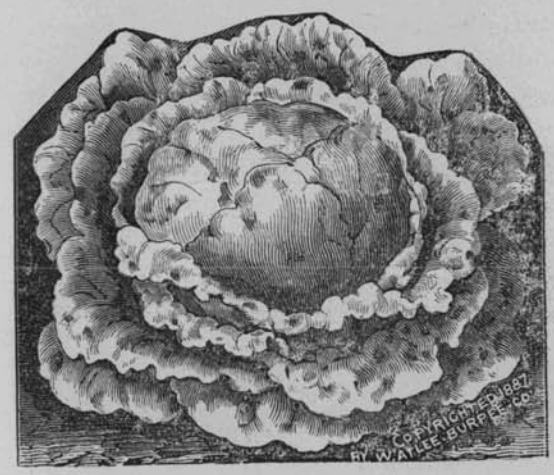

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leaves plain), Gold Ball (yellow, leaves slightly crinkled), Tomhannock (reddish tinge, leaves slightly crinkled) and Eureka (purple, leaves crinkled.)

1896. Sixty rows or plats, representing about one half as many varieties were grown. Many of these were duplicates and synonyms. The planting was done April 30th. During the season careful notes were taken and a mass of data collected.

That portion of the information that has a direct bearing upon the varieties is now presented. Earliest varieties were Tomhannock, Early Curled Silesian, New Cabbage, Rawson's Hot House, Black Seeded Simpson and Grand Rapids.

The latest varieties were Deacon, Paris Cos, Gold Ball and Early White Cabbage.

The difference in time between earliest and latest varieties was only five days.

The largest yielders were Early Curled Simpson, Chartier, Mignonette, New Cabbage, and Rawson's Hot House.

A few plants in each row were selected for a heading test and the balance thinned out to give plenty of room. This method gives better results than the old way of transplanting. The best heads were obtained from Black Tennis Ball, Golden Head, Black Seeded Butter, Early White Cabbage, Deacon and Wheeler's Tom Thumb.

The best of the open headed varieties were Hanson, Early Curled Simpson, and Paris Cos.

Grangeville. 1895. Thirty-five varieties grown. Best varieties were Early White Cabbage, California Cream Butter, New York, Marblehead, Early Curled Simpson, Philadelphia Butter, Paris Cos.

Idaho Falls. Thirty-five varieties sown April 23d. Ready for use from May 28th to June 12th. Earliest variety was Early White Cabbage; the latest was Grand Rapids.

Varieties recommended for general use are Denver Market, Im-

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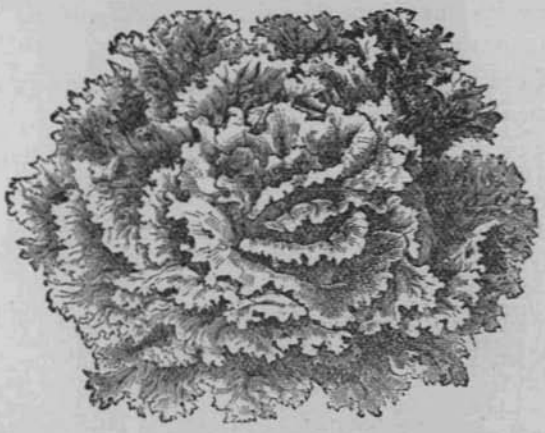

OPEN HEADED TYPE.

LETTUCE SALAD.—Prepare as in preceding recipe. Arrange the leaves in a salad bowl, the larger leaves around the edge and the light ones in the center. Serve with *boiled dressing, or French dressing, or sugar, salt and vinegar,* to taste. Lettuce should be served cool, fresh and crisp. Never cut it as that causes the leaves to wilt quickly; tear them apart.—[Mrs. Lincoln's Boston Cook Book, Roberts Bros.]

XX.—MELONS.

(*A*) WATER MELONS.—In the warmer sections of the state

proved Hanson, Black Seeded Simpson, Yellow Seeded Butter and New York Market.

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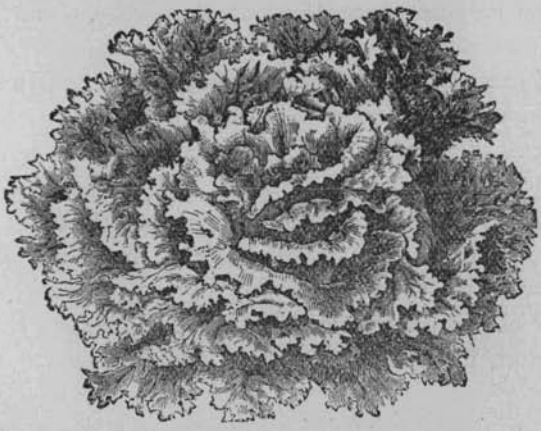

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this crop does very well. At high altitudes where the season is short it is not a certain crop.

Culture.—Select the warmest land. Make it as fertile as possible with well rotted manure. Plant in hills 4 to 5 feet apart each way. Eight or ten seeds should be planted in a hill. When tha plants have grown to a fair size (when third and fourth leaves appear) thin out to three or four plants. When the season is short some time may be gained by planting in small boxes in the hot bed and transplanting when all danger of frost is past.

RESULTS.

Moscow. Melons were planted in 1894, 5, and 6. The first two years the vines made a vigorous growth and set abundance of fruit; none ripened on account of frost.

In 1896 three varieties were grown. Ripe fruit was obtained from each.

Quality.—Fordhook Early was best. Kleckley's Sweets was second best. The quality of Phinney's Early was inferior when compared with the other two.

Yields. Phinney's Early, 19 hills (38 vines) produced 48 melons weighing 317 pounds; average weight 6 pounds. Largest specimen weighed 10 pounds.

Fordhook Early, 19 hills (38 vines) produced 45 melons weighing 393 pounds; average weight, 9 pounds. Largest specimen weighed 15 pounds.

Kleckley's Sweet, 19 hills (38 vines) produced 28 melons weighing 219 pounds; average weight 8 pounds. Largest specimen weighed 12 pounds.

Comparative Earliness.

Fordhook Early, ripe Sept. 1st; Phinney's Early, ripe Sept. 5th; Kleckley's Sweet, ripe Sept. 8th.

Grangeville.—1895.—Several varieties planted but no fruit ripened.

Idaho Falls.—1894—Twelve varieties planted but none matured.

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Quality.—Fordhook Early was best. Kleckley's Sweets was second best. The quality of Phinney's Early was inferior when compared with the other two.

Yields. Phinney's Early, 19 hills (38 vines) produced 48 melons weighing 317 pounds; average weight 6 pounds. Largest specimen weighed 10 pounds.

Fordhook Early, 19 hills (38 vines) produced 45 melons weighing 393 pounds; average weight, 9 pounds. Largest specimen weighed 15 pounds.

Kleckley's Sweet, 19 hills (38 vines) produced 28 melons weighing 219 pounds; average weight 8 pounds. Largest specimen weighed 12 pounds.

Comparative Earliness.

Fordhook Early, ripe Sept. 1st; Phinney's Early, ripe Sept. 5th; Kleckley's Sweet, ripe Sept. 8th.

Grangeville.—1895.—Several varieties planted but no fruit ripened.

Idaho Falls.—1894—Twelve varieties planted but none matured.

Nampa.—1894—Four varieties planted May 10th. Vick's Early, Kentucky Wonder, Cuban Queen and Hoosier King gave fair results. Kentucky Wonder, was best; Cuban Queen, second.

1895. Thirty-nine varieties planted May 13th. Earliest varieties were Cole's Early, (Sept. 1st); Ferry's Peerless, (Sept. 5th); Phinney's Extra Early, (Sept. 11th); and Turkish Dwarf (Sept. 15th); The remainder of those producing fruit are reported as ripe on Sept. 24th. Boss, Apple Pie, Orange, Sweet Heart, Light Icing, Florida Favorite, and Christmas did not produce fruit.

EXTRA EARLY HYCKENSACK MUSK MELON.

Best yielders were Black Spanish, Green and Gold, Cuban Queen, Kentucky Wonder, Mammoth Iron Clad, Vick's Extra Early and Hoosier King.

1896. Seed obtained from best specimens ripened in 1895, was used this year. Among the best were Ferry's Peerless, Cole's Early, Improved Long Dixie, Green and Gold, Hungarian Honey, Turkish Dwarf, Cannon Ball, Vick's Extra Early, Kentucky Wonder, Hoosier King, Cuban Queen and Vick's Early.

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(*B*) MUSK MELONS.

Moscow.—Although grown each year we have been unable to

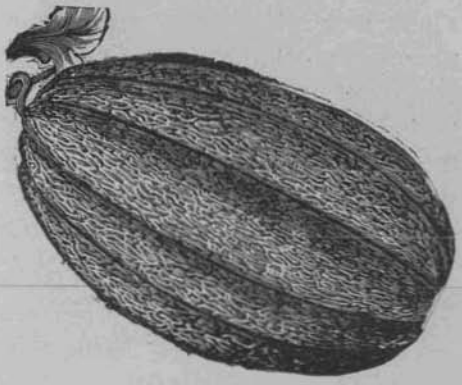
ripen the fruit. In each case we have had vigorous vines, and abundance of fruit. In 1895 the yield was enormous.

Grangeville.—None ripened.

Idaho Falls.—Season too short.

Nampa.—1894.—Best varieties: Osage, Early Netted Gem, is classed as first in quality but is noted as small. Osage and Montreal Market are equal.

1895. Thirty-two varieties grown. Planted May 14th. Early Green Flesh, ripened Sept. 5th; Miller's Cream Nutmeg, Sept. 9th. These and two other varieties (Ex. Ea. Hackensack, and Giant Chicago Market) are reported as the best yielders.



Bay View Musk Melon.

1896. Better results were secured than in previous year. This is probably due to the use of seed saved from melons of the 1895 crop. The following were of excellent quality and bore quite freely: Miller's Cream Nutmeg, (best) Early Green Fleshed, Giant Chicago Market, Banana and White Japan.

Pickled Water Melon Rind.—Take the inner rind of a fresh water melon, cut into strips, and boil for twenty minutes in vinegar, to every quart of which is added three pounds of sugar, a handful of stick cinnamon, one spoonful of cloves, and one of allspice.—[Quick Cooking. Putnam Son's, New York.]

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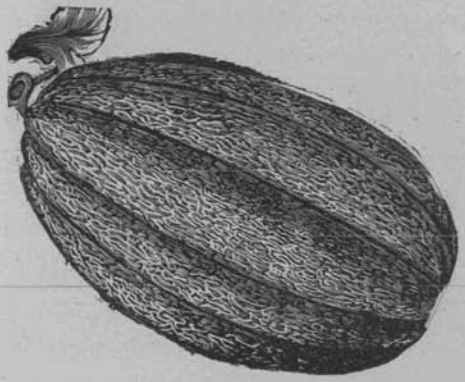

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Spiced or pickled cantaloupes are prepared in same way as spiced peaches.

The Citron (not the true citron) is a variety of water melon used exclusively for preserving.

CITRON PRESERVES.—The citron can be pared, cored, and sliced or cut into fancy shapes with cutters made for the purpose. To six pounds of the citron use six pounds of sugar, four lemons, and a quarter of a pound of ginger root. Put the slices of lemon into a preserving kettle, and boil them for half an hour, or until they look clear, in a little clear water, then drain them. Save the water, and put the slices into another dish with a little cold water; cover them, and let stand over night. In the morning wrap the root ginger (bruised) in a thin muslin cloth; boil it in three pints of clear water until the water is highly flavored, then remove the bag of ginger, pulverize the loaf sugar and add it to the ginger water in the preserving kettle. When the sugar is all dissolved, set it over the fire, boil and skim. Add the citron and lemon juice, cook until all the pieces are transparent. Put in jars and cover with the syrup.—[Mrs. Henderson's Practical Cooking, Harper Bros., New York.]

XXI.—OKRA.

Descriptive.—This plant is rather out of place in this section. Its home is in the South. At this altitude the seed will not ripen unless the season is very favorable. The part used is the immature seed pods. These are made into soup, salad, etc.

Culture. Select warm soil of high fertility. Seed must not be sown until all danger from frost is past. As the seed is hard it is better to soak it over night in warm water. A few stalks will supply all that a family of average size will use. Hills should be at least two feet apart. Two plants in a hill are sufficient.

RESULTS.

Moscow. 1894. Plants killed by frost.

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experiment was successful. Plants made good growth and were very productive. The White Velvet is a good variety.

1896. Seeds failed to germinate.

Idaho Falls. 1894. Reported as failed.

Nampa. Failure.

GUMBO (OKRA) SOUP.—Fry three rather thin slices of salted pork; and three onions in the same fat. Fry also a chicken of medium size, after which put pork, onions, chicken and a half

OKRA.

pound of lean ham into a dinner kettle containing four quarts of boiling water. When the mixture begins to boil, add one quart of gumbo, the corn cut from two ears, three tomatoes, and two very small red peppers. Add boiling water as needed and cook slowly five or six hours, after which strain and serve with bread "crunchers" cut in dice.—[Favorite Dishes, Carrie V. Shuman, Chicago.]

Okra may be cut into thin slices and dried for use in winter.

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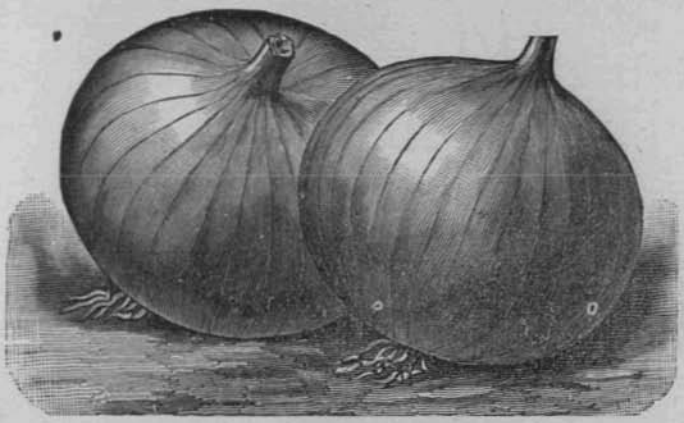
BOILED OKRA.—The Okra should be fresh and tender. Wash it, and then cut off the stems. The pods are so sticky that care must be taken to avoid breaking them, else it will be difficult to get them perfectly clean. This is why they should be washed before the stems are removed. Put them into a stew pan, and cover with a liberal allowance of water. For each quart of okra put in about three ounces of salt pork. Boil for one hour or even longer, unless it be tender by that time. When cooked, pour off the water and season with salt. Serve hot. If you object to pork, cook the okra in clear water, and when done season with salt and butter.—[Miss Parloa's Kitchen Companion. Estes & Lauriat, Boston.]



YELLOW GLOBE DANVER.

ONION.

Under this head will be discussed the several vegetables similar in character that belong to this family, viz: Onion, Garlic and Leek. The onion is the most important member.

Culture.—Select the best soil for this crop. Preference is given to fertile, sandy soil. Select clean land. With any soil the cultivation must be thorough and a mellow seed bed provided. Sow seed thickly in rows wide enough for cultivation. Sowing should be made as early as possible. Fall sowing is reported as favorable

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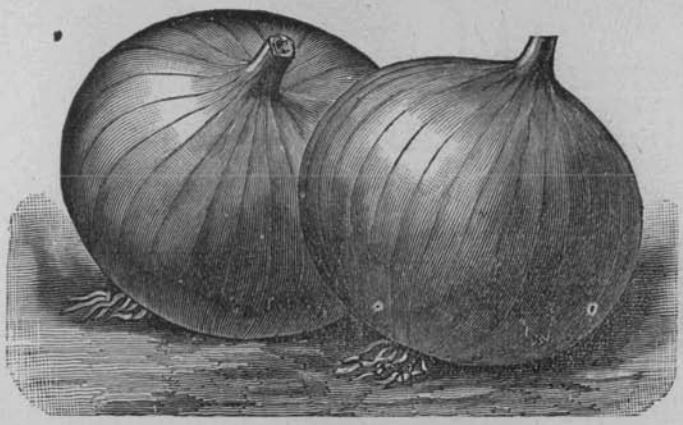

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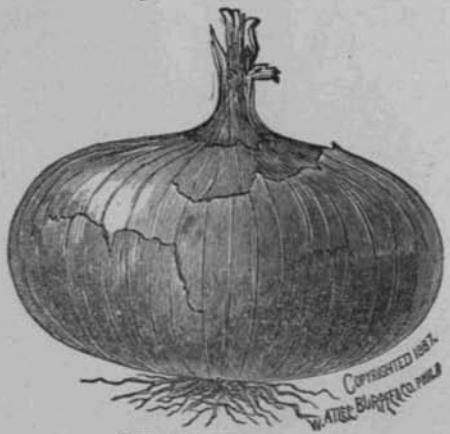

RED WETHERSFIELD.

RESULTS.

Moscow. 1894. Earliest variety was Vaughn's Pearl. It is a small white variety desirable for early use. Vaughn's White Globe and Red Globe were verygood yielders.

1895. Thirty-four varieties planted April 11. The following varieties were among the best, viz: (*a*) Green Onions—Extra Early Pearl, Early Barletta and Early Red Globe. (*b*) Mature Onions—Silver King, Silver Skin, Mammoth Pompeii, Red Victoria, Red Wethersfield and Yellow Danvers.

WHITE PORTUGAL.

1896. Twenty varieties grown. Planted June 14. The germination very low in some varieties. Yield in all varieties low. Best yielders were Red Victoria, Prizetaker, Silver King, Giant

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Grangeville.– Same list as given above will answer for this section.

LEEK.

Idaho Falls.—"Have been unable to mature *all* of any variety, but have secured some fine specimens of the following varieties: Yellow Danvers, Wethersfield, Early Red Globe, Bermuda Island White, and White Queen. These are the most promising varieties."

PICKLED ONIONS.—Peel carefully, by scalding, small onions; drain; place in salt and water, not too strong, for forty-eight hours; then drain again until dry. Put together one-half pint of milk and one-half pint of water. Place the small onions in it and allow them to scald, not boil, or they will be softened. Remove, rinse in cold water and drain. Place in a jar and pour over them white wine vinegar, with a little mace and small red peppers; no dark spice. —[Favorite Dishes, Carrie V. Sherman, Chicago, Ill.]

WHITE PEARL.

LEEK.--This vegetable does fairly well in all sections. Where the soil is too rich it is inclined to run to top. Best varieties are: Broad Scotch and Large Musselburg.

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GARLIC.—Rather indifferent success has attended our experiments with this vegetable.

XXII.—PARSNIP.

Cultivated for the root.

Culture.—Requires a deep, rich soil for the proper development of the root. Sow in rows 30 inches apart. Seed should be scattered thickly and the plants thinned until a distance of about 6 to 8 inches is between each plant. Give plenty of cultivation and keep the tops of roots covered with soil.

In autumn harvest the crop and store in root cellar and keep fresh by throwing some moist soil over the pile. If the roots can be left in the ground until cold weather sets in, the quality is improved by freezing.

RESULTS:

Moscow. 1895. Four varieties planted April 20th. But very little difference could be detected between the varieties as to shape or quality of the roots. The "Hollow Crown" is recommended.

1896. Three varieties planted June 15th. Average weight of roots were as follows: Improved Gurnsey, 8 ounces; Hollow Crown or Abbot's Improved Long Smooth, 4.6 ounces; Early Short Round French, 3 ounces.

The Improved Gurnsey is best on account of yield and uniformity of roots. The only objection to it is that the roots grow to great depth and requires considerable labor in harvesting, and the loss owing to the breaking of the root is large.

General statement for Grangeville, Idaho Falls and Nampa.—The same varieties have been grown at these places and the results are practically the same.

PARSNIP FRITTERS.—Put a pint of flour into a seive, and add to it 1½ teaspoons of baking powder and a scant teaspoonful of salt. Mix thoroughly, and rub through the seive. Next, beat two eggs till light, and after adding a pint of milk to them, stir the mixture into the flour. Follow with the addition of a pint of cold

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