

SB 321

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The Garden Patch

Edward Du Bois Flint



Class SB221

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The Garden Patch

'Twas Byron who said,
"The ladies inspired the Muse."
But to vegetables I'm wed.
And dame nature choose.

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DEDICATED TO

My Garden Sprite.
Whose wise advice,
Prolonged my life.

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To
Mr. Marksman who did not hit the mark

A MAN & A HOE

The man with a hoe,
To his garden must go,
If he wishes to see
His vegetables grow.

Any reasoning fox
Can easily see
The man's not an ox
Tho' a laborer he be.

By the hole in me coat
I'm a skipper afloat,
When out to my garden I go.

I care not for heat,
The dirt, or wet feet,
While working with shovel and hoe.

“My way is to begin with the beginning.”

PREFACE

This collection of instructions how to grow vegetables is put into book form for the use of the amateur gardener.

The writer has endeavored to stick closely to his subject and give in a compact and concise form the desired information so that the reader will not lose time in going over the book.

It is arranged in alphabetical order with necessary index.

A few people have what might be called a sixth sense, which enables them to feel a sympathy, a fellowship, with plants and trees. This feeling draws them together. To these people plants seem to have sense and feeling and they are sure to succeed as gardeners. Plants thrive and grow better under their care.

Have you not met people who exclaim, “Is not that beautiful!” and show by their feeling that they are filled with joy, and others who seem indifferent and blind to the beauties around them?

In the delicious freshness of the early morning, rise with the sun and work in your garden. You can do all the work necessary before it is

time for breakfast and not get fatigued and hot as you would later in the day. Do not do all the work at one time and get tired and disgusted with labor, but have a job coming.

NOTE—This is a good agricultural motto—

Never plant anything that is not worth taking care of and keeping alive.

INTRODUCTION

When we are past our prime or in poor health, we look for out of door employment and recreation. It is natural that we should seek mother earth and her healing medicine, air and sunshine, for a cure for our ills. The smell of newly-turned earth is fresh and healthful. No class of exercise is so good as work with pick and shovel in the open air.

The love of dirt was one of our earliest passions. We began by eating dirt, wading in mud puddles, and making mud pies. After we have grown up and sown our wild oats we think we would like to have a home of our own, a flower and vegetable garden. We spend our spare time working in the garden and learn some of the mysteries of nature. We resolve to retire from business some day and give ourselves up to our favorite pursuit and enjoy a long rest in our old age.

Is not this better than to be a slave to business and to find no pleasure but in making and storing up wealth?

The writer hopes by giving his knowledge to the purchaser at a moderate cost to meet recognition from those who have a small garden. He relies on the generosity and fraternal feeling of plant lovers to read his book and pass on to their friends, a good word in its praise.



Said the man to the weed,
If I do this deed,
My body must hinge,
For my back gets a twinge.

Work with the hands is physical; work with the
brain divine.
As we are animals in the likeness of God,
We should labor with our hands and mind.

IMPLEMENTS

It is necessary to enumerate a few tools for use in the garden :

The vineyard-hoe deserves first place as it is used for digging, hoeing, weeding, mulching, planting and tamping the ground after planting. It is a strong durable hoe the points of which should be kept sharp.

Garden-hoe.

Garden-rake.

Long handled spading fork.

One twelve quart watering pot for garden.

One four quart watering pot for hot-bed.

One garden wheelbarrow.

One trowel.

Fifty feet $\frac{1}{2}$ -inch garden hose.

One hundred feet of strong twine.

"Give me the secret of the sun,
Thereby the world is ever run."

HOT-BEDS

For a small garden you can make a double bed, cover one-half with a glass sash the other with an open lath frame. Size of hot-bed 3x6 feet.

Use the bed covered with glass to start the seed and the frame to make them hardy, before planting out in the garden. Sow the seed in small shallow boxes and place on the ground under the glass in hot-bed. You will find cherry or currant boxes the right size. This method is more convenient for moving the plants from the hot-bed to garden than planting the seeds in the ground in the hot-bed. Use leaf mould, sand and a little well-rotted manure in your seed boxes. If you put the soil thus prepared in a hot oven it will kill the weed germs, worms and life of any kind and you will not be troubled with weeds growing up with your seed.

“Seed time and harvest.”

SEED

Seeds will keep for years. Seeds found in Egyptian tombs thousands of years old have germinated and grown. Seed in the ground germinates when exposed to the air and may have been in the ground for years.

Seed will keep for five or ten years, but nurserymen do not keep it for more than one year. The average time for seed to germinate and show above the ground is six days.

Seeds sown in the fall must be watered to start germination. If the ground is level sow the seed in a bed and make a trench on the side to irrigate the bed by sub-irrigation and not on top as the sun will bake and crack the soil if irrigated on the surface. Cover the trench after the water has disappeared.

Never plant the same kind of plant in succession in the same part of the garden. Alternate planting. If you have planted potatoes or any root vegetable in a certain bed, next year plant tomatoes or some plant having top roots. This method of planting will keep your soil from deteriorating.

"A true repose of the soil is a change of its products."

SEED

Seeds germinate more quickly if soaked in warm water over night. This is true of all seeds having a hard shell as corn, peas, eggplant, etc. Sow seed in shallow trenches in heavy soil and in deeper trenches in light soil. Cover small seeds with light covering of soil.

Large seeds can be planted three or four inches deep. Always press the soil down over the seed after planting. Small seeds like lettuce should be sown broadcast in bed and the rake used to press the soil down over the seeds after planting. It is best to keep seeds in paper packages, as paper absorbs the moisture.

“They shall all grow in fields of light,
Transplanted by my care.”

DIRECTIONS FOR PLANTING AND PREPARATION OF SOIL

Nothing is gained by sowing the seed too early in the season. There is a time for preparing the soil, making it ready to receive the seed. If the weather will permit, you may commence to prepare the ground for sowing in March. If March is stormy, wait until April or even May 1st.

Plow or spade under all weeds and manure as deep as you can. Then harrow or rake the ground as fine as possible. You must do this after the earth has dried. Do not attempt to work wet ground, for if the soil is clay or adobe it will turn up in lumps and bake hard. Divide the garden into beds and sow seed at your convenience. The soil should be warm and mellow. Seed in wet ground will germinate, but the roots will either curl up instead of striking down or the germ will rot.

You should study the fertility of the soil in your garden and the kind of vegetables that will do best in certain locations, as the soil often differs in even a small garden, and you should make the most of what you have.

Table of Planting in California—Continued

	Jan.	Feb.	Mar.	(In Mar. Apr.	hot May	bed, June	trans plant in Aug. Sept.	May) Oct.	Distance Apart
Egg Plant	Jan.	Feb.	Mar.	(In Mar. Apr.	hot May	bed, June	trans plant in Aug. Sept.	May) Oct.	Delicate 2 ft. in rows.
Endives	Jan.	Feb.	Mar.	(In Mar. Apr.	hot May	bed, June	trans plant in Aug. Sept.	May) Oct.	Delicate 1 ft. in rows.
Dandelion	Jan.	Feb.	Mar.	(In Mar. Apr.	hot May	bed, June	trans plant in Aug. Sept.	May) Oct.	Hardy 1 ft. in rows.
Garlic	Jan.	Feb.	Mar.	(In Mar. Apr.	hot May	bed, June	trans plant in Aug. Sept.	May) Oct.	Hardy 1½ ft. in rows.
Garvanza Pea	Jan.	Feb.	Mar.	(In Mar. Apr.	hot May	bed, June	trans plant in Aug. Sept.	May) Oct.	Hardy 2 ft. in rows.
Horseradish Roots	Jan.	Feb.	Mar.	(In Mar. Apr.	hot May	bed, June	trans plant in Aug. Sept.	May) Oct.	Hardy 2 ft. in rows.
Kohl Rabi	Jan.	Feb.	Mar.	(In Mar. Apr.	hot May	bed, June	trans plant in Aug. Sept.	May) Oct.	Hardy 2 ft. in rows.
Kale	Jan.	Feb.	Mar.	(In Mar. Apr.	hot May	bed, June	trans plant in Aug. Sept.	May) Oct.	Hardy 2 ft. in rows.
Lettuce	(All the Year)	Feb.	Mar.	(In Mar. Apr.	hot May	bed in winter, in garden i n summer	Aug. Sept. in garden i n summer	Oct. in summer	Hardy 1½ ft. in rows.
Melons	Jan.	Feb.	Mar.	(In Mar. Apr.	hot May	bed in winter, in garden i n summer	Aug. Sept. in garden i n summer	Oct. in summer	Delicate 3 ft. in rows.
Mint	Jan.	Feb.	Mar.	(In Mar. Apr.	hot May	bed in winter, in garden i n summer	Aug. Sept. in garden i n summer	Oct. in summer	Hardy 1 ft. in rows.
Okra	Jan.	Feb.	Mar.	(In Mar. Apr.	hot May	bed in winter, in garden i n summer	Aug. Sept. in garden i n summer	Oct. in summer	Hardy 1 ft. in rows.
Onion Seed	Jan.	Feb.	Mar.	(In Mar. Apr.	hot May	bed in winter, in garden i n summer	Aug. Sept. in garden i n summer	Oct. in summer	Hardy 1 ft. in rows.
Onion Sets	Jan.	Feb.	Mar.	(In Mar. Apr.	hot May	bed in winter, in garden i n summer	Aug. Sept. in garden i n summer	Oct. in summer	Hardy 1 ft. in rows.

Note—If you have a south exposure—very hot—plant the rows closer.
When you plant seed in hot bed in winter, transplant the young plants to the garden in May.

“More studious to divide than unite.”

ARTICHOKES

Native of Southern Europe and Africa.

They are propagated from seed or partitions of the old roots. Be sure that the root has one or more eyes. Plants started from roots will bear sooner than those grown from seed.

In January prepare the ground by spading and loosening the soil and plant each root about six inches deep and three feet apart. Then water to settle the earth around the root. The buds and not the flowers are the edible part and should be cut before the bud opens. The French eat the whole of the very young buds, but the English prefer the more mature buds and eat only the base of the leaves and bottom of the bud, freed from the seed-down. The leaves of the plant are good fodder for stock.

The artichoke will grow in almost any location and make a good hedge. The bud will grow larger if you tie a ligature of string tightly around the stem about three inches below the bud.

The dainty oddness of the taste
Repays one for the seeming waste,
It can be served in many ways,
With hot drawn butter or mayonnaise.

What an odd shoot?

Before potatoes, the ancients used the root.

JERUSALEM ARTICHOKE

Plant the same as Artichoke. The tuber of the root is used for food, cooked like the potato, boiled or mashed, with butter added.

Care should be taken to gather all the roots and not allow any to remain in the ground, as the small roots will grow and produce inferior plants.

CARDOONS

Native of Canada.

The Cardoon Artichoke is planted and grown like artichokes. The stem of the leaves is the edible part after being blanched, and is used in salad, soup, or stew. The leaves may be kept a long time, if covered with sand and stored in a cool place.

To what extremes we go, alas!
When we eat the head of succulent grass,
And hold in our fingers the slippery mass.

ASPARAGUS

Native of Persia.

Asparagus can be raised from seed or planted from year old roots, thus saving a year in waiting for the roots to mature. It bears lightly the second year and a good crop the third and fourth years. After that, with care, a bed should last twenty to thirty years.

Prepare the bed by mixing manure with the soil and adding sand if the soil is heavy. Spade in the manure and level the surface of the bed with a rake.

Plant the seed in rows about an inch deep, one foot apart. Press the soil down over the seed with the back of the rake. Thin out the young shoots to one every six inches, weed the bed and keep the soil mulched. Sow the seed in March or April.

When the roots are one year old transplant them to the bed prepared to receive them. In preparing the bed for one-year-old roots you must first have a bed that has a natural drainage or you must arrange for artificial drainage. Suppose your bed has clay subsoil; dig out

the soil and put rock, brick or other coarse material at the bottom, then fill in with sandy loam and spread manure about four inches deep and mix by spading.

The ground must not be wet, but have good drainage or the roots will rot and die. Plant the young grass roots about eight inches deep and two feet apart in rows, making about four parallel rows to a bed. Be sure and spread the roots out well in the bottom of the hole when planting and plant in an upright position—not spread out flat. When the young grass heads appear, allow them to grow about three inches above the ground.

To harvest them take a sharp knife with a long blade, run it down about four inches under the ground and cut off the shoot with a slanting cut. Care must be taken not to cut or wound other young shoots, which are not in sight. After cutting two or three crops of young shoots, allow two or three shoots from each crown of roots to grow to maturity. This treatment will keep the roots alive and strong for next season.

After the seed stalks are old cut them down even with the ground and clear the bed. Cover the bed with three or four inches of manure and spade in but be careful not to go deep enough to disturb the crown roots.

Hen manure mixed with gypsum and sand is the best fertilizer, but well rotted barn-yard manure will do. No fertilizer should be supplied in the spring, but lime and common salt should be spaded in with the weeds and the bed mulched often and kept free from weeds.

“Corn and beans, these be twin brothers.”

BEANS

Native of North and South America and Palestine.

Beans are of two general kinds, pole and bush beans. The bush and the pole beans are both planted in the garden for the young string beans. The pole beans are larger in size and more productive. The habit of the pole bean to climb makes it necessary to furnish some support for the long tendrils that start from the top of the young plant. Long poles are driven into the ground on the inside of the rows near the vines, tied together with string or rope. The tendrils take hold and twine around the poles as soon as they commence to flower.

The seed pods are found on both the bush and the tendrils.

Plant corn between rows to support the runners.

Pick the pods when young and tender.

Water frequently, mulch the ground and keep free from weeds.

The lazy-wife pole bean has long green pods and is a favorite with the ladies, notwith-

standing its name. The pods are easily broken into pieces and have no strings to the back. Cut the bean pod lengthwise and then cut into pieces about an inch long, for cooking.

Before planting it is advisable to mix the seed of two of the same habit, so the pollen of the flowers will mix and make stronger and larger seed pods.

This bean so shy,
Under sunny sky.
Loves the salt air,
Cool nights and fair.

LIMA BEANS

Native of South America.

There are both bush and pole limas. The pole beans produce the larger seed and are more commonly grown. The pole limas are allowed to trail on the ground and the runners are cut off as fast as they appear. The young bean is used after removing the seed from the pod. The dried beans are stored for winter use. The flavor is rich, nutty and sweet, green or dried. They grow best in Ventura and San Luis Obispo counties, near the coast.

Plant the seed when the ground is dry and warm. Dig the trench about three inches deep and drop your bean, with eye down, as it is difficult for such a large flat bean to turn over in the ground and come right side up. Cover and tamp the ground over the seed.

Thin the plants to one every six inches.

Beans for the horse, beans for the cow,
Horse beans for the Portugese, he knows how.
'Tis the bean for the man who follows the plow.

HORSE BEANS

Native of England.

Horse beans are planted in rows about three feet apart. Drop a seed every foot and about four inches deep. They grow into a tall bush about three feet high.

Cattle are fattened on the dry beans, ground up or broken, and are fond of the green pods and beans, but refuse to eat the plant or leaves. The beans are used for food by Italians, Portugese and Germans. The young beans should be soaked in hot water and the skins removed before boiling.

The beans are roasted and ground and mixed with coffee to adulterate it, by dishonest dealers.

This succulent root, served hot or cold,
Nothing can beat it for young or old.

BEETS

The beet was first found in the wild state in Egypt and along the Mediterranean coast.

Plant seed in rows about one inch deep, two feet apart. Thin out to one every six inches. Keep the ground loose and free from weeds. The tops make good greens, like spinach.

BEETS

The Mangel Wurtzel beets are raised for stock. They grow to immense size.

Plant in rows about two feet apart and in furrows about two inches deep. When plants are about two inches high thin out to one every eight inches. Plant in the fall and irrigate until rains furnish the desired moisture or in the spring about the middle of May.

Oh! vegetable Brussel, where is your fruit,
We have looked for sprouts, down at the root,
They are under the leaves, down on the stem,
Why need you further look for them.

BRUSSEL SPROUTS

Native of Belgium. Known since 1213
A. D.

The plant is grown from seed the same as cabbage. Plant seed and thin out plants. Transplanting the young plants sometimes makes it go to seed and not grow sprouts.

The sprouts appear on the stem of the plant when about six months old, if they make their appearance at all.

Nestled in its leaves of green,
The most eatable snow-ball ever seen.

CAULIFLOWER

Native of Cyprus and Mediterranean coast.

Plant seed in the open garden or hot-bed. Transplant the young plants and cultivate same as cabbage. Water the young plants frequently. Keep ground mulched and heaped around the stems.

The flower or head is the edible part. The top should be protected by tying the large leaves together. This will keep the head from separating and starting out in blossom. It is both a summer and winter vegetable, but does better in winter.

“I have fed like a farmer,
I shall grow fat as a porpoise.”

CABBAGE

Native of Southern Europe and England.

First found wild with no appearance of a head. The seed may be sown in the fall or spring for summer or winter consumption. For winter transplant the young seedling to garden about the first of October. For summer sow the seed in a box in the hot-bed about January first and when two inches high transplant to the garden about March. When the danger from frost has passed, place the young plants in left hand between the thumb and finger and place in a hole already prepared about four inches deep. Place fine soil around the roots and cover, adding a cupful of water to settle the soil around the roots. When the water has disappeared put in more soil; later fill the hole when the plant has grown and you are mulching the ground. Water often and mulch ground in summer.

The carrot has a fluffy top,
Eat plenty and you'll have a "mop."

CARROTS

Native of the sea coast of Southern Europe and England.

Colors, red, white and yellow. The small red carrot, called French carrot, is the favorite for the table. The white, red and yellow long rooted varieties are used for feeding and fattening stock. It should be started from seed in the early fall as it is a winter vegetable. Plant seed in shallow furrows about one inch deep and one foot apart. Thin out to one plant every three inches. If you have not the heart to do this ask the assistance of your neighbor. Keep the soil loose around the roots. They do best in sandy soil. Heavy soil retards their growth, unless it is worked up fine and kept loose around the roots.

Carrots fed to cows give the butter a richer color and improves the taste and quality. They should be washed and cut up and fed with cut hay, bran or meal.

How could we flavor our salad or soup
If it were not for celery stalk and root?

CELERY

It was first found in the wild state in Europe and was rank and poisonous. By cultivation it has become crisp, sweet and juicy. It is not often planted in the garden as it requires a deep, rich, well drained, swampy soil. When four to six inches high the young plants are transplanted to trenches for blanching, which are about twelve inches deep. The plants are repeatedly earthed up until they have risen two feet or more above the natural surface.

The root is white and round,
In lettuce salad often found.

CELERIAC

Sow in boxes in the hot-bed. When the plants are about two inches high transfer to the garden. Plant in rows about two feet apart and the plants one foot from each other. Keep the soil up around the roots, give plenty of water and cultivation. When plants are growing remove the earth from around the roots and cut off all lateral roots, leaving only the long tap root.

The root is used for salad, cut up in slices, either raw or boiled. It grows best in wet soil like the celery.

A beet, but not a "dead beat."

CHARD

A native of Switzerland.

It belongs to the beet family. The root is hard and not edible. The leaf alone is used. The large mid-rib of the leaf is stripped of the soft green leaf and cut up into pieces and cooked like cream celery, which it resembles. The green part of the leaf makes good greens or spinach. It is good stock food for poultry, hogs and cattle.

Plant the seed in open bed and when plants are about an inch high transfer to the garden. Plant the small beets about two feet apart each way. It will grow for two seasons. Break off the leaves from the roots as wanted. Be careful not to pull up or disturb the plant.

What would we do for some Dutch dishes
If we had not Chives to fill our wishes?

CHIVES

Native of England and Northern Europe.

It grows and increases like garlic. The leaves are used in salad in place of onions.

“With his soft and shining tresses,
With his garments green and yellow,
With his long and glossy plumage,
Stood and beckoned at the door.”

CORN OR MAIZE

When the new world was discovered corn was found under cultivation by the natives from New England to Chili. The Indians gave the early settlers corn when they were starving and gave them seed and showed them how to grow it. There are three distinct varieties. The field—red, white, yellow, and variegated Dent or Flint corn, the white sweet corn, the white and black popcorn.

Dent Corn.

The Dent corn is edible if picked while the corn is young. After it ripens and hardens it is ground into meal and is used for fattening animals and poultry. The plant is put into silos, where it ferments and is fed to stock.

Sweet Corn.

This corn is grown for the young ears which are very sweet and wholesome, boiled or roasted. Succotash is a mixture of corn and lima beans.

Sweet corn ripens quicker than field corn. Corn crosses very easily and different kinds should not be planted near each other unless you desire to make a cross. Corn grows best in the same locality it was grown in before.

Keep the seed and plant your own selected seed, taken from the largest and best developed ears. The Golden Bantam corn is a new variety with short ears, of rich golden color, very sweet and nice.

Popcorn.

Well, every child knows what that is. It is white and black, but after popping both come out a creamy white.

Corn is planted in hills about four inches deep and three feet apart and in furrows. The seed should be selected from the middle of the cob. Do not use the seed of either end, as it is small and imperfect. The seed is usually planted by a corn planter that drops the seed the desired distance apart. If planted by hand in the garden, thin out the plants two feet apart and when thinning break off the two side suckers, so the strength will all go into the main stalk. When the corn swells and the tassel begins to wilt, open the end of the corn husk and examine the ears and see if the seed has filled out full and round. If so it is ready to pick. If not ripe pick out the corn worm that you will generally find there and put your heel on him. Fold back the leaves of the husk and the corn will not be harmed and will keep on growing. Hoe the soil up around roots. This helps support the roots and prevents the wind from blowing the plant over.

“Remember the fish which we did eat in Egypt freely. The cucumber and the leek, and the onion and the garlic.”

CUCUMBER

Native of Egypt and Southern
Mediterranean.

Plant in hills about ten seeds in a hill and thin to two plants. Pinch off the ends of runners and water often and mulch the ground. The young fruit is used for pickling and sliced up in vinegar. Do not eat cucumbers and drink milk; it is fatal.

COLLARDS

A species of cabbage grown for leaves. Plant and cultivate like cabbage.

CORN SALAD AND FETTICUS

Native of England.

The plant is used as a substitute for lettuce. The greens are cooked like spinach. Same culture as lettuce.

Oh, dandy-lion with mane so white.
The children blow your seed so light.
Old women use the weed for tea.
In every garden a pest you be.

DANDELION

A domestic variety with large leaves is grown in the garden for the leaves which are used for salad and greens like spinach.

It is commonly used as a tonic for the blood.

Do not let it go to seed. "A word to the wise is sufficient." The wild dandelion is a pest in our gardens and destroys many a fine grass lawn.

"Herbes that have on them cool dews of the night."

ENDIVES

A vegetable grown like lettuce. Sow seed in June or July. Thin out plants to six inches apart. When grown the outer leaves should be brought up around the plant and tied together. This whitens or blanches the inner leaves and heart.

Oh! vegetable egg, of deep purple hue,
Best picked in the morning covered with dew.

EGG PLANT

Native of South America, India and Africa.

Plant seed in a box under the glass in the hot-bed about February first. Soak the seed in warm water over night, no matter if the water cools off. Cover seed with light covering of sand and water once a day. When plants are about an inch high transplant them into small three-inch pots. After two or three weeks plant out in the garden two feet apart each way. Cover the young plants for a few days if the weather is hot. The open end can make a good cover. Water frequently and mulch. They like water and heat, worms and bugs like them, so you will have lots of trouble raising them. Put wood ashes around plants to protect them from worms. The soil must be sandy loam and have warm exposure. Nitrate of soda placed around the plant is a good tonic and makes them grow faster. A tablespoonful of nitrate of soda mixed with sand is the right quantity for small plants.

“Let garlic atoms link within the bowl,
And half suspected animate the whole.”

GARLIC

Native of Europe.

Separate the cloves of the bulb and plant one clove, about two inches deep and six inches apart, in rows. When the plant matures in June, pull the plant up and hang bulb, with top attached, in dry place to be used as wanted.

“Oh gently breathe a tender sigh.”

ROCAMBOLE

Plant and cultivate same as garlic. Many consider it milder and better flavored than garlic, but the bulbs are not as large.

“The biter, bitten.”

HORSE RADISH

Native of Southern Europe.

Cultivated in the garden for its roots which are used as condiments. Used also as medicine. It needs a deep sandy soil. Increases by planting part of the old root.

“Behold I have given you every herb bearing seed that is upon the face of the earth.”

HERBES

You should plant the following for use in seasoning different dishes: Thyme, sage, sweet marjoram, parsley and mint. It takes parsley seed a long time to germinate.

“To be, or not to be?
That is the question.”

KOHL RABI

Plant and cultivate like cabbage. It should be transplanted very young when about an inch high. The root or bulb is the edible part and grows above the ground. It is used as a substitute for turnip and for salad.

“Come! give us a taste of your qualities.”

KALE

Sow seed and cultivate like cabbage. It does better in winter. Seed should be sown in September and young plants placed in garden when about two inches high. It is grown for the leaves, which are broken off and fed to poultry and stock.

"No feast complete was ever seen,
Without fresh lettuce crisp and green."

LETTUCE

Native of Asia and Africa.

It has been cultivated in England for more than two hundred years. It has been known from early Biblical times.

In the spring prepare a bed in a sheltered spot by digging and raking the soil up fine. Sow the seed broadcast and cover lightly with the rake. Sprinkle bed with water to settle the soil around the seed and to start germination. If weather is warm cover the bed with some light litter. When plants are well grown, say an inch across, take a pointed stick or fork and loosen the roots before pulling them out of the bed. It is important to take up plants with full roots. If root is broken the plant may live but will never do as well as the one with large full roots. Plant in rows about sixteen inches apart each way. Water the young plant just set out and mulch.

The lettuce is very hardy and can be planted every month in the year. Lettuce planted in summer should be thinned, not transplanted, as the transplanted lettuce will rapidly go to seed and not head up. Water often and mulch ground. The variety called Los Angeles is the best.

It looks so green and like the grass,
It might be pulled for a weed, alas!

LEEK

Native of Switzerland.

Sow the seed in January or February in rows about one inch deep and one foot apart. Thin out plants to one every three inches. Water and mulch often during warm weather. It should be gathered when the root has developed. It seeds the second season like onions.

LENTILS

“The pottage of Esau,” the Edom or red pottage was prepared by seething lentils in water and adding a little (mantua) or suet for flavoring.

Plant in rows about an inch deep and two feet apart. Thin out plants to one every three inches. It grows about ten inches high and needs no support. It resembles the pea, in leaf, flower and seed pod, but the seeds are small, flat and round.

"Give us the luxuries of life and we will dispense with the necessities."

MELONS

Native of Guinea, India, Persia and Asia.

Under the heading melons, we will describe watermelon, muskmelon, nutmeg melon, citron melon, casaba melon and cantaloupe.

Watermelon.

Watermelons are a native of Africa. They do best in sandy soil and in a hot climate. Sow the seed in hills, about six feet apart each way. Thin out leaving one or two plants to a hill, water often and mulch. Stop watering when fruit is as large as a hen's egg. This applies to all melons. Cut off ends of runners to make plant more compact.

Muskmelon.

Muskmelon, so named from the musky odor and flavor. Sow seed in hills, place a dozen seeds in a hill. Thin out to one or two plants. Better let three grow until they are a month old so you will have one or two to spare if the cut worm destroys any. You cannot transplant the young melon successfully unless you take up lots of earth with the young plant.

Nutmeg Melons.

Nutmeg melons are a small, early variety, fine for the breakfast table. Cultivate same as muskmelon.

Cantaloupe.

Cantaloupe is a large oblong yellow melon of good flavor when not too ripe. It is a general favorite. Cultivate same as muskmelons.

The network or lines on the skin of the melon is caused by the heat cracking the skin. You can scratch a name on a melon or squash and have it come out in raised letters.

Casaba Melon.

Also called the Christmas melon, from the fact it will keep until after Christmas. It will keep better than any melon known. Plant the seed in light, sandy soil, as described before, when danger from frost has passed.

The melon is light olive green with slight creases or ribs. The flesh is white, thick and juicy. The flavor is deliciously sweet. When ripe it can be eaten within a quarter of an inch of the rind. The melons are about ten inches long and oval in shape. When the rind becomes soft and moist the melon is ripe. Do not gather the melon until the light streaks turn yellow. Stow away in a cool place and do not let them touch each other.

Citron Melons.

Citron melons are both round and oblong and closely resemble the watermelon in shape and color. Boys often tap them to see if they are ripe or carry them off and find too late that they have had their trouble for nothing. They are good cut up for pickles, but not edible. In all melons the male flower blooms before the female. They are small at the base while the female flower has the shape of a melon three-quarters of an inch long and three-eighths inch in diameter. The male flowers are in the center of the plant while the female flowers are on the runners.

“Will make even heirs and widows weep.”

ONIONS

Native of Persia, Afghanistan and Egypt.

It belongs to the lily family. The Weathersfield Red, Yellow Danvers and Silverskin are those usually planted. The red onion is the most common, the Silverskin the daintiest. The Silverskin is a native of Egypt. It is a small white onion of a mild, delicious flavor.

Onions are a summer and winter vegetable. For winter use plant the sets in September or October. For summer use plant sets January to May.

Onions can be planted in the same ground year after year, if ground is heavily manured. The onion has two periods of growth, first from the seed to sets, second from sets to mature onions. The seed is planted in rows about half an inch deep and a foot apart. Cover seed over lightly, using the rake, and press the soil down with the back.

The first growth of young onion sets will mature in a few months and the young onions should be pulled and dried in the sun, until

the tops are dried off. The sets can then be planted in rows about a foot and a half apart, six inches separating them. Take a sharp stick or dipple and make a hole in the ground near the line which you have set to make straight rows. Place a set in each hole and let the top of set be even with the surface of the ground. Press the soil around the set. You will need an "iron back with a hinge" if you plant a large bed. Sets will grow into mature onions in about eight months. The bulbs will show above the ground, but they do not like to be confined, so let them have their own way. When the seed head starts, cut off the head as the bulb needs all the sap. When the tops are large and drying up bend the stalk over on the ground. This will ripen the onion and help it to mature. If the onion is allowed to seed it will spoil it for food, as the bulb will not grow round and full, but long and pithy and of no use.

Chicken manure mixed with sand and gypsum is the best manure for onions.

If you want to raise your own seed secure large dried onions, plant them with tops even with the ground. They will grow one or more seed heads, but the onions will be ruined for life.

Keep onions in a dry cellar and cut off the tops. If they sprout new tops keep them cut

off and remove the bad ones from the others. Onions are one of our healthiest vegetables, either cooked or eaten raw.

The onion is carried to sea by sailors to keep off the scurvy.

POTATO ONION

Do not laugh.

This onion is very prolific, increasing by bulbs which it throws out underground. Each bulb has a top and six or more may be joined together at the root, like the potato, hence the name.

It is planted from seed and sets like the true onion. It is not large but is useful when the other kinds do not keep well.

Okra and gumbo, for soup à la mode.

OKRA OR GUMBO

Sow the seed in hills about April first. The fruit or pods should be gathered when young and tender. They are used in soup.

“Dumb as an oyster.”

OYSTER PLANT OR SALSIFY

The seed is planted in rows about an inch deep. Cultivate like carrots.

“Held in much esteem by the Romans, who boiled them and ate them with honey.”

PARSNIPS

Sow seed and cultivate like carrots. It is a good table vegetable and also used for stock food. It is rich in saccharine matter and adds to the richness of cows' milk, if freshly dug and fed freely.

Peppers red and peppers yellow,
Good for the liver of every fellow.

PEPPERS

Native of Brazil.

Sow seed in a box and place in the hot-bed. Transfer plants to garden when about two inches high. Plant like tomatoes.

The Bull-nose or Bell-pepper is used green for salad or stuffed peppers. The long red variety is ground fine and made into cayenne pepper. The small red are used in pickles. When seed pods are ripe cut them off, string and hang them in cellar.

“With potatoes galore, and strong beer at one end,
In one corner yourself, the other your friend.”

POTATOES

Native of Peru and South America.

Potatoes were carried to England by Sir Walter Raleigh from Virginia in 1586 but did not come into general use for a hundred years after. The Spaniards brought them into Europe about 1559 A. D. The tubers consist mainly of a mass of cells filled with starch enclosed in a thin, corky rind. They are three-fourths water. It reaches its highest perfection in sandy soil. Salinas valley produces the finest potatoes in California. They grow in great abundance on the river bottoms of the Sacramento and San Joaquin rivers.

One kind is known as the Salinas Burbank and the other as the River Burbank. The Burbank potato was an accidental cross, and found in the seed ball of an Early Rose plant in the year 1871 by Luther Burbank when he lived in Massachusetts. He planted the seed and obtained 26 varieties, of which the “Burbank” proved the best. The other seedlings were allowed to die or were destroyed. The year 1873 was a boom year in potatoes in Eng-

land. Some new varieties sold as high as \$500 for a single potato, to be used for seed.

You must plant the seed that grows on the plant to produce new varieties; trusting to accidental pollenization or by design.

The Early Rose is planted in December for early spring potatoes. Potatoes can be planted about March first when the danger of frost is over. Plant large potatoes, cut into sections, each having two or more eyes. Or small refuse potatoes, about as large as a small hens' egg, with the ends cut off to prevent too many eyes starting. The large whole potato makes the best seed. Before planting cover the pieces with wood ashes or slack lime, it will prevent seed from rotting and keep off insects and worms. Let the seed potatoes lie in the sun and dry before planting, it prevents rot. If planted by use of plow prepare the ground by deep plowing and harrowing. Plow a furrow about four inches deep and drop the seed every foot or so and cover. If planted by hand, place the seed in hills about four inches deep, one or two pieces of potato to a hill. When plants appear above the ground hoe or cultivate the ground around the small plants. Cultivate often, bring the soil up around the plant to cover the small potatoes that grow near the surface. The surface potatoes if exposed to

the air turn green and are not edible, but poisonous. Early or new potatoes may be dug and separated from the vine without killing the plant or retarding its growth. Take off two or three of the largest and cover up the hole.

The crop of old potatoes, as the ripe tubers are called, are gathered after the tops die down, by digging or plowing up the hills. They may be left in the ground for several weeks and dug as wanted. Dig them all before first rain. Let the potatoes lie in the sun for a few hours to dry before gathering.

More pounds of potatoes are produced than any other food crop in the world.

Potato Scab.

Is much in evidence in potato crops each year. To keep it under control the seed should first be dipped in some disinfecting solution. Two kinds are used, the formaldehyde and corrosive sublimate solution. The formaldehyde is prepared by pouring a pint of formaldehyde into 30 gallons of water. Dip the potato seed in this for two hours, covering the barrel. Potatoes must be planted soon after dipping or spread out in the sun to dry.

We have Irish tubers and sweet,
With river and valley Burbank,
And raise more things to eat,
Than any state of our rank.

SWEET POTATOES

Native of China and America.

The tubers are an enlarged growth of its underground stems. Its aerial stems are creepers and leaf and flower resemble those of the morning glory. It has been cultivated as a vegetable from time immemorial and was found among the Indians when this country was first discovered. It is believed to have been an important crop of the ancient Chinese. Its habit proves clearly that it is tropical in origin though it has been acclimatized far to the north.

It is found in three varieties, Southern Queen, Yam and Nausemond. The sweet potato is similar to the Irish potato, but contains more sugar. In starch and ash content they are about the same. It does best in a warm sandy loam with chemical fertilizer rich in potash for manuring and enriching the soil.

After spading in the manure throw up a ridge two feet wide with a trench on either side. Plant the sprouts on the side of the ridge

and water the vine by pouring water in the trenches. Start the sprouts from old sweet potatoes, cut in half lengthwise, and place tubers in sand with the eyes uppermost, using fresh horse manure for bottom heat.

Start in the hot-bed if early in the season.

When the sprouts are from two to four inches long and have shown signs of rooting break them off from the tuber and more will sprout until the parent is exhausted. It will take a month for young sprouts to start. The young shoots may be dipped in a solution of manure, soil and water before planting. The vine will send out joint roots. These must be cut off to prevent a greater growth of the vine at the expense of the growing tubers. The potatoes can be kept in a dry place for two or three months.

"Lamb, mint sauce and peas,
Fit for kings."

PEAS

Native of Persia and India.

Our garden pea was cultivated by the ancient Greeks and Romans. Peas may be sown for spring and summer use. For spring peas plant in January and they will ripen in May. Soak the seed in water over night. Plant in rows about four inches deep and three feet apart. It is not necessary to furnish support for the vines, but short pieces of brush placed between the rows make a good support, if you wish to go to that trouble. The best soil is a strong clayey loam with abundant vegetable manure. Prepare the soil by deep plowing or spading and mulch often.

Garvanza pea, a hermit, I see;
Shut up in his cell,
Of what use can you be,
Can any one tell?

GARVANZA PEA

Native of Mexico.

Plant the seed in rows about two inches deep and two feet apart. The plant is hardy and of upright habit and needs no support. It bears but one pea to a pod and it is very slow work shelling them. The dried pea is very hard and is used for food for fattening pigeons and poultry.

“Just as like as two peas in a pod.”

NILE PEA

Native of Egypt.

In habit and growth it resembles the Garvanza Pea, but it goes it one better, it has two peas to the pod. Pick the peas young and they are very sweet and hold their dark green color when cooked. The dry pea is used in soup. The plant is very hardy and can be planted late in the season and does not require much water or cultivation. It will grow in almost any soil.

“The first born infant of the Spring.”

RADISH

Native of Southern Asia.

Sow the seed from January to May in shallow trenches about half an inch deep. Cover over with soil and press the ground down over the seed. When about two inches high thin out to one every three inches. It grows best in sandy soil. Color of root may be red, white or red and white mixed.

“Oh! green and glorious herbaceous treat.
It would tempt the dying Anchorite to eat.”

RHUBARB OR PIE PLANT

Native of Siberia.

Introduced into England as early as 1575. The Chinese used it as a drug 2700 B. C.

It may be planted in fall or spring, using plants raised from seed or dividing the old roots. The ground should be deep and rich and well manured as it is a rank feeder. The crown of the root should be placed about two inches below the surface. The plant will grow leaves large enough to use a year after planting. In gathering the leaves the leaf stalk should be bent down and pulled off sideways, and not cut off, leaving no surface to decay. It is used as a vegetable and for drugs.

"The feast smells well."

SHALLOTS

Native of Palestine.

Like the garlic in habit, increasing from separation of the bulb. When the tops begin to wither pull up the plant with bulb attached, tie tops together in bunches, and hang up in a dry place. It is used for seasoning soup and gravy.

"How green you are and fresh."

SPINACH

Native of Persia.

It was not known to the Ancients. It was a novelty in Europe in the 16th century.

Spinach is of Eastern origin.

Sow in shallow furrows two feet apart. Thin out to one every six inches. Water often, mulch and keep free from weeds. Irrigate in open trenches along the side of the rows and cover, after water disappears. Like lettuce, it can be planted any month of the year.

“Oh! for the pies that mother made.”

SQUASH AND PUMPKINS

Native of North America.

Plant seed in hills about six feet apart each way. Place about four seeds in a hill in the form of a square six inches apart. Thin out to one or two plants. Plant in May when the soil is warm. Nothing is gained by planting earlier because the seed, if it germinates, will not make a strong root, but will curl up and die.

Of the small variety of squash you can leave two plants to a hill, but the large squash, like the Hubbard, you should leave but one, if you wish to grow large squash.

When the fruit has formed cut off the end of the vine to throw the strength into the development of the fruit. The vine has male and female flowers. Twice as many male flowers, which soon wilt and die. Bees and insects carry the pollen from flower to flower making strange mixtures in the family.

Do not plant different kinds of squash together if you want them to come true. Squash will keep for months in a dry room or cellar. Great care should be taken in handling squash

that are to be kept through the winter. Do not break off the short stem, or handle of the squash, or bruise them in moving them from field to store house.

You can irrigate the young plants for a few weeks if the weather is hot and the soil dry and hard.

The Summer Squash.

Look out for squash bugs and small yellow striped beetles and destroy them. The favorite squash is the Hubbard. It is a large dark green warty skin squash, but the meat is mealy and delicious. It makes good pies and is best baked or boiled. The summer squash are of two varieties, red and white. Pick the young squash, as they are very hard, when left to ripen on the vines.

English Marrow Squash.

The English Marrow is a long white squash a foot or more in length. They are very fine boiled or cut and fried in batter, as you cook egg plant. Pick the young squash as the old squash are hard and useless.

The New England Pie Pumpkins.

The New England pie pumpkins are the ones our mother used for making pies. They are about ten inches in diameter, hard skin and of a reddish color. They are used when ripe, and are often cut up and dried for future use.

“Colored with crimson, mellow, rich and ripe.”

TOMATOES

Native of Peru and South America.

Less than a century ago it was almost unknown in northern gardens. It was cultivated as a novelty and called “Love Apples.”

“Never, the little seed stops in its growing.
More and more richly the rose heart keeps glowing,
Till from its nourishing stem it has riven,
The delicious love apple, for which it has striven.”

Sow the seed in boxes and place in the hot-bed in January. Prepare the soil in boxes by mixing leaf mold and sand with a little well rotted cow manure. Sow the seed broadcast and work the seed into the soil with the fingers and cover lightly, pressing the sand down gently to settle it around the seed. Water lightly every day and do not let the ground dry out. When the plants are an inch high thin out those in the box or transplant them to another box placing the plants three inches apart and remove the box to the cold frame in the day time if the weather is pleasant. Put under the glass at night to protect them from

the frost or cover the cold frame. The plants should be three or four inches high, dark green in color and strong and hardy when ready to transplant to the garden. If they are sickly and yellow you have given them too much heat and not enough water. Do not transplant them to the garden until after danger from frost has passed, about the first of May. Place your line marking out your squares about four feet apart and dig a hole four inches deep with your vineyard hoe at each corner of the square. This will place your vines four feet apart each way and give plenty of room for the vine to spread. Remember that straight rows look better than crooked and haphazard ones. Take the young plants out of the box with a sharp stick, loosen the earth around the roots and be sure to secure a plant with full unbroken roots. Examine the leaves, root and head, and if weak or imperfect discard it. Use only perfect specimens as the future plant will never do well unless started right. Place the young plant in the hole, spread out the roots and cover them with a little fine soil. Then pour on about a cupful of water to settle the earth around the roots and to supply moisture for the new roots which must start before the plant grows in its new location. After the moisture disappears cover the plant with earth

half the distance from leaves to root. The hole can be filled up later when the plant is larger and you are working the soil loose around the plant. This method of planting gives the root a deep setting and less moisture is required. Do not water the plant unless the weather is very warm and no rain has fallen. If you continue to water the vine you will have a large rank growth and small fruit. If the weather is hot protect the young vines with a shingle placed in the ground to the south, to protect from the rays of the sun. Or cover with an open end tin can for a few days. The can is better as it protects the plant from the cut worm. This worm works at night. See chapter on Pests.

Do not plant all your stock, reserve about a third as many as you have planted for replanting those that die or are destroyed. When the plants are eight inches high pinch off the top of the vine. This will make the plant short and stocky and throw more strength into vine and fruit buds just forming. You can tie them up to a stake or a trellis, but the vines will bend down and break from their own weight. It is just as well to let them spread out over the ground and when the fruit ripens place the fruit on top of the vine to keep it off the ground. Pick the tomatoes as they

ripen as they soon rot if left on the vines. The vines will have a good many white and green unripe tomatoes on them in the fall. These can be made to ripen if you pull the vine up with fruit attached and hang it in a dry, warm place. The fruit will ripen sooner if tied up in a small paper bag. The large smooth round tomato is the best for canning and market use. The Ponderoso is a large pink variety. The cross of the pink and the red are desirable for their size and flavor. Cross the two varieties by planting them close together. The early red tomato is smaller than those ripening later, but they come in two weeks earlier. The large yellow tomato is very showy when dished with the red in salad. It is not as good flavor as the red and never will be as popular. There are small red and yellow tomatoes. These are used for pickles.

The tin can can be used for planting the young tomato plants taken from the box in the hot-bed and grown in the can until from four to six inches high. Transplant from tin can to open ground about May first.

Tin Cans.

Take a large tomato can and unsolder the ends and side, leaving a bent piece of tin. Tie the can with a piece of string to hold it to-

gether and place it upon end on a board, then fill with earth and plant the young tomatoes. When you transplant them to open ground cut the string, open the side of the can and you will have a ball of earth covering and protecting the roots of the plant.

“Much may be said on both sides.”

TURNIPS

Native of Armenia, Russia and Scandinavia.

Plant seed in rows an inch deep and a foot and a half apart. If the weather is showery at the time of sowing the seed it will germinate quickly. Thin plants, the young plants, should be kept growing with frequent watering. It is a general favorite as a vegetable. It is good for stock but the amount of nutritious matter is small.

"Everything that flowers in beauty, in the air of heaven, draws its fairness, its vigor, from its roots.

"Nothing living can blossom into fruitage unless through nourishing stalks, deep-planted in the common soil."

ROOTS

The roots are the vital part of the plant. When the ground is moist the plant throws out fine white thread-like roots, which are the feeders. These small roots take in nourishment from the soil and the sap distributes it throughout the plant to the uttermost branch and leaf, going up through the inner bark and down through the outer bark to the roots.

The plant breathes through the leaves. The dark green matter in the leaves is necessary for the formation of starch without which the leaves turn yellow and wither and the plant dies. When the plant is dry and suffering for want of moisture these small roots dry up and become hard. Supplied with moisture a new crop of small roots will start out to take up water and food. It is essential that vegetables shall be furnished with an abundance of water and not allowed to dry up or wilt and have any set back if you would grow large and succulent fruit.

Let us first irrigate,
Then let us investigate,
Why plants luxuriate
With water and muriate.

IRRIGATION

Vegetables require to be watered often and must never be neglected and allowed to dry up or wither. If you plant in summer and the ground is level make a trench on the side and irrigate bed from below, letting the water percolate through the soil. This method keeps the soil loose on top and prevents its baking and cracking by the sun. If your soil is sandy you will not have this trouble and can irrigate bed on top by sprinkling with water.

Lettuce, celery, radishes and plants that are about 90 degrees water do well in summer by this treatment, keeping the ground thoroughly wet, without waste of water and everything is watered evenly. Water should be used once or twice a week. Do not water too often. Let the roots absorb the salts after the water has done its work and do not drown the plant by too much water and kill it with kindness.

The French peasant grows vegetables in his little garden and often secures four or five crops a season. He secures this result by sub-

irrigation, by the use of perforated four inch tiling, which is buried in the ground about two feet deep and seven feet apart in straight rows. A piece of sewer pipe with an elbow is placed at the end of the tiling with opening just above the ground in which to pour the water, or place the hose to fill the tiling with water. When the tiling is full of water it will spread out for three and a half feet on each side, irrigating a space seven feet wide.

Straw can be put over the tiling before filling in the trench. This will prevent the holes in the tiling from getting stopped up with particles of earth. Lay the tile in the trench on a dead level. The French plant their seed in rows immediately over the tiling, but it may do as well to plant between the tiling.

Not a nice subject to be sure,
But plants thrive better with manure.

MANURES

Practically all organic manures contain nitrogen. Green weeds turned under the ground form humus and humus is a storehouse for nitrogen. Nitrogen is furnished in the most available form, in nitrate of soda. Nitrates are formed more rapidly in warm weather. Nitrate is formed by the action of microscopic organisms. All fertilizers must undergo this process of nitration before they are turned into plant food.

Leguminous crops, such as field peas, vetches, burr clover, etc., when turned under the ground and allowed to rot, supply the soil with nitrogen in addition to humus. The legumes have the power to collect and store nitrogen, which other plants utilize as food. All legumes should be turned under about the time of blossoming to get the best results. Hen manure should be mixed with land plaster or gypsum.

Barnyard manure should be confined in a pit with a clay bottom or in a rock built tank with a cement bottom or a tank built entirely

with cement, sand and rock. The pit should have a cover. Wet the manure and turn over two or three times during the summer. Horse and cow manure should be mixed, as they are helpful to each other. Gypsum should be added to prevent loss of ammonia or spread on the stable floor and thrown out with the manure.

NITRATE OF SODA

Is a very stimulating plant food. Very little should be used at one time and it may be rolled or pounded fine and mixed with sand, about half and half, before it is used. Apply it in small quantities a few days apart as a tonic, to get the best results. Place the dry mixture on the ground and wash it into the soil with water. A tablespoonful to each plant is enough. Under its influence you will see a decided change. The leaves will turn darker green and new roots will start and the plant will make rapid growth. Care must be taken not to place nitrate of soda too near the stem or leaves as it will burn and destroy the life. Placed around the plant the ground will absorb the salts, or it can be hoed into the soil. Water will dissolve it and carry it down to

the roots. A small quantity does a great amount of good, while the use of large quantities is harmful. The yield of the crop will be limited only by the quantity of nitrates the plant can assimilate. It is of special use for forcing, and the rapid development of vines and young plants. It does its best work in one season with quick results and large returns. It will sweeten sour land. Nitrate of soda is supposed to have been formed by the gradual decomposition of the manures of large and small marine animals and vegetable matter.

NITRATE OF SODA

Is found in Chili. The beds of nitrate are several thousand feet above the sea in a rainless region on a desert plain. The deposit is about twenty miles wide and seventy-five long. The surface of the bed is covered with earth and rock called costra. This varies in thickness from three to ten feet. It is blasted and removed to uncover the caliche or crude nitrate which averages three feet in thickness. The crude nitrate is dissolved and refined in boiling water in huge vats. The water is run off and the nitrate is collected in crystals like common salt. This is the nitrate

of soda of commerce. It retails at from six to seven cents a pound. Ton lots are much less.

In hilly land well rotted manure spread on the ground in early spring and plowed under does more good than the old way of carting the fresh manure out in the field and letting the rain wash it out all winter. On level ground the reverse will apply.

"Plants are an organized being, originating from a germ and nourished solely by inorganic substance."

PLANT FOOD

The Assimilation of Salts.

Plants require water, air, light and heat, cultivation and fertile soil. Every crop removes from the soil a certain amount of plant food. Manure and nitrates must be added to restore fertility. Plant food in the soil comes from decayed vegetable matter, salts and minerals found in the ground.

The three constituents of the soil most drawn upon by vegetables are potash, phosphoric acid and nitrogen. Of these most soils contain limited amounts in available form and by continuous cropping the soil becomes exhausted and the plant suffers from hunger and does not thrive. By adding fertilizer to the soil you furnish the plant its necessary food.

Humus.

Humus is the organic matter of dead leaves, plants and animals that have lived and died upon the land. Leaf mold and peat are examples. Humus is not essential to plant life. Plants do not feed upon humus but upon its component parts, potash, phosphoric acid and nitrogen, which are formed from decomposed

organic matter. Plant food contained in leaves and litter cannot be used by the plant before it is thoroughly decomposed.

Lime.

Lime is often used, not as a fertilizer, but as a means to improve heavy soils and correct the acidity in sour lands.

Potash.

Potash is necessary for the perfect development of the fruit bud, the filling out of the fleshy portion of the fruit and the formation of sugar and starch. All these give the fruit its rich color and flavor.

Phosphoric Acid.

Phosphoric acid enables the plant to assimilate or make use of the other ingredients in the soil. It has to do with the formation of albumen and hastens the maturity of the fruit. Phosphoric acid is necessary for seed formation and fertility.

Nitrogen.

Nitrogen promotes the growth of the leaf and stalk, increasing the green to a darker shade in the leaf and plant. Indication of excessive nitrogen sometimes means that potash and phosphoric acid are not in sufficient supply and is indicated by rank growth of top and imperfect blossoms.

Wood Ashes.

Wood ashes contain an average of 5 per cent potash and one and a half per cent of phosphoric acid. It is good for loosening heavy soil.

Virgin Soil.

Virgin soil will produce more and larger fruit and vegetables than land that has been cropped for years, for the reason that it is rich in available plant food.

Carbide (lime and charcoal) used in making acetylene gas is good to put on clay or adobe soil to make it porous and soft. Use the residue around plants and vines to kill bugs, insects and worms. When dry, grind the lime residue up fine and spread over the ground and dig in, or if in liquid form, sprinkle evenly over the ground and rake under.

Plants, trees and vegetables die of old age; when their allotted time on earth has passed they will wilt and die, just like animals. If vegetables or plants are not renewed from seed and given the necessary new life by nature-crossing, but are renewed by cuttings, the plant will soon become exhausted and die and a desirable variety may disappear. Many varieties of apples and potatoes formerly in high favor have died out for this reason. The life of plants and vegetables may be prolonged

and productiveness greatly increased by feeding the proper plant food. Study the wants of your plants and supply the necessary manures. The plant itself will plainly indicate what its requirements are to the observing gardener, and a soil analysis is not necessary. The following compositions of plant food are in general use:

Nitrogenous manures are composed of dried blood tankage, bone meal, nitrate of soda, sulphate of ammonia.

Phosphate manures, tankage bone meal, super-phosphates, basic slag.

Potash manure, muriate-potash, sulphate of potash, kainit, wood ashes.

He who produces a new plant, or vegetable, is a benefactor to mankind.

Luther Burbank, your achievements are a monument that will live long after you are gone. . . .

CROSSING

Crossing of different varieties of plants may be done by design or accident. Accidental crossing is done by bees and insects carrying the pollen, attached to their legs, bodies, or antennae, from one flower to another.

By design of man, by placing the pollen in certain female flowers with a fine brush and securing against further accidental pollenization, by covering the flower with a paper bag, tied at the mouth around the base of the blossom. Also by planting different varieties of the same kind close together.

A single cross of two varieties, say of squash, may produce a new variety much stronger and more productive than either parent, but the second planting of the seed, from the new variety, will often prove a failure. It may be only one in a thousand that proves and holds good. The writer once had a new variety of squash, a cross between the Summer and Hubbard. It produced twenty-seven good size squash, averaging seven pounds each, or 189 pounds to one vine. but the plants from this seed were only ordinary.

"Fie upon thee, pest."

PESTS

The Cut Worm.

A light olive green worm about an inch long with strong mandibles or nippers. It is found in the loose soil at the place it had its last meal. It goes into the ground in the daytime and works its nefarious trade at night, like any robber. It changes from a worm into a red chrysalis and again into a moth, called the gothic dart moth. Kill him on sight.

To prevent the cut worm cutting off your tomato and other plants, wrap paper around the stem before planting, as he will not cut through the paper. Or sprinkle wood ashes around the plant. He does not like to crawl over the ashes. Kainit of potash salt is often helpful in destroying this and other underground pests.

There is a small white worm that destroys young squash vines by boring into the stem and root and killing the vine. It is the larvæ of a small beetle with two yellow stripes on its back and looks like a lady-bug. It is called the cucumber beetle. Use lime around the root to destroy the worm. Some may think toads are a pest, if found in large numbers. No, the toad is the gardeners best friend. It destroys cut worms, bugs and beetles.

Corn Worms.

Open the ear of corn while in the silk and you will find a large pink and white worm eating its way through the young corn kernels, down the husk into the cob. It is the larvæ of a beautiful moth. The larvæ enters the ground to pupitate, after filling up on the milky corn. Destroy the worm "before it turns."

Aphis.

It attacks flowers and leaves. It is a small winged insect. Color white, yellow and brown. They are about three-eighths of an inch long with soft bodies. They are easily killed with a spray of soap and water, or take tobacco stems and boil them in water, use the juice with more water added to spray the plants. Whale oil soap dissolved in water is a good compound, but rather disagreeable to use.

Slugs and Snails.

They generally work at night and can be found in the daytime under the leaves and in dark places, under boards. Take a lantern and hunt them at night. Slacked lime placed around the plant will keep them away. Salt placed on their bodies will dissolve them.

Squash Bugs.

Look out for squash bugs in the month of June. The bug is about half an inch long, the female being a little larger than the male and they are usually found in pairs. The female lays its eggs on the under part of the stem of the leaf. The eggs are brown, the size of a pin head and arranged in rows. The young bugs grow rapidly and are as destructive as the parents. The small bugs are bluish black and soft, without wings. The adult is about three-fourths of an inch long with black body and a narrow line of yellow running around the outside of the body and head. The body under the wings is red. They work at night, but are found around the stem and under the leaves in the early morning. Catch them and immerse them in kerosene, placed in a tin can. Put lime water around the roots and dust slacked lime over the plant around its base to keep them away.

Use tobacco stems soaked in hot water and cool before using. Pour the mixture around the roots of squash and melon vines to kill the larvæ of the striped beetle, which bore into the roots and kill the vines.

Saltpetre will kill insects and is a good manure. Dissolve one pound of saltpetre in four gallons of water.

Weeds.

If we do not keep the garden clear of weeds they will rob the vegetables of plant food and moisture, as they are stronger and the vegetable will dry up and die. We are doing our best to grow vegetables, and the sooner the young weeds are destroyed the better. If allowed to grow the roots get longer and harder to pull up. Weeds are very unsightly in the garden and should never be allowed to grow, even in unused places. A garden does not look thrifty, or neat, if one weed is in sight.

A certain kind of weed will grow thickly in a certain place for one year and the next season almost disappear. The seed seems to run out and the plant food is exhausted for that kind of weed.

The pig-weed is the most common of our weeds. When you think you have hoed up all the weeds this small summer weed will grow fast and you will have to go over the same ground two or three times before you have killed them all. The ground is full of weed seed. As you plow or turn up new soil you will expose seed that have been waiting generations for a chance to grow. You can never get rid of weeds in the garden, but discourage their growth with the hoe and never allow a weed to mature and scatter its seed.

You can kill weeds and grass on a path or playground by sprinkling the weeds with a hot brine of salt and water.

Gophers and Moles.

Set a trap as soon as you discover an open hole or fresh mound of earth, where the gopher has thrown the dirt out. Place the trap in as far as you can reach, about a foot, and cover up the hole. Be careful when you pull the trap out, as you may have caught him by the skin of the belly or one toe and will tear the skin and he will escape. If the trap does not come out easily dig him out and take no chances. Gophers are herbivorous and destroy vegetables, plants and trees. You can poison them with a little arsenic placed in a turnip, carrot, raisin or prune. Place the poisoned fruit in the hole and cover up the opening. Use gloves on your hands when you set a trap or use poison, to keep the scent of your body from the animal you wish to destroy. Sometimes you can drown him out with water from the garden hose.

Moles.

Moles are insectivorous and do not destroy vegetation, with premeditation and aforethought. They sometimes work in a new sown bed and push the ground up, disarrange the seed and even kill young plants by uprooting them. They make these burrows when they are hunting for worms and insects, but it is just as well not to have them for visitors. Cats will catch and eat gophers but they do not like moles or blue jays. Sometimes you can catch a mole in a gopher trap, but it is an accident and not worth the trouble of setting a trap. This is the best way to destroy them. Watch and catch them working and pressing the earth up; force a spade down behind the moving earth and throw the mole out and destroy him. Moles may be driven away by obstructing their passageways with sticks dipped in tar.

BORDEAUX MIXTURE

This is the most common spray in use and is the reason we give the recipe for making it. It will kill the scale, mildew, worms and diseases of plants and trees.

Dissolve four pounds of sulphate of copper in four or more gallons of water. Take four pounds of unslacked lime and place in a tub and add water until slacked. When the lime has cooled, pour it into the copper solution. Mix the fluid by constant stirring. Add water to make 40 gallons. Strain through a cloth or burlap before using, so as not to clog up the fine mesh of the spraying machine.

TO THE READER

I hope the book will strike you right,
For I have tried with all my might.
And trust, a tiny ray of light,
May cross my path to make it bright.

AN APOLOGY

Reader, excuse my verse and jingle,
Where grey-matter and soil so intermingle,
The subject was so dirt dry,
A bit of fun I thought I'd try.

[THE END.]

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