The image shows a close-up of a marbled paper pattern. The pattern consists of irregular, organic shapes in shades of brown, tan, and cream, set against a dark blue or black background. Small, bright red spots are scattered throughout the design, adding contrast. The overall effect is a complex, multi-colored, and textured surface.

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THE NEW
ONION CULTURE

A STORY FOR YOUNG AND OLD

WHICH TELLS HOW TO GROW

2,000 Bushels of Fine Bulbs
ON ONE ACRE.

THE NEW SYSTEM FULLY EXPLAINED.



By T. GREINER

Author of "HOW TO MAKE THE GARDEN PAY," "PRACTICAL FARM CHEMISTRY," ETC.

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JANUARY, 1891.

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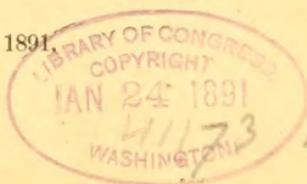


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JANUARY, 1891



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THE

WHYS AND WHEREFORES.

A SORT OF INTRODUCTION.

“If I were a tailor, I’d make it my pride
The best of all tailors to be ;
If I were a tinker, no tinker beside
Should mend a tinkettle like me.”

WHO has never met the “Jack-of-all-trades” —knowing a little of all, and being proficient in none—a clever sort of person, and handy to have around as a “general utility” man, but never rising above the level of mediocrity in anything, or able to aspire to great things, or command large pay! The man who excels, even in a seemingly unimportant specialty, is the one who will achieve a brilliant success and command big pay for his work.

Some of my readers undoubtedly have heard, or read, the old fable of the fox and the cat.

A Fable. The story, like other fables, has a moral, and is worth repeating. The two animals met in the woods, when the voices of hounds were heard in the distance.

“Poor pussy,” said the fox, “what will you do when the dogs get after you?”

“I know a trick,” replied the cat, “and am not alarmed.”

“One poor, contemptible little trick!” the fox exclaimed in derision. “Why! you are to be pitied. I have a whole bagful of tricks.”

The hounds, in the meantime, had come pretty close, and conversation was brought to a stop. The fox sped through woods and fields and meadows, playing one trick after another, in the vain attempt to throw the hounds off the scent. The pursuers remained on his track, and finally overtook and grabbed him.

In his dying moments he looked up, and saw the cat in the top of a tall tree, safe from molestation. “Your one trick is worth more than my whole bagful,” sighed he, and expired.

Many farmers are situated pretty much like the fox in the fable. They have a whole bagful of tricks by which they hope to escape the usurer, and perhaps the sheriff. They raise a little wheat, and a little oats, a few potatoes, a little hops, some berries, a few hogs, or a cow, a horse, etc., things which probably cost them \$1.25 for every dollar they get for them. They try one trick after another, or two or three at a time, changing from one thing to another; and the harder they try, the harder they find themselves pressed, and at last—pity 'tis, 'tis true—in only too many cases they meet a fate somewhat like the fox's.

The whole bagful of ordinary tricks does not

save them; but the one special cat's trick of climbing up to the top of tree or ladder will

The Cat's Trick. never fail to give a way of escape. To rise above the heads of the crowd—that is the trick worth knowing, and it makes very little difference whether you climb up a tree, or a pole, or a ladder, though you get to the top. Learn the one trick well, and you 'll be safe.

What I wish to do in this little work, is to tell you of a genuine cat's trick which I have recently discovered—the trick of climbing up to the top in onion culture.

To grow larger and better bulbs, and more bushels on a given area, than anybody else, has always been my aim as an onion grower. My chief and almost only competitor has been the grower in California, favored by that wonderful climate. It would be idle in me, the eastern grower, who has to operate with old, well-worn soil, and a short and unreliable season, to enter a race for biggest yield with the grower in a state, where bulbs, weighing five pounds and upwards a piece, can be produced in open ground by ordinary good culture.

**Formidable
Competition.**

How we were beaten quite badly by a California party, in 1890, in consequence of climatic and atmospheric conditions which were favorable to our competitor, and exceedingly unfavorable to us, will be told later on. I am,

however, still in the field for further tests of strength, notwithstanding all the drawbacks of climate and worn soil, for

“ I’ve made it my pride
The best of all growers to be.”

The greatest obstacle is in myself—my love of gossip. If I find out a trick or secret that I am sure is of value to the world at large, I can not bear to keep silent but must tell it at once to everybody.

Now I have discovered such a “secret” in onion growing, one which eliminates every element of uncertainty from the whole business,

**A Valuable
Secret.**

and gives me such advantages that even California people would not stand the ghost of a chance in competition against me for best crop, so long as they practice only the ordinary old method. It’s mere child’s play for me, or anybody that follows my new plan, to grow two or three times as many onions on an acre as professional growers do under the old method, and to send bulbs to market over which the commission merchants, and the storekeepers, and consumers themselves, can grow enthusiastic; bulbs, too, which are readily selling for \$1.00 a bushel, when ordinary onions bring 80 cents.

Now here is a secret worth money; and if I had been shrewd enough to keep the matter to myself, and work it for all its worth, I might make a nice round sum of money by a discretion which, as usual, is the better part of valor.

But it is n't my nature. I have to give the whole thing away, and teach my would-be-competitors the ways in which they may possibly beat me. So I shall at least not be open to the charge of taking an unfair advantage of them.

On the other hand, I claim considerable credit for the discovery of the new method. I admit I am not the first person to transplant onions. On a small scale, specimens have been grown in England for exhibit in a similar way; various growers have for generations employed the transplanting process for filling out gaps in their onion rows; and others have practiced a plan almost identical with mine in growing early onions for bunching. But to apply the principle to field culture, to reduce the crude plan to a system, and to practice, advocate, and teach it in advance of all others—that, I claim, is my merit.

Credit is also due, however, to Prof. W. J. Green, of the Ohio Experiment Station, who has worked out this same problem, simultaneously with me, but entirely independently. Neither of us knew that the other was following the same track. I got somewhat the start of Mr. Green, by getting the results of my investigations before the public first. The first, though brief, description of the novel method appeared in "How to Make the Garden Pay," written by me in autumn 1889, and published by Mr. Wm. Henry Maule, of Philadelphia, at the

beginning of 1890. Prof. Green is almost more enthusiastic in regard to the new onion culture than I am myself. In a general way he has come to exactly the same conclusions that I have. This endorsement of the new idea has been a matter of much satisfaction to me, for it can only serve to strengthen an already strong position.

In the following pages I tell the story of the prize crop that failed to get the prize; the story of the crop which was a big success for the novice, and a dismal failure for the expert. I have tried to make every detail of the new onion culture perfectly plain, so that even the beginner can go to work at once with a prospect of growing not less than 1,000 bushels on an acre in a poor season, and twice that amount in a good one.

I wish it distinctly understood, however, that I teach how success can be attained, but that I do not guarantee it. My method has to be

A Disclaimer. learned like any other business operation. My emphatic advice is to begin on a moderate scale. Plant an ounce or two of seed, learn what can be done, and then if you wish, plant a larger patch. *It is always safer to grow into a specialty, than to go into it.*

The information given in this little work I know to be valuable. The professional onion grower who takes advantage of my advice and

teaching will see his annual profits increased by hundreds of dollars. Consequently I do not fear anybody will question that the infor-

mation is worth its price. As agricultural literature goes, now-a-days, the price I ask for

**The Secret
Worth its Price.**

a little work like this may seem high, but I should be conceded the privilege of setting my own figure on my own professional advice; it is for this alone—for the information—that I charge; not for the paper and the print.

Suppose, after a careful perusal of the following pages, you order a single paper, or a single ounce of onion seed, of one of the varieties hereafter named, and treat it as did our young friend in the story, and according to my advice, you will be pretty sure to raise a crop worth from ten to hundred and more times the purchase price of this little volume.

I had still another object in view in writing the “story of the prize onion crop;” a story of

**Horticultural
Training for
Your Boy.**

success achieved by a young greenhand under my advice and direction. What was done by

Gerold, in this case, can be done

by any wide-awake youngster of ordinary intelligence. This story will show him an easy way of earning a little pocket money of his own, and of growing a crop of which he may be proud, and which will take the prize at horticultural fairs notwithstanding the competition

of the "old experienced" onion grower who works still on the old plan.

And what a horticultural schooling and training this affords besides! Can there be a better opportunity for awakening your boy's interest in horticultural matters and making him study up horticultural problems for himself, than by putting a copy of this book, and a package or ounce of Prizetaker onion seed into his hands, and a few square rods of good land at his disposal for a start, with these words:

"Here you have the story of Gerold, and all needed requisites. Now go and see what you can do?"

It will be worth more to your boy than if you were to present him with a clean \$100 in cash.

What say you, dear reader?

T. GREINER,

Jan. 1, 1891.

LA SALLE, N. Y.

FIRST CHAPTER.

WELL BEGUN—HALF DONE.

HOW THE PLANTS ARE GROWN.

GEROLD usually knows a good thing when he sees it. He saw the splendid Prize-taker onions grown in my garden, in 1889, by the new method, and he knew this was his chance.

“Had n't I better raise a big patch myself, next year?” he suggested one day, after he had done considerable mental figuring on cost and profit.

I knew my young friend to be a very impulsive youth, but I was not convinced of his perseverance. So I tried to show to him—the greenhand in onion culture—the magnitude of the task, and what an elephant he was going to tackle; but Gerold was bound to make the trial.

The boy appeared so eager, that at last I became enthusiastic in his behalf myself.

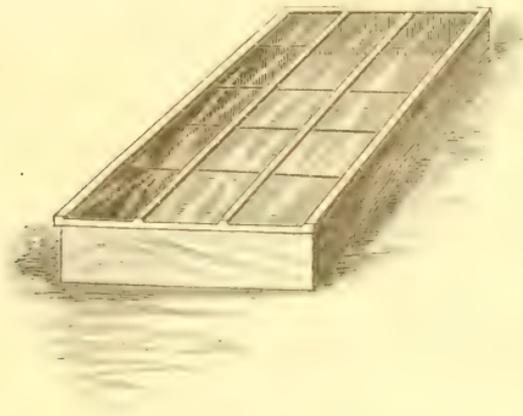
“ Why not try for the \$50 prize offered by one of our prominent seedsmen, for the largest crop of Prizetakers grown from one ounce of seed ? ” Gerold’s face beamed with pleasure when I offered this suggestion. The unfortunate habit of “ putting off until to-morrow what might be done to-day,” interfered, however, with the prompt ordering of the seed, and before this came to hand, April had arrived. This delay was a blunder which cost Gerold many bushels of onions. It became plain, in the course of the season, that the crop was reduced not less than one-third, or more, from this cause—but it was a lesson which will not easily be forgotten. The seed, of course, was planted the same day as received, but at that time I had plants in my frames already large enough for setting in open ground. An early start is the chief condition of full success. Without it, the undertaking is not *well begun*: with it, it is really more than *half done*.

At once, after ordering the seed, Gerold had prepared a little cold frame three feet by six, or just large enough for an ordinary hot bed sash, such as happened to be at hand. The picture of frame, on opposite page, will give the beginner an idea how it looks. It is a simple box, slanting from rear where it is about twelve inches high: to front, where about eight inches high. This

Trying for the
Prize Crop.

The Cold Frame.

box is set directly upon the ground in some well-drained and well-protected sunny spot, facing south or south-east. It is then filled

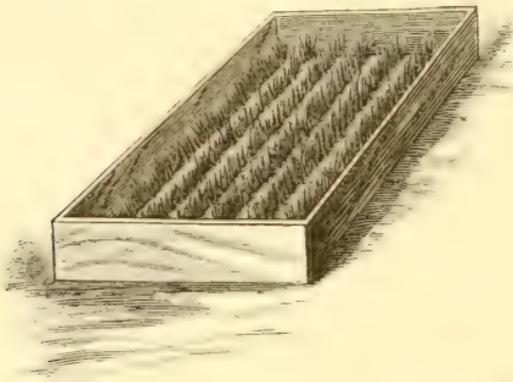


ONE-SASH COLD FRAME.

with a mixture of good turfy loam, sand, and fine old compost to about four inches from the top. Ordinary rich garden soil, freed from stones and rubbish by sifting, and further enriched with fine compost, well mixed and sifted together, will also answer every purpose. The

The Seed Bed. surface is made fine and smooth with a steel rake, and marked off with straight furrows from front to rear. They are easily drawn across with the handle of the rake, or with a little stick, or even the finger, and should be about an inch deep, and four inches apart.

Such was the frame and seed bed as Gerold had prepared. The ounce of seed was evenly scattered over the whole surface of the bed, and each furrow carefully filled in again with the hand. The latter operation buries all the seed in the furrows. Afterwards the soil was well firmed by patting it with the face of the rake, or by means of a piece of board. Now the sash was put on, and the bed left pretty much to itself, except giving air on fine days, and an occasional thorough watering when the soil seemed to become very dry. As the season



PLANTS READY FOR TRANSPLANTING.

advanced, the sash was removed, at first partially, and then entirely, in order to harden off the plants, which is an important matter. In from four to six weeks after sowing the seed,

the plants were ready for transfer to open ground, and there were just 5,000 of them, appearing then as shown in illustration, page 18.

I have told and illustrated this for the benefit of the youngster who very likely knows nothing about the construction and use of cold frames. For the benefit of the market gardener, and all those that wish to grow onions on a larger scale, I will say, that I am making the rows only three inches apart, and use about one and one-half ounces of seed to the sash. The

Planting an Acre. eleven rows thus give me about 8,000 good plants, and

as we have to calculate on about 130,000 plants for an acre, we should use a frame of about fifteen sashes to get plants enough for a one-acre patch. Perhaps it might do to crowd the plants still more, and grow the needed plants in a twelve-sash frame. At any rate we will require about one and one-half pounds of good

Quantity of Seed Required. seed to grow an acre of onions in this way, if we plant for largest yield on that area. The

old method requires six or eight pounds of seed per acre. The saving of the difference is an advantage of the new method, and although one of the less important ones, is yet worth mentioning when seed costs \$5 or \$6 a pound.

The plants can be transplanted at almost any stage of growth, from the tiny thing not bigger than a darning needle, as found three weeks

after sowing the seed, to the vigorous and well-rooted plant of pencil size, and larger. When of about $\frac{3}{16}$ inch in diameter, however, they are of the best size for the operation. They are then more easily handled, and there will be a smaller percentage of loss than when the plants are smaller. When planting on a large scale, we may need several weeks time for the job of transplanting. So if we want the plants all just at the right size, it would be better to sow only a few frames at a time, at intervals of several days, to have the plants come in proper

Time of Sowing. succession. The first lot may be sown six weeks before the

time that the soil is usually in good working order. For this vicinity (Western New York), for instance, I begin to sow about March 1st, or even a week before, and at intervals until March 15th, when the last seed should go in. In an emergency frames, covered with waterproof cloth (muslin painted with a mixture of linseed oil and raw egg) may answer, but glass is by all odds the best and safest to use.

For the first sowings, and in localities with rather severe winters, it may be necessary to use a hot-bed with moderate bottom heat in place of the cold frame. In that case, get for each single sash a one-horse load of fresh horse manure (from well-fed horses), preferably mixed with quarter its bulk of dry forest leaves, and place an even layer, eighteen to twenty-four

inches deep, either in an excavation of about the same depth, or directly upon the ground, and upon this manure place the frame and the soil for the seed bed.

What varieties to select for our purpose, is



PRIZETAKER ONION.

a leading question. I prefer the *Prizetaker* to all others. It seems especially calculated for the new method.

**What Varieties
to Plant.**

I consider it the finest, handsomest and largest onion now in cultivation in America, and its flavor most excellent. Any gardener can fall in love with this variety. If well grown, it closely resembles the imported

“Spanish” onion kept on sale at groceries and fruit stores. Next to Prizetaker, and somewhat similar, is *Spanish King*, also a grand onion, but not equal to the other.

Prof. W. J. Green thinks that the old standard varieties—the Wethersfield Red and Danvers Yellow—are also suitable sorts for growing under the new system. I do not yet put forth any such claim. I believe, however, that the *White Globe* (*Southport White Globe*) will do beautifully when thus grown, and I shall plant it quite extensively next season. The white onions, for the last few years, have brought exceedingly good prices.

There are also a number of others, newer and older, among the foreign (Italian) varieties, such as the *Silver King*, the *Giant Roccas*, *Tripoli*, etc., etc., which might be grown with advantage by the same method; but as most of these sorts are poor keepers I prefer those first-named. Prof. Green writes me, however, that the *White Victoria* has done very nicely with him, and that he considers it superior to any white sort tested at the station grounds.

SECOND CHAPTER.

AS YOU MAKE YOUR BED, SO YOU 'LL LIE.

WHAT SOIL TO SELECT, HOW TO MANURE AND
PREPARE IT.

“**W**HAT spot would you advise me to select for my onion patch?” asked Gerold, after we had sown the seed.

We had a piece of good loam, not very fertile, 'tis true, but having been cropped with carrots and beets the year before, consequently quite clean, and in fair tilth. It is underlaid with a kind of quicksand which supplies moisture by capillary action even during a dry spell, while the excess of water is carried off by tile drains.

“Here is the exact spot that you want,” said I.

“Why not plant it on that deep, rich muck?” came the next query.

“It is too loose, too deep, too rich way down, and decidedly too moist. The fine Prizetakers might all take a notion to grow up thick-necked—romps, scallions—and worthless for sale or keep. By all means take loam, sandy preferred, and if possible with good natural drainage, but certainly not without drainage of some kind. Water should never stand on the surface of an onion patch even for a single day.

Of course, the soil must be free from stones, and coarse gravel, and rubbish of any kind, and as near as possible, also from weed seeds. A new clover sod that will pulverize nicely will do first rate; but if the sod is old and tough, it would hardly be suitable for our purpose shortly after being broken. A crop of potatoes, corn, beans, beets, carrots, cabbages, etc., will get such sod land in admirable shape for a succeeding crop of onions.

Of course, my advice decided the matter concerning the spot to be used for the prize crop, and the sequence proved the choice to have been a wise one. The seven weeks' drought in July and August, which came very near killing a big patch of the finest onions for me, which had been planted on rich loam underlaid with stiff clay, but thoroughly tile-drained, had but little effect on the plants of the prize crop, as the porous subsoil allowed the passage of sufficient moisture from the underground reservoirs, to keep the crop in growing condition during all

that long dry spell. This advantage of porous subsoil should be well remembered in the selection of soil.

Gerold's piece of land had been well plowed the fall before, in narrow beds with deep furrows between, that provided thorough surface drainage during the seasons of super-abundant rainfall.

"Shall I plow the land again?" Gerold asked when the plants were nearly large enough for transplanting.

"No, sir; no need of plowing it again when we have such excellent harrows to stir the surface sufficiently deep."

"What about manure?" Gerold asked again. I pointed to the big heap of fine cattle-yard manure, consisting of cattle droppings and urine-soaked sand and soil, several car loads of which were bought and stored during the fall before.

**Manuring
the Land.**

"Put it on thick!" I said, and Gerold was ready enough to follow the injunction.

The fact is, that any kind of good compost may be used, and it can hardly be put on too generously. For next season we have plowed an acre of land of the same general character as that used by Gerold, and we are now putting on three car loads of such cattle-yard manure broadcast. I like to have the fine compost several inches deep over the whole surface.

We also had a lot of old poultry manure, and

this was applied broadcast on top of the first dressing. Poultry manure is most excellent for onions, and there is no need of being afraid of it. My way of managing it, is to scatter some dry soil, muck, or sifted coal ashes under the perches from time to time. Thus I obtain a fine, dry, rich compost, and I would not hesitate to put this one-half inch deep all over the ground if I could only get enough of it for such a dressing. It brings the onions every time.

**Poultry
Manure.**

Besides these manures I would use everything else I could get hold of in the shape of fertilizing materials, such as wood ashes, leached and unleached, etc., but I should not use raw manure, especially if not entirely free from weed seeds.

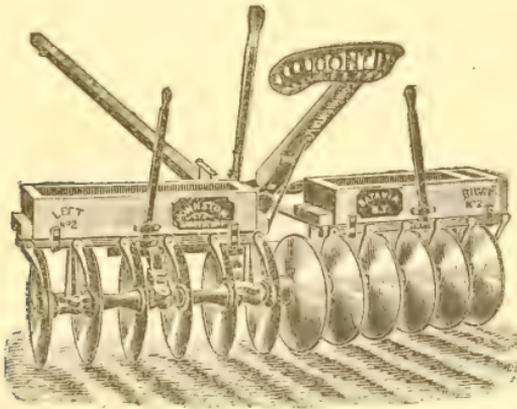
“Shall I put on any fertilizer?” was Gerold’s next question.

“If under this term you mean one of the concentrated manufactured manures, such as Mapes’ potato fertilizer, or any other high-grade complete manure, as made and sold under the name of “special vegetable manures,” why, yes, but not until the surface of the soil has been well stirred up, and the compost mixed in by means of the Pulverizer.”

**Concentrated
Manures.**

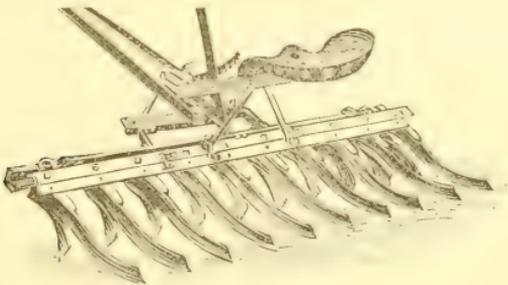
One style of “Disk” Harrow or Pulverizer, and the “Acme” Harrow are shown opposite. The former cuts deep, and works the ground over very thoroughly, and I prefer to use it

first, then follow with the Acme which smoothes the surface, that the Disk has left



DISK PULVERIZER.

somewhat ridged. In the absence of an Acme, an ordinary smoothing harrow will do very



ACME HARROW.

well. Should neither Disk nor Acme be at command, I would use a narrow-bladed culti-

vator, perferably the Planet Jr. horse cultivator, manufactured by S. L. Allen & Co., of Philadelphia, Pa., stirring up the whole surface, and thus mixing the compost with the soil.

With a heavy dressing of fine rich compost, and additional applications of hen manure, ashes, etc., the use of concentrated manufactured manures (the "fertilizers" of common farm parlance) might be very well dispensed with, but I dislike to omit it even then, as it may serve to make an assured success still doubly sure.

Under some soil conditions—in rich old gardens, or peaty soils, for instance—we might operate with concentrated manures without compost, etc., but if you wish to see very clear in this matter, I would advise you to study my "Practical Farm Chemistry."

The Mapes' potato manure was at hand. The only query was, how much to apply. I advised the use of about 1,000 pounds to the acre; for, with liberal manuring, such as here described, the application of larger quantities would probably be little else but waste. The "fertilizer" is sown broadcast on the surface, now

Preparing the Soil. reasonably smooth, and also stirred into the soil, but this time with the small Disk or Meeker harrow. This makes the surface about as even as could be done by hand raking, and in one-tenth or one-twentieth the work or time required for the

latter operation. The Meeker harrow is advertised by some of our leading seedsmen, among them James Gregory and P. Henderson & Co. It costs about \$25, but it is a great labor saver, and almost indispensable in the market or farm garden. The ordinary steel rake, however, is good enough for smaller patches. Whatever tools you use, the surface should be smooth as a board, and the land is then ready for planting.

My friends may call my way of manuring "high," if not excessive, or extravagant. But

Nitrate of Soda. I am not yet satisfied. While the 2,000 bushel crop in many cases can be secured even with less generous manuring than I recommend, I would consider the work but imperfectly done when nitrate of soda is left out. But this I apply later on, and I will tell how, in due time.

THIRD CHAPTER.

A DIFFICULTY EASILY OVERCOME.

HOW THE PLANTS ARE SET IN OPEN GROUND.

TO transplant a few hundred onion plants is not a formidable task, but when you set 130,000, covering an acre, you have a big job on hand, and no mistake. Indeed, it is *the* work connected with my new onion culture; all the rest of it is easy—mere child's play, I might say.

The
Real Work.

Gerold, who had imagined that setting his 5,000 plants would be only a few hours' job, and an easy one at that, soon discovered his mistake. Unused to out-door labor, he soon wearied of the task, especially while working alone, and could not be induced to keep at it more than a little while at a time. So the work dragged along slowly, until hired help was called to his assistance, and the work speedily finished. By the way, this is not a new lesson. Nobody

should expect to see much work done, when a youngster is set at a tedious job all alone by himself. Let him have good steady company and he will do all right.

To plant one acre, we have to set 130,000 plants, as already stated. I can get boys, that, with some practice, will set 2,000 to 3,000 plants a day, and nimble-fingered persons used to garden work, will easily set 4,000. The job of planting an acre is therefore equivalent to probably not less than 30 to 40 days' work, and in some cases this estimate may be considerably exceeded, but the amount of \$50 should be more than enough to pay for the whole job.

Transplanting so many onions may be a costly operation, but it relieves us of much, if not all hand-weeding, and entirely of the job of thinning. Old onion growers know something about the tediousness and costliness of these operations. The saving, in these respects, more than pays for the labor of transplanting:

**On Advantage
of Transplanting.**

hand-weeding, and entirely of the job of thinning. Old onion growers know something about

the tediousness and costliness of these operations. The saving, in these respects, more than pays for the labor of transplanting:

“How far apart shall I set my plants?” comes the next inquiry.

As I wish to raise the largest crop on an acre, I plant close. No use wasting space and opportunity.

**Width
of Planting.**

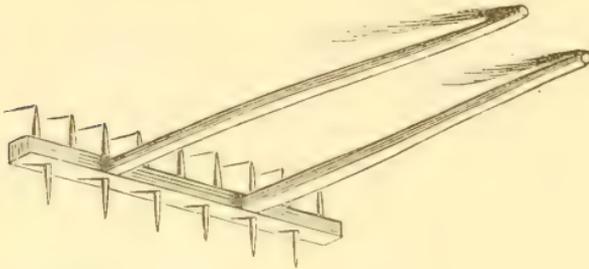
Twelve inches is space enough between the rows, and four inches enough between the plants

in each row, even for the Prizetaker and other large varieties. Three inches space between

the plants would be sufficient for the White Globe, Danvers Yellow, and other American sorts.

The marker we use is a simple home-made affair, still simpler than the one illustrated below. The teeth, made of 1 by $\frac{3}{4}$ inch stuff, and 8 inches long, may be just nailed to a 3 by 3 inch piece of proper length, so that the points will be 12 inches apart. I like to have two poles

Marking
the Land.



SIMPLE MARKER.

fastened to the scantling in thill fashion, and a convenient handle back of the scantling for better guidance. I should always prefer to have two persons operate it, one to draw it and the other walking behind and keeping the lines or marks straight. They need not be deep or broad. All we want of them is to guide us in planting.

Straight and uniform rows, and uniform distance between the plants, add largely to the

attractiveness of the patch, even if they were not of practical usefulness in facilitating the work of cultivating, and perhaps otherwise. Consequently we mark off the land both ways. Only the long rows need be straight, and they should not be marked off much in advance of planting. The cross marks merely serve as an aid in planting the onions at uniform distances in the rows; consequently we just draw the marker across the long marks in any way we please, and without troubling ourselves whether this is done in straight or crooked lines. One plant is to be set into each cross mark, and two plants between each two, which makes three plants to the foot of row. Of the ordinary varieties (Yellow and White Globe, Danvers, etc.) we set three plants between each two cross marks, which gives us four plants to the foot. "How is the planting done?" you ask.

The first thing needed is a small dibber, which may be made of a piece of seasoned hard wood,

**Setting
the Plants.**

six inches long, one inch in diameter at larger end, and tapering to a point at the other. The operation of setting the plants is made so plain by the illustration on the next page, that little explanation by words will be needed. Open the hole with the dibber and insert the plant, not over an inch deep. Then strike the dibber into the ground an inch or so back of the plant, and, using its lower end as a pivotal

point, draw the upper end towards you, thus pressing the soil firmly against the underground part of the little plant. This, of course, leaves another little opening a little back of the plant. This may be closed, and the surface somewhat smoothed by another light stab or so with the



SETTING THE PLANTS.

dibber, or a simple manipulation of the fingers.

A broken kitchen knife ground to a point, or a little flat steel dibber with handle, such as illustrated on the opposite page, and as may be made by any blacksmith at small cost, will also do good service. In opening the hole, have the flat side of knife or dibber facing you, and pull the top just a little towards you. Then insert the plant back of the dibber, withdraw the latter and strike in again back of the plant, pressing the soil against the roots in the same manner as was done with the wooden dibber.

The most expedient way of managing this whole business is as follows: Take up a lot of plants from the seed bed, which may be done by running the point of a small trowel under them, and lifting them out. Carefully separate



BROKEN KNIFE.



SMALL DIBBER.

and straighten them out. Then let a boy take a basketful and drop them just ahead of the planters. Of course the work should be begun just as soon as the ground can be got in proper shape. It must be moist and crumbly, but not wet and sticky. Begin with the plants that were started first, or are largest, and carry the job to completion as speedily as possible.

The great trouble Gerold had with his "prize crop" was the delay in transplanting, which was to a small part due to the rainy season and the spring floods, and to a much larger part Gerold's own fault. The result showed very plainly that the difference of a week or two in time of planting with this crop may make considerable difference in the yield—of course in favor of early planting.

FOURTH CHAPTER.

A PERSEVERANCE THAT PAYS.

TILLAGE AS MOISTURE PRESERVER AND WEED KILLER.

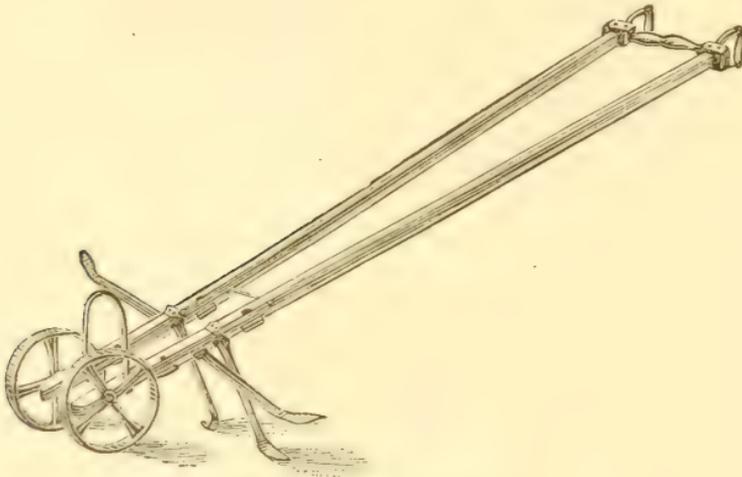
LITTLE needs to be said to the expert gardener about cultivation and its objects. He knows the importance of keeping the soil well stirred among all garden crops in general, and among onions in particular. "Tillage is manure" is an old saying. In the present case, however, we care little about the manurial effect, for we have provided plant-food in great abundance. The great benefit we expect from cultivation, is the preservation of moisture, and incidentally the destruction of weeds. An inch or so of loose soil acts as a mulch, and a most excellent one at that, which prevents the rapid evaporation of the soil water. The moisture rises through the compact soil, by means of capillary action, until it reaches the stirred portion. Here its progress is arrested,

**Objects of
Cultivation.**

and the only way to reach the surface, and escape in the air, is by evaporation, which is so greatly retarded by the loose layer of soil.

The chief tool required for the process of soil stirring, is a good hand wheel-hoe, arranged for straddling the row. I use both the Planet Jr. double wheel-hoe, and Gregory's finger weeder. Sometimes I think the one and sometimes the other

Tools for
Tillage.

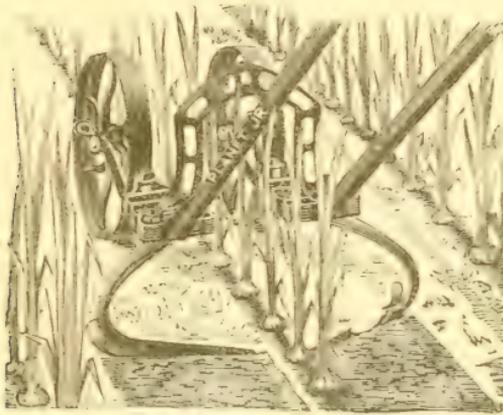


FINGER WEEDER.

does better work. Perhaps it depends somewhat on the condition in which the soil happens to be. Either one, however, is a perfectly reliable tool for the purpose. There may be others nearly as good. This weeder was introduced by J. J. H. Gregory, Marblehead, Mass.

Whatever wheel-hoe you have at your command, use it thoroughly and frequently. As soon as there is the least sign of a crust over the surface, start the wheel-hoe without delay. The mulch of loose soil should be kept on the ground all the time.

Running a wheel-hoe is not heavy work. The average boy will rather enjoy it. Gerold



PLANET JR. DOUBLE HOE.

needed no particular coaxing to do the job at proper season, and to do it well. In reality it is probably the least tiresome work in the whole business. An acre can be gone over by one person, even a boy, inside of one day.

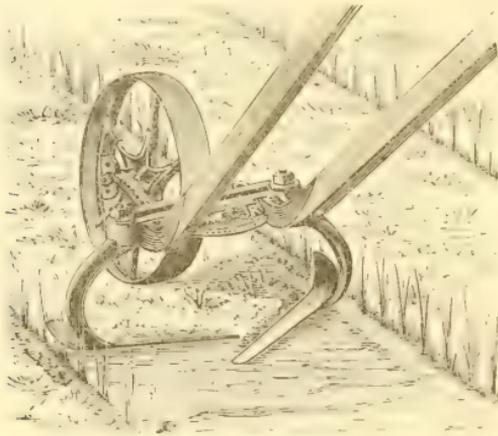
As the season advances, I also occasionally like to use a wheel-hoe or cultivator between the rows. For this operation the Planet Jr.

single-wheel hoe (with cultivator teeth) is my first choice.

“Is no hand weeding to be done at all?” you may ask me.

That depends. If the soil is of a weedy character, or the patch is neglected for any length of time, we may find considerable work—and disagreeable work—to do on hands and knees. With timely attention little is needed, and that little can be done very effectively by means of

**Hand
Weeding.**



PLANET JR. SINGLE WHEEL HOE.

the Langs's hand weeder, or of a kitchen knife the blade of which is bent in the shape of a curve, and sharpened on both sides. The way the hand weeder is used is shown opposite.

A most excellent tool for taking out the weeds in the rows from between the plants, can be easily made from an old worn-out hoe. Cut the blade down as shown on next page; leaving the lower part (between the corners) only about 2 or 2½ inches wide. With this sharp-

Home-made
Onion Hoe.



LANG'S HAND WEEDER IN USE.

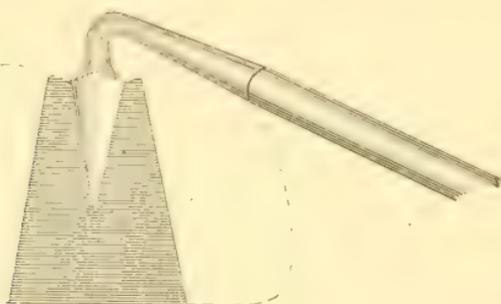
cornered tool you can strike between the plants, cutting out the weeds, and loosening the soil. This manipulation, and the free use of the wheel-hoe, will usually be all the cultivation needed. But the hand which wields the sharpened hoe should be a careful one, and be guided by a head possessing a fair degree of intelligence.

“Is nitrate of soda a factor in this after-cultivation?”

Of course I use it, and I would hardly wish to be onion an grower if I had to do without it.

The plants are hardly in the ground, when I begin with a dressing of about 75 pounds per acre of nitrate of soda, sown broadcast in the same way as wheat is sown.

These dressings are repeated about every ten days until along in July. Mr. Joseph Harris



A GOOD ONION HOE.

thinks the whole application might be made early in the season all at once, say at the rate of 500 to 750 pounds per acre, but I am too choice with the costly nitrogen, and prefer to apply as stated—in five or six applications, requiring in the aggregate from 375 to 450 pounds per acre. The application can be made at almost any time, rain or shine.

FIFTH CHAPTER.

A TIMELY PULL AND HAUL.

WHEN AND HOW TO HARVEST THE CROP.

NOW we come to an important point in our undertaking. A little neglect in pulling and hauling may result in great damage, if not ruin to the crop. I know whereof I speak.

**Danger
in Delay.**

When grown by the new method, the onions mature several weeks earlier than they would if grown in the old way. If the mature bulbs are left in the ground, especially if ripened somewhat prematurely by a dry spell in July and August, and a long period of rain should follow as sometimes happens—and it happened the past season—growth will be renewed; and we might just as well try to make water run up hill as attempt to stop an onion from growing when once started. Of course this second growth ruins the bulb for market.

A lesson which I have learned by costly experience is, that the crop should be pulled just as soon as the bulbs have reached maturity.

“How am I to know,” asked Gerold, “when the onions are fit for pulling?”

“The tops fall over at maturity, and begin to waste away, the substance being gradually absorbed by the bulbs. So, when the majority of the tops are dying down, your time has come. Don’t wait any longer, especially if it is getting pretty well along in the season.

**Signs of
Maturity.**

Some of the tops may yet be green and standing up like soldiers, but it matters not. Pull the crops and leave on the ground. The bulbs will absorb the substance of the tops, and the latter dry away.”

Dry weather is very desirable as long as onions lie on the ground to cure. If rain comes, it is well to rake them over carefully with a lawn rake or wooden rake with dull teeth.

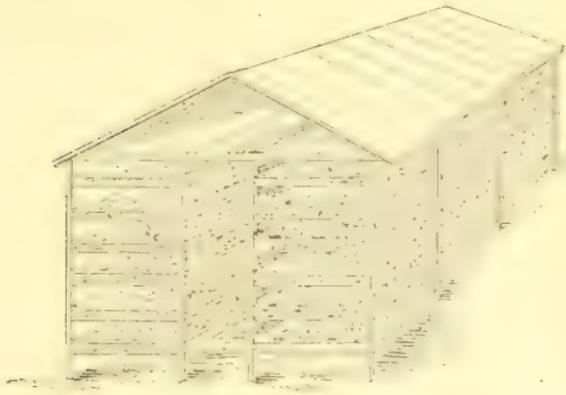
“How long should the onions be left on the ground to cure?”

It may take a week or more of *dry* weather. At any rate the best thing that can be done is

**Curing
the Crop.**

to gather the crop, even if only partially cured, and put it under shelter—in open sheds, lofts, on the barn floor—anywhere where dry and airy, and where the onions can be spread thinly on a dry floor. If necessary, work them over,

which may be most conveniently done by means of a wooden scoop or shovel. Of course the afternoon of a dry day is the best time for gathering and hauling the onions, for they should be perfectly dry on the outside—no dew or rain on them when put under shelter. In such places they may be left until perfectly



ONION CURING SHED.

cured, *i. e.*, until the tops have entirely dried away.

Barring accidents, my crop next season will be too large to be accommodated by our floors and sheds. I have in mind to build a curing

Curing Shed. shed as shown above. The dimensions for such a shed may of course be varied to suit the needs of the grower. All the bins are made of slats, with

spaces between for free circulation of air. In rainy weather the sides may be covered with a canvas or adjustable boards. Perhaps some of the readers may be able to suggest improvements on my plan, or to give me descriptions of sheds now in successful operation and apparently superior to mine. If so, I shall be pleased to hear from them.

Of course, the spaces between the bins should be large enough for convenience in manipulation.

SIXTH CHAPTER.

THE FRAGRANT BULB ON SALE.

THE PRIZETAKER A PRICE-TAKER.

GEROLD'S "prize crop" was somewhat late, owing to late sowing, late setting, and the terribly poor season, perhaps also to a little negligence on Gerold's part in destroying some of the weeds that had appeared in the rows between the plants. Hand weeding did not seem to be to Gerold's taste—and it was fortunate that there was but little of it required. Had the crop been grown by the old, ordinary method, probably the onions would have been lost in weeds, and finally given up for lost.

During the latter half of the seven weeks' drought, the plants had made much less progress than they do in a fair average season. The rains came late in August, the plants kept on growing vigorously, and they were hardly ripe enough for harvesting late in September. But as fall was drawing nigh, it was decided to pull, cure and put under shelter as speedily as possible. So the bulbs were pulled a week or ten days before October, and the weather happened

to be dry and pleasant until the first of that month.

“Was the prize crop a success?”

Not exactly, and yet it was a pretty good success *for a failure*. At least all who saw the fine bulbs lying thickly upon the ground while curing, called it a success, pure and simple.

We weighed the crop on the last day of September, and it came to within a few pounds of a ton. The loss of plants, owing to the small size of plants when transplanted, had been far above what I have usually found it, and had

Weight of
Crop.

reduced the original 5,000 plants to 4,000—a loss of 20 per cent. As these 4,000 plants weighed almost exactly 2,000 pounds, the average was one-half pound per bulb. We had aimed for at least one pound a piece, and such average I would have called a whole and full and unqualified success. The 2,000 pound crop, therefore, I am justified in calling a *half success*.

But it was no success as a prize crop. It would have been, had competition been restricted to the east. As it was, Gerold found a formidable competitor in a grower

A California
Crop.

somewhere in California who, at the last moment, and when we almost thought we had won, reported a yield from the one ounce of seed, of over 8,000 pounds, or near two pounds apiece. Undoubtedly our California friend had also hit upon the

new system of onion culture. With this advantage, however, I do not consider the crop extraordinary for California. The possibilities of an ounce of Prizetaker seed in California are far beyond the reported 8,000 pounds. I believe that this result might even be reached here.

Still it is a big achievement, no matter where obtained—8,000 pounds, or over 140 bushels, of fine bulbs from one ounce of seed! Just let my friends think of this! The majority of growers grow only twice or three times that amount on a whole acre, and by sowing from five to eight pounds of seed.

Even the one-half success, *i. e.* growing 2,000 pounds or about 35 bushels of fine bulbs from one ounce of seed, has made some enthusiasts in onion growing. And if the \$50 prize was not obtained, the crop at least brought a good price in market.

On the last day in September the onions were hauled to the barn, spread thinly on the barn floor, left there until more fully cured. Then they were picked over, graded in two lots, barreled in the ordinary way (in canvas-covered barrels), and shipped to a commission dealer in Buffalo, who sold them

Price
Received.

at an average of \$1.00 per bushel, while other onions were selling for 80 cents. The commission man also became enthusiastic over the Prizetaker, and the possibilities of onion culture.

“If you have land that will raise such onions,” said he, “go into onion growing by all means. I shall be glad to take a thousand bushels of such onions next year.”

It is hardly necessary to talk about selling onions of this kind. They will sell themselves at sight, and when ordinary onions are a drug on the market. And yet it must be stated, that these onions are something new on the market, and some people are prejudiced against all new things. But the commission man told that his customers were cured of such prejudice by a single trial of the new onion, and all seemed to like them, although some would prefer smaller-sized bulbs.

While we might be satisfied with the price obtained for the crop, it may be well to try to get all there is in it. I have not yet tried the other plan which I have in mind, although I really intended to work off my crop of Prizetakers in just this way. Our dealer also suggested this very same scheme.

What is it? Let me tell you that the Prizetaker when well-grown, looks for all the world like the imported Spanish onion of our groceries. Neither can I detect much difference between the two in point of flavor. So I have thought of crating up the choicest bulbs, in same way as the imported article, and compete with the foreign product in our city and

**Prizetaker as
Spanish Onion.**

town markets. I think it can be done, and quite profitably too.

I have only one more suggestion to make. This is to sell the crop just as soon after it is properly cured as possible. Don't hold any considerable part of crop for a rise, unless after you have experimented on a small scale and are sure of your ground. The Prizetaker is not the best keeper, and I would not undertake to winter it over in quantity without considerable more experience than I have now.

If you can sell part of the crop directly from the field, do so. Sell, and send to market, and get the money. You may be sure it is not a small job to take care of a crop such as I have told you can be grown on even a single acre. It's a big thing. Never loose sight of that fact.

In spite of my warning, I imagine some people will wish to know how onions can be most successfully wintered over. Under some circumstances it may pay well to store and hold for spring sales such varieties as Dauvers Yellow,

and perhaps Wethersfield Red and

**Wintering
Onions.**

White Globe, etc. There is a party

over in Canada who grows quite a

number of acres of onions every year, and he invariably holds them until spring, and makes money by so doing. Of course, I was anxious to learn how he winters such big crops, and made inquiry. He writes me as follows:

" For the purpose of keeping onions during

winter, we have erected two large rooms in the end of our barn, above ground. These rooms are almost frost-proof in the coldest weather; are provided with double windows at each end, and double doors at entrance from driveway on barn floor. All the walls have a dead air space. Building paper is tacked on in the inside of each boarding that forms the hollow space.

Onions are not put into these rooms in *bulk*, but in thousands of slatted bushel boxes. The windows are kept constantly open, except in very cold weather. The idea is to put in dry, well-cured stock, and place it in such a way that it may always be airing at suitable times, and yet be secure against low degrees of temperature."

SEVENTH CHAPTER.

ALL'S WELL THAT ENDS WELL.

ADVANTAGES AND PROFITS OF THE NEW WAY.

THAT the new method of onion growing gives us a great increase of crop, besides many other advantages over the old way, is no longer a matter of doubt. We have demonstrated this truth here, and Prof. W. J. Green has demonstrated it in Ohio. The great question now is, whether the new way is also the more profitable one, and if so, how profitable?

We have already seen that the transplanting method calls for only about one and a half pounds of seed per acre, while ordinarily not less than six pounds are sown. As the

Some Offsets. Prizetaker seed now costs \$6.00 a pound, the saving amounts to not less than \$27.00 in a one-acre planting. On the other hand, we have the additional labor

of growing plants in frames, which is about a fair offset for the saving of seed. So there is little or no advantage in this respect on either side.

The new way requires the considerable and tedious labor of transplanting, an operation which will cost about \$50.00 per acre. On the other hand, we save so much hand labor in thinning and weeding, that one might well be considered an offset for the other.

On the whole, we have come to the conclusion that the expenses of the crop, up to the time of harvesting, are very near the same, whether we follow the new or the old method.

The chief advantages, of the new onion culture, therefore, are clear gain. Among them we have:

1. Earlier ripening of the crop. With six weeks to start in sowing, the crop will come to maturity two or three weeks

**Advantages of
the New Method.**

earlier than it would otherwise. This gives a chance for marketing the earlier sorts much in advance of competitors who adhere to the old onion culture, as also of clearing the ground in time for a succeeding crop, such as celery, turnips, fall spinach, etc., while the season is made considerably longer for the late Prizetaker, which otherwise has hardly time at the extreme north to come to full development.

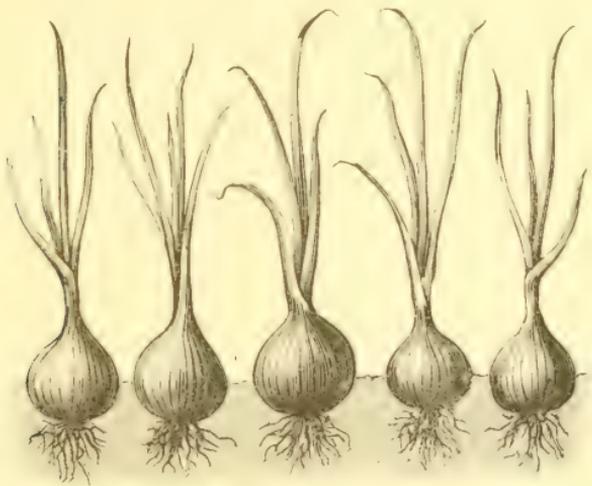
2 A decided improvement of the bulbs in respect to shape, size and uniformity. A row

of bulbs thus grown appears as shown below.

3. Quicker sale and better price, in consequence of the finer appearance of the bulbs.

4. A great increased yield, to the extent of even doubling or trebling that obtained by the ordinary method.

5. The elimination of all uncertainties from the business. Even failure would mean what



ONIONS IN ROW.

people now call a "big crop." Nothing short of hail and flood could prevent a good profit in this new onion culture, if managed with ordinary intelligence.

Are these not advantages enough? I should think they are worth taking in consideration.

In conclusion let me give a somewhat rough

estimate of expenses and receipts on the basis of my own experience, and surrounding conditions. Supposing that only 1,000 bushels are grown per acre, we then have the following:

**Estimate of
Cost and Returns.**

EXPENSES OF CROP PER ACRE.

Rent of land, one acre,	\$ 6.00
Manure, 3 car loads @ \$16,	48.00
Special potato fertilizer, $\frac{1}{2}$ ton,	22.00
Nitrate of soda,	8.00
Hauling manure, and application,	15.00
Plowing and harrowing,	3.00
Marking,	2.00
Seed,	9.00
Transplanting,	50.00
Cultivating and weeding,	24.00
Pulling crop,	3.00
Gathering, hauling, barreling,	20.00
Barrels or packages,	50.00
Commission,	100.00
Total,	<u>\$350.00</u>

RECEIPTS.

By 1,000 bushels of onions @ \$1.00,	\$1,000.00
Deducting the expenses with,	350.00
Net profit,	<u>\$ 650.00</u>

This, with the exception of price to be realized from the crop, is a perfectly safe estimate. There may be years where the grower will have

to accept a smaller price than the one received for the last (1890) crop. But even if these fine bulbs should not bring more than 50 cents a bushel, or \$500 for the whole crop, the profits, with commission reduced to \$50, will still be \$200, after all expenses, every bit of labor included, are paid.

In a good onion season the crop will hardly be less than 1,500 bushels per acre, if properly managed. Of course this would add to the expense in harvesting and marketing, and swell the total expenses of crop to \$400, if not over, but it would, most likely, also increase the net profits to \$1,000 upwards per acre.

What other crop could be expected to give you similar results, and with greater certainty? I am unable to name a single one among ordinary farm or market garden crops. Don't forget, however, that I only pretend to teach my new method, *but do not guarantee results like those named*. Go slowly. Success depends on your own efforts.

My young friend Gerold has failed to get the prize, 'tis true. Perhaps it was not so much of a disappointment either, as in consideration of the drawbacks of the season and his own blunder, he hardly expected to get it. Nevertheless, he made a good profit in his onion venture, and he is satisfied, if not elated. "*All is well that ends well.*"

A SORT OF POSTSCRIPT.

THE OLD ONION CULTURE.

“Our fathers’ way
Was the good old way,
Brought home and land,
And cash to hand
We ’ll not despise the good old way.”

Many of the details of onion growing told in the preceding pages apply both to the old system and the new. Some additional information concerning what some young growers may consider “the good old way,” will undoubtedly be acceptable to many readers, and render this little book a complete guide to onion culture in all its branches.

No matter under what system the crop is to be grown, I would select, manure, and prepare the land as advised in second chapter. Low lands of mucky character are used in many

localities with excellent results. Yellow Globe Danvers and Early Red are well suited for such soils. The crops are often very large, but the individual bulbs hardly as firm as when grown on uplands.

Make the seed bed perfectly smooth with Meeker harrow or steel rake. It is not necessary to mark out the ground, unless seed is to be sown by hand. In that case use an ordinary garden marker making furrows nearly an inch deep, and twelve inches apart—none crossways. Then scatter the seed in these furrows evenly at the rate of six or eight pounds per acre. Cover in the usual way, either with the feet, firming the soil at the same time, or better by drawing the steel rake lengthwise over each row, and afterwards by walking upon it heel-to-toe fashion, or by using a garden roller.

For more extensive operations a garden seed drill should be used. I like the Planet Jr. as well as any I have ever worked. I begin by stretching a garden line along one side of the path a few inches from where I want the first row. This serves as guide, and I take great pains to have this row and all the following ones perfectly straight.

The opening marked for onion seed in these garden drills, let the seed run out pretty freely

—perhaps at the rate of eight pounds to the acre—and when the soil is in first-rate order, and the seed fresh and good, as this always should be, I usually let the seed run through the next smaller opening, which sows five or six pounds per acre. The small roller attached to the seed drill firms the soil sufficiently to insure prompt germination of the seed.

The weeds have to be watched much more closely than in the new onion culture. The roller marks indicate where the rows are and the wheel hoe may be set agoing, carefully at first, even before many of the plants have broken ground.

**After-
Culture.**

Next comes hand weeding, which should be begun as soon as weeds can be seen. Scrape the soil away from the rows. Never draw it up toward them. Repeat as often as needed, at the second or third weeding also pull up the plants that are in excess of a fair stand. Many growers do not usually thin. I do, and I find it much the better way. It makes the crop more uniform, and therefore more valuable and more satisfactory. Ordinary varieties should in no case average more than one plant to the inch, and they should have more space on very rich soil than on one not sufficiently enriched. The after-treatment of crop, harvesting, etc., is exactly the same as described for the new onion culture. The following are good varieties for the old method: Wethersford Red, Yellow

Danvers, Southport Red, White and Yellow Globes.

Growing onions for pickling is another phase of the business to be mentioned. The best varieties for this purpose are

Pickling Onions.

New Queen and White Barletta.

They are very early and the crop is ready to be harvested in July a number of weeks before even the Early Red and Yellow Danvers can be gathered. The general management of the pickling crop is the same as for market in the old way, only that we must sow more seed, say about twenty to twenty-five pounds to the acre, and leave every plant to grow. The crop is to be harvested as soon as ripe enough, thoroughly cured and cleaned by rubbing them between the hands, and by removing tops and roots that have not entirely wasted away or become detached from the bulbs. The final cleansing and sorting is easily done by running them through the ordinary grain fanning mill.

For growing sets the following hints will suffice: Select Silverskin for white, Early Red

Growing Sets.

for red, and Yellow Dutch or Yellow Danvers for yellow, and sow seed at the rate of forty to sixty pounds to the acre. Handle in somewhat the same fashion as the pickling onions. All that will not pass through a sieve with $\frac{3}{4}$ inch meshes are too large for sets, and should go among the pickling onions.

I do not despise "the good old way." There is (and will continue to be) money "in onions," even when grown as heretofore, provided the

Conclusion. grower understands his business, and it does not happen to be a year of excessive production. With fairly good soil, heavy manuring and skillful management it is not a difficult task to grow 800 to 1,000 bushels, and even upwards, to the acre. Such crop should leave the grower a good profit, even at fifty cents a bushel.

I practice the good old way myself in growing pickling onions, and some of the ordinary varieties. But we should remember that the average price is much lower than formerly, while our lands have decreased in fertility. If there is a way to increase the yield, and the price at the same time, we cannot afford to ignore it.

The good old way
Of yesterday,
May not be best
For us to-day.

THE END.

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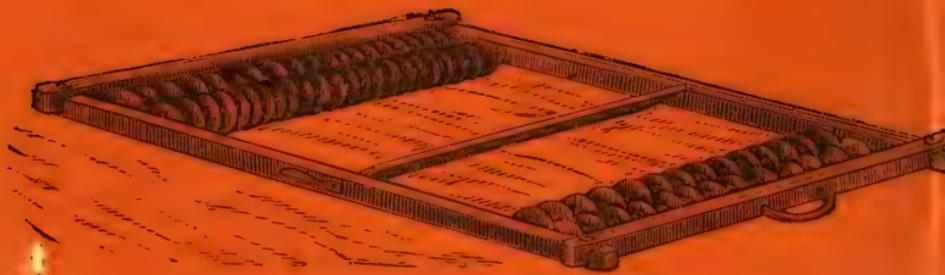
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