

PRIZE GARDENING

How to Grow

the Best

of FRESH

and HEALTHY

Food in the Garden

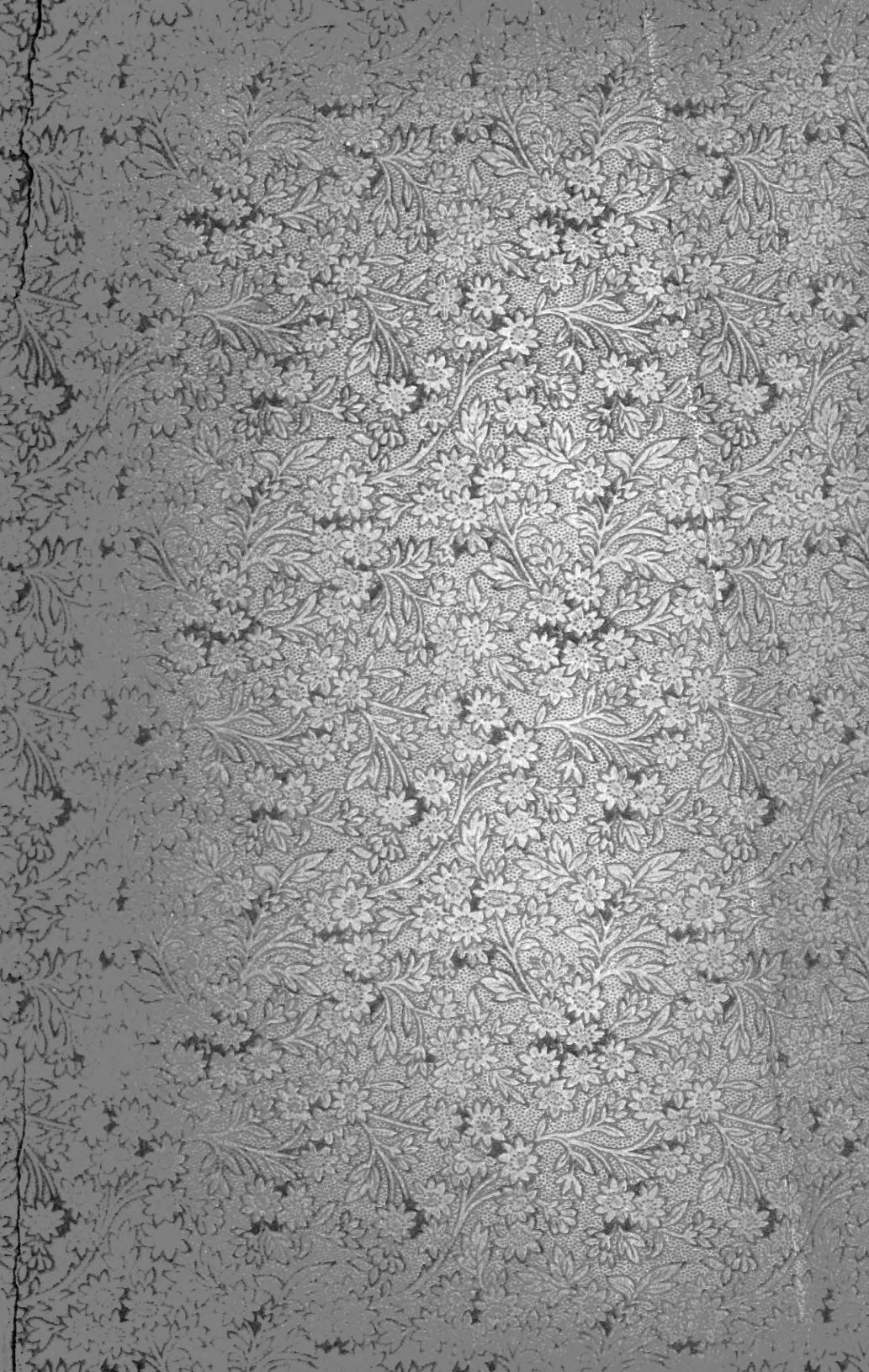


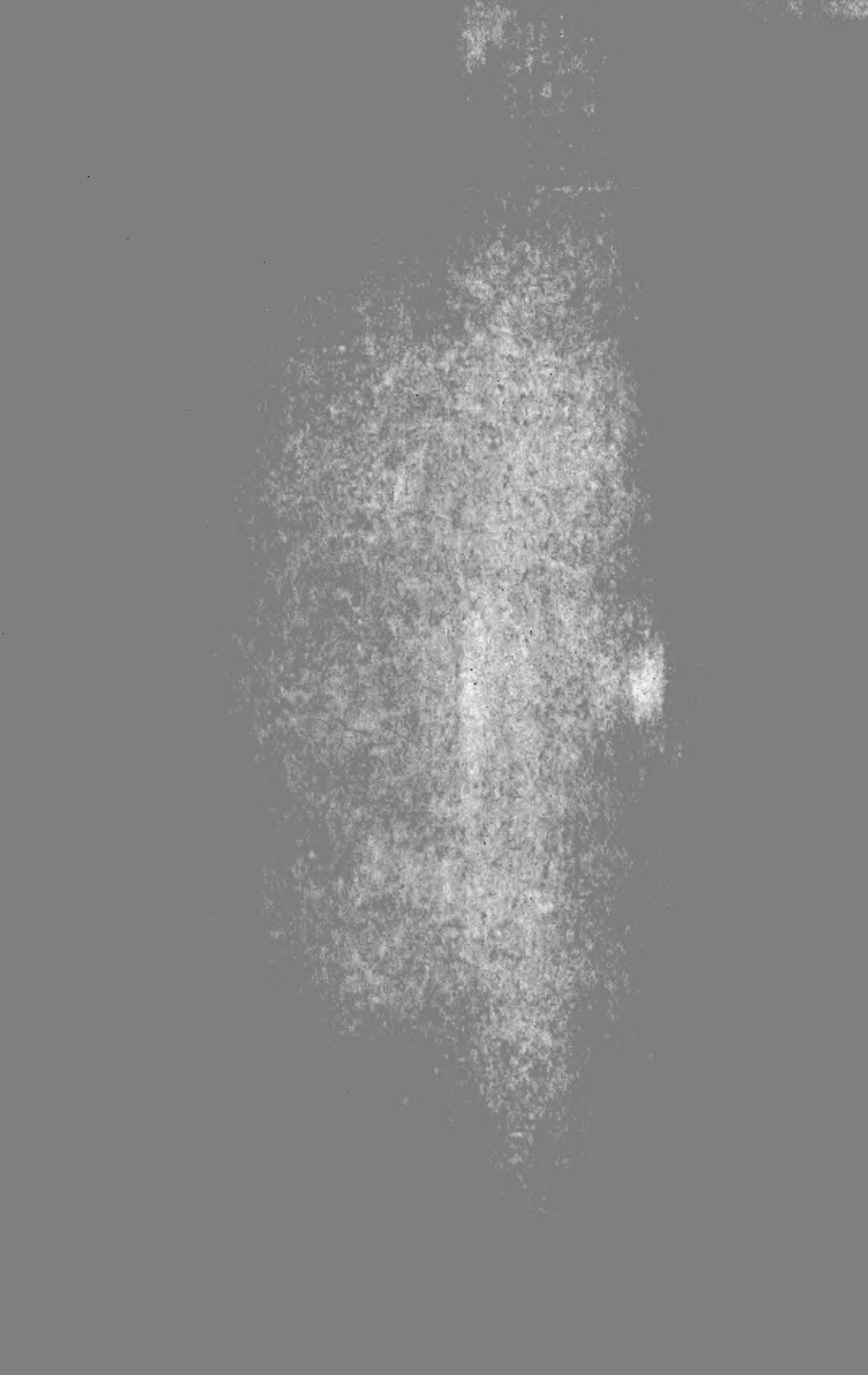
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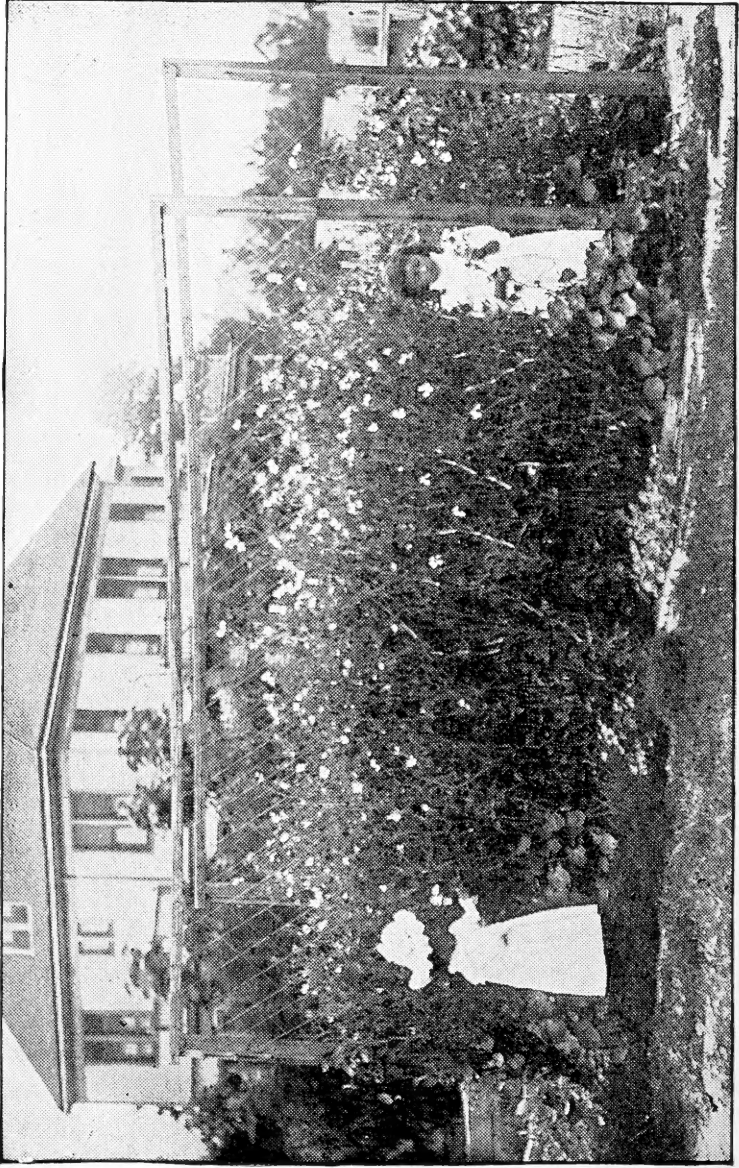
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SWEET PEAS AND "ROSEBUDS" IN THE GRAND PRIZE GARDEN

Prize Gardening

HOW TO DERIVE

PROFIT
PLEASURE
HEALTH

FROM THE GARDEN

*Actual Experience
of the
Successful Prize Winners
in the
American
Agriculturist
Garden Contest*

FULLY ILLUSTRATED FROM
ORIGINAL PHOTOGRAPHS
AND DRAWINGS

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New York
ORANGE JUDD COMPANY
1901

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CONTENTS

Introduction

CHAPTER I

STORY OF THE CONTEST

History, rules, entries, reports and results.

CHAPTER II

THE GRAND PRIZE GARDEN

Mr. Morse's story—Sketch of J. H. Morse—His methods for special crops—Prize garden queries.

CHAPTER III

GARDENING FOR PROFIT

Good living from a garden—Five acres enough—A cucumber experiment—Money in berries—Mr. Wright's vineyard—Money in a Minnesota garden—A twenty-acre garden.

CHAPTER IV

GOOD FARM GARDENS

A luxuriant Iowa garden—Mr. Campbell's story—The Woodruff prize garden—A business-like gardener—A busy farmer's garden.

CHAPTER V

THE HOME ACRE

A quality garden—In the semi-arid district—A luxuriant home garden—A farm garden patch—Small gardens.

CHAPTER VI

ON HIGH-PRICED LAND

A city man's garden—Good seeds and fertilizers—Careful planning—Winner of the first prize—Mr. Higley's way.

CHAPTER VII.

SUCCESS IN TOWN OR CITY

A profitable small garden—Movable hotbeds—One of the best suburban gardens—Small town gardens—A squash crop under difficulty.

CHAPTER VIII

FERTILIZER GARDENS

The prize fertilizer garden—Mr. Flagg's garden journal—Prize vegetables—A prime garden on chemicals—Fertilizer lavishly applied.

CHAPTER IX

PRIZE GARDENING FOR WOMEN

A smart woman's success—A woman's pastime—A good home garden—Mrs. Ludwig's success—Mrs. Bale's diary—A profitable small garden—A model account—A nice income—Successful gardening—A productive southern garden—Perseverance under difficulty.

CHAPTER X

YOUNG HORTICULTURISTS

Nature's school—One of the smaller gardens—An enterprising youth—A boy gardener.

CHAPTER XI

GARDEN IRRIGATION

Water saved the garden—In the lower San Gabriel valley—In the mountain section—Taught by practice—A Kansas garden—Three acres in Colorado.

CHAPTER XII

IRRIGATION IN THE EAST

Water, soluble fertilizers and irrigation—Watering a city lot—Another Jersey water garden.

CHAPTER XIII

EXPERIMENTAL GARDENING

Thorough methods—A melon garden—Testing the soil—Some novel features—An interesting experiment—A beginner's success—Selling produce to Indians—High feeding for plants—Saving seeds—A born horticulturist.

CHAPTER XIV

METHODS UNDER GLASS

A cheap forcing house—The hotbed—A quick way—Mr. Kinney's methods—Management of hotbeds—Useful details—Forcing cucumbers and tomatoes—Forcing lettuce—Coal the best heat—Small frames.

CHAPTER XV

SUCCESS WITH SPECIALTIES

The potato field—Onions—Tomato culture—Melons—One woman's way—Peas—Early cucumbers—Celery—Large, well filled corn—Spring lettuce—Covering spinach—Egg plant—Ginseng.

CHAPTER XVI

PRIZE FLOWERS AND FRUIT

Growing sweet peas—Culture of begonias—Dahlias—The water lily pond—Fruit in prize gardens.

CHAPTER XVII

LESSONS FROM THE WINNERS

Cost and value of the garden—Profits of small market gardens—How to make the garden pay—What should a garden contain—Growing and showing vegetables—Early vegetables—Some good vegetables not generally grown—A practical farm garden—Marketing.

CHAPTER XVIII

A GARDEN SYMPOSIUM

Replies from prize winners—Best size for garden—Causes of failure—Best vegetables and flowers—Best implements—

Insect killers—Second crops—Fighting weeds—Prize garden experience.

CHAPTER XIX

PRIZE PICKINGS

Garden bookkeeping—Working the soil—Cultivation and weeding—Special implements—Fighting insects—Garden devices—Fertilizers—Solid comfort—The family garden.

LIST OF ILLUSTRATIONS

Sweet Peas and "Rosebuds" in the Grand Prize Garden—	Frontispiece
Mr. and Mrs. J. E. Morse	6
Plowing in the Grand Prize Garden	8
Garden Plots and Home Grounds of the Grand Prize Winner	11
Plots in the Prize Garden	13
Some Produce of the Grand Prize Garden	15
Manure Spread After a March Snowstorm	24
The Early Hotbed	28
Mr. Wright's Five-Acre Market Garden	30
Cucumber Vines Dusted with Lime, and Box Frames	32
A Thrifty Market Garden	38
Working a New York Truck Patch	42
A York State Truck Patch in July	45
Garden of G. W. F. Campbell	53
Onions for Exhibit	54
Some of Mr. Widmer's Vegetables	59
Mr. and Mrs. Dimock	64
L. E. Dimock's Garden Ready for Seed	66
Mr. Dimock's Garden in Midseason	68
Vegetable Exhibit from Mr. Dimock's Garden	70
A. T. Giauque's Good Garden	72
A Garden in Long Rows	73
A Garden Site in the Minnesota Forest	75
Mr. Tye's Currant Bushes and Late Turnips	76
Some of Mr. Tye's Crops and Tools	77
A Well-Arranged House Lot	79
How Mr. Hauck's Garden Is Arranged and Planted	82
Some July Prize Vegetables	83
Garden Arrangement of a City Back Yard	85
Celery Boarded Ready for Bleaching	91

Grapevine with Bags on Fruit	92
Typical Landscape of Northern New Jersey	93
F. J. Bell's Garden Plot	96
Residence of F. J. Bell	99
Residence of R. L. Porter	101
Edward R. Flagg	104
On Culture and Chemicals	109
Farm and Garden of J. G. Lyman	113
Mrs. W. D. Goss	115
Mrs. Dole's Garden in August	122
Mrs. L. A. Ludwig	127
Garden of Amelia C. Guild in July. Camden Mts. in Background	133
Working Force of A. C. Guild's Garden, with July Produce	135
A New York Woman's Garden	137
Mrs. Calkins Picking Berries for Supper	139
Home of Mrs. J. W. Bryan	141
George Osborne's Home Market	144
Peppers Six Inches Long Grown by Oscar Roberts	146
A Large Exhibit by a Small Gardener	149
Walter R. Palmer	150
The Site of an Irrigated Garden	153
A Nebraska Garden Spot Before Irrigation	154
Method of Irrigating Mr. Brickey's Garden	156
Irrigating Egg Plants	161
Mr. Matteson's Ditch and Cross Furrows	164
Plot of S. W. Damon's Watered Garden	166
Fruit Trees in the Garden	170
Mr. Reynolds's Garden Plot	171
Irrigation Plan of J. B. Reynolds's Garden	172
Inside Plant for Garden Irrigation	177
Celery, Denim Hose Between Rows	179
Irrigating Celery	181
Ready for Business	187
A Woman's Luxuriant Garden	190
Mrs. Alice C. Strader	191
A Farmer's Greenhouse	196
Hotbeds and Cold Frames	203
Mr. G. J. Townsend, His Workshop and Cold Frames	205
Harvesting Onions	215

LIST OF ILLUSTRATIONS

xi

A New England Onion Crop	216
Prize Onions	217
Picking Tomatoes	219
Mr. Edge's Tomato Support	222
Flower Garden of R. N. Lewis, Brightside, New York	238
Peach Trees in an Arkansas Garden	243
Prolific Currants	244
Ready for the Spring Campaign	270
November Pickings from a Woman's Garden	272
Homestead of a New York State Winner	274
A Convenient Garden Summary	279
Using a Horse Hoe as a Hand Cultivator in a Parsnip Bed	284
A Homemade Marker	286
Protection from Cutworms	286
A Minnesota Gardener's Device	287
A Handy Weeder	288
Stone Boat and Vine Support	290
Plant Boxes	292
Picking Peas for Dinner	296
Shady Lawn of a Prosperous Garden	298
Finis	300
L. C. and Fred P. Wright	301
Mr. and Mrs. A. T. Giauque	302
Brainard S. Higley	303

INTRODUCTION

The collected and condensed experience of the winners in the Garden Contest is believed to be of unique value because of the skill and prominence of the narrators and the completeness of description encouraged by the nature of the contest. Full details of crop methods are almost proverbially hard to get from successful gardeners, who may often regard such information as a kind of trade secret. Here, on the contrary, the hope of winning prominence and a large money reward has brought out such a wealth of fact and detail that the most rigorous condensation and selection was needed, and only the most striking and essential parts could be quoted or even summarized, although it is believed that all points of practical and permanent value have been retained.

The greater part of Chapters I, II and XVII, and other descriptive articles, were originally prepared for the American Agriculturist weeklies by Mr. E. C. Powell, one of the judges of the contest.

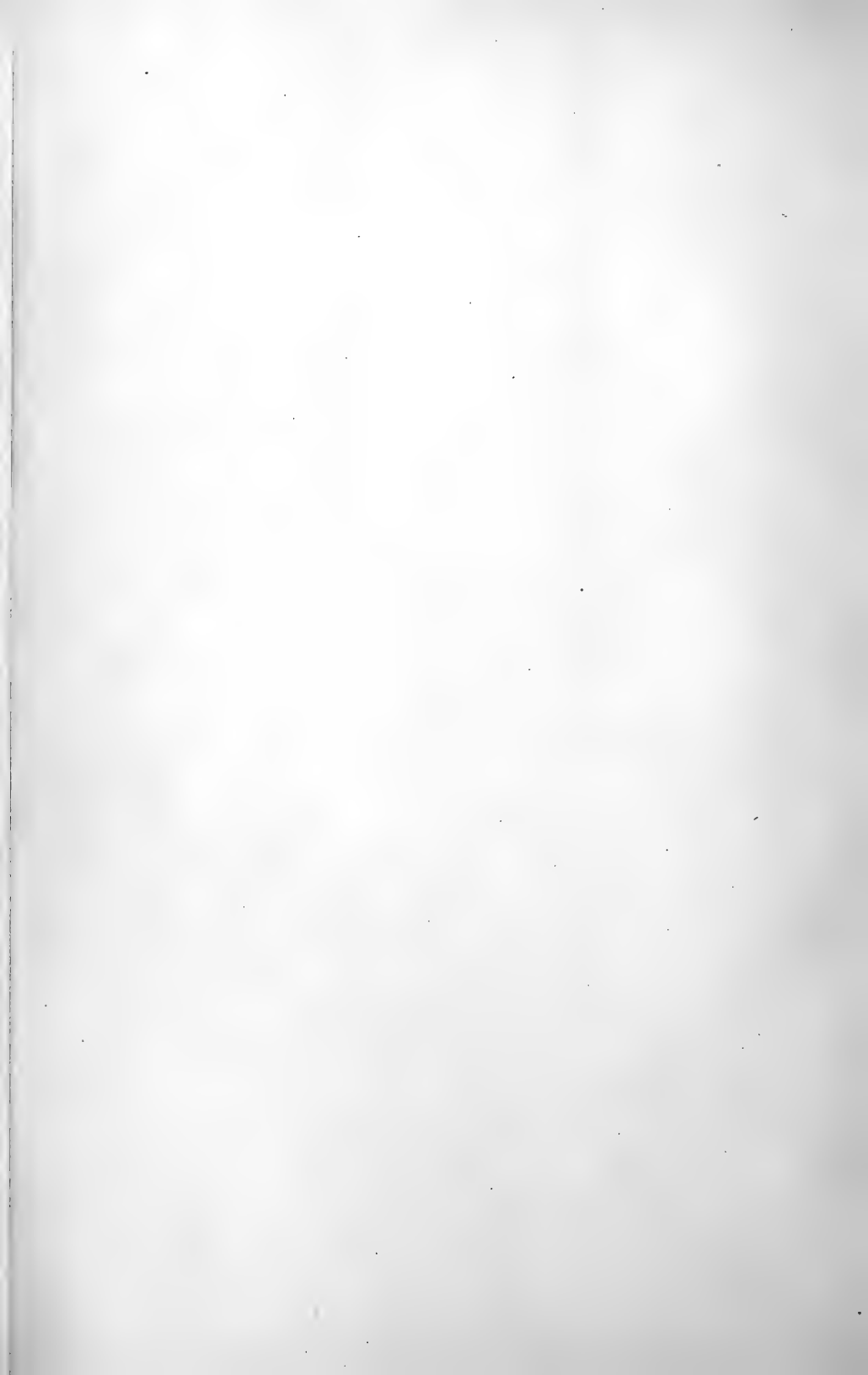
The accounts as originally submitted have been amplified and brought to date when necessary, by further correspondence with prize winners.

There were five thousand entries, about five hundred complete accounts and one hundred prize winners. From the leading accounts, the aim is to present a total of selected experience with gardens of all sizes, from one thousand square feet to many acres in extent, in different sections of the continent and under numerous

variations of soil, climate, altitude and method of arrangement.

Although nearly all the prize winners were garden experts, yet some excelled in special directions and naturally emphasized their specialties in the accounts, thus giving far more helpful treatment of the various topics than could be accorded by any one expert. Clearness, completeness and accuracy were the essential requirements, and contestants were encouraged to relate all important details and to tell the whole story, some keeping a daily memorandum as a basis for the description and bookkeeping record. Many submitted charts, photographs and drawings, making their narrative still clearer. The intelligence and progressiveness of the growers is apparent at first glance. Each man has definite ideas of his own, and these ideas he is testing by successful garden practice. The methods differ: many men; many minds. Each has studied out his own problem in his own way. The very difference in the conditions and methods constitutes the particular value of the accounts, since readers everywhere will find that some at least of the descriptions are particularly adapted to their needs.

Most important of all, the accounts are every one from actual experience; not a line but is based on the work of the season, and the result is a mine and treasure-house of garden practice. In effect every writer had his notebook strapped to his hoe-handle, and the stories savor of the fresh-turned soil and the laden produce baskets.



CHAPTER I

STORY OF THE CONTEST

Prizes aggregating two thousand five hundred dollars were offered for the best garden accounts for the season of 1899. This contest was inaugurated by the American Agriculturist weeklies, Orange Judd Farmer of Chicago for the west, American Agriculturist of New York for the middle and southern states, The New England Homestead of Springfield, Massachusetts, for the east.

These prizes were offered not for the story of biggest profits or for fancy results, but, in the language of the rules, "to the records and reports which show most clearly and accurately the methods pursued, and the receipts and expenses of the garden, irrespective of whether it shows a profit or a loss."

The Orange Judd Company, publishers of the great weeklies before mentioned, contributed two hundred and fifty dollars in cash and defrayed all expenses of the contest. Other prizes in cash and goods were the donations of various dealers and producers of agricultural supplies. Some were conditioned on the use of the donors' seeds, fertilizers or implements, which fact will account for their occasional mention in narratives of contestants.

The rules allowed a garden of any size above one thousand square feet, and plots varied from the lowest limit up to twenty acres. There were few, however, above four or five acres. The garden might be in one piece or divided in several plots; most of them were in one field. Contestants were required to state exact

area and to list and value all tools and supplies, all accounts to be kept in a record book of convenient size. The less important details were left to individual judgment.

Every one of the five hundred contestants whose reports were received had his or her own method of keeping the record and making out the report. Some were brief, giving only the barest summary of the work done, methods employed, expenses, receipts and products, while others were very elaborate and covered two or three hundred pages of manuscript or typewritten copy and were fully illustrated with photographs, sketches and drawings. Some were ornately bound. Nearly all grasped the idea to give a report that would bring out the actual product and returns from the garden, receipts and expenses and methods pursued. The ages of contestants ranged between ten and ninety years. Some of the winners were women, and their experience suggests anew the idea of the lighter outdoor pursuits for the weaker sex. Some of them did all the work, light or heavy. Others secured help from the men folk for such work as plowing and carting. Increased health and strength were among the priceless benefits secured, although women's gardens did not compare unfavorably for general good results with those worked by man power.

Close to five thousand people in all parts of the country gave notice of their intention to compete, and five hundred and fifteen actually sent in reports of the season's work. Many who did not officially enter the contest were encouraged to keep better gardens. Probably at least five thousand well-kept gardens in nearly as many towns were due to this contest—each one an object lesson to many other people. A good garden in a neighborhood is like seed sown upon good ground—it wakes up the neighbors to follow suit and try a

garden for themselves. Thus the garden contest has had a far-reaching influence and the good effect will continue in ever-widening circles for years to come.

The number of entries and number of reports received are shown in the annexed table. The unprecedented drouth of 1899 was so widespread and cut short so many gardens that many owners became discouraged and failed to continue the record throughout the season and to send in their reports. The percentage of completed returns was, however, very large for a contest of this kind, and testifies to an extraordinary interest.

	Reports received	No. ent'r'd		Reports received	No. ent'r'd
Maine	11	109	Missouri	9	85
New Hampshire....	13	131	Arkansas.....	2	21
Vermont	17	165	Louisiana	2	14
Massachusetts	73	728	North Dakota.....	1	5
Rhode Island.....	2	19	South Dakota.....	1	12
Connecticut	39	387	Nebraska	19	172
New York.....	81	819	Kansas	5	43
New Jersey.....	11	127	Oklahoma	2	18
Pennsylvania	17	174	Indian Territory....	1	4
Delaware	2	19	Texas	5	48
Maryland	3	36	Montana	1	5
Virginia	2	28	Wyoming	1	7
North Carolina....	1	9	Colorado	23	226
South Carolina....	1	14	New Mexico.....	1	9
Georgia	3	27	Idaho	2	18
Florida	2	22	Utah	2	10
Ohio	13	148	Arizona	1	8
West Virginia.....	1	11	Washington	6	58
Kentucky	2	27	Oregon	4	41
Tennessee	7	86	Nevada	1	3
Mississippi	4	42	California	7	62
Alabama	1	8	Ontario	2	21
Michigan	11	106	Manitoba	3	34
Indiana	6	51	British Columbia...	3	37
Wisconsin.....	21	198	Nova Scotia.....	2	15
Illinois	25	245			
Minnesota	23	221	Total.....	515	4997
Iowa	17	163			

One novel feature of the contest was the emphasis placed upon the story of the work; not upon the yield or profit of the garden. The management wisely preferred to secure practical and helpful accounts clearly and attractively presented, rather than to encourage stories of great returns, with the accompanying possibility of exaggeration, and results which at best are not more helpful to the average grower than are the monstrous and pampered specimens of fruit and vegetables so often awarded premiums at the agricultural fairs; the trouble and expense in such cases are out of the question for the practical gardener. The methods described in the prize accounts are for the most part those which anybody can follow with profit under similar conditions.

As might be expected, a majority of the best accounts were evidently by the best gardeners; men and women of good general ability, having a thorough understanding of the best methods and being able therefore to present them clearly. Their work, both on paper and on soil, showed to good advantage. Some, evidently highly skilled and intelligent gardeners, were unfortunate in various ways, but in most cases good accounts, good methods and good gardens went together. Thus, although the prize accounts, if sufficiently good, might have described gardens which failed to pay, the fact was otherwise, as a general rule, and despite a drouthy season, most of the winners obtained large and valuable crops.

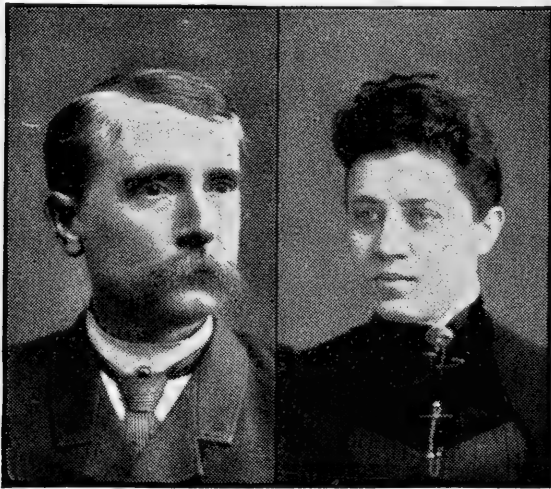
CHAPTER II

THE GRAND PRIZE GARDEN

The garden of J. E. Morse, who won the grand prize, is located within the city limits of Detroit, Michigan. The ground has been devoted to nursery purposes for thirty years, and is so occupied that separate plots were used for the garden. Plot No. 1 has a southern slope with a light sandy soil. A heavy application of manure was made in 1898 and five tons were applied March 14. It was plowed April 18 and cultivated with twelve-tooth cultivator and pulverizer attachment, rolled and cultivated again and planted to crops as shown by diagram on a later page. It was cultivated April 28 with the double wheel hoe, again on May 13 and frequently thereafter throughout the season. The tomato plants, which had previously been sown in the hotbed, were transplanted May 4, seventeen of them being set direct in the ground and the rest potted and planted out three weeks later. The potted plants did much better and received no check at the final transplanting to open ground. Gradus and Duke of Albany peas rotted badly and were replanted May 5. This shows the necessity of using the round, smooth varieties for early sowing.

Lettuce had been sown in the hotbed April 1, transplanted to cold frames the 18th and every alternate row thinned and planted in open ground May 4, to be followed by lima beans when the crop was harvested. Burpee's All Head Early cabbage was planted out May 6. Salt was used to keep off green worms

and was of assistance in heading and hardening up the cabbage. The first heads were ready for use July 9. Five rows of Sheffield sugar corn were planted April 20 with sprouted seed. This insured planting only good seed, avoided danger of rotting and hastened maturity several days, so that the first picking was made July 9, or in eighty-one days, and continued until August 19. Some of the potatoes were placed in a box in the house and sprouted and all were planted in the ground May 4. The sprouted potatoes made a



MR. AND MRS. J. E. MORSE

decided gain and were ready for market from a week to ten days earlier and brought fifteen to twenty cents more per bushel.

Plot No. 2 has a westerly slope with soil varying from light sand to heavy sandy loam. Four tons of manure were applied, and on May 10 it was plowed and worked in the same manner as the other plot and again cultivated in sections as the various crops were

planted. Two rows of bush beans were planted the next day. The wheel hoe with plows set together was run, making a shallow drill. The beans were dropped three inches apart, the plows were then reversed and set apart and run astride the row, turning the soil back into the trench. The wheel hoe and cultivator was used May 22 and 29 and June 12. For the rust the vines were sprayed with saltpeter and water in the proportion of one ounce to one gallon and with very satisfactory results. Early beets had been sown in the hotbed April 18 and were transplanted to open ground April 15, the tops being clipped at the same time. There was no need of thinning and the results of transplanting were satisfactory, as they were ready for the table and bunching July 1.

In transplanting the tomatoes from the hotbed, a mixture of soil and Jadoo fiber was used in the pots and a fine root growth obtained. In setting out, holes were made with a spade three by three feet apart for the Fordhook Fancy and five by six feet for Ponderosa. The plants were removed from the pots, set an inch or two below the surface and a dipper of water was poured around each before drawing up the fresh earth. Plants thus treated did not wilt any in the hottest sun and continued growing without a check. The following brief summary tells all about the tomato crop and shows the method which was used in the report with several other of the more important crops:

RECEIPTS

July—28	qts at 5c.....	\$1.40
Aug—21	bu at 55c.....	11.55
Sept—60	bu at 31c.....	18.60
Oct—4	bu at 75c.....	3.00

\$34.55



FLOWING IN THE GRAND PRIZE GARDEN

(8)

EXPENSES

Rent of land.....	\$.50
Manure .....	.80
Plowing and fitting.....	1.20
Plants	7.50
Setting and resetting.....	1.05
10 lbs nitrate of soda at 3 1-2c.....	.35
5 lbs Jadoo fiber at 3c.....	.15
Cultivation and hoeing.....	.75
Picking	3.60
Marketing	3.30
	<hr/>
	\$19.20
Balance profit.....	\$15.35

Hubbard squashes were grown exclusively in Plot No. 3, which is a sandy knoll with a southern slope. The preparation of the ground was similar to that of the other plots. On June 10 it was planted. The hills were made six by six feet by mixing a shovelful of manure with the soil and covering with earth one inch deep.

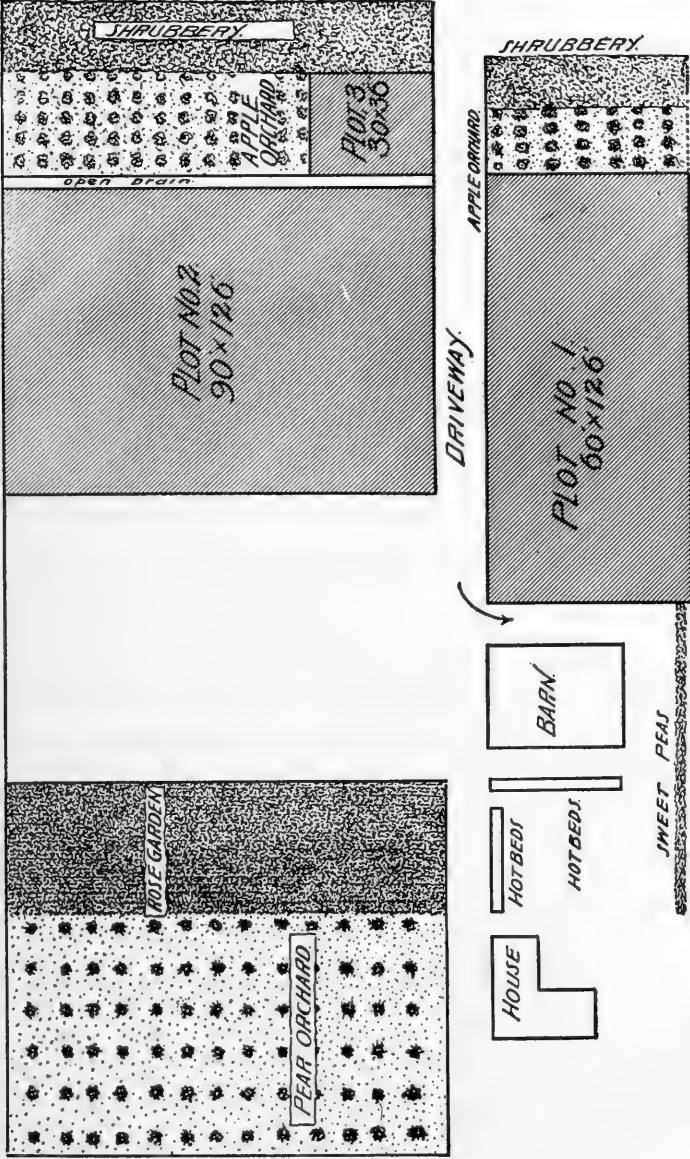
Late cabbage was planted on Plot No. 4 (not shown), which was four by ten rods, with an easterly slope and heavy sandy soil. In previous years serious trouble with club root had been experienced and a test with litmus paper showed the soil to be very sour. Air slaked lime, at the rate of one ton per acre, was sown broadcast and harrowed in after applying four tons of manure. Only five and five-tenths per cent of the plants showed club root, while the previous crop grown in 1896 was entirely abandoned on account of this trouble.

Late in the fall some rhubarb roots were dug, left on the ground to freeze and planted in a bed made on the cellar floor January 18. They were screened off with an old carpet curtain and a common lamp and lantern with darkened chimneys used to give the required heat. The bed was ready to cut February

25 and remained in bearing some time. From ten roots ten and one-third dozen bunches (thirty-six stalks to the bunch) were cut, which were worth fifty cents per dozen.

Burpee's seeds, in mostly five and ten-cent packets, were used. A peck of Burpee's Extra Early potatoes worth one dollar, one hundred and twenty cabbage plants at sixty cents, five hundred tomato plants at seven dollars and fifty cents and ten rhubarb roots at one dollar, with the rest of the seeds, footed up to thirteen dollars and eighty-five cents. The accompanying summaries explain themselves and show that this garden of three-fourths of an acre returned a net profit of ninety-two dollars and forty-six cents.

The Prize Winner and His Family.—Mr. Morse was born near Pontiac, Michigan, of parentage well tintured with Revolutionary blood. He was the youngest of a family of three, and when eleven years old began to study the problem of self-support. At the age of seventeen he went to the front as a private, and was mustered out seven months later at the close of the Civil war, leaving his regiment as acting orderly sergeant. Returning home, rapidly changing circumstances soon drew him into music teaching and gospel work, which extended over considerable portions of Michigan, Ohio, Pennsylvania and New York, during which time he married a woman whose girlhood was passed upon a farm. They have two little girls, Gladys and Helen, aged six and four years. Subsequently he took up the management of a newspaper, which broke him down in health and pocket. His early training in farming and fruit growing, supplemented by a careful study of methods, now came in play, and in the spring of 1896 he took charge of an old nursery, which offered a home, with fruit, flowers, etc. He says:



(11) GARDEN PLOTS AND HOME GROUNDS OF THE GRAND PRIZE WINNER

“We were empty-handed on taking possession of the place; our entire assets consisted of a limited amount of household furniture, one hoe, one shovel, two forks, a buggy and horse with a chattel mortgage blanket upon it, and two thousand dollars invested in baby girl securities. With no tools but our hands the work was laborious. Our seed was purchased on short time and our first cash investment was a year’s subscription to an agricultural paper. Crops soon gladdened our eyes. A Jersey cow was soon purchased, then pigs and chickens, which also proved a source of revenue. Fruit, flowers and vegetables were carefully prepared for market and sold at fancy prices as soon as matured. Within five months the last payment was made on the cow and the chattel mortgage, and a goodly supply of fruit, vegetables and potatoes stored away for winter’s use. During these years a willing and helpful wife has rendered valuable aid in all ways. Tribute has been laid on every help within our reach, on agricultural papers, of which we have four weeklies and several monthlies, books, bulletins, attendance upon farmers’ institutes, etc. Our work has been the breeding up and improvement of different fruits, flowers and vegetables. Quite a good deal of writing has been done for agricultural papers by both of us. Our dark forcing experiments are confined to the winter months and are opening up new fields of profit.”

In regard to the tools used, Mr. Morse says: “Aside from the plowing and rolling of the ground, no implements outside the Planet Jr family were used. Even the hand hoe was almost unthought of and very little needed. The double wheel hoe with all attachments seems capable of more varied uses than any other implement with which I am acquainted. The multitude of uses for which so many of the implements

can be utilized is their chief recommendation. With the small plots we were compelled to use, horse cultivation was expensive, both as to time and plants destroyed; and working by hand would have eaten the crops before harvested."

<i>POTATOES.</i>	
<i>SHEFFIELD CORN</i>	
<i>LIMA BEANS</i>	<i>ALL HEAD CABBAGE</i>
<i>PEAS</i>	
<i>TOMATOES</i>	
<i>YELLOW AND WHITE OXHEART CARROT</i>	

PLOT NO. 1 IN DETAIL

PLOTS NOS. 2 AND 3 IN DETAIL

<i>SQUASH</i>	
<i>OPEN DRAIN</i>	
<i>PARSNIP</i>	
<i>BEEF</i>	
<i>MANGELS</i>	
<i>FIRST OF ALL SWEET CORN</i>	<i>MUSH MELONS</i>
<i>TOMATOES</i>	
<i>BEEFS</i>	
<i>BEANS.</i>	

PLOTS IN THE PRIZE GARDEN

TOOLS USED IN PRIZE GARDEN

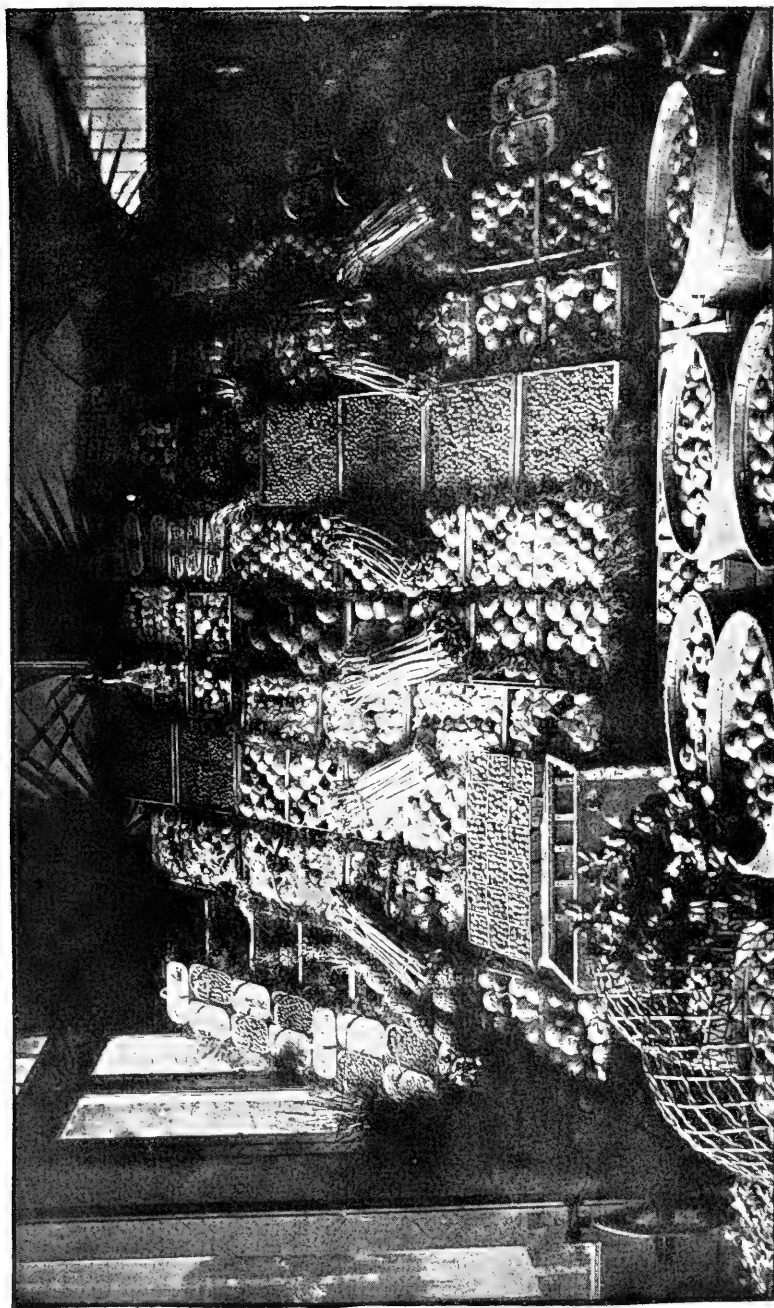
Plow	\$6.50
Planet Jr wheel hoe.....	6.00
Planet Jr hill and drill seeder.....	7.00
12-tooth cultivator.....	8.00
Roller	3.50
Wheelbarrow	1.00
Spade .....	.75
Shovel .....	.60
Hoe .....	.40
Garden line.....	.15
Garden rake.....	.35
Sprayer	5.00
Horse and wagon.....	75.00
Hotbeds	10.40
350 flower pots.....	7.00
	<hr/>
	\$131.65

FERTILIZER USED

14 tons barnyard manure.....	\$7.00
1-4 ton lime.....	1.45
12 lbs nitrate of soda.....	.36
1 lb saltpeter.....	.20
10 lbs Jadoo fiber.....	.30
1 lb sulphur.....	.10
1 lb tobacco dust.....	.03
12 gals bordeaux mixture.....	.18
	<hr/>
	\$9.62

PROCEEDS FROM GARDEN

Mar—10 1-3 doz rhubarb.....	\$5.17
Apr—32 bchs radishes.....	.64
May—20 lbs lettuce.....	2.00
30 doz tomato plants.....	6.00
8 doz cabbage plants.....	1.20
120 cabbage plants.....	.60
3 bu lettuce.....	1.50
June—500 tomato plants.....	7.50
6 bu lettuce.....	2.25
4 lbs lettuce.....	.20
1-2 bu peas.....	.40
July—1 bu peas.....	.80
5 doz carrots.....	.25
77 doz cabbages.....	3.85
60 doz sweet corn.....	4.80
2 1-4 bu green beans.....	1.80
7 bu potatoes.....	4.20



SOME PRODUCE OF THE GRAND PRIZE GARDEN

July—1	1-2 bu beets	.....\$	.45
	28 qts tomatoes	.....	1.40
	4000 sweet peas	.....	4.00
Aug—42	1-2 bu sweet corn	.....	2.97
	9 bu potatoes	.....	4.05
	21 1-2 bu tomatoes	.....	12.35
	1 bu beets	.....	.30
	8 3-4 doz melons	.....	4.15
	6500 sweet peas	.....	6.50
	30 bdl cornstalks	.....	.75
Sept—3	1-8 bu lima beans	.....	4.05
	60 bu tomatoes	.....	18.60
	6 bu melons	.....	2.40
	12 bdl cornstalks	.....	.30
Oct—3	1-2 doz squashes	.....	3.50
	4 bu tomatoes	.....	3.00
Nov—1590	cabbages	.....	43.72
	6 1-2 bu parsnips (on hand)	.....	2.25
	8 bu beets (on hand)	.....	2.10
	10 bu roots, sea kale	.....	2.00
	41 1-2 bu mangels (on hand)	.....	6.22
	1 bu onions (on hand)	.....	.50
	5 bu carrots (on hand)	.....	1.25

\$169.97

EXPENSE OF GARDEN

Rent of land	.....	\$3.60
Fertilizer	.....	9.62
Labor	.....	40.77
Seeds	.....	4.75
Plants	.....	8.10
Roots	.....	1.00
Interest on capital invested at 6 per cent	.....	7.90
Wear of garden tools at 1 1-2 per cent	.....	1.77
		<hr/>
		\$77.51
Proceeds from garden	.....	\$169.97
Expense of garden	.....	77.51
		<hr/>
Profit	.....	\$92.46

LABOR

Jan—4	hours male labor	.....	\$ .60
Mar—20	hours male labor	.....	3.00
Apr—12	hours male labor	.....	1.80
	22 1-2 hours female labor	.....	1.80
May—2	1-2 hours female labor	.....	.20
	28 1-2 hours male labor	.....	4.28

June—61 1-2 hours male labor.....	\$ 9.11
1 1-2 hours female labor.....	.12
July—8 hours female labor.....	.64
26 1-2 hours male labor.....	4.18
Aug—5 hours male labor.....	.75
3 hours female labor.....	.24
Nov—5 hours male labor.....	1.05
	<hr/>
	\$27.77
July—Marketing	\$ 2.00
Aug—Marketing	3.00
Sept—Marketing	3.00
Nov—Marketing	5.00
	<hr/>
	\$40.77

Male labor, 162 1-2 hours, female labor, 37 1-2 hours.

Raising and Setting Tomato Plants.—Seed of Fordhook's Fancy and Ponderosa was sown in the hotbed April 1 and transplanted after the second set of leaves appeared. Nitrate of soda was applied, one ounce to the sash. The plants were left in the hotbed until May 3. Potting soil was prepared by mixing three-fourths leaf mold and one-fourth well-rotted manure. Six-inch pots, with broken pieces of crocks placed in the bottom for drainage, were filled one-fourth full of soil. As the plants were put in the pots a small handful of Jadoo fiber was placed under and around the roots. Sufficient soil to hold the plants in place was put in and well firmed around the roots. The pots were then filled with the soil and placed in a tub partially filled with water which had been exposed to the sun, and after soaking were transferred to the cold frame. With occasional watering and uncovering, when weather permitted, they remained until May 26, when they were set in the open ground.

In planting out, a line was drawn and holes were made with a spade three feet each way for Fordhook's Fancy and five by six feet for Ponderosa. A tub

partially filled with water was set near the cold frame. The plants were set in and when thoroughly soaked were wheeled out and placed along the rows. In planting out, the pot was turned bottom upward onto the left hand and the contents loosened by inserting a small, smooth stick in the hole at the bottom of the pot and pushing against the broken pieces of crocks. When loosened the pot was removed, and with the right hand holding all intact, the plant was set in the hole, which was deep enough to set the roots an inch or two lower than in the pot, enabling it to better withstand the whipping of the wind. A dipper of water was poured around the roots and the whole filled with loose earth.

While this seems a laborious and an expensive method, returns more than justified the extra labor and expense. The Jadoo fiber, when properly fined by working through a coarse screen, is an ideal preparation for potting purposes, and produces a wonderful root growth, which is the object sought in the early life of all plants.

Extra Early Potatoes.—In order to get some early potatoes we sprouted the seed about the middle of April. The potatoes were cut one eye to the piece and placed in a tin pan, where sulphur was sprinkled over them and thoroughly mixed with the seed. A box five inches deep by twenty inches square was filled with sand one and one-half inches deep, in which the pieces were set. Sufficient sand to nearly cover them was sifted in. The contents were sprinkled with tepid water and placed in a nearly darkened room with a temperature of about sixty-five degrees. They were given an occasional sprinkling and left undisturbed for three weeks. At this time the pieces had sprouts varying from just starting to three or four inches long, and

care in removing from the box to the furrow was necessary to leave the sprouts undisturbed.

The results of sprouting the seed were clearly marked the entire season. In coming up, growth, maturity and harvesting they were fully a week to ten days in advance of those unsprouted, making a difference of fifteen to twenty cents per bushel in price at time of marketing. Sprouting the seed is entirely practicable for larger areas, as the extra labor is a mere trifle compared with the difference in market values. The results of the sulphur as to scab prevention were not all that could be desired, although to some extent beneficial. The experiment seems to show a marked benefit from the sulphur in prolonging the vitality of the seed, the pieces in many instances remaining intact the entire season through. The wire-worms, also, caused very little damage, while on the same plot only a few feet distant they were very destructive to early cabbage plants.

Prize Garden Queries.—The published account of Mr. Morse's grand prize garden excited general interest and numerous inquiries were received. Replies by Mr. Morse were as follows:

POTATOES: Bovee and Burpee's Extra Early for white, and Acme and Early Six Weeks for flesh color are our favorites for early. For very early planting, while the ground is yet cold, do not plant deeper than three inches; for later planting, four to six inches is not too deep.

The extra labor of sprouting is really very little, and the plan is entirely practicable, even for quite large areas. An inch or two of sand is placed in shallow boxes of any size convenient. As the pieces are cut, they are set in the sand, close together, with eyes up. Sift in enough sand to nearly cover the pieces, leaving them sticking up through the sand. Sprinkle with

warm water and set in a partially darkened room or cellar where the temperature will be about sixty-five degrees. No further care is necessary except to sprinkle should they become too dry. This work may be done a month previous to planting, with the advantage that your crop is growing even while the ground is still frozen outside. During this time the sprouts will have grown two to six or eight inches in length, and will require careful handling in planting to avoid breaking off. They must be entirely covered, but will be out of the ground within a very few days. By this method no infertile seed is planted and the potatoes will be up ahead of the weeds. The advantage of ten days or two weeks in the early markets will many times repay the little extra labor.

SWEET CORN: To sprout the seed, take shallow tin or sheet-iron pans or anything in which one can give bottom heat if required. Put in an inch or so of sand and thoroughly moisten. Over this spread a cloth. The corn is then spread on and covered with another thickness of cloth. Sprinkle on a light covering of moist soil and set in a warm place. Five to eight days before planting will be sufficiently early to start the seed. By this plan no poor seed will be planted and the seed may be put in much earlier without the danger of rotting. The corn will be ready for table or market use much earlier than by the ordinary method of planting.

CLUB ROOT: Many questions from widely different sections indicate that the disease is more general than might be supposed, and a brief summary is all that can be attempted now. The disease is a fungous growth. Wet, acid soil seems to be its natural home, but it may be carried or spread in various ways; as by the overflow of surface water or tools used in the cultivation of infected ground. The only reme-

dies thus far known are the liberal use of lime, avoiding the use of tools on other ground that have been used in infected ground and burning or boiling all affected roots. Never feed any diseased roots raw, as the germs will be carried in the manure from stock thus fed.

CHAPTER III

GARDENING FOR PROFIT

The best paying gardens were as a class those whose owners made them a specialty. They were depended upon for a living or as an important source of income, and received the gardener's best thought and care. They were not allowed to wait until the rest of the farm had been planted and most of the manure used for field crops. Neither were they left to the care of the women folks, already over-busy. In haying time the owner did not abandon them to the mercy of bugs and weeds, or neglect to pick and sell the produce because of a press of other duties. The gardener for profit fertilized and cultivated to the best of his knowledge. He worked early and late, placing the garden first and other interests afterward. In many instances he had done so for years and was a market gardener by profession. Others were farmers who made a specialty of their garden because it paid them. The representative instances described show a very small farm may be made to afford a livelihood.

A Good Living from a Garden.—A clear profit of six hundred and ninety-four dollars and one cent from five acres was made by B. S. Rembaugh of Pettis county, Missouri, winner of S. L. Allen & Co.'s special first prize of one hundred dollars for the most profitable results where their implements were used. Mr. Rembaugh had a small market garden on a plot of less than five acres on which to make a living. The land is naturally poor and was in sod two years ago. Fertilizer could not be purchased, owing to lack of capital,

but sixty loads of manure were obtained last year, and this scant supply, with irrigation and elbow grease, made possible a fair yield. A good local market in a neighboring city of twenty thousand inhabitants took most of the produce raised, although at times the market was glutted and much had to be thrown away. Mr. Rembaugh truthfully remarks: "There is nothing like thorough cultivation and an abundant water supply in case of dry weather for making a beautiful garden. It is useless to garden for profit unless you have a large supply of fertilizers and a sufficiently large market to take your produce."

He began the gardening operations late in January by sowing tomato seed in shallow boxes in the house. Early in March, two cold frames were sown to radish, and others were planted March 25 with radish, beets and lettuce. A hotbed, six by sixteen feet, was planted to cucumbers April 22, being filled with sods cut five inches square. On each sod five seeds were planted and covered with a little soil. Some muskmelons were planted in the same manner.

The first planting in the open ground was April 15, when one bushel peas, three pounds spinach, five pounds radish, one pound onion, one-half pound turnip and one-half pound celery seed were sown. The first tomato plants were set May 2 by digging a hole nine inches deep and putting in the bottom a shovelful of mixed soil and manure. Water was poured in the hole before setting the plants. The ground for cucumbers and melons was laid off in furrows nine inches deep by going four times with the Planet Jr cultivator with teeth set close together. A shovelful of compost was put in the furrow every three and one-half feet and on this a block of sod from the hotbed with the plants was set. The melons were set six feet each way. The manure and soil from a mushroom bed was well mixed



(24)

MANURE SPREAD AFTER A MARCH SNOW STORM

and spread in the bottom of furrows marked out for potatoes. Rows for celery were laid off three and one-half feet apart and six inches deep. In the bottom was put a good dressing of composted manure before setting the plants, which were set six inches apart. The celery was a second crop after early vegetables, and its production was a hard fight, owing to drouth. The method of irrigating was to turn water into trenches between the rows, which were banked across at intervals by little dams of earth, thus holding back the water and allowing it to soak into the rows. The celery crop was stored in trenches fifteen inches wide, eighteen inches deep and two hundred and seventy feet long. The plants were dug, the earth knocked off the roots, rusty outside leaves pulled off and the plants packed closely in the trench, which were covered with boards, with earth over all. The fifteen thousand stalks at forty cents per dozen netted five hundred dollars. Other important crops were salsify, one hundred and twenty dollars; tomatoes, sixty-seven bushels, eighty-seven dollars; muskmelons, three thousand one hundred and three, one hundred and three dollars; radishes, fifty-seven dollars; cucumbers, forty-four dollars.

Concludes this prominent contestant: "Long hours and plenty of hard work; endless quantities of well-rotted horse manure; the most thorough tillage of the soil; first-class seed planted with good judgment—and with ample moisture one cannot fail to reap a good harvest."

A truly American career is that of Mr. Rembaugh; winning his own way, making and losing money with great facility in several locations and occupations. Of German-English descent, he was thrown upon his own resources after eight years old; made money as a sutler in the Federal army at the age of

seventeen. After the war he moved from Pennsylvania to Missouri, started a dairy route, married, went to California for his health, managed a dairy farm there, returned to Missouri and built a flouring mill, saved about fifteen thousand dollars and lost heavily by fire, bought a larger mill and did a large business, made seventy-five thousand dollars, only to lose everything through a bank failure, finally starting at market gardening with very slight capital. But a man who can make four and one-third acres pay him clear profit of six hundred and ninety-four dollars will not long be hampered for lack of capital. He states incidentally that he is selling from two hundred to three hundred loaves of bread per day. An unmistakable hustler is Mr. Rembaugh, and the bread item suggests a family of the same energetic breed. The younger daughter, it is stated, sold the garden produce and the elder one kept the accounts.

The story of the garden is at times quite dramatic, with its accounts of drouth that lasted until the earth gaped for water; how the gardeners fought with irrigating trenches and a watering system devised for the emergency, and how at last the situation is relieved and the crops saved by sudden and copious showers. There were lively fights, too, with insect foes and mysterious blights that carried off the melon vines, and the list of purchases shows the kind of resistance made.

And Mr. Rembaugh worked! Sometimes after the list of a day's operations that would look large to an easy-going gardener, the comment is noted: "A poor day's work." At other times we have such entries as the following: "Worked fifteen hours, temperature ninety-two. Very tired." This is not the leisurely way in which many persons of middle age pass the

season of hot weather, but it is the way to make money in gardening.

The bill of expense itemizes thirty-eight dollars for seeds, two dollars and twenty-five cents for manures, forty-seven dollars and ten cents for miscellaneous and two hundred and fifty-six dollars and fifty-nine cents for labor. Total, three hundred and forty-five dollars and thirteen cents, which is deducted from sales amounting to one thousand two hundred and thirty-nine dollars and fourteen cents. The small payment for manure is because most of it was obtained for the hauling, while the cost of the portion bought was only from ten to twenty-five cents per load. Labor was charged at ten cents per hour for men and five cents for women and boys. Actual cash paid for outside labor was eighty-seven dollars.

FIVE ACRES ENOUGH

A little farm well tilled will produce a larger income than a large one half worked. Five acres devoted to raising vegetables has made a comfortable living for L. C. Wright & Son of Oswego county, New York, one of the leading prize winners. They were able to do nearly all their own work of growing and marketing the crops, raised much of their own seed from selected plants, kept some hogs and hens to add somewhat to the income and incidentally produce most of the manure used, so that they paid out but a very small portion of the gross receipts. The products were marketed at wholesale in Oswego, three miles away, and the delivery, therefore, was quickly done. Only such crops as were in good demand were grown, but enough of them to make variety and a constant supply of something from early spring until late fall.

The illustration on Page 30 shows clearly the arrangement of the plot and the crops grown. Considerable space was devoted to grapes, strawberries, raspberries and asparagus, for which there was a good demand at a fair price. The small, closely set, narrow teeth were used almost entirely on the cultivation instead of the two and one-half-inch teeth commonly



THE EARLY HOTBEDS

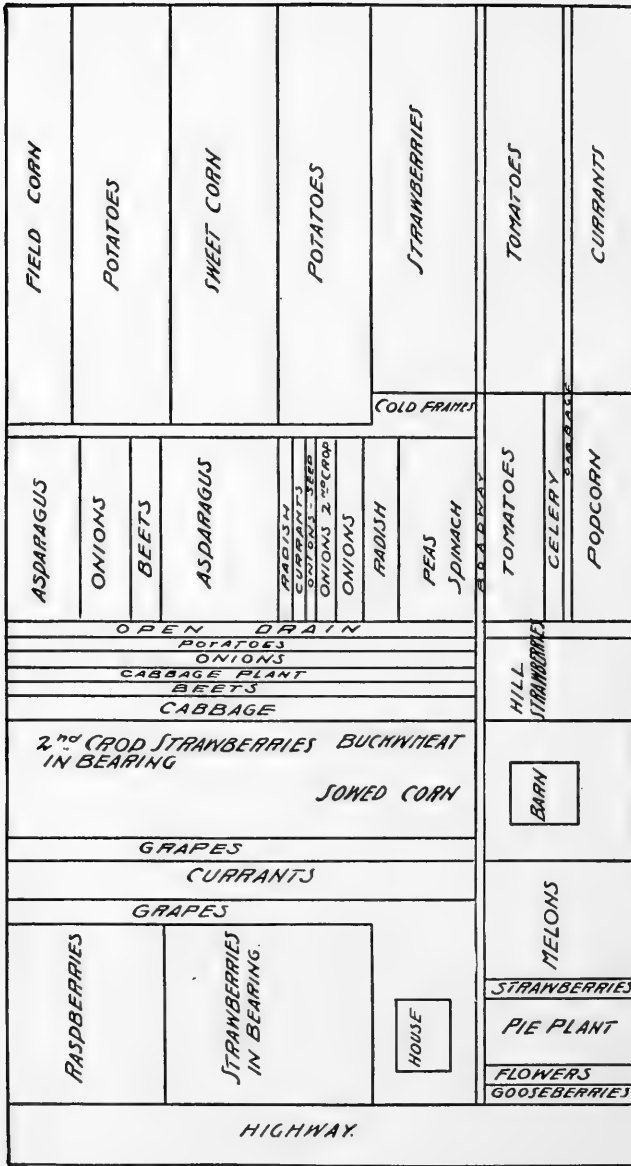
used. The methods employed in growing crops will be described in the words of Mr. Wright.

Tomatoes.—Ground had been plowed, harrowed and marked out with shovel plow in deep furrows, five feet apart, and cross-marked in rows four feet, until we found by counting up hills we would be short of ground. So we cross-marked the balance about three and one-half feet. With hoes we pulled the soil out

of the furrows where they crossed. The hills were about eight inches deep and fourteen inches wide. Each hill received a manure fork full of well-rotted horse manure. This was covered with soil, not mixed with it, to the depth of six inches.

Our plants were ready to set June 2; after thoroughly watering them so the soil would stick to the roots, took them up carefully, about fifty at a time, placed them in our two-wheel garden cart and drew them to the prepared hills. Placed a plant on each hill. One man took a garden hoe with extra large blade and the other man picked up the plant. The hoe was driven into the hill by striking with edge of the blade deep enough to strike the manure. The soil was held up with the hoe while the plant was placed, top facing east, with roots under the soil and into the hill so that the soil held up by hoe when released would cover roots and stalk of plant about eight inches. The soil held up by hoe was then released and firmed by pressing down with the foot on soil directly over the roots of plant. This left plant when set lying down. We set all tomato plants this way. Never set them upright, as the wind is apt to break them off. Although the plant is set flat down, in five or six days it will turn and stand up straight, but this gives the plant time to toughen up, and any ordinary wind will not break it. By covering stalk of plant in the hill it will send out roots, make a stronger, better plant and produce more fruit.

Experience and practice in former times has taught us that tomato vines will produce more fruit and ripen earlier if broken down. We break them down as follows: Stand close to the plant, stoop half over, bring hands together in front of you with arms at full length in form of a letter V or wedge, with hands still together, push through the center of the



MR. WRIGHT'S FIVE-ACRE MARKET GARDEN

plant. Now open your arms and hands, and with a gentle side sweep press the vines as separated down flat on all sides of the hill. Now press down on the top of the vines as they lay down. Don't be afraid, press them down so they will stay down. If this is done at midday you will not break off one vine in a hundred. Vines when broken down will show green tomatoes three-fourths size of the first setting.

We do not make hotbeds. We have a set of boxes twenty-four by eighteen inches, and one and one-half inches deep, that we take to the greenhouse with our seed. They are grown in these boxes and when they are four inches high we take them home and transplant into cold frames. This saves us a lot of expense and labor, and we always have fine plants ready in time to set in the open ground.

We have successfully grown tomatoes for years, early and late, and are satisfied that in the frames is where the early tomatoes are made. In our opinion not one gardener in a hundred gives the plants enough room in the frames. Our plants when set out often have small tomatoes set and are large and stocky, healthy plants, that when properly set out never wilt down, but commence at once to grow.

A Cucumber Experiment.—We had been thinking for some time about growing White Spine cucumbers for slicing, under glass outdoors. This proved to be one of the most profitable and interesting experiments we have made in our experience of twenty years as market gardeners.

We had on hand four sash eight by three and one-half feet with no glass in. We purchased cotton cloth and covered these frames. We also used five sash with glass in three by three and one-half feet. We plowed, harrowed and cultivated the plot to be used and raked it level with a garden rake. We took one-

inch hemlock boards twelve inches wide and made a frame forty-seven feet long and three and one-half feet wide, just the width and length of the cloth and glass sashes combined, and put in the necessary cross-pieces to slide the sash on. We had ready a compost manure one-third each of horse, hog and hen manure. This had been thoroughly worked over four or five times. With hoes we made inside this frame twelve holes eight inches deep and two feet in diameter. Put



CUCUMBER VINES DUSTED WITH LIME, AND BOX FRAMES

in two tile sixteen inches long and two inches in diameter. In each hill we put a heaping shovelful of the compost manure. We now added one-half the soil thrown out of the holes to the manure and thoroughly mixed it with a spreading fork. We then put on each hill all the hardwood ashes we could take up in one hand, then put back the balance of the soil thrown out of the holes. Sowed five pounds of potash on top of

the twelve hills and raked it in with a garden rake. The hills were now four inches above the level and held the tile firm and upright. We now sowed fourteen seed on top of each hill, put on three-fourths inch fine soil, put on the sash frames, and our cucumber experiment was started.

As soon as they were out of the ground, on warm days, we would water lightly on the surface. On cloudy days would not touch them; they got all the air they needed through the cloth-covered sashes. We did not have to put extra covering over them only one night. June 17 took off the sashes and hoed the plants nicely. They then looked fine; just as nice under the cloth sashes as under the glass.

We now commenced to water in the tile, and from this time until the vines were pulled up, no matter how tired we were, they were watered on the surface in the morning and in the tile after the sun went down. They grew rapidly, and on July 1 the vines had completely filled the frames and were up to the bottom of the sashes. We now took the sash and frames away, and there we had the finest hills of cucumbers we had ever seen, growing in the same length of time. They continued to grow, blossom and bear until the rows were a solid mass of vines six feet wide.

It was a pleasure to tend them and watch them grow and bear. Through the long-continued drouth not a leaf turned yellow, all on account of having all the water they wanted. On July 15 we picked the first cucumber; when we picked the last cucumber September 11, the vines were still green, but they had borne out; there was not a single blossom left.

We have a bath tub close to the well and eight feet from where we grew this frame of cucumbers. The water used was pumped into the bath tub every morning. We have purchased another bath tub, also

a tank that will hold four barrels, and shall try this more extensively next summer. The cucumbers were large when cut, weighing on an average ten pounds to the dozen. Sales from the twelve hills, eight hundred and thirty-five at from one to four cents each, fourteen dollars and twenty-seven cents.

Early Potatoes.—The ground was plowed deep with a heavy team, thoroughly harrowed and marked with a horse marker in rows three feet apart. It was then furrowed out with cultivator with double mold-board plow attachment, going four times in each row and making furrows seven inches deep and fifteen inches wide. The soil was all dry, light and warm by the time we were ready to cover the seed. We then scattered finely pulverized hen manure in the rows. As we were short of seed we planted whole small potatoes, dropping them on the manure in the furrow, one potato in a place, about sixteen inches apart.

We put the side hillers on the cultivator and covered the potatoes by running between the rows. After covering we rolled them with the garden roller, running it on top of the rows. In seventeen days they were all up so we could see the rows. We then went over the piece with a straight, square steel-tooth harrow closed to three feet, and also cultivated between the rows with the cultivator with the narrow teeth. On June 14 we hilled them, using the hillers on the cultivator, and although we had not used hand hoes, not a weed was to be seen and there was not a missing hill.

Money in Berries.—Two men went ahead of the horse and cultivator with common hand hay rakes and raked the straw from between the rows up on the rows, working one row at a time. We then went twice through each row with cultivator, small teeth on, set to run deep. This loosened up the soil between the rows. The straw was then raked back into the rows

as fast as they were cultivated, leaving a light covering of straw on the plants, the idea being that the soil would be stirred up and straw put back on it would act as mulch and retain the moisture. In the long-continued drouth that followed it proved to be a good thing and saved our crop. We think we got one-third more fruit by the above method. Sales from the plot, two hundred and twenty-eight by eighty-nine feet, were one hundred and twenty-one dollars and seventy cents.

In our opinion the hill system as the way to grow big berries and lots of them. Anyone who is short of ground can keep a bed set in this way in full bearing for three years. It has been done on this place.

The Palmetto Asparagus beds are five years old, have always had good care and plenty of manure. On April 19 we cultivated these beds with cultivator, small teeth on. After cultivating and ridging up soil on the rows, the beds were harrowed with the harrow closed to three feet. We then plowed between and forced the earth upon the rows over the plants. This left a furrow between the plants about six inches deep and twenty inches wide. Sowed in this furrow two hundred pounds of coarse ground bone, which was worked in with the cultivator, going over each row twice. We then went over the beds crosswise with the harrow closed. This was the finish, and the beds were in fine shape, being mellow and free from weeds. We use bone and stable manure in fall and we grow fine asparagus.

Our Vineyard contains one hundred and seven Worden vines, six years old. It was manured with stable manure and cultivated in the fall of 1898. On April 15 we pruned the vines, cutting back all new wood to two eyes, and all old wood that would in any way interfere with the growth of the clusters and the free circulation of air and sunshine. After pruning

we tied up the vines to the wires, being careful to keep them well spread in fan shape. April 17 we cultivated the vineyard with Planet Jr cultivator with small teeth on, going four times in each row. This left the ground fine and mellow.

Weeds were kept in check by cultivating and hoeing. The vines made a splendid growth and a wonderful setting of fruit. The weight of new wood and fruit was such as to threaten breaking down the trellis. On August 11, with pruning shears, we cut back the new wood to within ten inches of the last cluster. This saved the vines, and how the clusters did grow! In twelve years' experience growing Worden grapes we never saw vines carry such loads of fruit. Experts estimated the crop on the vines at one and one-half tons. A severe frost October 2 caught many of them and we cut but two thousand four hundred and fifty-five pounds.

The Value of Labor in caring for the crops of this good garden was one hundred and forty-seven dollars and thirty cents, for preparing the products for market and marketing same eighty-five dollars, manure nineteen dollars and forty cents, plants and seeds ten dollars and nine cents, picking two thousand one hundred quarts strawberries thirty-one dollars and fifty cents, picking currants and raspberries six dollars and two cents, incidental expenses one dollar and five cents, or a total of three hundred dollars and thirty-six cents. There was sold up to the time the report closed four hundred and forty dollars and forty-nine cents worth of fruits and vegetables, used in family twenty-seven dollars and seventy-six cents, and on hand one hundred and twenty-five dollars and seventy-three cents, or a total of five hundred and ninety-three dollars and ninety-eight cents, leaving a profit above cost of two hundred and ninety-three dollars and sixty-two cents.

A Twenty-acre Garden.—One of the largest gardens, or garden farms, was that of W. H. McMillen, Oshkosh, Wisconsin. The whole place of twenty acres was entered and the method with each important crop is told in detail, receiving a ten-dollar prize. Income was about one thousand two hundred and fifty dollars and cost about five hundred and fifty. The expense account is somewhat unusual, as it includes all household expenses as well as payments for business supplies and hired help. But no allowance is made for the work and time of the owner. Thus the seven hundred surplus represents the cash sum which the owner receives for his time and investment, having received also his living expenses for the period, March to November. The manure was mostly obtained for the hauling. Among the expense items are noticed one hundred and forty dollars for hired man eight months, ninety-seven dollars and forty cents for picking berries, thirty-seven dollars for hired girl, twenty dollars for wood and twenty-two dollars for coal, twenty-eight dollars for dry goods, other items being mostly for provisions and farm supplies. Following is the cream of Mr. McMillen's very instructive account :

The first seed that are sown in the open ground are peas. I sow on well enriched land and prefer rather a heavy soil for peas. I plow the land in the fall, then disk, lapping the disk one-half. This leaves no ridges. Then drag the land, plank and drag, and plank again. Then I have land as mellow as an ash bed. I use a seed drill, hill dropper and fertilizer combined. I have a two-foot marker instead of an eighteen-inch, one that comes with the drill. I set my marker two feet and sow peas very thick in rows. I sow two rows about four inches apart and then two feet; this gives the vines a better chance to stand up. One row supports the other. I find this a very profitable way

to grow them. When two inches high I begin to cultivate them. I use a twelve-tooth cultivator and aim to cultivate twice a week until last cultivating. I then use a larger shovel, throwing some dirt to the roots.

Next come the onions. I plow in the fall. Manure well before plowing, and after I use well-rotted manure for the dressing. Disk in, harrow, plank and harrow,



A THRIFTY MARKET GARDEN

and plank, and you will have your bed as fine and as mellow as an ash bed. We sow our seeds middling shallow and thick. If they should be too thick you can thin them out. We sow them twenty inches between rows; we use a seed drill, and when the onions are up so I can see the rows I go through them

with a wheel hoe, to which I attach a pair of rakes so as to straddle the rows, and the rakes will loosen the earth. Next we take off the rakes and attach the scuffer hoe, which we run between the rows twice, and when the onions are four inches high we weed them. This is done with a hand weeder, and this is the time to thin them should they be too thick. We usually weed them twice on hands and knees. Next we use the one-horse, fine-tooth cultivator. We sow a small patch of carrots and beets for early use and treat them the same as onions.

Next we planted early potatoes. I like a sandy soil with clover turned under about September and then in the spring apply a light coat of manure, and disk, lapping one-half. This will cut nearly as deep as if it were plowed. Drag and plank. Mark three feet between rows; furrow out; drop seed twelve inches apart, two to three eyes in a piece of potato, then cover with a hoe lightly and when coming up drag them. I use a lever drag, tipping the lever so the teeth are quite slanting, dragging the same way as planted. When three or four inches high we use the fine-tooth cultivator. Next cultivating use the large cultivator. We keep them cultivated as long as the vines will permit, then we hill them. By planting close we get a heavy growth of vines. They come together and shade the roots and therefore keep moisture in the land. We cultivate as long as we can before hilling. We have good results from growing by this method.

Next we set out strawberries. I like a fall plowing with a heavy coat of manure turned under. I top-dress the bed with a fine and well-rotted manure. Disk, drag and plank. Mark four feet between rows. Every other row I set with a fertilizing berry. I never mark over three rows at a time before I set.

I have a hand marker, making three rows at once. I set two of them and use the third for a line to mark back on. I use a trowel for setting. I never dig more plants at one time than I can set in half a day, and I keep them well sprinkled and covered with a blanket. This is my method of setting strawberries, and I always have a good stand of plants. In setting them I allow eighteen inches apart in the rows.

Next I set my early cabbages. Manure heavy and plow deep. Fall plowing I like best. I do not think fall plowing is affected so much by drouth as spring plowing. I like a top dressing. Disk and drag and plank; mark three feet, set eighteen to twenty inches apart in rows. I use the Charleston Wakefield for early. When the plants have been set a week, cultivate with a fine-tooth cultivator, and then hoe.

If I am to set any raspberries I pick a piece of light soil with a red clay bottom land that will grow a good crop of corn. Plow deep, drag, plank and mark seven feet one way and four feet the other, then use the cultivator. I take all the shovels off but one large one, furrow one way (deep) and drop the plants in the four-foot mark. One drops the plants and one covers. When I am selecting a quantity of plants I dig the new plants which come up in the spring, putting about four of them in one hill. This will give a nice hill of new canes for the next season without waiting for shoots to come up from the setting. Having finished setting, I cultivate both ways, then I shall have the furrows filled and the land level. I usually plant two rows of corn between the rows first year. Second year I plant a row of potatoes between. By doing this I keep the bushes well cultivated and grow a nice crop of potatoes. After the second year it is useless to plant anything between them, but keep them

well cultivated. This rule applies for setting black raspberries and blackberries.

Land that will grow a fair crop of corn will grow tomatoes. I plow my land in the fall, and in the spring disk, lapping one-half. Drag, plank, and drag and plank again, then mark four and one-half feet each way. Use a heavy one-horse marker. Mark as deep as possible, and if the land is mellow dig the holes with the hands. We set three and one-half acres this spring. When we are ready to set we take one horse and a stone boat and set the plants on the boat, and drive between the rows; one man to drop them and two men to set them. The plants are dropped on each crossing, using our hands to dig the holes. Set the plants in; press the dirt firmly about the plants; when they have been set one week, fill in, if any are missing, and cultivate each way. I give them all the cultivating I can. We have a nice clean patch, plenty of fruit and never had a hoe in them.

A Gardener's Calendar.—The routine of a good-sized farm market garden is also related in a very helpful manner by a successful contestant, G. J. Townsend, of Wayne county, New York, and his story is quoted below for the five busy months beginning with:

April.—I plowed about nine or ten inches deep. Potatoes I planted in drills about fourteen inches by three feet, four or five inches deep. Onion seed I sowed in drills fourteen inches apart. Beets and carrots I sowed in drills two feet apart. The above ground I harrowed three or four times and rolled: the last time I attached a plank behind the harrow to leave it smooth. The rhubarb and asparagus beds I dug up about three or four inches deep. Seed potatoes I cut two or three eyes in a piece. I raked off about half the straw from the strawberry bed, leaving the rest for mulching and to keep the berries clean.

By leaving this straw on them a week or two longer it will protect them from frost and prolong the season for ripe berries. I put a small handful of fertilizer on the hills of potatoes and worked it in with the weeder. I soaked some of the seed potatoes in corrosive sublimate water for scabs before cutting. I take about two ounces corrosive sublimate dissolved in a little warm water, then put it into about sixteen gallons of water in a barrel; stir it up well, put in pota-



WORKING A NEW YORK TRUCK PATCH

toes and let them soak about one and one-half hours. This water is good for about four batches. Be careful that stock do not eat any of the seed. Hotbeds made the last of March and first of April I only put about a foot of manure in.

May.—I set strawberry plants three and one-half feet by twenty inches in rows, digging the hole with a trowel and pressing the dirt firmly around the roots.

Corn I planted three by two feet, about four or five kernels in a hill. Some of the onion, beet and carrot seeds did not even come up on account of the wind blowing the dirt off of them. I try to run the weeder over potatoes once a week, and after every shower as soon as they are dry enough, until they get to about eight inches high, then run cultivator as long as I can get through. By doing this I do not have much hoeing and keep in the moisture. All the hilling they get is with the wings on the cultivator. To burn worms' nests out of trees I get a long pole and tie some waste or cotton on the end with wire and put on some kerosene.

About the first of May I leave the covering off of the tomatoes in frames day and night to harden them, if there is no danger of frost. Give the plants a good watering before taking up. I take one plant up at a time with a handful of dirt pressed together and put them in crates. I set the Atlantic Prize three and one-half by three feet, the Champion three and one-half by two feet. Dig a hole with a fork, drop in a small handful of fertilizer one side, put water in hole, set plants, mix fertilizer with dirt, keeping it away from the roots. For about two weeks after tomatoes are set keep watch of the potato bugs and pick them off. Putting cold water on plants to draw out the frost is all right when it does not freeze. Better cover potatoes with dirt with a plow before a frost. All the blossoms on the new strawberry bed I keep picked off. Putting wood ashes on onions after weeding will help to keep the insects away. When through with the hotbed sashes I put them under cover. I give them a coat of paint every three or four years.

June.—I kept the runners out off the strawberry plants until about the first of July. I cultivated the potatoes shallow toward the last. Thinned out the

beets to four or five inches apart and the carrots to two or three inches apart. The best way is to pick the bugs from the squashes every day. Carbolic acid diluted with water will keep the bugs away for three or four days. I paris green the potatoes with a spray pump. It holds about a pint of water. Put in one teaspoonful of paris green every time. The Early Michigan tomato plants I set out four by four feet apart and the cabbages two and one-half by two and one-half feet. I pay one and one-half cents for picking strawberries, one-fourth cent more than the regular price. I have them assorted when they are picked, being careful not to have them bruised. The two-year-old strawberry bed on the east side was nearly a failure on account of freezing and the drouth. I only covered the new bed with straw. After picking a few quarts from this old bed I plowed it and set it to tomatoes and cabbages. I had six kinds of strawberries this year, the Wilson, Buback, Jessie, Marshall, Sharpless and Van Deman. The Buback, Jessie and Wilson have done the best for me. The Van Deman is a good early berry. The Sharpless I have given up and shall give up the Marshall next year. The celery plants I transplanted when about two inches high into a well prepared bed, about two inches apart.

July.--The early potato ground I sowed to turnips in drills two feet apart. Cucumber seed I planted in hills about six feet apart, twelve to fifteen seeds to a hill, thinning out to about six vines in a hill. Pumpkins I thinned to two or three vines in a hill. Renewed the old strawberry bed by mowing them down after fruiting and cultivating and hoeing them out. Set out one row of strawberries between a row of potatoes. Cauliflower I set two and one-half feet apart. For celery I dug trenches about ten inches deep, worked in

some well-rotted manure, set plants about six inches apart, watered well. The trenches I have about four feet apart.

August.—I picked the onions up in crates and drew them to the corn house to be topped some rainy day. The Atlantic Prize tomato is the earliest, but



A YORK STATE TRUCK PATCH IN JULY

will not sell well when other kinds are in the market. The Dwarf Champion is the best for general use. The Early Michigan is a good tomato, but rotted some this year. On my other ground the Stone proved to be the best canning tomato.

Money from a Minnesota Garden.—Some of the best market gardens were in the northwest, and the returns usually show fair prices and brisk demand. A profitable six acres is described by C. L. Hill,

Minnesota, sixth Allen prize winner. Land being more plenty than labor, the methods were directed toward production of most returns for least labor. Nothing was crowded. Even the onions and beets were in rows three feet apart, so that they could be cultivated by horse and wheel hoes. Onions were weeded twice by hand, also some other crops.

The financial results are worked out clearly and with care, showing total income of eight hundred and twenty-five dollars and twenty-five cents and net profit of five hundred and ninety dollars and ninety cents. No manure or fertilizer seems to have been used, and the main charge is two hundred and thirty-two dollars and fifty-five cents for labor, most of which is for one man, with an extra hand for three or four months. In round sums the labor cost twenty-five dollars in May, fifty dollars in June, fifty dollars in July, thirty-eight dollars in August, forty-seven dollars in September and twenty-three dollars in October, the account including every stroke of labor done. Mr. Hill seems to have solved the problem of making a living from six acres, even in a season unfavorable to some crops. An interesting feature of his account is the valuation of crops expressed in rate per acre, which is as follows in even dollars:

Beets, per acre, one hundred and twenty-five dollars; cabbage, one hundred and eleven dollars; carrots, one hundred and twenty-eight dollars; cauliflower, one hundred and fifty-three dollars; sweet corn, ninety-two dollars; cucumbers, one hundred and twenty-nine dollars; currants, sixty-seven dollars; ground cherries, two hundred and thirteen dollars; gooseberries, ninety-five dollars; lettuce, one hundred and thirty dollars; muskmelons, one hundred and sixty-four dollars; onions, one hundred and forty-five dollars; parsnips, two hundred and four dollars; pepper eighty-six

dollars; pie plant, one hundred and twenty-three dollars; early potatoes, one hundred and five dollars; peas, seventy-five dollars; radishes, sixty-nine dollars; raspberries, two hundred and twenty-six dollars; squashes, eighty-eight dollars; strawberries, two hundred and forty dollars; tomatoes, one hundred and twelve dollars; turnips, eighty-six dollars.

A Large and Profitable Market Garden was conducted by A. Brackett, Excelsior, Minnesota, the fifteenth regular prize winner. There were four and one-half acres, renting value five dollars per acre. Most of the produce was sold at wholesale. Total proceeds, five hundred and thirteen dollars and ninety-one cents; expense, two hundred and five dollars and eighty-two cents; net, three hundred and eight dollars and nine cents. Writes Mr. Brackett: "Our estimate on expense was figured at one dollar and a half per day for labor, but taking out all other expenses, we find that we cleared four dollars and a quarter a day."

CHAPTER IV

GOOD FARM GARDENS

The claim has been made that the tillers of the soil in the more thickly settled parts of the continent are no longer strictly farmers, but gardeners, rather; deriving their incomes less from staple farm crops than from vegetables, fruit and specialties. This is an extreme statement of a growing tendency of farmers near good markets to emphasize the production of crops, the value of which depends largely upon being used while fresh, thus assuring the cream of the market to nearby growers. In growing staple crops, cheap and distant lands may compete, but in producing the perishable specialties a convenient location gives decided advantage. The tendency to larger and better farm gardens is, however, noticed also in sections comparatively new; a fact which shows the increasing prosperity of the people and their ability to appreciate and pay for more of the solid, wholesome luxuries. The gardens here described are those of farmers who make more or less of a specialty of fruit and vegetables.

A Luxuriant Iowa Garden of four acres is clearly described by A. A. Atwood, Shenandoah, Iowa, winner of sixth regular prize. He grew produce worth two hundred and twenty-eight dollars and twenty-five cents at a cost of ninety-four dollars and thirty-eight cents, of which fourteen dollars was for rent, sixteen dollars and forty cents for seeds, etc., and sixty-three dollars and twenty-five cents for labor, reckoning teams at two dollars per day and men one dollar. The total

amount actually paid out was thirty-three dollars and ninety cents and the crops actually sold were one hundred and nineteen dollars and fifty-eight cents. No manures seem to have been used.

The Henderson bush lima produced at the rate of one hundred and forty bushels per acre in the pod, and cost at rate of thirty-nine dollars and twelve cents per acre. They shelled two and one-fourth quarts to the peck. Planted May 8, they were ready to use August 5. Garden beets planted April 21 were ready for use June 17 and June 26, according to earliness of location. Yield was at rate of seven hundred bushels per acre. Early cabbage, planted in cold frames April 13, was transplanted May 17, was hoed and cultivated twice, and was first used for table July 17. Variety, Burpee's All Head. Crop at rate of four thousand five hundred and ten per acre, worth one hundred and seventy-one dollars and thirty-eight cents, at cost for seed and labor of twenty-nine dollars and fifteen cents. Late cabbage was transplanted June 17, was sprayed for cabbage worm September 6 with one ounce insect powder to three gallons water, mixing twenty-four hours before wanted.

Early Shaker sweet corn, planted May 8, was ready July 26 and yielded at the rate of seven thousand one hundred and fifty ears and five and one-half bushels seed per acre, worth forty-two dollars and sixteen dollars, respectively, at a cost of sixteen dollars. White Rice popcorn yielded at rate of sixty-six bushels at a cost of fourteen dollars and fifty-five cents. Of several kinds of pickling cucumbers, Early Frame proved most profitable, being early, productive and easily gathered. Spraying with one ounce sulphur to one gallon water drove away the lice. Thick planting provided plants enough to spare some for the striped beetle, a plan found cheaper than liming or other reme-

dies. Crop was at rate of one hundred and twenty-six thousand five hundred per acre, worth two hundred and fifty-three dollars and costing sixty-seven dollars and sixty-five cents. Three pounds of seed were gathered from five hundred grown specimens. Onions produced at the rate of three hundred and seventy bushels, the Prizetaker variety proving the most productive. White Portugal was smaller than Wethersfield or Silver Skin. Peas gave about two hundred bushels per acre. The produce of an acre of tomatoes sold at five dollars per ton to the canners brought thirty-six dollars and thirty-three cents. In regard to his potato field of one acre, Mr. Atwood writes:

The ground planted to potatoes last year had been in corn the year previous. The variety was Early Ohio. The seed was somewhat scabby and small, averaging about the size of a walnut with the shuck on, the larger ones being cut into pieces with one or two eyes. The seed was cut as the potatoes were sorted. We finished planting April 25 and used eight bushels of seed. They were all up by May 15. They were cultivated twice during the season, May 24 and June 1, with a two-horse cultivator, and harrowed the day following the first cultivation for the purpose of killing the scattering weeds and leveling the ground. They were hoed after the first cultivation. At the last cultivation the cultivator shovels were turned so as to ridge up or throw the dirt along the row. On June 22 we went over the piece with a hoe and cut out what scattering weeds remained.

We began using new potatoes June 30 and consumed twelve bushels up to October 1, when the crop was dug, the total yield being one hundred and fifty bushels. The potatoes were dug or plowed out, using the corn lister, it throwing a double furrow, one each way, and being very convenient for that purpose. It

took a man and team nine hours to plow out the potatoes and two men six hours each on three days to pick them up. The cost was as follows: Preparing ground, two dollars and fifteen cents; seed, eight bushels at sixty cents, four dollars and eighty cents; cutting and planting, two dollars; cultivating, three dollars and sixty cents; harvesting, four dollars and twenty cents; total, sixteen dollars and seventy-five cents, or eleven and two-tenths cents per bushel. Writing since the contest Mr. Atwood says:

The experience gained from the prize garden was so great and important that it would be hard to tell which was the most so. One very essential part was that it pays to keep an itemized account of the work, kinds and amount of seed planted; see which is the most productive and give the garden proper care and attention. By so doing a person can tell just what benefit it is and which part pays best.

Having thoroughly investigated it I can honestly say that every farmer should grow enough at least for family use of such kinds or varieties of garden vegetables as they would most desire, the size of the garden depending largely upon the size of the family using it.

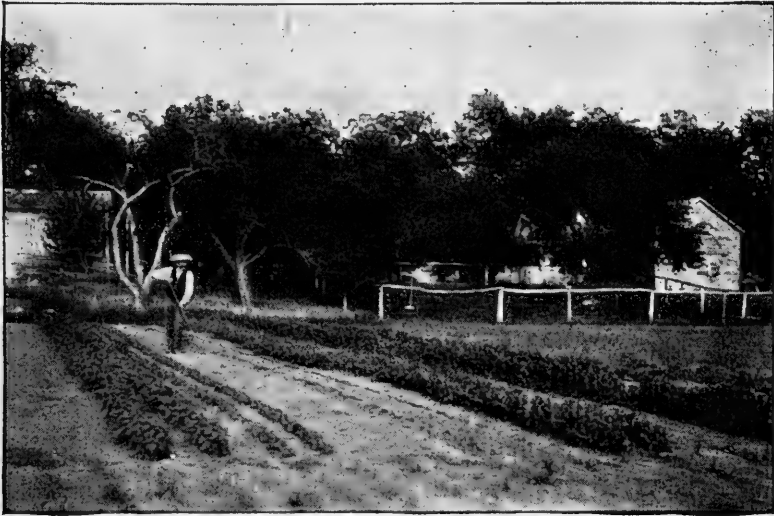
Born in Whiteside county, Illinois, August 29, 1856, I received a common school education and lived there until the year 1880, when I moved to Page county, Iowa, where (with the exception of two years that I lived in Omaha, Nebraska, most of the time conducting a hotel, and in Florida one season studying their mode of gardening and fruit raising, and part of a season on the Pacific coast for the same purpose), the principal part of my time has been put in farming and gardening. While living on the farm I filled several small offices, including that of township justice of the peace. In 1890 I took the United States census in a part of Fremont county, Iowa, and in 1900 I took it

in a part of Page county, Iowa. I have traveled around a great deal, principally to look at the country; have been in nearly every state south and west of and including Ohio.

A Connecticut Valley Garden.—A concise, readable story is told by G. W. F. Campbell, Hampshire county, Massachusetts, winner of second Woodruff prize. His lot comprised eighteen-one hundredths of an acre of sandy loam in the Connecticut river valley. Tools and land were worth forty-six dollars; seed, two dollars and ten cents; fertilizers, seven dollars and thirty-five cents. A limited but well chosen list was planted, including Egyptian beet, Valentine, Six Weeks and bush lima beans, First of All corn, Bliss Everbearing and Notts Excelsior peas, also radishes, lettuce and onions. By limiting variety he was able to give more space to each species, and to save cost by getting seeds at quart and pound rates; labor at fifteen to twenty-five cents per hour cost twelve dollars and nine cents; income was twenty-eight dollars and seventy-one cents; net gain, seven dollars and fifty-four cents, or seventeen per cent on the invested value in land and tools. Mr. Campbell writes the following account:

The spot was a garden and onion field last year. Previous to that time it was an old orchard. In the fall a coat of manure was put on and plowed in. This spring the land was pulverized with a smoothing harrow. Fertilizer was sown before putting on the smoothing harrow. April 24, onion and lettuce seeds were sown in drills. On the 26th, beets, spinach, peas, radishes and beans were planted. The peas, with the exception of a few, were soaked in water twenty-four hours. May 3 found the soaked peas up, while those planted dry did not appear until two days later. Six rhubarb plants, which were manured this spring, and also the strawberry plants looked thrifty at this date. Between

May 9 and 12 a smoothing harrow was used on all ground not yet planted, to keep down weeds and prepare for seeding: Onions, spinach and beans were cultivated with a wheel hoe May 12, with very satisfactory results. When using the machine the dirt is thrown from the row and not on the growing crops. The machine does good work and runs easily, as was proved in furrowing out to plant the second lot of peas and beans.



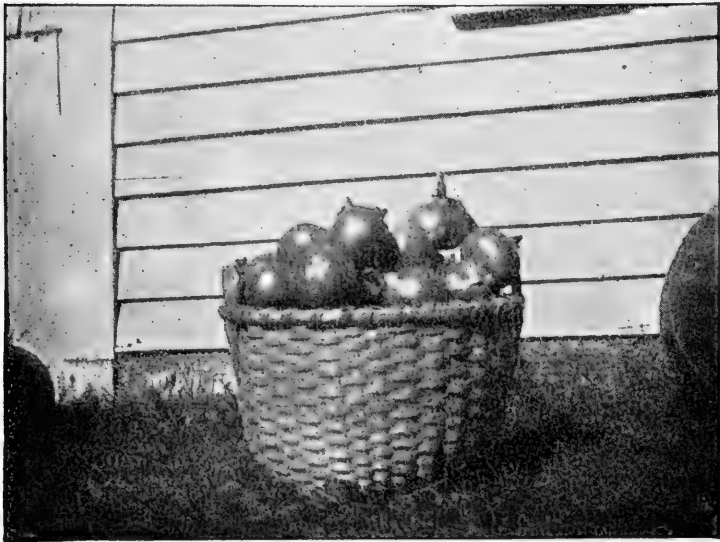
GARDEN OF G. W. F. CAMPBELL

Nearly all seeds have been sown and planted without firming the ground. This prevents excessive evaporation and assists the seeds to come up quickly. Watering the garden with a rake is an effective method. A layer of loose earth on top holds the moisture in the ground and frequent rakings keep the surface from crusting.

Lima beans planted with eyes down will appear quickly and not rot as when planted the other way.

May 20 found the beans up and looking thrifty. On June 5, radishes of the second planting were pulled.

The strawberry yield was in every way gratifying. The berries were plenty and of good flavor and size. From the small bed, nine hundred and twenty-four square feet, six bushels were picked. These were enjoyed by the family and distributed among the neighbors and friends, as were the vegetables. Two strips where the strawberries were last year were cultivated



ONIONS FOR EXHIBIT

so as to give the runners room. The best of the plants that were torn up were used to set a small patch, thus making a new bed for next year. This method would not be advisable were the bed weedy. In order to insure a continuous crop the land must be kept rich.

Late peas were planted where spinach formerly grew and corn has taken the place of the first peas. Corn was of good flavor and size. Occasional appear-

ances of smut have been picked off, no better method presenting itself.

Onions sold for a good price. One-half bushel were selected and sent to the county fair at Greenfield. A premium of two dollars was awarded them. Two mammoth squashes, weighing seventy-five pounds apiece, were in the garden September 30.

Having all the vegetables our family could eat, selling some and giving away, my experience has proven that with the best tools and fertilizers and a careful method of cultivation, an enjoyable and profitable garden will be the result.

Most of the peas were soaked for twenty-four hours before sowing and came up two days sooner than those not soaked. The wheel cultivator was used two weeks later, throwing the dirt from the rows.

The ground was not firmed after planting the seed, as Mr. Campbell believes the loose soil prevents excessive evaporation and assists the seeds to come up quickly.

The Woodruff Prize Garden.—Some look upon the home garden as merely a plot of ground in which to grow vegetables to eat—a place that produces a few good things through lots of backache, sore fingers and weeds. Others see in the garden a place for study and recreation, and the drudgery of planting, weeding and hoeing becomes a pleasure. A man of the latter type is Charles Pierson Augur of New Haven county, Connecticut, who won the first special prize for the best report of a garden planted with Woodruff's seeds. His garden comprised four-fifths of an acre and returned eighty-nine dollars and seventy-one cents profit over and above expenses.

The soil was a heavy loam underlaid with slate, and the garden was divided into two plots, one lying to the south and west on an incline and the other at

the foot of the slope on nearly level ground. It was in fair condition as to fertility, as each year previously for five years some ten cords per acre of stable manure had been applied, and on the greater portion there had been used from six hundred to one thousand pounds per acre of complete fertilizer. The usual hand tools found on every farm were used and in addition a seed drill and wheel hoe. Not only were all the commoner vegetables planted, but many of those not usually found in farmers' gardens, such as egg plant, cauliflower, kale, kohl-rabi, melons and salsify, and everything in great abundance and variety. Such extensive plantings were made for the sake of succession and for testing the different varieties. Brief notes were kept of everything, so that the test notes are of much value for reference and as a guide for future planting.

No fancy business was attempted with this garden. It was such as any farmer can have. It not only returned a large amount of the best kind of food, but a surplus for sale. From the time the first radishes were ripe in early June there was never a day when the garden did not give enough of something for a meal for a large family. The work of caring for the garden was done at odd spells, and it was done and not neglected. An hour or two at morning or night with the wheel hoe would cultivate a large space while the weeds were small, and frequent cultivation kept the ground clean and the crops growing in a season of almost unprecedented drouth.

A Practical Success.—A decidedly business-like and profitable farm garden of one and five-eighths acres is described by W. K. Cole, Middlesex county, Massachusetts, eighth Rawson prize winner. His idea, as he states, was to show from actual experience what may be done by an ordinary farmer with the

usual tools under average conditions on a common farm. The soil varied from dark, heavy loam to very light gravel. Most of the crops were fertilized with barn manure with some fertilizer added. There were corn, peas, beans, cabbage, cauliflower, squash, potatoes, beets and tomatoes. The methods employed were not unusual, but were liberal and thorough. His account describes each crop.

Tomatoes on light soil, fairly manured, received also two handfuls of fertilizer per hill at setting, also one-fifth pound nitrate of soda after fruit was formed. Sold thirty-five bushels for twenty dollars and sixty-eight cents besides eight or ten bushels wasted for lack of market. Cost of crop, fifteen dollars and eighty-eight cents; profit, four dollars and eighty cents.

One-fifth of an acre planted to Early Essex sweet corn with four hundred pounds fertilizer appeared to stand the drouth very well, although on dry run-out land. A trace of the corn took a two-dollar prize at the county fair, and the crop of forage was very heavy. Corn and forage were valued at thirty-three dollars and seventy-eight cents; cost, sixteen dollars and thirty cents; profit, seventeen dollars and forty-eight cents.

Early Roberts potato, four square rods, proved earliest of all varieties tried and yielded six bushels. Rural Blush gave a light yield. Rural New Yorker and Carmen No. 3 gave large yields of large, smooth, late-keeping potatoes, but were outyielded by old kinds like Clark's No. 1, Beauty of Hebron, Pearl of Savoy. The potatoes won eight premiums at the Essex county fair.

Writes Mr. Cole: I believe in liberal manuring, deep planting, level cultivation, light seeding, prompt application of bug juice and early digging. I cut the seed one eye to the piece, drop in furrows six inches deep and ten inches apart in the furrow and turn in

soil enough to cover the seed, using the horse hoe, then strew fertilizer in the furrow and fill up even with the horse hoe. Go over the piece, if wet, with brush, harrow if very dry; use a roller or smoother, loaded, to firm down the earth. This piece was manured at the rate of six cords per acre plowed in. I used fertilizer at the rate of about one thousand two hundred pounds per acre.

Early cabbage, nine and one-half square rods, set out May 1, and given a handful of fertilizer, with another handful hoed in later, yielded twenty barrels. Income, twenty-five dollars and sixty cents; cost, sixteen dollars and seventy-five cents; net, eight dollars and eighty-five cents. Seventeen square rods of early peas produced about fifty bushels at a cost of twenty-eight dollars and seventy-eight cents and selling for fifty dollars and seventy-five cents.

About one-sixth acre was planted to Mohawk, Golden Eye Wax, Goddard and Imperial Horticultural beans, the first planting of Mohawk April 26. They were cultivated three times and hoed once. Shell beans were more profitable than string. Horticultural were five days earlier than other shell beans. The whole crop, forty-eight bushels, brought forty-nine dollars and eight cents at cost of twenty-nine dollars and forty-five cents. Profit, nineteen dollars and sixty-three cents.

Cabbages, one-ninth acre, with six dollars worth manure and two dollars worth fertilizer, were set May 5, cultivated four times and hoed three times and gave fifty-four barrels and an income of sixty-one dollars and forty-two cents at cost of twenty-eight dollars and ninety-five cents. Net, thirty-two dollars and forty-seven cents. Red cabbage proved most profitable and Savoy least profitable. A similar area of cauliflower brought fifty-one dollars and seven cents at cost of



SOME OF MR. WIDMER'S VEGETABLES

thirty-seven dollars and seventy-three cents. With both of the above crops nitrate of soda was hoed in during cultivation. Winter squashes, planted June 20, did fairly well for so late, being a second crop after beans and peas.

Total income of the garden was four hundred and eighty-seven dollars and fourteen cents; manure, eighty-four dollars and forty-four cents; seed and plants, fourteen dollars and eighty-five cents; labor, one hundred and ninety-two dollars and seventy-five cents; interest and taxes, two dollars and twenty-eight cents; total cost, two hundred and ninety-four dollars and thirty-two cents; net, one hundred and ninety-two dollars and eighty-two cents.

A Busy Farmer's Garden.—“A busy farmer can have a good garden if he will only make the effort,” says Oscar R. Widmer, one of the successful contestants, whose kitchen garden plot, eighty-nine by one hundred and twenty feet in size, produced thirty-two dollars and twelve cents worth of vegetables at a cost of sixteen dollars and ninety cents for labor, seed and fertilizer. The garden was of a gravelly loam, lying on an eastern slope, and prior to 1890 it was in grass. Then for four years it was planted to corn and since 1894 has been used as a garden. The rows were laid out the long way of the plot so as to permit of horse cultivation, and no hand work in consequence was done.

Mr. Widmer adds: “As soon as possible after planting, the cultivator is started to ‘nip the weeds in the bud’ as it were. This does away with the tedious hand weeding that must be done where the garden is small and located in some out-of-the-way corner. The work is mostly done in leisure moments and is a source of great pleasure, irrespective of profit.” At the beginning of operations there were growing in the garden

four rows of strawberries, one and one-half rows of currants and half a row of raspberries. The currants gave ninety-six quarts, while the others were just coming into bearing.

Instead of using brush or poultry netting for peas, a trellis was made by driving heavy posts at each end of the row and stretching No. 12 wire at top and bottom. The end posts were well braced and lighter posts put in every eight or ten feet. Common grocers' twine was woven from the top to the bottom wire and the vines clung to this. After plowing, the garden was top-dressed with stable manure and thoroughly harrowed to mix and fine the soil and manure. Then the clod crusher was used to smooth and level the surface, after which it was marked off in rows as straight as possible, two feet four inches apart. The Planet Jr seed drill was used for sowing and planting everything but corn and potatoes, which were dropped by hand and covered with a common hoe.

The first planting was done May 4, when onion sets, peas and beans were put in, followed the next day by plantings of lettuce, radish, beets, carrots, kohlrabi, turnips, rutabaga, sage and potatoes. There were also raised cucumbers, squash, sweet corn, celery, tomatoes, peppers and cabbage. The illustration gives a good idea of the way vegetables will grow if they receive a little work at the right time.

How to Raise the Most Possible from a garden patch forty by fifty feet was the problem before W. P. Gray, Westchester county, New York, a five-dollar prize winner. He tried to solve it by planting some very late second crops, but concludes that another year he would plant nothing after August 1, and thinks late planted peas and beans do not pay. He used two loads of manure and two hundred pounds fertilizer. The garden was cultivated with a wheel hoe. The yield

was five bushels beets, twenty-five quarts peas, two and one-fourth bushels beans, twenty quarts turnips, twenty-two quarts carrots and two dollars and ten cents worth of lettuce and parsley, the total value being fifteen dollars and ninety-eight cents. The crop was produced at a loss of about eight dollars, largely because of labor with unsuccessful second crops. The labor bill alone amounted to eleven dollars and twenty-one cents.

About One-third of an Acre in eastern Massachusetts, entered by L. E. Burnham, won a five-dollar Rawson special. The surplus produce was sold to summer cottagers, amounting to one-half the total value. Income, sixty-one dollars and sixty-nine cents; cost, forty-three dollars and forty-seven cents; profit, eighteen dollars and twenty-two cents. This is his first garden, and he thinks he could do better by deep plowing and more liberal manuring. The garden was planted in straight rows with a good assortment and constant succession of standard vegetables. The value of labor at fifteen cents per hour amounted to twelve dollars and twenty cents for eighty-one and one-fourth hours, a sum only two-thirds the receipts for surplus products. There was about two weeks' work in May, one in June, one in July, two in August and two in September. Not beginning to plant until May 1, and doing practically all the cultivating with a wheel hoe, the very important item of labor was much reduced. It would seem that any farmer might well spare eight days to be thus repaid, both in cash and in garden food.

CHAPTER V

THE HOME ACRE

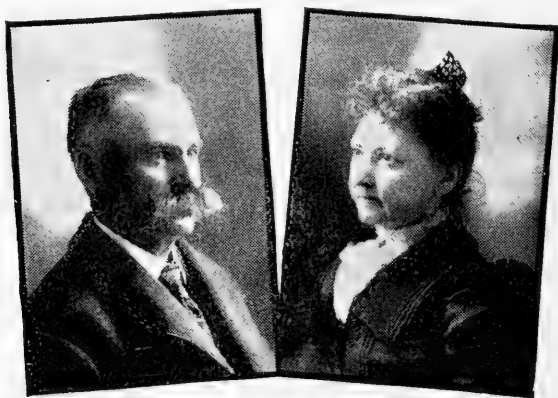
A good garden is a source of pride, delight and money profit to many a person whom circumstance or inclination does not impel to make gardening a leading specialty. In many cases only a small area is planted and the produce all used on the home table. Others have a surplus for sale or gift. Many of these home gardens entered in the contest were remarkable for careful methods and for admirable results.

High Grade Gardening.—A garden conspicuous for the high grade of its products and a winner at the country fairs was managed by L. E. Dimock of Connecticut, and the account received fifth prize. The soil was sandy loam, southeastern slope, had been six years in grass. Farm manure of various kinds was freely used. Deep, thorough tillage, frequent cultivation and the use of mulch were features of the system followed. Seeds were usually soaked before planting. Mulch was often used. Following are some of Mr. Dimock's gardening principles:

Select a plot of ground that has been down in grass for a number of years, as weeds are less troublesome than in a piece that has been under cultivation. The soil should be preferably a sandy loam. It should have a gradual slope to the south that the sun's rays may strike it more direct and also be sheltered in a measure from the cool north winds. The first plowing should be done in September of the year previous, and to the greatest depth possible, as deep-tilled land suffers much less from drouth. Stable manure spread

broadcast at the rate of twelve cords per acre and thoroughly worked into the soil to its full depth causes the plants to send their roots deep down and thereby gather moisture and nourishment in a dry time.

Deep cross plowing and harrowing after the manure has been spread thoroughly mixes the manure and soil and gives better results than manuring in the hill and saves a great amount of labor. The rows should run north and south if the lay of the land will warrant it. Hills near together and rows wide apart let in the sun's rays and give a better opportunity for



MR. AND MRS. DIMOCK

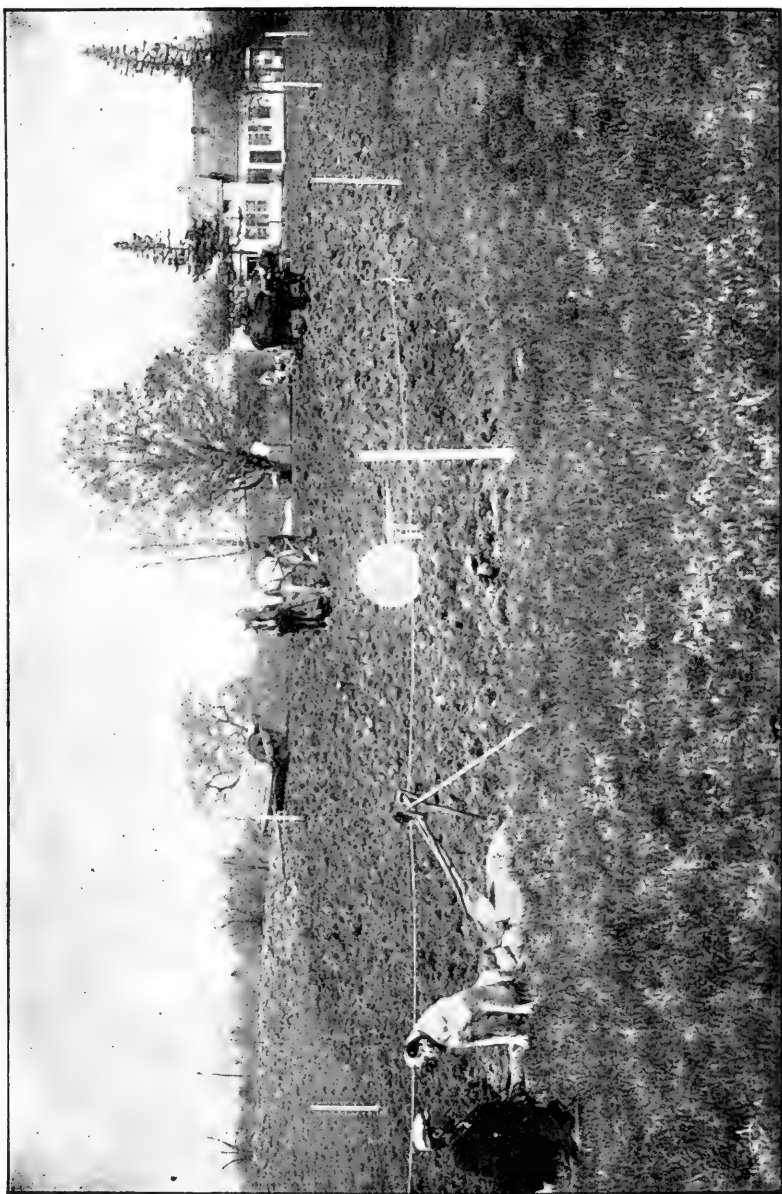
horse cultivation. Frequent cultivation makes the crops grow fast and in a dry season is good irrigation. Cultivating and hoeing in the early morning when the dew is on is far preferable to doing it in the heat of the day.

All the common vegetables were grown, and receipts comprise numerous items, of which the largest are forty dollars for cabbages, seventeen dollars for melons and thirteen dollars for beets. Total income from the quarter acre, one hundred and seventy-six dollars and twenty-one cents, of which eighty-five dol-

lars and ten cents was profit. The aid of Mrs. Dimock was evidently of great value in the care of the garden. Their photographs are shown herewith. As Mr. Dimock writes, both are "fifty-five years of age and enjoy good health." The vegetables received much favorable comment through the press and otherwise wherever exhibited.

The land was in old sod and was plowed deeply, harrowed and rolled, and then cross plowed, harrowed and rolled twice before planting. Three cords of stable manure were put on and worked in and some hen manure and fertilizer were used in the drill for some crops. The rows were made wide apart and the hills near together to allow of horse cultivation and the sun to get in among the plants. Twenty-one kinds and thirty-four varieties of vegetables were grown, largely for home use, but a considerable surplus was sold. As Mr. Dimock is quite extensively engaged in poultry raising he grew a large number of cabbage and sold nearly twelve thousand young plants.

The methods employed in growing some of the crops were quite out of the usual line, but gave very satisfactory returns. Thus, in growing melons, the earth was excavated to a depth of two feet and three feet in diameter and the hole filled with rotted cow and horse manure and a liberal supply of hen manure mixed thoroughly with the soil. Ten seeds, after being soaked for thirty-six hours, were planted in each hill and covered two inches deep. A box two feet square and twelve inches deep, with top and bottom removed, was placed over each hill and left until the vines were ready to run. This protected the plants from chilling winds and they grew very fast. Two vines only were allowed in each hill and two melons to each vine, the rest being picked off and the ends of the vines pricked after the melons had set. Twelve



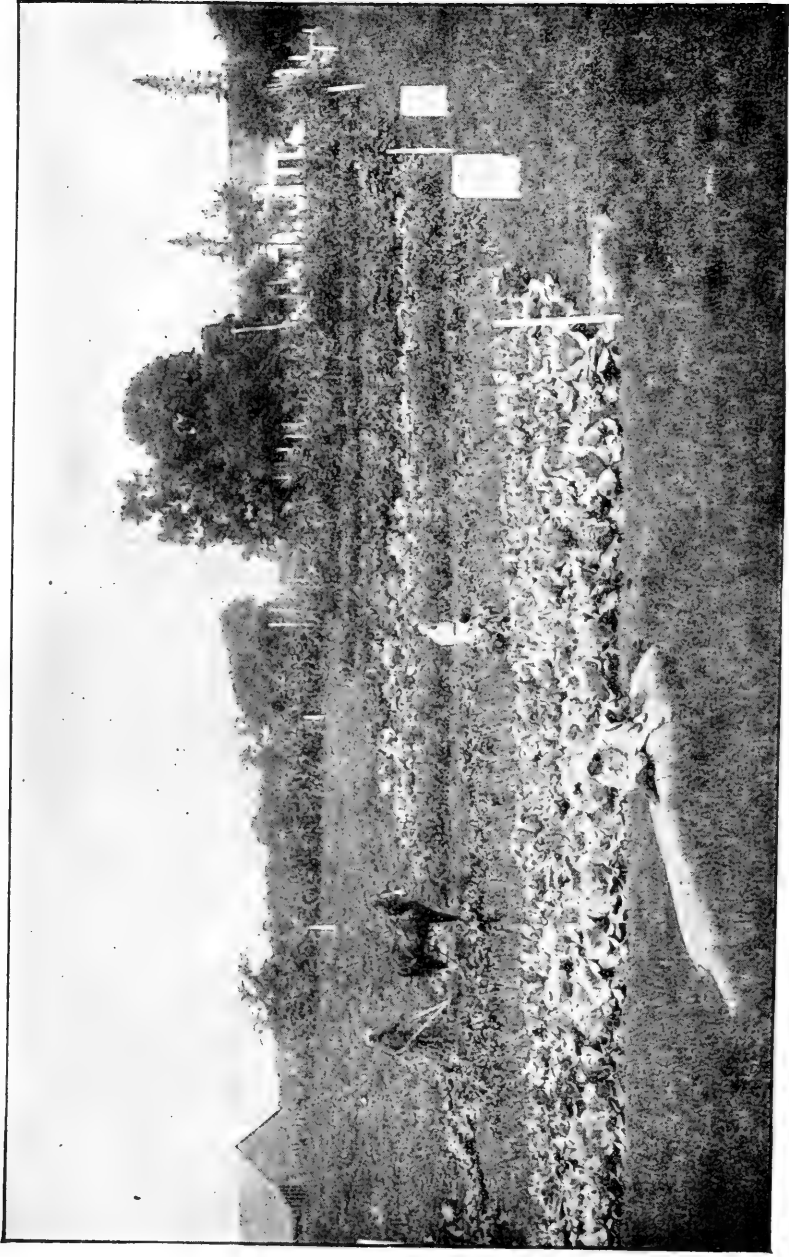
L. E. DIMOCK'S GARDEN READY FOR SEED

hills gave forty-eight melons which weighed from thirty to forty pounds each.

In planting potatoes Mr. Dimock proceeded as follows: May 23, opened two drills with plow six inches deep and three feet apart. Hen manure spread in the drill. Drills spaced off eighteen inches apart and three pieces of potato with two eyes on a piece were placed four inches apart around the center of each mark, eyes up. In cutting the potatoes nothing but large ones were used. The potato was first cut crosswise near the center; the eye end is used for cooking and the root end is cut in pieces of two eyes each. The potatoes are cut ten days before planting and spread on a floor in a light place. This causes the cut to dry or sear over and the sprout will slowly start.

This method gives strong and healthy stalks, and such stalks are the ones that produce first-class potatoes. Experimenting with the seed and the root end, with the same treatment the row planted from the root end produced one-fourth more potatoes and of much larger size. A preparation called "Bug Death" is far superior to paris green for the potato bug. One application when the dew is on is enough for the season, as it adheres tenaciously to the vine. One-half peck of potatoes planted as above yielded five hundred and fifty-two pounds at harvest.

The garden was a highly profitable one in many ways. Mr. Dimock made a large exhibit of vegetables at his local fair and captured first prize. The products from this quarter acre, sold and consumed, were valued at one hundred and forty-six dollars and twenty-one cents, while the cost for labor, seed and fertilizer to produce them was sixty-one dollars and eleven cents, leaving the handsome profit of eighty-five dollars and ten cents. The home of Mr. and Mrs. Dimock is a typical Connecticut homestead. There is



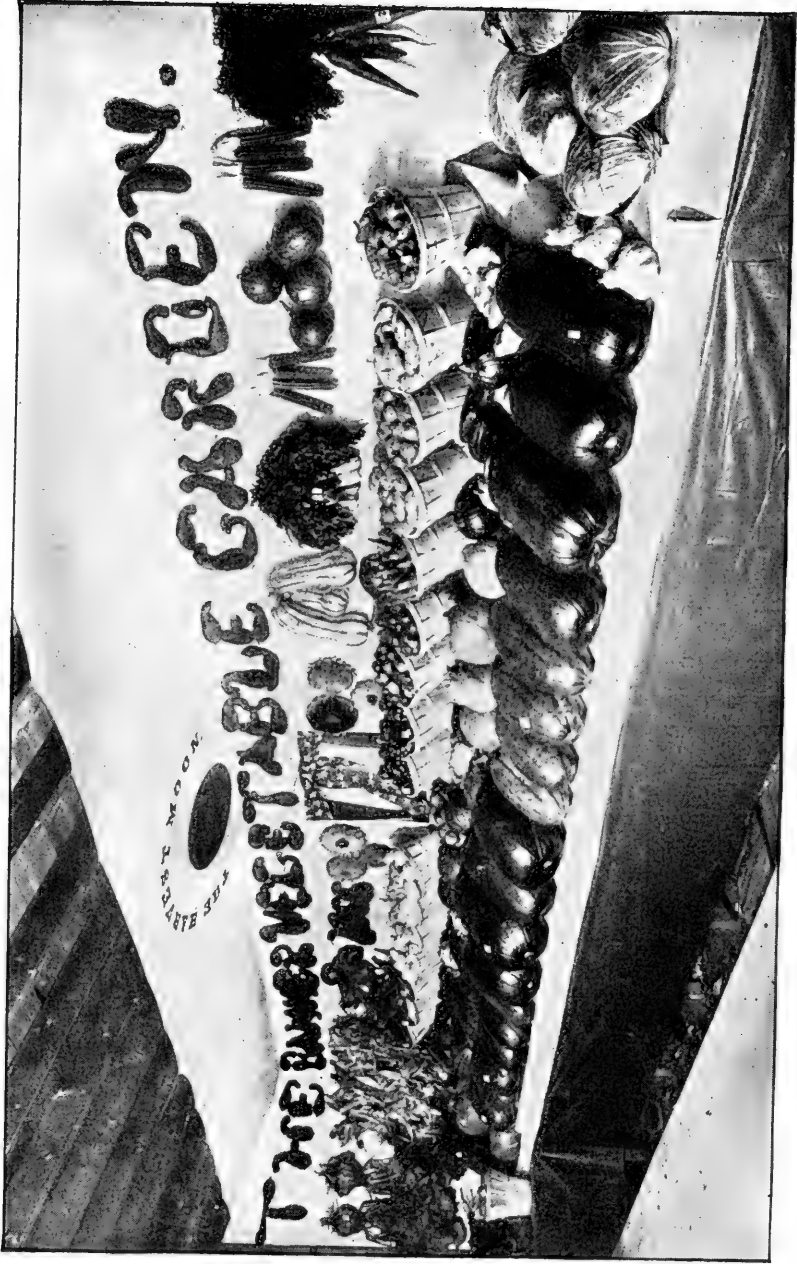
MIR DIMOCK'S GARDEN IN MIDSEASON

a large commodious house with ell, a barn forty by seventy feet, with eighteen-foot posts and a nine-foot basement, and a poultry house twelve by one hundred and forty feet, divided in ten-foot sections. Each pen contains twenty fowls and the house, which has an alley at the back, is built in a unique manner. The farm contains one hundred acres and is pleasantly situated.

The Garden of a Hustler.—Accounts of gardens in the semi-arid parts of the prairie states show that a good supply of vegetables can be produced without irrigation, although the drawbacks are considerable. One of the best gardens under such conditions is described by A. T. Giauque, Nebraska, third regular prize winner. His plot of less than one-seventh acre gave him produce worth about forty-two dollars, from which his expenses, excluding such items as photographs, etc., pertaining exclusively to the contest, left him a profit of twenty dollars and fifty-four cents. The illustration shows the garden and homestead with Mr. and Mrs. Giauque on duty among the vegetables. Their several assistants are seen in the carriage and the doorway of the house. Besides the garden, the Giauque family managed two hundred and seventy-seven acres of farm crops, with the help of a hired man.

The fresh prairie soil was so rich that manure was not wanted. The plot was enclosed with woven slat fencing at a cost of twenty dollars. Soil was made very fine with harrow and rake. Cultivation was thorough and frequent, much of the work being done with wheel hoes. This thorough and frequent culture seems to be the main difference between Mr. Giauque's garden and the numerous unsuccessful gardens of the dry regions.

Writing June 1, 1901, Mr. Giauque says: I mulched strawberries, parsnips, grapevines and shrub-



(70) VEGETABLE EXHIBIT FROM MR. DIMOCK'S GARDEN

bery with rye straw last winter, and I now have a rank crop of rye to contend with. Corn fodder or prairie hay would be better.

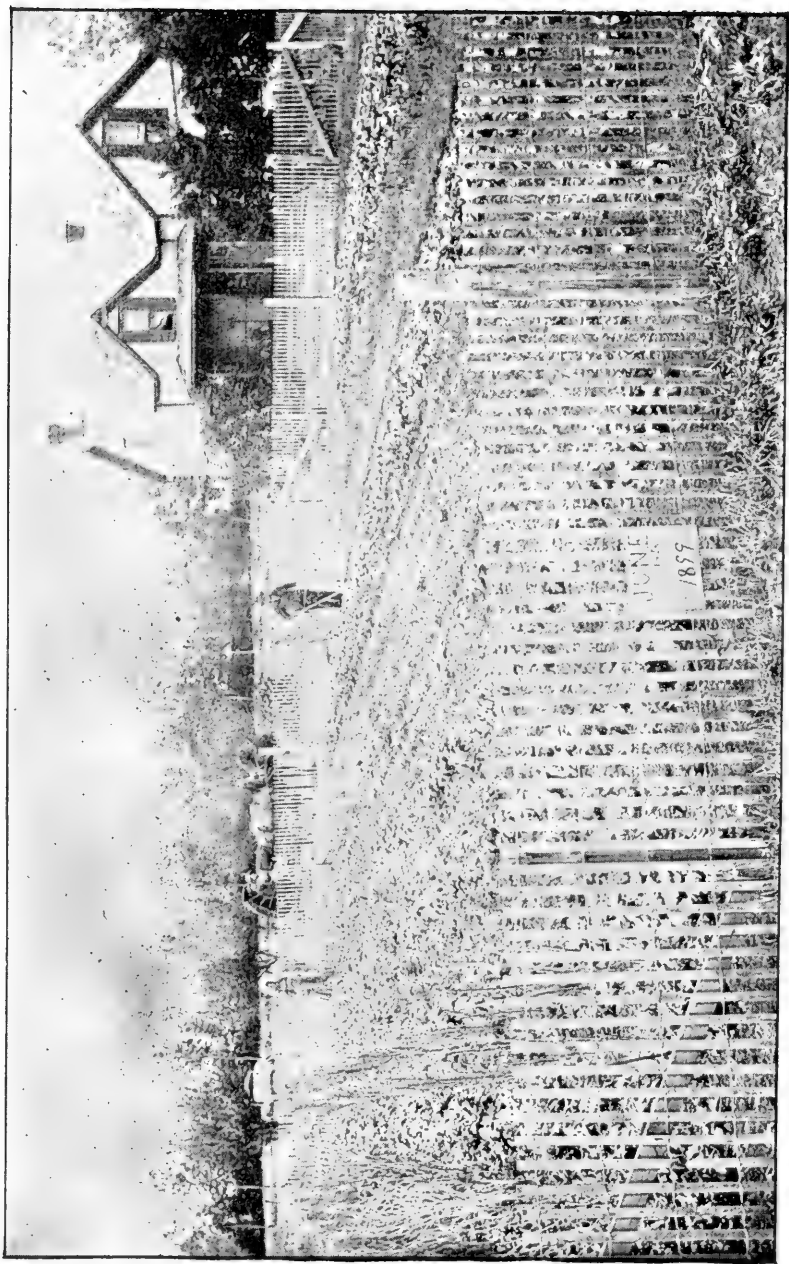
I have learned that wire netting for a garden fence is a delusion and a snare.

I am convinced that a person, if the department of agriculture persists in flooding him with free seeds, would better burn than to plant them.

Planted in Long Rows.—A large and productive home garden was described by Miss Edith Holton, Vermont. One acre of a newly set orchard was dressed with five cords manure and six dollars worth of fertilizer. The soil was excellent for a dry season, being strong, heavy and inclined to wetness in spots. The garden and trees were hoed five times and cultivated three or four times. Value of produce was one hundred and twenty-six dollars and fifty-three cents, of which the largest items were thirty-three dollars for fifty-five bushels early potatoes and forty dollars for one hundred bushels turnips. The account received a five-dollar award. Writes Miss Holton:

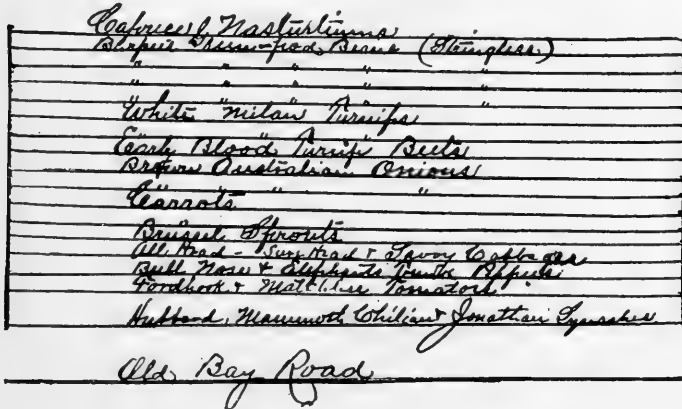
I would especially recommend the system of planting everything in long rows so that garden and field products can be cultivated at one time. Plants of various kinds can be set between the garden rows at the last cultivation, so that no space is lost. I like also the plan of planting squashes among early potatoes, although they are somewhat in the way when digging potatoes. Striped bugs and squash bugs do not trouble so much and they get along out of the way of early frost.

A Small Farm Garden entered by Dora Dietrick, Pennsylvania, received one of the regular five-dollar prizes. Receipts were ninety-five dollars and seventy-two cents. Cost, twenty-two dollars and twenty-five cents. The seed bed was somewhat unusual for a



A. T. GIAUQUE'S GOOD GARDEN

farm, being intermediate between a hotbed and cold frame. The ground inside was shoveled out and four or five inches well-rotted barnyard manure put in and covered with three inches of rich soil. Sash were put on two days before planting, to warm the soil. Plants of cabbage, tomato, lettuce, pepper, cauliflower and cucumber were started in this bed. The work of this garden was done by women and the produce sold by them to customers on their butter route. Area of garden was about one-fourth acre.



A GARDEN IN LONG ROWS

A Very Luxuriant Home Garden was reported by Miss Barbara Brown, Indiana, receiving a prize of five dollars. The location was the site of an old poultry house and had also been used for a chip yard, making a very porous, fertile soil. The area is about three thousand square feet and one load of manure was applied the preceding winter. The contestant did all the work but plowing and manuring. Flowers were grown along the fence borders, sweet peas and vines being trained to the fences. The value of products was

ten dollars and forty-five cents; expenses, five dollars and four cents. Miss Brown considered the work very enjoyable.

A Good Garden was kept by Mrs. G. F. McCluer, Mississippi, and the account received one of the smaller awards. Vegetables enough were sold from the three-fourths acre to just about balance the cost of labor and supplies, leaving as net profit what vegetables were used by the family. Total income was sixty-three dollars and thirty-four cents, and cost twenty-one dollars and seventy-eight cents. The land was valued at fifteen dollars. Labor was also cheap; five cents per hour for man, four cents for woman, two and one-half cents for boys and ten cents for teams. Among the most satisfactory crops were potatoes, sweet corn, melons and cucumbers. Planting began March 1, but the date proved too early for a backward season. The first freeze came November 1, making what would seem to a northern gardener a very long growing season.

Fruit and Vegetables were abundant in the prize garden of John Tye, Minnesota, and yielded him produce worth ninety-seven dollars and fifty-one cents at a cost of thirty-three dollars and two cents, the area being about one-fifth of an acre. The ordinary garden tools were used and a wheel hoe. The land seems well suited to fruit. One of the illustrations in Chapter XVI shows a child holding a prolific branch of currants which had been accidentally broken off. Another view herewith shows the thrifty bushes growing beside the fence, the new growth having been cut back about a foot to increase fruitfulness. To drive off currant worms, hellebore was dusted on through a homemade shaker made from a can with holes punched in the bottom, using one-half pound hellebore to one quart flour. A mixture of insect powder and helle-

bore was an effective dose for cabbage worms, taking of each substance equal parts and diluting with four times the bulk of flour.

A Home Farm Garden which yielded the family supply of fruit and green stuff at a net profit of thirty-nine dollars and eighty-eight cents was described by A. P. Hitchcock of New York. This grower was fortunate in having little trouble with insects or drouth. Five hills of cucumbers yielded over three bushels,



A GARDEN SITE IN THE MINNESOTA FOREST

mostly of pickling size. Every cabbage, of which there were five varieties, made a head, and from forty-five cauliflower plants there were forty-seven heads, as some of the stumps sent out a second crop of sprouts.

Strawberries and other fruits were the most important products of the Rawson five-dollar prize garden described by C. R. Knapp, Connecticut. Operations were conducted at a loss, owing to rather heavy charges for labor at twenty cents per hour, and to the fact that the bearing strawberry bed was an old one,

while the new-set beds were not yet in bearing. Mr. Knapp works in a shop from half-past six to six o'clock, and tends his garden evenings and holidays. Income was one hundred and seventy-nine dollars and twenty-five cents. Cost, one hundred and ninety-three dollars and eighteen cents. Loss, thirteen dollars and ninety-three cents.



MR. TYE'S CURRANT BUSHES AND LATE TURNIPS

A Natural Garden.—One of the few eastern contestants not complaining of injury from dry weather was C. E. Lord of Connecticut, whose garden was on light, rich loam, a level spot forty feet below the brow of a hill. Subsoil was gravelly. The garden was evidently one of nature's choice locations; fertile, springy, valley land, but naturally well drained. Crops grew to perfection and some took premiums at the county fair. From the fifteen hundred square feet Mr. Lord took vegetables worth ten dollars and eighty-one cents, sold at retail prices, but with the liberal discount of

thirty per cent charged off for selling. Expenses were heavy, the work being mostly done by hand tools. For fertilizer was used a barrel of ashes and night soil valued at two dollars and twenty cents. Total cost, seven dollars and ninety-five cents. The account received a five-dollar award.

A Farm Garden Patch of less than half an acre returned Charles Coolidge of New York, a Bowker



SOME OF MR. TYE'S CROPS AND TOOLS

five-dollar prize winner, the sum of forty-five dollars and seventy-nine cents at a cost of twenty-four dollars and fifty-nine cents. In addition, Mr. Coolidge thinks the land was put in condition to yield twice as much the following year. It could be made more profitable, he says, by putting in what one thinks would sell best in the local market. He believes also that the land should have been plowed in the fall and replowed in spring.

CHAPTER VI

ON HIGH-PRICED LAND

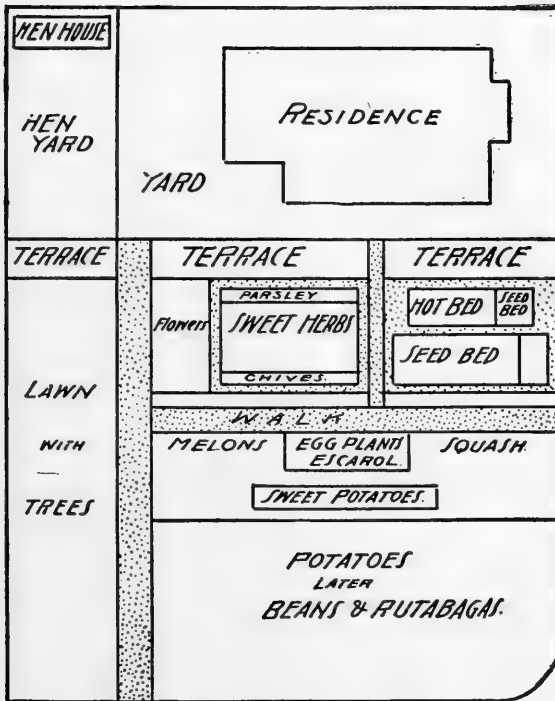
Gardeners in town or city are handicapped by scarcity of good land and suitable labor, but their advantages in the direction of ready markets, plenty of manure and comparative isolation from insects and other pests, have often enabled them to show a handsome profit. Some of the most successful and best paying gardens entered in the contest were in towns or suburbs, or even on city house lots.

A City Man's Garden.—One of these gardens, which made a good showing on high-priced land, was described by Mr. J. B. Hauck of Suffolk county, Massachusetts, a prominent prize winner and a gentleman who has made amateur gardening his study for years. The plot of ground upon which was the garden was bought fifteen years ago at a cost of ten cents per square foot. It is located upon a commanding site in one of the suburbs of Boston. The garden is divided in two parts, separated by a street. On the terrace are planted twelve varieties of grapes, which are being trained over an arbor. Scattered about the place are apple, pear, plum, peach, apricot, cherry, chestnut and mulberry trees which are just coming into bearing, and have great promise.

The lower garden comprises four thousand six hundred and fifty square feet, most of which has been cultivated by Mr. Hauck for thirteen years, who says: "It is still my hobby, my pride. It is situated on a gentle, sunny slope, gaining all the moisture from the hill above. The soil is dark, mellow and rich, with a

clay bottom, and through years of cultivation almost free from stones and noxious weeds.” The tools used comprised a lot of miscellaneous garden implements, and a seed drill and a combined wheel hoe and cultivator.

“I believe in raising as many different varieties of vegetables as my limited space permits. It has been



A WELL-ARRANGED HOUSE-LOT

customary with me for several years to use barnyard manure and fertilizers alternately, so in November, 1898, after clearing the garden, a good layer of manure and an application of lime were plowed under.

“Every inch of ground is utilized. As soon as one crop disappears another one makes its appearance and

takes its place. This enables me to always have something new for the table and plenty of it." Water was supplied for irrigation during dry weather, by rigging up an old rotary pump and hose and connecting with the cistern. Bordeaux mixture was used for spraying tomatoes, beans and other plants to prevent rust and blight, and a little paris green was added to it for potatoes. Freedom from cutworms was attributed to the use of lime and plowing in the fall, as an adjoining garden was badly troubled. A row of old bean vines were left as bait for green worms, and cabbage plants planted near by escaped. Squash vine borers were removed with a knife by cutting open the vine, lengthwise, where they appeared. The vine was then carefully bandaged with a wet rag and a fair yield obtained. The bordeaux-paris green mixture used on potatoes proved fatal to egg plants, but hellebore proved quite satisfactory for keeping off the potato bugs.

One hotbed, three by six feet, was used in which to start the seeds of early vegetables. Plantings were made in the open ground as soon as the weather permitted and were continued at intervals throughout the season whenever there was a vacant spot in the garden. The following varieties of vegetables, mostly in five and ten-cent packets, were planted: Pole and wax beans, beets, borecole, kale, cabbage, carrots, cauliflower, celery, celeriac, corn, cucumber, corn salad, endive, egg plant, kohlrabi, lettuce, muskmelon, onions, peppers, peas, salsify, radish, spinach, squash, tomato, turnip, rutabagas, escarole, chives, shallot, parsley, sweet and Irish potatoes and nearly a dozen different kinds of sweet herbs.

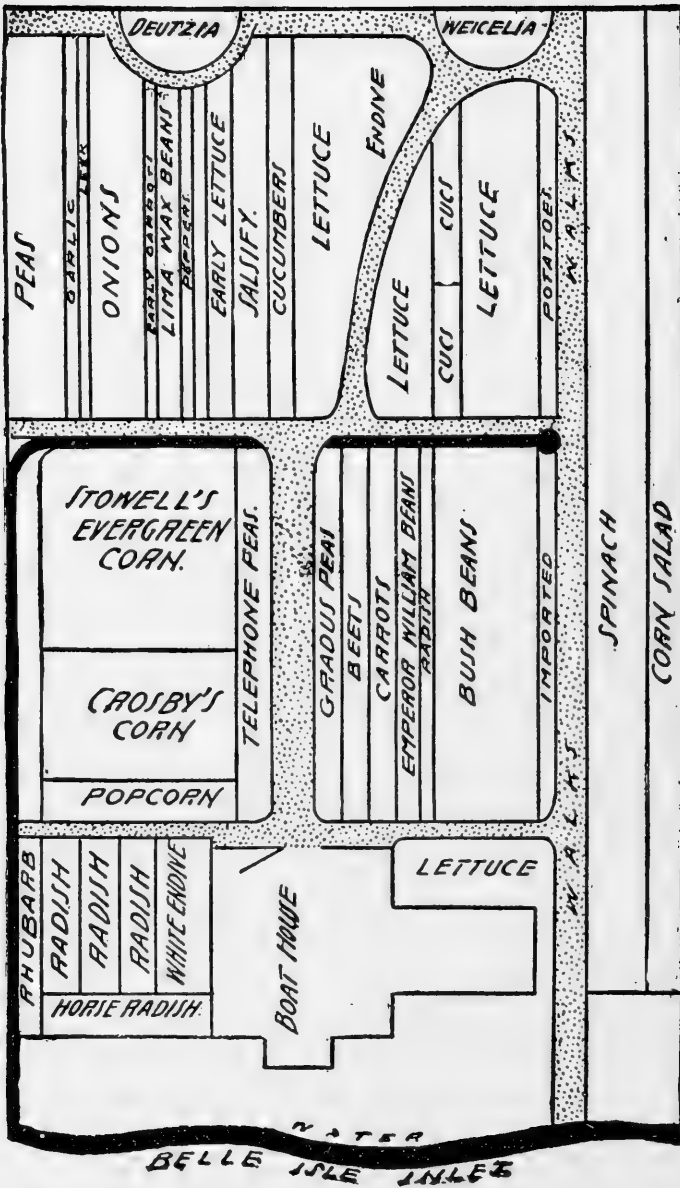
The garden was planted as shown by the cuts. In the larger garden tomatoes followed peas, turnips the wax beans, early lettuce for fall use took the place of Refugee beans. Corn salad succeeded lettuce. The

spinach was followed by cabbage, while turnips, beets, carrots, celery and spinach gave a second crop in the plot occupied by Gradus peas and Emperor William beans. Winter radishes came after Telephone peas, Paris Golden celery was planted in between the hills of Stowell's Evergreen corn, and gave a good crop for home use without blanching. The plot of early corn was sown to turnips. The hotbed was used during the late fall and winter to store some of the hardy vegetables and the latter part of October there were placed in it some endive, escarole, celeriac, and the remaining space was filled up by transplanting leeks, chives and parsley.

The value of the garden and the cost of the same are shown in the following table:

INCOME	
Products for home use.....	\$54.24
Products sold.....	65.75
Products given away.....	11.36
Plants sold.....	3.75
Plants given away.....	3.45
Total	\$138.55
EXPENSES	
Plowing and harrowing.....	\$3.00
Manure	2.00
Seeds	10.00
Insecticides	1.20
Labor	42.00
Total	\$58.70
Profit	79.85

Mr. Hauck, who is retired, is an agricultural college graduate and makes his garden his hobby. Owing to the effects of a sunstroke he is unable to do any work during the heat of the day and so works from daylight until sunrise, and from sunset until dark. He says: "The amount of pleasure and comfort I derive



HOW MR. HAUCK'S GARDEN IS ARRANGED AND PLANTED

from my early rising I never experienced before. The bracing and invigorating air soon proved very beneficial to my condition and I recovered and gained health and strength almost as fast as the crops grew in the garden."

The First Prize Garden.—The winner of the first of the regular prizes, submitting an account hard to excel for clearness and discriminating completeness, gained his success under the severe handicaps of



SOME JULY PRIZE VEGETABLES

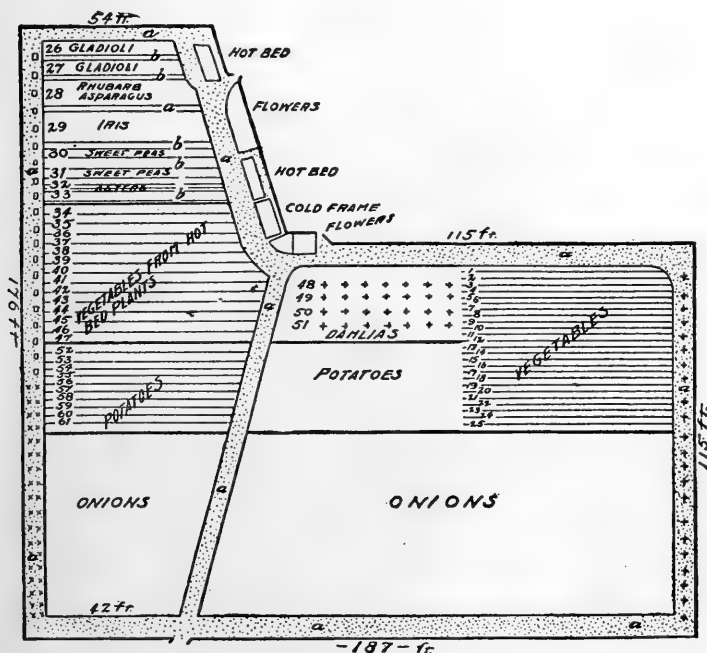
broken health and the failure of important crops. Mr. B. S. Higley, Mahoning county, Ohio, is sixty-two years old, and disabled from practice as a lawyer by disease contracted in the civil war. Although able to perform but little work, he finds outdoor life good for his health. His garden is city building land of high valuation. The garden that year showed no profit; expenses of about one hundred and twenty dollars being offset by crops of practically the same value, but the lack of cash gain was not due to any lack of

skill, intelligence and system on the owner's part. His methods with various crops are well worth noting:

Starting Seeds.—I get wooden boxes about one foot square and three inches deep and bore holes in the bottom of each for drainage. I place a handful of small broken stones over each auger hole and then nearly fill the boxes with potting soil. Potting soil is prepared as follows: Every spring before filling my hotbeds with manure I place in the bottom of the smaller one layers of sods, grass side down, to the depth of ten to twelve inches. Over this I put fresh manure. In the fall I fork this over several times, then sift and barrel the entire contents and store in a dry place. This soil mixed with one-third sifted sand constitutes what I call potting soil. I use it for potting bulbs or plants and for starting seeds that are not sown in the open ground.

After filling the boxes nearly full with the potting soil, I firm and level the soil with a block or brick, so that the boxes are two-thirds full. Upon this I drop seed thinly in rows, each kind in a box by itself, tacking the seed envelope stating the name of the variety upon the edge of the box. Then I gently sift fine potting soil over the seed, covering aster seed one-thirty-second of an inch. Then I firm the soil again lightly. For watering I employ one of three methods, whichever may be most convenient at the time. The first is to place the box in water not quite deep enough to run over the seed box. There the box remains until the soil is saturated up to the seed, when it is taken out and water drained off. The second way, after the soil is firmed, and before planting the seed, sprinkle over dry soil and do not firm at all. The third way, after the seed is sown and the soil firmed, place a coarse cloth over the box and sprinkle with water until the soil is moist. I fancy the second method the best,

since the first is likely to render the soil too wet, and the latter not wet enough. The seeds being planted and watered, the boxes are covered with panes of glass and put in my cold frame. I do it as a convenient way to protect the seeds and plants from any belated frosts. I never permit the soil to become dry, until the plants appear. Then I remove the glass, keep the boxes



GARDEN ARRANGEMENT OF A CITY BACK YARD

clear of weeds, water regularly, and the plants grow like weeds.

The foregoing directions apply to all seeds which one may desire to start in boxes, especially where one has no hotbed, the only change being the deepness of planting. The larger the seeds, the deeper they should be covered.

Next year I propose to harrow with a homemade clod breaker drawn by horses. The implement will resemble a five by six-foot section of a roof, only the shingles will be two by ten-inch plank spiked upon two by four scantling. In use the lap side of the shingles is drawn against the clods, the driver riding on the breaker. For smoothing and leveling hitch the team on the other end. This will be done in the forenoon, and I will put force enough on in the afternoon to finish any raking necessary thereafter. With the peculiar soil I have, this will make my garden as mellow as a wood-ash heap. My experience is that such a condition of ground at the outstart means mellow, light soil the whole season, provided the soil gets prompt, regular and thorough cultivation thereafter. My land if left for twenty-four hours after harrowing is sure to be full of small lumps, which can only be broken by pounding.

I have concluded to try using only artificial fertilizers on my garden in the future. I have to buy all my manures anyway. Such stable manure as I can get is not well rotted, and is so rich in tin cans, broken glass, crockery, and all manner of rubbish, all of which I must bury or hire hauled to the city dump, and is also impregnated with grass and weed seeds, that I am out of patience with the use of such manure. If I find that artificial fertilizers are insufficient of themselves I will supplement them with crimson clover sown early in the fall and plowed under in the spring.

The owner is the best laborer on garden or farm, or at least ought to be. Hired help lacks interest.

I plant cabbage, cauliflower, peppers, egg plant, etc., in this way: With a slightly sharpened stick, an old broom handle for instance, I punch a hole six or eight inches deep. I insert the plant a trifle deeper than I propose to set it, then carefully fill the hole with

fine dry soil to within an inch of the surface. Then I very gently raise the plant one-half inch to adjust the tiny roots in the soil. I fill the hole with water, then complete the filling of the hole with the fine, dry soil, and firm hard. I never lose a plant from wilting; indeed, the growth is hardly checked. The secret of transplanting is a generous application of water to moisten the roots and compact the soil around them, and then to cover this wet soil with dry to hinder evaporation.

I transplant tomatoes in this way: With a garden trowel I dig a trench an inch deep next the stake, and sloping from two to two and one-half inches at the end away from the stake; trenches from six inches to a foot or more long, according to the size of the plants. I pinch off close to the stem all the leaves of the plant except those at the extreme end, lay the plant in the trench, top toward the stake, fill the trench half full of dry soil and pour in a half gill of water. As soon as this settles away, I fill the trench with dry soil and firm with my foot. Only three or four inches of the plant remains above the ground, the root and naked stem being buried. I prefer this way of planting because roots will shoot out all along the buried stem and thus give more root surface for the future support of the plant. I do not care for specially large, stocky plants. The plants set out to-day were not over eight inches long.

I prefer to transplant late in the afternoon in very dry weather. Pour water into the trenches as described and covering with dry soil prevents evaporation of water applied to the roots. My plants never wilt and I never lose any from transplanting. My plants are taken directly from the hotbed and planted where they are to grow. I never transplant but once. I do not care for short, stocky plants; long, spindling

plants such as grow in a hotbed too thickly sown, answer my plan of planting better than short, stocky plants. No one succeeds better in all my circle of acquaintances in growing tomatoes than I do.

I always trim tomatoes to one stalk and tie to stakes. The trimming consists in pinching or cutting off all branches. These branches start from the main stalk directly above the leaves. The fruit stems or branches start from the main stalk about midway between the leaves, and of course should not be cut off. Any shoots starting from the roots or near the ground must be removed. Grow strictly to one stalk. It is necessary to trim and tie four or five times during the season. Plants may grow five or six feet tall.

When they reach the top of the stakes, cut off the end of the main stalk and permit no higher growth. By proper care in the work, tomato vines can be twined around the stakes and tied so as to keep every fruit stem and the fruit entirely away from the stakes. This is the best culture for tomatoes. They grow larger, ripen earlier and better than when grown in any other way. For poles I buy refuse oak strips from the planing mill, one by two inches, saw them in six-foot lengths, sharpen one end and drive the stakes solidly into the ground before planting the tomatoes. In the fall I pull up the stakes and store them away for the next season. Thus treated the stakes will last for several years.

I am too lazy to work with any but sharp, bright tools. I never permit anyone besides myself to use any of my wheel hoe implements. As soon as any one of these is no longer in use, that particular implement is taken to the storeroom, wiped clean with a rag and put in its place. This is done although that very same tool is to be taken out and returned several times in the same day. The same rule is invariably followed

as to the use and care of every garden tool I own. They are never left lying about, never permitted to get wet and are wiped off carefully after each using of them.

As no hired help can be trusted in this respect, I never fail at the close of each day to examine my collection of tools, hunting up any that are missing and cleaning such as need it. I cleaned all my wheel hoe implements thoroughly, greased the bright parts with bacon rind and stored away the whole in a dry place for the winter. I shall pursue exactly the same course with all my other garden tools as soon as I am through using them for the season. As a result I shall find everything in fine order for work the next spring. It is easier and cheaper to keep tools in good order in this way than it is to put them in order by hours of hard work when the tools are needed.

To work with rusty, foul, dull tools nearly doubles the labor, besides hindering the progress of the job in hand. Besides, the tools last longer. I consider this matter one of great importance not only to the gardener, but to the farmer. With the average farmer the proper housing and caring for all his farming and harvesting implements, or leaving them to the mercy of the elements the livelong year, in the long run means a profit or loss in his farming operations. These things cost too much to be allowed to rust and rot through gross neglect. I am giving this lecture regardless of the objections of the implement manufacturers. They, doubtless, will say if all follow my example their trade would fall off. Of course it would; but you and I are not working for the manufacturers, unless we neglect our tools, in which case we serve them for nothing and board ourselves as well.

CHAPTER VII

SUCCESS IN TOWN OR CITY

One of the most profitable small gardens was at Darlington, Maryland, where a little patch of about one-third of an acre yielded Alfred P. Edge produce worth two hundred and seventy-one dollars and thirty-nine cents at a cost of forty-five dollars and sixteen cents, and secured him the second Allen prize, fifty dollars in gold.

The summary of this wonderful little garden is worth itemizing: Labor cost twenty-nine dollars and thirty-eight cents; manure, four dollars; seeds, three dollars and ninety cents; rent of land and of tools, seven dollars and eighty-eight cents; total cost, forty-five dollars and sixteen cents. The manure was mostly that of sheep and obtained at one dollar per load. Manuring was evidently not extreme and the value of the crops seems owing to good management in various directions, as will appear in the extracts following, taken from Mr. Edge's very readable account. His notes on garden irrigation, with illustrations, appear in the chapter on that subject:

I always have piles of old leaves, weeds, chaff, in fact anything I can find of this sort. I follow the plow and fork this material into the furrow and when the plow comes around again it is covered. This plan followed up will change the worst clay soil into just what is wanted.

Instead of permanent hotbeds, I dig a hole in the most convenient place in my garden, fill it with manure and pack it down, then set my box without any

bottom on the manure, put on some fine soil, bank up the earth around the outside, put on the sash, and my hotbed is ready. When I am through with it I take up my box and sash and put them under cover until next year. I have four such boxes about four feet

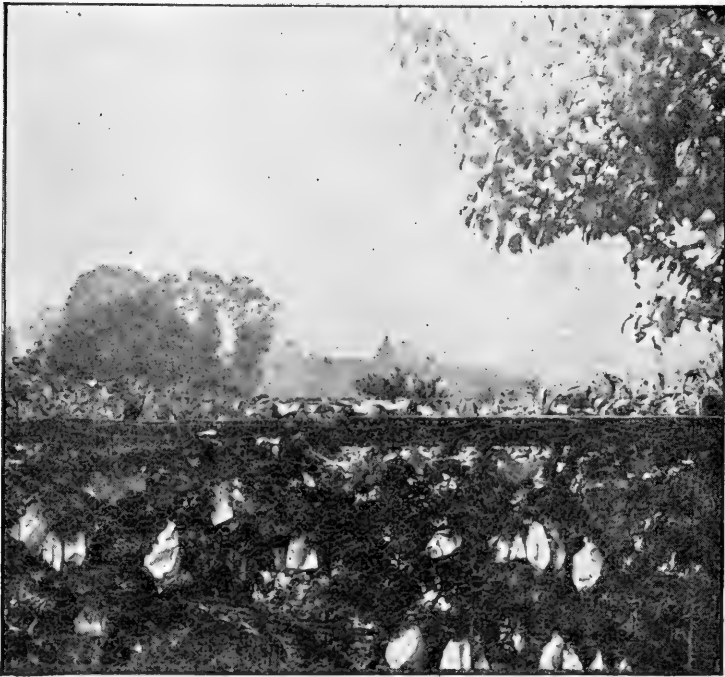


CELERY BOARDED READY FOR BLEACHING

square in which I start egg plant, lettuce, tomatoes, cabbage, etc. In the center of one box I usually sow a hill of cucumbers and when the glass and box are no longer needed I take them away and my cucumbers

cover the ground around and bear nearly all summer. One great advantage of this bed is, when my plants grow tall enough to touch the glass I simply raise the box higher and bank up more earth outside.

When we lived in the city and wanted anything for our next meal we left an order at the store and there the matter ended. Here we must plan far ahead



GRAPEVINE WITH BAGS ON FRUIT

or go without. The garden is planned bearing in mind the fact that there are in each year one thousand and ninety-five meals to be provided for.

After tea I put bags on sixty bunches of grapes. My custom has been for several years to bag most of my grapes. I do not suppose it would pay to do it for

market, but it certainly does pay for home use, where you want the best you can get. Bagged bunches are much finer, as anyone can easily prove by taking two bunches side by side, one bagged, the other not. The bagged bunch will ripen more evenly, have more bloom and be better every way, excepting it may possibly be a few days later in ripening, neither do the birds and wasps disturb it. Thin-skinned varieties like the Con-



TYPICAL LANDSCAPE OF NORTHERN NEW JERSEY

cord are very much better. Anyone who tries bagging I am sure will never give it up. I buy at the store two-pound bags such as grocers use; these bags last me two years and only cost a few cents per hundred. A paper of pins are also required. One year I tied the tops of the bags, but that takes too long. I simply slip the bag over the bunch, make a double fold

of the top, stick a pin through and there the bag remains until the grapes are ripe. I intended to make some muslin bags this year, but did not get it done in time. The grapes should be bagged when they are about the size of small shot, but later will do. The larger they are the more trouble it is to bag them.

I never bank up my celery; late in the season I prop twelve-inch boards outside the whole bed. My bed is one mass of plants, and if the ground is rich and they are given enough water the celery is fine; but these two things are absolutely necessary. When freezing weather comes I dig up my plants, leaving some earth around the roots, and take them to my cellar, where I have a room closed off from the rest of the cellar with a window opening under the porch. This window I open or close, according to the weather, and being under the porch it does not let in much light. The plants I stand upon the floor and cover the roots with about three inches of sand. The sand is kept in place by pieces of scantling placed on the floor. I make the beds about one and one-half feet wide with a passageway between each bed. This sand I always keep moist. It is important to moisten only the roots, if water is poured on the stalks and leaves they will rot. I have a pipe with a wide opening at the top like a funnel, this I push down to the roots and pour water through it. My celery is accessible all winter, in the worst of weather, and it keeps on growing; of course the room is dark and it bleaches nicely. I avoid all heavy work of trucking and banking up, and raise more than twice as much celery on the same ground, so of course can afford to make the ground very rich.

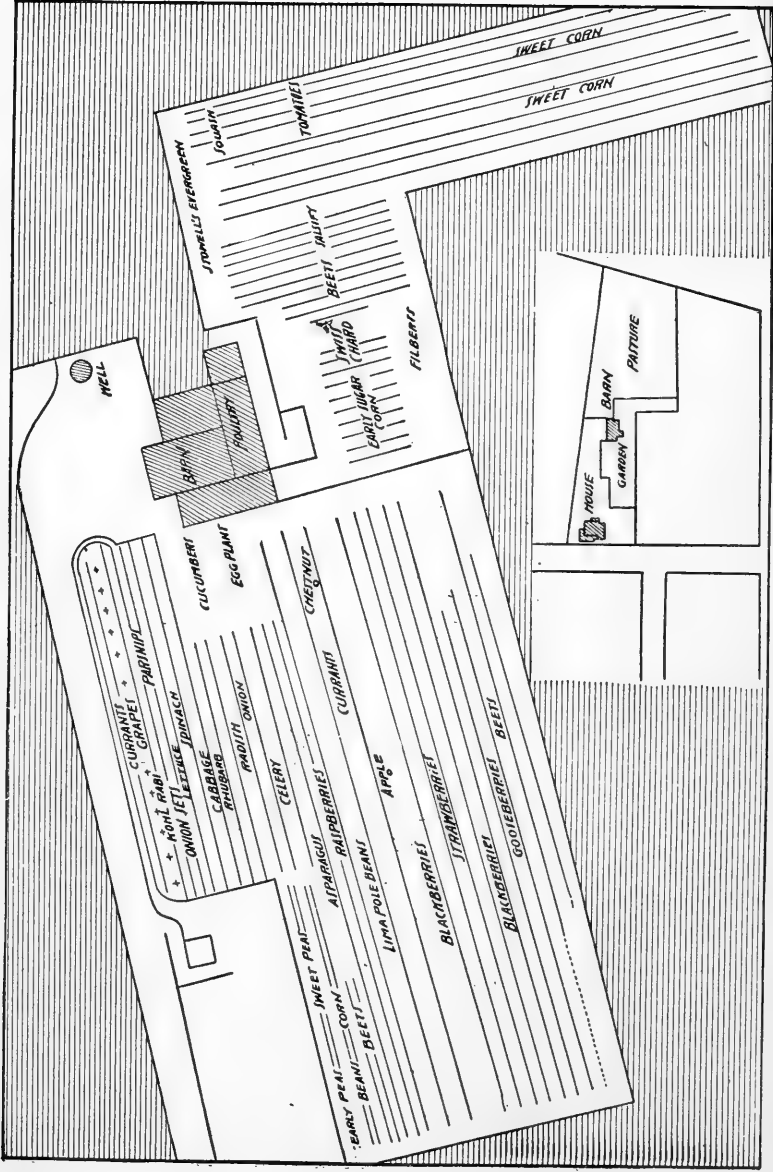
I have trouble making my lima beans climbs up the poles. One of my neighbors tells me I planted in the wrong sign of the moon. All I can say is, I will get them up the pole in spite of all the moons discovered

and undiscovered. Query? How do they ever get beans planted on the planet Jupiter where there are so many moons?

Most birds should be made welcome by every gardener, especially the house wren. I have boxes and cans up all around my garden and generally they are all filled. The amount of insects these little fellows destroy cannot be counted. A very simple way to prevent the English sparrow from getting possession of the box is to suspend the box by a short chain of about two links so it will swing a little. If the box moves an English sparrow will not light on it, not so the wrens. Our bluebirds, thanks to the sparrows, are a thing of the past.

One of the Best Suburban Gardens was that of Frank J. Bell of New Jersey, whose report won the third prize of fifty dollars. His report was beautifully illustrated and a marvel of neatness and accuracy of all the details incident to the work of planting and harvesting the crops, etc. Brief excerpts from it, and the accompanying diagram, will show that the space was well utilized and that the methods employed were such as to give the greatest returns for labor expended. Like hundreds of city workers, Mr. Bell has a small place which is sufficient to supply his family with an abundance of fruit and vegetables. Mr. Bell writes interestingly of his garden venture:

My business keeps me occupied at a desk in a nearby city and away from home from eight until five, so that most of my work was done of necessity between four and seven in the morning. The plowing, spading and some of the rougher work I have hired done, but nearly all other work has been my personal labor, which has given me great pleasure and satisfaction and been of great benefit to my general health. It is not new employment for me, for fifty years ago I



F. J. BELL'S GARDEN PLOT

milked two cows and worked in my mother's garden. My present garden was a neglected spot six years ago, with only a few old apple and cherry trees scattered here and there. The soil is a rich loam, with a gravelly subsoil. The shape of the lot, containing something over two acres, is shown in the sketch, while the garden proper, which is L-shaped, contains thirty-two thousand four hundred square feet. The pasture lot is fenced with a woven wire picket fence four feet high, placed on top of ten-inch boards, above which are two strands of barbed wire. A heavy woven wire fence separates the garden from the pasture and extends around the eastern side of the barn to the pigeon cote. In the passageway between the fences is a gate hung fourteen inches from the ground, which allows the poultry free range of the pasture lot. All the pea and bean vines, the turnip and beet tops, cornstalks and cabbage leaves and the various green trimmings are consumed by the little Jersey cow. The poultry also come in as scavengers and give valuable returns.

A pit for storing vegetables is a rectangular hole in the ground, four feet wide, five and one-half feet long and three feet deep. It is lined with rough boards to keep the earth from falling in, and has a covering also of rough straw to protect from frosts. This pit is easy of access at all times during winter, and celery and other vegetables stored in it keep perfectly.

For Poisons and Fertilizers I have an oil barrel with one head out, which I keep in a convenient place and fill with water and cow droppings to make liquid manure for flowers and vegetables. I also have a half barrel in which is kept dissolved blue vitriol in the proportion of five pounds to fifty gallons of water. In a keg I keep slaked lime. A mixture of these two I spray on grapevines, rose bushes, etc. White hellebore

is used as seems most convenient. It is mixed with ten parts of air-slaked lime and shaken on the plants with a tin box with holes punched in the lid, or used in water, a tablespoonful to two gallons, and sprinkled on with a watering can. A knapsack sprayer has entirely superseded the old hand and foot pump sprayer.

Corn and lima beans are planted in a cold frame as follows: Fruit cans are thrown on a bonfire until the ends are melted out, when they are tied together with twine. About four inches of earth is removed from the cold frame, small pieces of board are laid in the bottom, and the cans put on them close together. The earth is then put back in, filling the cans and interstices. Three seeds of corn and two of beans are planted in each can. When danger of frost is past, the plants are removed to the garden. A small hole is dug, the twine cut, the can removed and the earth drawn up to the plant. I frequently gain two or three weeks' growth in this way.

How the Work Was Done.—The following excerpts from the daily register will show that the methods learned in a business training were followed in the garden: March 8, ordered seeds of Burpee & Co. to the value of three dollars and fifty cents, mostly in packets, ounce, pint and quart packages. March 13, the seeds arrived by mail; checked them off with order and put away in seed box, which is an old tin cracker box, mouse proof. March 20, set two barrels with both heads out over rhubarb plants in the row, banked manure around them and threw some old bags over the tops to get a few extra early shoots. April 1, with a whitewash brush Lyman smeared all the grapevines from the ground to the outer ends of the stems with the blue vitriol solution with enough lime in it to show quite white; he also did the trunks of the

young trees, clearing away the soil slightly and extending up beyond the first crotch. April 10, planted three dozen hills each of corn and lima beans in the cold frame; set out one quart white onion sets, sticking a parsnip seed or two in each. April 26, hoed cabbage; found worms working on it and sprinkled them with a little lime water in which was mixed a solution of blue vitriol and a tablespoonful of carbolic acid to the gallon. May 1, sowed one ounce rape seed under the



RESIDENCE OF F. J. BELL

apple tree where nothing else would grow. July 4, picked seven quarts of large gooseberries of the following varieties from young bushes just beginning to bear: Chautauqua, Oregon, Jumbo, Clayton, Red Jacket and Industry. October 17, Lyman and helper gathered leaves and placed them along berry rows and in the stable for bedding.

The expenses of this garden were forty-four dollars and fifty-seven cents. This was all for labor except three dollars and fifty cents for seeds and one dollar and twenty-five cents for a barrel of lime.

L. of C.

Nearly all the products were consumed in the family and stored for winter use.

From a Quarter Acre Garden on town lots in Griggsville, Illinois, L. J. Eastman, winner of a five-dollar regular prize, secured products worth fifty-four dollars and ninety cents at a cash outlay of one dollar and ninety-five cents for manure, two dollars and seventy-six cents for seed and eight dollars and twenty-three cents for work. Profit, forty-one dollars and ninety-six cents. In addition he personally performed five dollars and fifty-three cents worth of labor, which he thinks was offset by the pleasure and health received. This town garden, says Mr. Eastman, has furnished the family, numbering from ten to two, with all the fruit and vegetables required, except potatoes, in a bad potato year, and of late years has placed considerable produce on the local market. The time devoted to the garden was one hundred and twelve hours man's work and nine hours boys' work.

A Productive Little Suburban Garden of two-fifths of an acre was entered by A. W. Dickson, Massachusetts, receiving a Rawson five-dollar prize. Soil was good loam and was enriched with three cords of stable manure and two hundred pounds fertilizer. Celery, cauliflower, cabbage, tomatoes and peppers were started in a cold frame. Space being valuable it was saved whenever possible, following early crops with cabbage, celery, turnips, winter spinach. Cabbages were set as late as August 12, but were much inferior to those set in July. Some celery plants were set a foot apart each way, but the extra labor of the method more than offset the saving in space. Receipts from this garden were sixty-three dollars and ninety-five cents. Cost, not including labor of owner, thirty-six dollars and seventy-five cents.

A City Garden Patch, two-thirds of an acre in a Massachusetts city, was planted to one-half acre onions and the rest turnips, celery, tomatoes, beets, spinach, lettuce, etc., the produce being sold to consumers. Manure was hauled from the city and some fertilizer was used. Tools and team were valued at two hundred and twenty dollars and land at one hundred dollars. Mr. G. E. Belden, who was awarded a



RESIDENCE OF R. L. PORTER

Rawson five-dollar prize, estimates that the garden patch paid fifteen cents per hour for labor of owner, and a clear profit besides of one hundred and thirty-seven dollars and eighty-three cents. Onion weeders were paid fifty cents per day. Onions sold at forty cents per bushel.

Fighting Borers and Witch Grass.—Located in a fertile valley of western Massachusetts and employed most of the time in an office, R. L. Porter found oppor-

tunity to manage a prize garden and to make a successful and instructive fight against well-known garden foes. The illustration shows Mr. Porter's residence and the family which provided him an excellent home market for much of his produce. The extracts describe his early garden work and his method with squashes and strawberries:

The first work done for the garden commences in February as soon as seed catalogs arrive. I make a rough plan where crops are to be grown, amount of seed and fertilizer wanted and place orders for all plants, trees and seeds. Nothing more is done until the last week in March, when the hotbed is started. I have a small one by myself. It is three by four feet, two feet deep. Bought one-eighth cord horse manure for generating the heat, making the depth of manure one and one-half feet. Over this I placed four inches soil that had been taken up with celery the fall before, making soil fine and allowing to heat under cover of the glass for a few days. When soil had got well warmed I moistened it with lukewarm water, planted radishes, lettuce, celery and covered with one-half inch of sand, firming with a smooth board.

For Winter Squashes, I took the worst piece of witch grass that the meadow possesses, marked out for hills six feet each way by throwing out a forkful of earth. The fertilizer was then put in, two parts of wood ashes to one of bone meal, one quart to each hill. Then I took a fork, mixing the fertilizer with the soil, shaking out all the witch grass, smoothed over the hill, dropped the seed and covered about an inch deep, then pressed well with the hoe. The first leaf that showed was given a sprinkling of paris green to kill the black and yellow striped bug. I keep the cultivator, both horse and wheel hoe, going until the vines get to running and then they will keep the witch grass down.

CHAPTER VIII

FERTILIZER GARDENS

Offers of special prizes for gardens enriched with commercial fertilizers led to their extensive use, especially by contestants in the eastern states. The season being a very dry one was for that reason unfavorable to chemical manures, since it is claimed that manure of animals improves the drouth-resisting power of the soil. The accounts showing best results from fertilizers usually described gardens with soil full of vegetable fiber; very often it was fresh plowed sod land, and the results give the impression that chemical fertilizers are most profitably used on light, loose, rather moist soils that have been recently in sod.

In many gardens, fertilizer was lavishly used, one of the offers requiring the application at the rate of two tons per acre. The results often showed that the quantity and quality of the crop justified such an outlay at the start, while in other cases it failed to pay. From the representative accounts following may be judged something of the various conditions and results in the fertilized gardens:

The First Prize for fertilizer gardens was awarded to E. R. Flagg, Worcester county, Massachusetts. This garden was fresh-turned grass sod, a gravelly, yellowish loam worth fifty dollars per acre. The plot contained one thousand square feet. It received one hundred and fifty pounds high grade fertilizer, besides twenty-two pounds of lime to correct the sourness of the soil. The garden was plowed deeply May 5, and the turned sod well worked with a horse cultivator

four times over, making a mellow surface three inches deep without pulling up much of the sod. A smoothing harrow finished the job.

Seed was planted deep on account of the dry season, and fertilizer applied in the drill and stirred in with a small tree brush. Some of the garden was very closely planted, early radish and spinach, for instance, being planted between rows of potatoes. The between crops were done about the middle of June. The pota-



EDWARD R. FLAGG

atoes were followed by peas and beans sown the last part of July, but these did not thrive. Mr. Flagg thinks very close planting not desirable on a dry year. The drouth seemed more serious on the sod land than upon old ground.

Cultivating the Garden.—May 30, used the garden drill fitted with cultivator teeth or hoes through the garden wherever crops were sufficiently above ground to make it possible, considering the very close planting. Nearly all the ground was stirred excepting a little

close to the carrots, and narrow strips where the hills of corn, pole beans and melons were planted.

Cultivated the garden June 3, working as close as possible to the plants—potatoes, peas, beans, corn, turnips and beets are well up so that cultivating is easily done. Lack of suitable showers and ground getting very dry. Thinned the turnips June 6, using those removed for greens. Carefully stirred the earth directly over the melon and squash seeds. They germinate slowly on account of the dry weather. Placed some low, small pea brush along the row of Extra Early peas June 9. Put some water on the melon hills to hasten germination and thinned the turnips still more. Removed the last of the radishes June 19 and perhaps a half dozen very dwarf spinach plants from between the rows of potatoes. Spinach a complete failure, owing doubtless to soil acidity, as no lime was put on this part of the garden. Some of the radishes were wormy and useless. Applied "Bug Death" to the potato vines to kill potato beetles. Scattered fertilizer between the rows of potatoes and worked it into the soil thoroughly with the drill plow. Substituted the hoes for the plow and worked out all the other crops, removing all weeds from among the plants.

Made a second application July 4 of "Bug Death" to the potato vines. July 14, thinned the beets for greens. Dry weather has caused the beets to grow very slowly. July 15, pulled up all pea vines and stirred the earth about the melons and tomato plants. July 18, used the wheel hoe to cultivate all the garden wherever possible to get between the plants. Pulled up the turnips for pig feed, as they are getting wormy. July 24, dug the potatoes, fertilized the ground and on the following day planted peas, beans and turnips. August 2, used cultivator to stir the earth between the rows of peas and beans on the potato

ground. August 4, pulled out the row of bush beans, which had ceased bearing, to give the bush limas more room. August 16, cut up the first planting of corn, using the fodder for the cows. August 19, stuck some of the pea brush used earlier in the season along the rows of Extra Early peas on the potato ground. Used the cultivator between the rows of peas, beans and turnips. September 25, cut up the last planting of sweet corn. Had a very large barrow load of fodder for the cows.

Spinach was sown with the radish seed between the rows of potatoes on the unlimed portion of the garden as a sort of vegetable test for acidity in the soil, and its utter failure to grow corroborated the litmus paper test previously made. It was the intention to sow spinach for fall use on the limed portion of the garden, but again the crowded condition of the crops gave no opportunity for such sowing. Upon that portion of the garden it would, without doubt, have given a good crop.

In this locality of early fall frosts, that most delicious of all green beans, the lima, is rarely grown. It gave very moderate results in our garden, because somewhat crowded and shaded by the rows of Potter's Excelsior corn. The Dwarf lima is worthy of trial and care in every garden. Planted as other beans are ordinarily planted, the lima has difficulty in getting its huge bulk out of the soil in the process of germination. Care in planting is therefore necessary. Fertilize well. Ridge the drill a little above the level of the soil to throw off surplus water and plant edgewise, eye down, not too deep in the soil. The garden culture of this bean should be encouraged.

Another vegetable quite unknown is the kohl-rabi, a plant of the earliest culture, without enemies or diseases, quick growing and as palatable as the turnip;

more acceptable to some. It should find a place in every garden. Cultivate in every way like cabbage, except that the plants may be set out twelve inches apart in the drill. Cut for use when the bulb is about three inches in diameter, tender and not "woody," cook and prepare for the table like turnip or with cream like cauliflower.

The sweet corn was planted in single rows the length of the garden, and under those circumstances the fertilization of the ears was less perfect than usual. Sweet corn evidently requires considerable cross-fertilization between individual plants, hence planting a given number of hills in a compact mass is doubtless much better practice than putting an equal number of hills in a long single row.

The peas planted July 25 produced only one picking of nine quarts, and the vines were badly covered with mildew. The beans planted at the same time gave nothing, as they were killed by the frost of September 14-16 when the first bean pods were about one inch in length. Neither could be called a successful crop.

In planting potatoes, fertilizer was first broadcasted over the plot and worked into the soil, the small stones being raked out before plowing. The furrows were made with the garden drill with plow attachment, the first one on the east side, nine inches from the boundary line running north and south. Six others were made parallel with the first and eighteen inches apart. Extra Early potatoes had been exposed to the light in a single layer in a moderately warm room since March 30 and had developed buds about one-half inch in length. The tubers were carefully cut into one and two-eye pieces and immediately placed in the bottom of the furrows, the sets being twelve inches apart. Five pounds of potatoes planted the

space. A little soil was placed over each set and the furrows dusted with potato fertilizer. The covering was quickly and neatly done with the garden plow. The spaces between the potato drills were dusted with fertilizer, and after working it into the soil a row of Victoria Spanish and Burpee's Earliest radish seeds, mixed, was sown with the seed drill in each space. This planting was done May 5, following a heavy frost the previous morning.

Seeds for this garden cost three dollars and twenty-seven cents; all supplies, five dollars and forty-six cents; labor, three dollars and six cents; receipts were twenty dollars, and profits seven dollars and eighty-nine cents.

Growing Premium Products.—Prize vegetables were abundant on the quarter-acre garden cultivated by W. H. Pillow, New York, winner of the second Bowker special prize. His account includes a long list of awards at the state fair and several county fairs, besides special prizes offered by seedsmen. His aggregate winnings were fifty-five dollars and seventy-five cents, and amounted to over one-half of the whole income, which was ninety-five dollars and seventeen cents. Expenses were seventy-nine dollars and eighteen cents, expenses of growing and exhibiting the product being heavy. A good share of his success appears to have been due to starting his vegetables under glass, as elsewhere described. Writes Mr. Pillow:

For sowing by hand I use the hand marker and make drills sixteen inches apart. In every other row I put beets, mangels and such things as stand all summer and require room, while the intervening rows were used for radishes, lettuce, cabbage, spinach, all of which are out of the way by the time the permanent crop requires the room. After sowing such seed as is

sowed by hand I cover by brushing, lengthwise and lightly, over the drill with the back of the hoe. This covers the seed and presses the ground about it similar to the action of a roller. With practice one can do this as fast as one can walk. I use stakes for marking divisions between the different kinds of seeds, made



ON CULTURE AND CHEMICALS

from sections of plastering laths a foot long and marked with a number. A record of these is kept in a book that I carry in my pocket, so that I can tell at any time from the number on the stake what kind of seed was planted.

Pricked outdoors May 5 from hotbed, cabbage and lettuce plants that were between rows of beets to

stand until large enough to transplant where they are to mature, the lettuce to make heads for use. The lettuce was placed six inches apart in the row, the cabbage two inches apart. I used a pointed wooden drill and transplanted as heretofore described.

A Prime Garden on Chemicals.—By pinning his faith to commercial fertilizer in lavish quantity, E. N. Foote of Massachusetts secured a good garden, notwithstanding the drouth. The profit was one hundred and twenty-seven per cent on cost, and his concise account secured him the third special prize.

This was strictly a fertilizer garden, not a spoonful of manure having been used on the land for the past ten years, during which time the piece was in sod until the year preceding the garden, when onions had been grown there on fertilizer. The area was about one-sixth of an acre and the soil the porous, sandy loam of the Connecticut river valley. It was plowed and harrowed in fall and again in spring, followed by rolling. Declares Mr. Foote: "My experience has been that no labor pays better for a seed crop than to thoroughly firm the ground, filling all the air spaces and preventing the rapid evaporation of soil water."

High grade fertilizer was applied broadcast at rate of two tons per acre and harrowed in. Cultivation of the garden was thorough and frequent, a wheel hoe being used. Of the seventeen vegetables grown, fourteen showed a profit and three a small loss. The best showing was with winter squash, which on one thousand eight hundred and twenty square feet produced sixteen dollars and eighty-four cents worth, at a cost of four dollars and sixty-one cents. Small areas of radishes, cabbages, beets, lettuce, cucumbers and tomatoes proved very profitable. Sweet corn, although sold at good prices, fifteen to twenty-five cents per dozen,

netted a loss of a few cents, the fertilizer alone costing three-fifths of the crop returns. Pole beans also made a bad showing, owing in part to cost of poles, setting them and tying the vines. Onions were the third financial failure, owing to low prices for crop and amount of labor required.

The garden gospel, according to Mr. Foote, may be summed up in these four rules or requirements:

A plot of land free from all shade of trees or buildings.

Good garden fertilizer applied at the rate of not less than two tons to the acre.

The very best seed the market produces, regardless of cost.

Thorough cultivation from early spring until fall.

Drainage and Fertilizer.—A farm garden made fit by deep drainage and dressed with commercial fertilizer was entered by A. C. Abrams, Albany county, New York, and received fourth prize. Soil was moist clay loam. The plot contained about one-third acre, and is enclosed with pickets painted with coal tar; a fencing which has lasted fifty years or more. Too much moisture came in from a small lake on a higher level, but by a drain twenty-five rods long with a rise of one-half inch per thirteen feet the surplus water was removed. This drain was finally extended to the lake, draining away its contents and greatly improving the adjoining land. The garden was fertilized at rate of two tons per acre, but the dry season prevented the full effect.

About one-third of the fertilizer was sown broadcast before plowing. The ground was then plowed nicely about eight inches deep, then about one-third more fertilizer sown broadcast and the ground thoroughly cultivated. The balance of the fertilizer was

saved for use in hills and second crop, but it was soon found the soil had quite as much fertilizer as the seed and plants would bear, so Mr. Abrams used the balance largely between the rows.

Labor was charged at twelve cents per hour by hand and thirty cents by horse. Fertilizer cost fourteen dollars and thirty-five cents and seeds three dollars and three cents. Among the crops were lettuce, radish, peas, tomatoes, cabbage, celery, cucumbers, beets, beans, turnips, corn. The location proved excellent for celery, yielding one thousand one hundred and twenty plants, worth sixteen dollars and eighty cents. Total receipts were seventy-four dollars and forty cents; cost, forty dollars and seventy-nine cents; profit, thirty-three dollars and sixty-one cents.

Feeding the Soil.—By using fertilizer at the rate of two tons to the acre, R. E. Bartlett, New Hampshire (Bowker five-dollar prize), managed to make a tolerably good garden from a plot which had been used as a yard for colts and in cleaning which all the surface soil had been removed. The owner says: "The land seemed dead and did not do so well as much other land that I tilled." The fertilizer was mostly sowed and then raked in. The plot contained only one thousand three hundred square feet, valued at two dollars. It produced a great variety of vegetables for home use, worth ten dollars and fifty-seven cents, at a cost of six dollars and twenty-nine cents. Profit, four dollars and twenty-eight cents. Much of the fertilizer would remain for the following year unless the texture of the denuded soil being little better than sand should allow leaching. A cover crop of rye plowed under in the spring would help save the fertility and tend to restore the soil.

A Fine Profit from one thousand square feet is shown by S. L. Parker, Massachusetts. He cleared

thirty dollars and fifty-four cents, of which nearly twenty dollars was for premiums at fairs. For vegetables used in the family he charged four dollars and forty-five cents and sold four dollars and twenty-two cents worth, besides giving away two dollars and three cents worth and having five dollars and twenty-six



FARM AND GARDEN OF J. G. LYMAN

cents worth on hand. Labor cost two dollars and fifty-seven cents, seeds fifty-one cents, fertilizer one dollar and twenty-five cents. The plan of laying all crops in long straight rows evidently saved expense in labor, and the wheel hoe was a great help in the same direction. By planting for a late garden, Mr. Parker succeeded in avoiding the drouth which proved so

injurious to early vegetables. A gorgeous row of nasturtiums added to the garden's attractiveness. The account well deserved the five-dollar prize awarded.

Quarter-acre Garden of Jere O'Keefe, Massachusetts, was fresh turned sod from a run-out mowing field which had not been manured for ten years. Fertilizer was sown broadcast and harrowed in at the rate of two tons per acre, and nineteen kinds of seed were planted. Beans, cucumbers, beets and potatoes did well; melons, carrots and onions failed. Other sorts did fairly well. Income, forty-three dollars and fifty-three cents; cost, thirty-one dollars and seventy cents; profit, eleven dollars and eighty-three cents.

A Net Profit of Ninety-two Dollars and Forty-three Cents is recorded from a little more than an acre and three-quarters, by J. G. Lyman, Connecticut, besides an amount nearly as large charged off for labor. The account won a Rawson five-dollar prize. The land was good loam, second year from sod, and was given fertilizer at the rate of one thousand five hundred pounds per acre at a cost of forty-two dollars and fifteen cents. Income was two hundred and sixty-three dollars and fifteen cents. The produce came early and brought good prices, but Mr. Lyman thinks his greatest mistake was in not starting work early enough in the spring.

A Very Highly Fertilized One-third Acre was described by Bert A. Hall, Massachusetts. The plot received one thousand five hundred pounds high grade fertilizer, twenty bushels ashes and one and one-half cords manure. The soil was rather thin and dry. Results were disappointing, as the proceeds, sixty-four dollars and forty-nine cents, were exceeded by the cost, seventy-three dollars and ninety-six cents, by a loss of nine dollars and forty-seven cents. The charge for wear and tear of tools was, however, too great (thirteen

dollars and thirteen cents) for the area in which they were used, and it might fairly be said that the account came out nearly even. The experience tends to show that old, thin soil and a dry season combine unfavorable conditions for lavish use of fertilizer. The account won a Rawson five-dollar prize.

A Good Family Garden of one thousand one hundred and seventy-five square feet is reported by J. Stark, Connecticut. With five hundred pounds fertilizer



MRS. W. D. GOSS

broadcast and harrowed in he raised crops worth forty-three dollars and eighty-six cents at a cost of thirty dollars and twenty-eight cents, leaving thirteen dollars and fifty-eight cents profit.

Fertilizer at the rate of two tons to the acre made an excellent little garden of two thousand square feet of sod land owned by Mrs. W. D. Goss, Vermont. Half the fertilizer was applied broadcast and the rest in hill or drill. Fertilizer cost three dollars and fifty

cents; labor, six dollars and forty-five cents; seeds, two dollars. The vegetables were valued at twenty-eight dollars and twenty-two cents; leaving sixteen dollars and twenty-seven cents profit. Potatoes, squashes and cabbages were the largest items, and these vegetables seem to thrive in most of the fertilizer gardens on new land. The garden account received a five-dollar Bowker prize.

CHAPTER IX

PRIZE GARDENING FOR WOMEN

Of the fortunate one hundred securing a prize, no fewer than twenty-seven were women. Some of these merely prepared the account, the actual gardening having been done by male relatives, and such accounts were nearly always attractive and complete. Other women contestants did more or less of the work of the garden. A few of them did everything, even to the spading and carting of manure. Some of the best gardens were planned, worked and managed by women.

In most cases the gardeners of the fair sex made a reasonable cash profit, but it is a noteworthy fact that nearly every one of them mentions increase of health and pleasure as a leading advantage from the experiment. Women living on farms do not stay in the open air and sunlight so much as might be supposed, and some of them note with evident surprise the benefit obtained from a daily bit of outdoor work. Light gardening seems to be the one form of useful exercise that can be depended on for good results for women.

One woman of seventy years took up the work largely on account of her health and says the outdoor exercise helped her more than all the doctors in the land. Another says: "I have derived considerable pleasure from my garden, a good deal of experience and a little money. Of course I have made many mistakes, which another year I hope to avoid."

The absurdity of the attempt to dose and drug a sickly body to permanent health has been recently

declared with emphasis by certain lights of the medical profession. Still worse to depend on the crude theories and medicated tipples of the advertising quacks. Pushing a garden plow is better than pills, and planting the seeds a better tonic than any patent powders.

If some new type of philanthropist would donate hospital sites to be divided into small garden plots to be worked by ailing women, it is a question if the plan would not finally avert more suffering than if the land were covered with hospital buildings and sanitariums. At any rate, for the average woman, a garden in the back yard is better than an apothecary shop on the next corner, and a dollar invested outdoors has saved many a family another dollar in doctors' fees and ten times its value in trouble and suffering. But there are plenty of women who make gardening pay them also in dollars and cents.

A Smart Woman's Success.—One of the most successful gardeners in the contest was Miss Sadie A. Dibble of Connecticut, who did nearly all the work of planting and cultivating, and all the harvesting and marketing in a fruit and vegetable garden of three-fourths of an acre.

From this plot of ground she raised products worth two hundred and twenty-three dollars and thirty-five cents, besides giving away twenty-five dollars worth and taking twenty-five dollars more in premiums at the local fair, making the total income two hundred and seventy-three dollars and thirty-five cents. The expense for labor was forty-five dollars and twenty cents; fertilizer, twelve dollars; seeds, four dollars and seventy cents, and poisons twenty cents, or a total of sixty-two dollars and fifteen cents, which left a profit of two hundred and eleven dollars and twenty cents. The products were valued at wholesale rates and about one-third less than the returns actually received,

so that her profits were considerably more than the figures indicate.

The work in the prize garden began early in April by trimming the berry bushes and sowing seed in boxes and hotbeds the 12th. Hardy seeds, like onion, lettuce, radish, peas and beets, were sown in the open ground April 25. The principal vegetables grown were peas, beans, sweet corn and cabbage, but considerable income was also derived from cucumbers, lettuce, tomatoes, melons and squash. The fruit furnished by far the larger part of the revenue.

Her gardening experience began fifteen years ago with a piece of five hundred strawberry plants infested with weeds. She eradicated the dock, dandelion and other weeds, and got a yield of forty quarts a day from the bed. She went to town one day to sell a crateful, as her father was detained, and from this small beginning she has worked up a nice trade, which goes far toward making her independent. The farm produced at that time a succession of grapes, quinces, pears and apples, and to these she added a stock of all the desirable varieties of raspberries, some blackberries, currants, plums and forty grapevines. Writes Miss Dibble:

We had a fine crop of berries, picking about forty quarts a day. We could not use them all and were obliged to sell some. On the Fourth of July my father said to me: "There are twenty-four quarts of strawberries and sixteen quarts of cherries engaged to go to Stony Creek to-day. I cannot go with them myself, but if you will go you can have the money." I nearly turned pale and trembled at the idea. Me go? Why, I was quite high-toned and had never done anything of the kind in my life. My married sister was visiting me and she encouraged me to go and said she would go with me. We went. We found that by some mistake

there had been put in the crate two quarts extra of cherries. What was I to do with them? My sister said: "Sell them. They are so beautiful, surely someone would be glad to buy them." So I stopped at a cottage where some people were sitting on the veranda. They were pleased with the cherries and bought them. As soon as their neighbors saw us with the crate they rushed out with dishes all eager to buy fruit and disappointed because we had none. I told them I would bring some to-morrow.

This was the beginning of a fine trade in small fruits. I had at that time a succession of pears, apples, grapes and quinces. I added to my stock all desirable varieties of raspberries, some blackberries, currants, plums and forty grapevines. I bought novelties as they appeared. I took care of the garden myself as far as I was able. By and by one of my customers asked if I would plant a vegetable garden for her. "Why, yes, certainly." Soon there was another and another, and I had more orders than I could fill. The fruit and vegetables were picked fresh each morning and put up in the neatest possible manner. I dressed nicely and drove in a new carriage. My customers were delighted with the fruit and very proud of me. I have kept steadily at the work all these years and instead of being something degrading, as I at first fancied it to be, my labor has proved to be a great pleasure, and I have found many friends among educated and wealthy people. More than that, I found what is best of all—good health.

Cabbage, lettuce and tomato seed were planted in hotbeds. I cut the bottoms from pasteboard boxes about six inches square and placed them on trays, covers of cracker boxes being used. In these I put earth and well-rotted manure, then planted melons, cucumbers, summer squash and peppers and placed

them in sunny windows. As soon as they were ready to transplant, I slipped a trowel under them, it was done easily and without disturbing their growth in the least. I found it the best method I had ever tried for starting tender plants.

For the Mammoth Whale squash I dug large holes, filled them in with cow manure and after covering with a little earth planted the seed. When the vines had run about ten feet I pinched off the side shoots, blossoms and all but one squash. I pinched the top of the vine and placed it in a dish containing a pint of sweet milk. Each morning or as often as practicable I repeated the operation. In this way we have grown squashes that weigh one hundred and fifty pounds. This season the nights were so cold that they did not average half that figure.

Potatoes were cut in pieces containing one eye, laid on trays and carefully placed in furrows with the eyes uppermost. People said I would not have any potatoes, for I cut the seed in such small pieces. From one-half bushel seed I raised twelve bushels of enormous size. These took first premium at the local fair, where there was lively competition.

I don't know that the garden contest made any difference with me or my labor. I worked just as hard before and I have done the same since. I have always a genuine love for my fruit and flowers, and ask no better bill of fare than a dinner of fresh vegetables. I like the outdoor life; the health it gives me, the oxygen I breathe. I have made little study of new fruits or vegetables for the last two years, as so many of my investments have proved worthless. It seems that I already have as fine fruits as are known. Certainly they are greatly admired and eagerly sought for, and I take many premiums at fairs; sometimes one hundred at a single fair.

My methods? I drive my work. I never let my work drive me. I do all the work I can in the fall to save work in the spring. I do all I can in the spring to help along the work in the fall. I never stop to think of the weather, if it is too hot, or too cold, if I am tired or thirsty. I keep hustling right along. In



MRS. DOLE'S GARDEN IN AUGUST

the busy season I rise at four o'clock in the morning. I work early, I work late, as seems necessary. I buy the best implements possible and the best seeds the markets afford. I use plenty of fertilizers. I read agricultural papers. When I read a new suggestion I follow it until I am satisfied that it is advantageous or

otherwise. Before all and above everything else is a quiet determination to succeed in whatever I undertake.

A Woman's Pastime.—Our farm upon which the garden is situated is a hill farm and in the center of the state, writes Mrs. J. E. Dole of Vermont. The garden spot is in the open field, which was a piece of greensward, and is sixty by one hundred and thirty feet, and the soil is a clayey loam. My youngest son enlisted in the Spanish-American war and died from fever, and to keep my mind and hands busy I entered the garden contest. I knew I could not compete with those who live where the season is longer and who do not expect a frost every month. With a set of Planet Jr implements, garden hoe and rake I felt well equipped for the summer's work. The garden spot was easy of access, quite level, but the soil was thin in places, as it was underlaid with a granite ledge.

The weather was so cold that no work was done until May 1, when eight cords of manure were put on and the garden plowed and harrowed. I sowed some peas in double rows one foot apart and two feet between every two rows, so that I could bush two rows of peas with one set of brush. Made drills with my hoe and put Bowker's phosphate in the bottom, covering with loose soil before sowing the peas. Planted bush cranberry beans, onions, lettuce, beets, spinach, parsley and sweet corn May 5-6. May 8 made three flower beds twenty-four by two and one-half feet and raked in phosphate sown broadcast before planting the seed, which was aster, snapdragon, balsam, bachelor's button, candytuft, cacalia, dianthus, gaillardia, lobelia, marigold, mignonette, petunia, phlox, poppies, portulaca, sweet alyssum, verbenas and feverfew.

Planted some potatoes May 9, the next day cabbage, cauliflower, carrots, turnips and lettuce and the day following okra, martynia, beet, radish and sweet

corn. During the latter part of the month and early June I planted sweet potatoes, pumpkins, beans, sweet corn, broccoli, parsnips, salsify, squash, potatoes, cucumbers, radish, popcorn and nasturtium. The ground is full of trumpet vine and milkweed, and it makes me discouraged to look across the garden and see the weeds cropping up everywhere. Early in June I transplanted egg plants, peppers, cabbage and cauliflower. The earliest plants from seed sown in the house in February were killed by transplanting in soil made too rich with hen manure. In setting out my plants I dug a hole a foot or more across, set the plant in the center, not disturbing the roots any more than I could help, when I tore the paper box away from them and drew some soil up around the plants, then put on the well-rotted manure, half a shovelful in a hill, and covered the fertilizer, leaving the ground a little the lowest next to the plant.

There was no rain from May 30 to June 25, when a heavy shower wet down about an inch. There will not be many days now that we will not have something from the garden to help fill out our bill of fare. Owing to the extremely dry weather many seeds came up unevenly. Some popcorn was a foot high and martynia in blossom, while other seeds were just breaking through. For celery plants I put well-rotted manure three or four inches deep in the bottom of the trench and covered it with soil before setting the plants. I used ashes freely on the onion bed and around all the plants.

The garden cost, for fertilizer, nineteen dollars and seventy cents; seeds, three dollars and fifty cents; rent of land, two dollars; labor, most of which I did myself, twenty-eight dollars and forty-five cents; or a total of fifty-three dollars and sixty-five cents. At wholesale prices the products were worth sixty-one

dollars and seventy-eight cents. At our fair I took first prize for best collection of vegetables and premiums to the amount of eight dollars and forty cents, making the total income from the garden seventy dollars and eighteen cents, and the profit sixteen dollars and fifty-three cents. Besides having plenty of fresh vegetables, I found the work in the open air was of great benefit to my health.

A Good Home Garden was operated by Estella Arney of Illinois. The garden is seventy-four by one hundred and two feet, with a path through the center lengthwise and a row of currants and gooseberries on either side. Along the outside boundaries are a row of raspberries, twelve bunches of rhubarb, several of horse-radish, twelve grapes, six bunches winter onions, sage and a few stalks of flowers. The tools used were a hoe, rake and spading fork. Four loads of stable manure for fertilizer. During April four days' work was done plowing the garden, planting sixty hills of potatoes, four of cucumbers and sowing onion, cabbage and lettuce seed. There were gathered nineteen bunches of onions and five of horse-radish and eighty cents spent for seeds.

In May, two and one-fifth days' labor was put in planting beans, sweet corn and beets, transplanting three hundred cabbages, fifty mango peppers, sixty tomatoes and hoeing onions, while the products were two bunches rhubarb, twelve beets, thirty bunches onions, three messes radishes and six of lettuce. The late table beets, butter beans and bunch beans and lettuce were planted in June, two hundred and fifty late cabbages set, celery transplanted and the garden hoed several times, two and one-half days' work being given in all. The products were forty bunches of onions, three and one-quarter bushels lettuce, twenty-five cents worth radishes, four and one-half gallons gooseberries,

one gallon currants, three gallons raspberries, eleven bunches rhubarb and two and one-half gallons of it canned, and twenty cents worth of horse-radish.

During July the garden was well cultivated, the onions (three bushels) gathered and the ground sowed to turnips, while an abundance of early cabbages, cucumbers, beets, lettuce and tomatoes were picked. The last cultivation was given in August, when nearly all the garden was hoed. A hose long enough to reach nearly the entire garden was attached to the pump and the cabbage irrigated. An abundance of products were gathered, including one hundred and five pounds grapes, seven dozen peppers, five dozen ears sweet corn, one-half bushel dried beans, two bushels tomatoes and twelve gallons kraut made.

More irrigation was done in September, and the turnips thinned, while in October the cabbages were pulled and buried or made into sauerkraut, the turnips and remaining crops harvested. Fifty heads of cabbage were buried, fifteen gallons kraut made, five bushels turnips and three pecks beets gathered. A large bunch of celery, some cabbage, turnips and beets were exhibited at the fair and awarded first premiums.

In figuring up the productions, Mrs. Arney finds a valuation of thirty-six dollars and thirty-nine cents, an expense of nineteen dollars and fifty-five cents for labor, fertilizer, seeds and insect powder, and a profit of sixteen dollars and eighty-four cents. This is at the rate of two hundred and nine dollars and twenty-three cents per acre for production and ninety-six dollars and eighty-three cents profit. She did all the work except plowing, earned fifteen dollars and twenty cents for her labor, and remarks: "I am glad that I joined the contest, for I am sure I have learned quite a good deal. I have never thought about how much the garden was really worth."

The Winner of the Ninth Regular Prize was Mrs. L. A. Ludwig, Holling, Kansas, her account standing highest among the lady contestants in that list. Her husband being disabled by rheumatism, this plucky woman was thrown upon her own resources for the time, yet she not only succeeded in planting and caring for a good garden, with the help of her five young children, but also prepared a model report in point of neatness, compactness and clearness.



MRS. L. A. LUDWIG

Sales from the one and one-third acres were two hundred and thirty-eight dollars and forty cents, with cabbage, radish, onions and tomatoes heading the list as money-makers. The good work done by the children was shown in the sale of over sixty dollars worth of onions weeded by them. The charge for labor was ninety-one dollars and fifty-three cents. All expenses, one hundred and seventy-two dollars and eleven cents, leaving sixty-six dollars and twenty-nine cents profit. Much labor was saved by the use of a wheel hoe. By

sowing the quickly germinating onion seed, a little of it in the drills with the onion seed, the rows became visible in a few days, and cultivation could begin at once.

Mrs. Ludwig, being a farmer's daughter and sickly in childhood, did not have the advantage of completing even a common school education, and being one of a large family of children, began work away from home at the age of fourteen. She was married at twenty-two to F. M. Ludwig, sixteen years ago. Their triumph came in 1900 in the shape of a little five-acre home paid for and practically out of debt. The family includes two boys and four girls, a happy rollicking set, every one natural horticulturists and students of nature.

A Woman's Garden Diary.—An excellent understanding of the toils, perplexities and joys of the average amateur gardener may be gathered from the prize winning record given below by Mrs. W. R. Bale of New Jersey:

I commenced my garden by planting in boxes in a sunny east window in the cellar a few lettuce and cabbage seeds, and by putting tomato seeds in flower pots in the kitchen windows. The mice ate the lettuce and cabbage plants after they were nicely started. I then sowed more the last of March in the house, putting them out of doors when the weather was suitable. These thrived apace and gave good plants for the garden later.

The first real work done in the garden was preparing the ground for sweet peas and celery. This was late in March and during early April. As I wished to raise celery plants for sale, I sowed two ounces of seed, every one of which I think sprouted. I made a level row six inches wide, over which I scattered the seed thinly. This proved a good way, as the

plants were not crowded, and grew stocky and strong. They were sheared off three times before time for transplanting and made excellent plants. The space where they were planted was about twelve by twenty-four feet and held nearly ten thousand plants, of which about eight thousand five hundred were set out, sold or given away. To each neighbor or friend I gave fifty, letting them buy as many more as they wanted. I sold about seven thousand at thirty-five cents per hundred, making the little patch very profitable, although I spent much work upon it.

The next work was getting the berry bushes in order, and I spent much time in trimming and thinning them out and cutting out dead wood. When we began planting the early seeds I put a radish seed every two or three inches in all the rows of onions and parsnips, then firmed the soil by walking over the rows. The radishes germinated in a few days, marking the rows so that they could be worked before the other plants showed above ground. The radishes grow quickly and can be pulled and used before the other plants are large enough to need the room.

We have had a great deal of trouble with the little fleas that eat the radishes, tomatoes, etc., and used plaster and soot freely. We had many fine cabbage plants, but all the Savoy and some of the others had club root so bad that they could not be used. Had such dry weather that everything seemed likely to die. Hoeing every day or evening after sundown was our only resource, as to draw water and carry it from the well was more than I could do, although I carried a great many pailfuls for celery. We had much trouble with the squash bugs in squashes, cucumbers and melons. We planted radishes in the hills and used cow manure mixed with water, sprinkled on the vines. Many hills had to be planted over, but I guess we shall

have plenty of plants, for every vacant square foot in the garden has a melon or squash vine coming up. Uncle says "he likes to have plenty and they will do no hurt."

July 12.—Gathered the first cucumbers. They are selling here at three for ten cents. All vegetables are very high; lettuce five cents a head now at Newton, beets nine cents a bunch, peas and beans five cents a quart. The celery plants are going off well. All the people who come for them exclaim in wonder over our garden. "The finest garden I ever saw!" "Why! You have everything in your garden." "What do you expect to do with so much?" These and many more admiring comments.

August 1.—We have so many cucumbers that I do not know what to do with them, and everybody else has them also. Last year I supplied all the neighbors, sometimes giving away three bushels at a time. Now I can only feed them to the hogs. Have found the thief which has been eating the parsnip tops. Going quietly out just now I saw a ground hog run from the parsnips down under the wire fence through the stones, into his hole. Mr. B. says he will kill him with bisulphide of carbon. The Fordhook Early corn has given us but two dozen ears fit to eat. They are either unfilled or covered with smut, more of the latter. The Country Gentleman is very fine and not very late. It is planted very thick, but sets two or three good ears to a stalk, so we shall have plenty. The tomatoes are simply a wonder. They are now ripening at the rate of a bushel or more a day and still in bloom. The Gradus and Quality peas both began to bloom after the first crop was picked and have given us several messes for the table and seed for next year. I suppose the dry weather early, and later so much rain, was the cause of the unusual proceeding.

September 1.—There are many melons and they are now ripening fast. We have many freaks this year. Nearly every stump where we have cut a cabbage head has grown from three to thirty small heads, from the size of a walnut to three or four inches in diameter. One cauliflower, instead of making a single head, branched from the stalk and gave six heads about four inches across, each inclosed in its outer leaves. I found several medium-sized ears of corn not covered by any husk at the top of the stalks among the tassels. The Australian Brown onion was very good and of mild and pleasant flavor. The celery seems to be blighting. The outside leaves turn brown at the tips and slowly die down. Both varieties seem affected, and some who bought plants have the same trouble. Out of six hundred plants set not more than half that number are good ones.

November 10.—The garden is about all garnered in. The celery is to bury and the vegetable oysters and parsnips, both very fine, will be left in the ground till spring, with the exception of a few packed in sand for winter use.

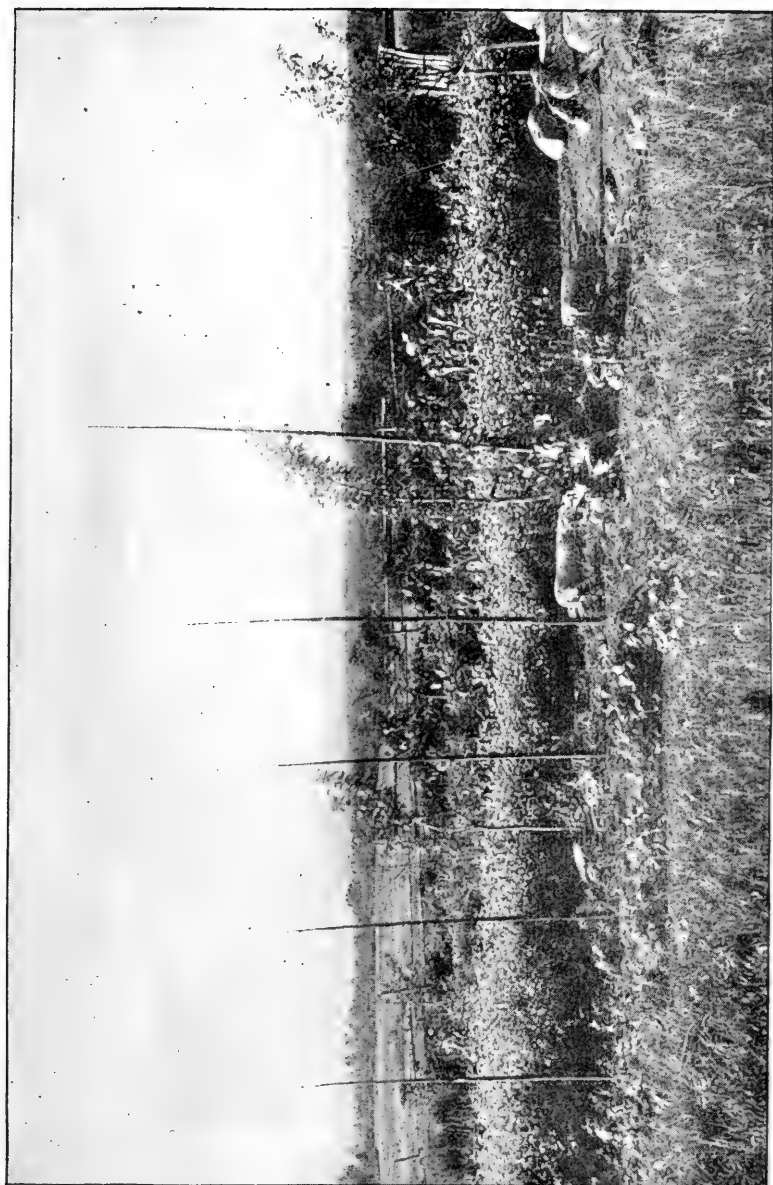
One of the Most Profitable Small Gardens was carried on by Mrs. L. M. A. Hall, Tolland county, Connecticut. Her income from about a quarter-acre was two hundred and five dollars and sixty-four cents. Expenses were sixty-three dollars and thirteen cents, leaving one hundred and forty-two dollars and fifty-one cents net. The produce was sold from a meat cart, and brought fair prices. Earliness greatly helped the cash returns. Some crops were started indoors, while the outdoor crops were planted at the earliest possible date, with the result that most of the produce was sold before similar crops from other gardens had come into the market. Beans and corn were considered the most profitable garden crops, but all the common vegetables

were grown. Fertilizers cost ten dollars and seventy-five cents, of which the largest item was five dollars for five barrels ashes. Hen manure, stable manure and phosphate were also used. Much of the work was done by a ten-years-old son with a wheel hoe. Hoeing the entire garden before the vegetables came up proved a fine plan for killing weeds. This contestant received a Rawson five-dollar award.

Writing in June, 1901, Mrs. Hall says: "I have doubled the size of last year's garden and hired my son by the month to till it. He is eleven years old, and I give him three dollars a month, the money to be put in bank. I believe an acre of garden the most remunerative one on the farm if worked to its best. We had squashes, beets and roots of all kinds till April this year, which I think is the result of ripening early and care in harvesting."

A Native of Germany, and inexperienced in writing English, Mrs. Clara Kuntze, Daggett, Michigan, told the story of her half-acre garden in a manner sufficiently clear and accurate to secure a Rawson five-dollar prize. The garden was tended by two women folk, and seems to have been a success. It included such unusual vegetables as lintels, red cabbage, kohlrabi. Use was made of liquid manure and straw mulch. Cabbage seed was planted in check rows and the plants thinned out. Income was fifty-two dollars and fifty-one cents, and expenses, twenty-one dollars and forty-seven cents; leaving thirty-one dollars and four cents net.

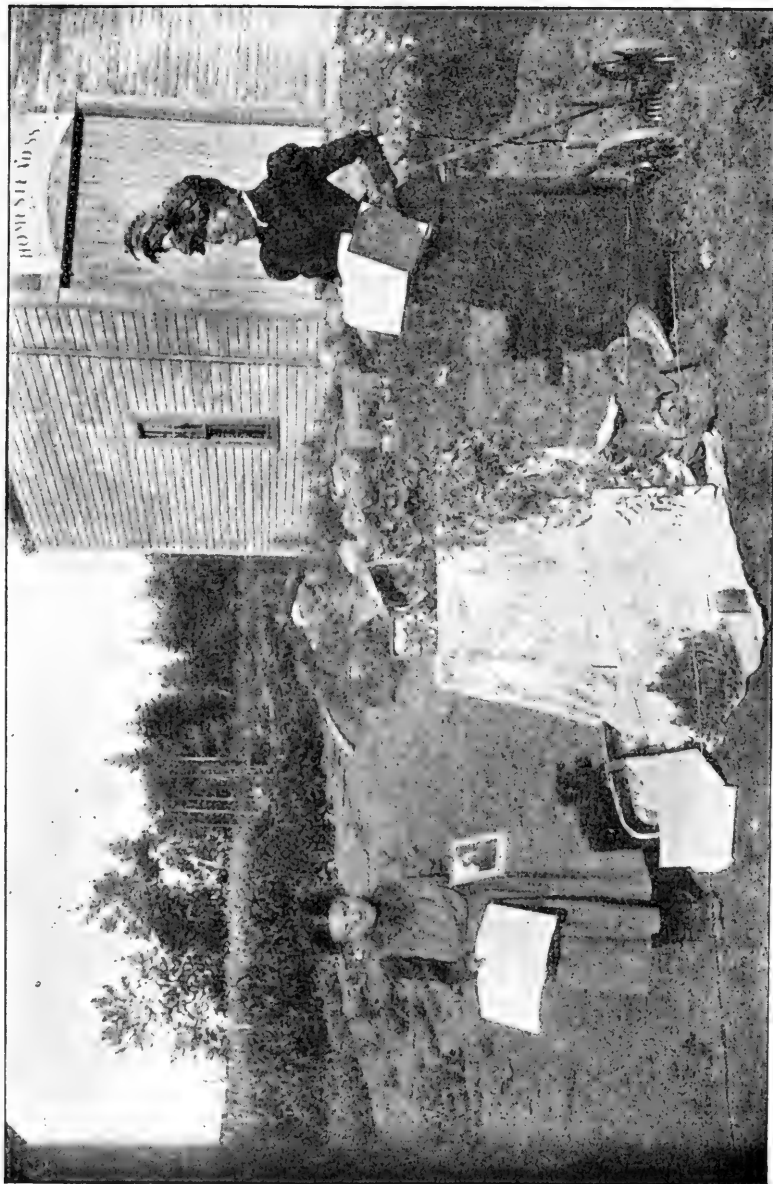
A Model Account of a rather poor and unsatisfactory garden was submitted by Amelia C. Guild, and, according to the terms of the contest, received a special Rawson twenty-five-dollar prize, although the cost of the garden was four times the income.



(133) GARDEN OF AMELIA C. GUILD IN JULY. CAMDEN MTS. IN BACKGROUND

The location was at a summer home at Thomaston, Maine, which was being started for the benefit of poor children from the cities. Miss Guild had little previous experience in gardening, the land was rocky and infested with weeds and insect pests, so that many of the crops failed to pay expenses. To cap the climax of trouble, a neighbor's cow broke in several times and completely spoiled some of the crops. The crops were worth twenty-seven dollars and fifty-nine cents, at a cost of one hundred and ten dollars and seventy-five cents. But a portion of the loss is offset by tools and material on hand and by improvement to land. The two views show some of the difficulties and also the beautiful scenery of the mountain range in the background, also some of the excellent but costly vegetables grown.

A Nice Little Income from one-tenth acre was reported by Mrs. R. Kirk, Oskaloosa, Iowa, winner of a five-dollar Woodruff award. The vegetables not wanted for the table were sold to the lady's butter customers, and the total income was fifty-five dollars and ninety cents; cost, thirteen dollars and thirty-five cents; net, forty-two dollars and fifty-five cents. The tomato crop was very successful. Seed of Fordhook First was started March 9 in soil from the potato bin, covered lightly with earth and a pint of wood ashes on top. The box was then covered with a cloth and thoroughly wetted with hot water, and set behind the stove three days with the cloth still on. They came up quickly and well and were moved to a cooler place. "I think the whole secret of raising nice plants is not to crowd them and to keep them cool enough to prevent their spindling," writes Mrs. Kirk. "In setting in the garden, I level the ground and put plants two and one-half feet apart each way, with about a pint of wood ashes to each. The soil has already been manured.



(135) WORKING FORCE OF A. C. GUILD'S GARDEN, WITH SOME JULY PRODUCE

When the plants are eight to twelve inches high, I drive stakes to each one and keep off all suckers but one and the main stem. When the vines get to the top of the three-foot stakes, I cut the vine off."

With Plow, Harrow, Wheelbarrow and Hoes as the only tools, Emma C. Fisher, Walpole, Massachusetts, cared for a town garden of one thousand three hundred and fifty square feet and secured one of the ten-dollar prizes. Income netted a small sum above cost. Tomato plants were set in vacant hills of corn. Transplanting pumpkins was not a success. Early cucumbers were obtained from vines transplanted from hotbed. Potatoes yielded best from medium and large seed tubers. Purple Top turnips grew faster than the White Egg. A tabulated memorandum for each vegetable will be useful for future reference and comparison. Below is a specimen from this contestant's diary:

NAME	PLANTED	DEPTH	MANURE	UP	HOED	RIPE	YIELD
Beans Wax	May 17	1 1½ in	1 shovel per 3 ft	May 29	June 8 June 19	July 14	4 qts
Beets Egyptian	April 29	1 in	1 bushel per 36 ft	May 8	May 13, 20, June 3, 9, 17	July 15	4 doz

"Another year," writes Mrs. Fisher, "I should not raise peas, potatoes nor squashes, because, while they are doubtless profitable, they require too much land. In a small garden there are other vegetables, such as radishes, beets, beans, lettuce, melons and parsnips, needed only in small quantities, which are more useful than a few peas or potatoes. Early ones might be desirable, but my garden is not early land."

A Successful Garden of over three acres is described by Mrs. F. W. Fisk, Clayville, New York. The mother of three small children, with no help in the

housework, Mrs. Fisk found time to write a concise story of the garden, securing a regular five-dollar prize. She did much of the work of the garden and felt "benefited mentally, physically, spiritually and financially." The value of the produce was seventy-six dollars and forty-two cents, and the net profit, thirteen dollars and



A NEW YORK WOMAN'S GARDEN

fifty-seven cents. Having no hotbed, the plan of starting plants indoors was followed with success. Tomatoes were sowed in a pan of earth from the woods and put on the stovepipe shelf. They were up in four days and were transferred to a sunny window. Celery was

started in boxes April 3, sowing the seed, sprinkling a little fine earth over it, wetting thoroughly and setting under the stove with paper over the box to keep in the moisture. Corn was started about the same time, planting hills in small rolls of oilcloth the size of a tomato can, removing the roll when transferring to the field. Melons and cucumbers were started in pans and transplanted to the field. By this plan good crops of the tender vegetables were obtained before frost.

Won a Prize.—A one and one-fourth-acre farm garden kept by Mrs. H. R. Calkins, Plattsburg, New York, received an Allen prize of five dollars. The account is condensed, but very clear and legible. Soil was clay loam fertilized with manure and ashes. Hand and wheel tools were used. Many of the seeds were home-raised. Supplies were valued at twenty-one dollars and sixty-five cents; labor at twenty-eight dollars and fifty-three cents; while the products were worth one hundred and eighty-six dollars and eighty-six cents; leaving a balance of fifty dollars and eighteen cents. As appears from the account book, this lady gardener was systematic in her work, never allowing it to get ahead of her, and she seems to have had a splendid garden with comparatively little difficulty.

My Flower Bed was a very satisfactory part of my garden, writes Mrs. J. L. England, Maryland. I think what time I spent in my garden, one hour after supper three days in a week, was more pleasure than work. After being in the house all day, it was a pleasure to get out in the fresh air with a hoe, dress up my garden and flower bed, cut a nice bouquet, pull some fresh vegetables, or gather a pan of berries to tempt the appetite at breakfast.

The only tools I used were hoe, rake, shovel and hand cultivator. I am a cooper's wife with eight chil-

dren and have no help but the children, but I could always find time to hoe the garden. I know it will pay anyone having one thousand square feet of land, or even half that amount, to raise their own vegetables. This year when harvest came and lots of workmen, I



MRS. CALKINS PICKING BERRIES FOR SUPPER

did not need to depend on the truckman as usual, but went into my garden and gathered nice, fresh vegetables. My pocketbook showed the difference. Income, seventeen dollars and sixty-two cents; cost, seven dollars and eighty-nine cents; profit, nearly ten dollars.

A Productive Southern Garden, making a return of three hundred and fifty-two dollars and ninety-two cents at cost of eighty-four dollars and thirty-five cents, was entered by Mrs. J. W. Bryan of Georgia, winner of one of the Allen special prizes. The location is Lookout mountain, a sandy loam, with clay subsoil; area, about one acre, manured with plenty of stable and poultry manure. The tools were a bull tongue plow, a horse hoe, a wheel hoe and the common hand garden tools, all together valued at twenty-three dollars. Northern seed was used, costing thirty-one dollars. Income began April 15 with asparagus, followed by radish, mustard greens and spinach. The first Clipper peas were sold May 13, and subsequent sales included a great variety of garden products. The family had all the garden stuff they could use and a surplus for the neighbors. Cost, thirty dollars and eighty-three cents; income, thirty-nine dollars and fifty-seven cents. The illustration shows Mrs. Bryan's homelike residence.

Since the garden contest, writes Mrs. Bryan, we never feel a drouth in the garden, because I learned then that a dust mulch, formed by the weekly use of the horse hoe over the whole garden, prevents an injury to the plants by even a protracted dryness. I find also an awakened interest in my neighbors in their gardens by the success of my garden, while theirs suffered from the drouth.

Perseverance Under Difficulty, was the experience of Mrs. G. H. Berger, California, who made a plucky fight for her garden against great odds, and who writes: "I have the satisfaction of knowing my garden would have been a great success had I been able to keep away the vermin and the cows." Roots of fern and poison oak filled the soil. Rabbits ate the peas, melons and peanut vines, moles devoured the beans,

while robber cows and birds stole the most of what was left.

An extended and highly detailed account of garden operations came from two ladies of New York state, L. A. and E. S. Denslow, receiving a five-dollar Rawson prize. Dry weather and scarcity of labor were serious drawbacks, but from the three thousand seven



HOME OF MRS. J. W. BRYAN

hundred square feet came an income of forty-seven dollars and sixty-nine cents, at a cost of twenty-five dollars and ninety-nine cents. Profit, twenty-one dollars and seventy cents. The growers considered most of the crops unsatisfactory, but were pleased with the profuse yield of sweet peas, of which great quantities were grown for ornament.

Mrs. Sarah C. Miller, Minnesota, took excellent care of her half acre, but spent a total of only sixteen and one-half days, which she charged at fifty cents per day. The produce amounted to forty-six dollars and fifty-eight cents and expenses were twenty-one dollars and fourteen cents. The account was a five-dollar prize winner.

CHAPTER X

YOUNG HORTICULTURISTS

The garden is Nature's best school. As might be expected from such a teacher, the accomplishments conferred on the zealous pupils are not showy, novel or pretentious, but solid, simple and nobly essential. The worthy pupil learns to love his teacher; an acquirement of itself a lifelong comfort. He is taught patience, industry, perseverance, steadiness; learns that what is sown and tended must be harvested. The gardener from choice is a safe man; kind, domestic, reliable, not changeable, choleric or vicious. The boy who has a garden attends also the business school of the farm, and absorbs skill in planning, systemizing, self-discipline, enterprise, buying and selling; all of which will be of the utmost value in any line of life. Greatest gift of all, the spring-like, all-conquering health and vigor which gardening promotes more surely than any other useful occupation.

Prominent and successful gardeners have usually begun their work in that line early in life. Many of them began with the foundation of their business already started by a father to whose experience and capital they have added youthful energy.

A good number of the contestants for prizes were young men and boys. Unfortunately many who had first-rate gardens took no prize because of some oversight or flaw in the account; defects due to lack of experience.

A Zealous Young Gardener, George Osborne of Illinois, made his half acre pay him seventy-eight

dollars, of which fifty-seven dollars was net profit, and he became so enthusiastic with his experience that he planned to cultivate a larger piece the next year. His small brothers were hired to help, and they also became interested and will have gardens of their own. These three young fellows will make their gardens pay, but the real and lasting benefit will consist in a training and experience not to be bought with money.



GEORGE OSBORNE'S HOME MARKET

Manure was obtained from the poultry house and ashes from the wood stoves, but a mistake was made in that the two were mixed before using, thus impairing the value of the manure. Many vegetables were sold at the store and pay taken in groceries. Melons were a great success, but George suspects that some of them found a home market without his knowledge. Carrots, turnips and late radishes were stored in barrels sunk

in the ground, and the plan was considered better than storage in pits, and also more convenient. In planting the following year this young gardener would plow the fall before; would lay out a plan of the garden during the winter; would have near together such crops as are to be followed by second crops, thus allowing the second crops to be cultivated in a large plot with long rows; would also put together crops to be left over winter, and perennial crops.

One of the Smaller Gardens entered in the contest was that of Oscar P. Roberts of Audubon county, Iowa. It contained one thousand two hundred and twenty-five square feet, or a little more than one-thirty-fifth of an acre, and was planted and cultivated during the spare moments of the noon hour and evenings after work in the fields. The plat was valued at one dollar and fifty cents, and had been cleared of hazel brush and planted to a garden several years before. The tools used were a hoe, spade, homemade wooden rake and Planet Jr garden plow. Early in April three large loads of well-rotted manure were drawn out and placed in three piles. On the 22d, the ground was plowed seven inches deep with a common plow. A piece was leveled and raked off and four rows each of Yellow Danvers, Red Wethersfield and Mammoth Silver King onion and one row each of Early Long Scarlet Short Top Improved and Early Turnip White Tipped radish and Little Gem peas were planted; rows sixteen inches apart, seeds dropped by hand and covered about one-half inch deep, except the peas, which were covered three inches. On the 28th, two rows of salsify were planted. Preparatory to outdoor work a packet of Golden Yellow celery was in March sown in a box in the house and transplanted April 26 to a cold frame and the open garden, setting the plants three inches apart each way and shading with a little brush to prevent wilting by

the hot sun. A row of Seibert's Early lima beans was planted May 1 in hills two and one-half feet apart, three beans to the hill, and covered one and one-half inches deep, but these rotted and in place of them some onion



PEPPERS SIX INCHES LONG GROWN BY OSCAR ROBERTS

sets were planted on the 10th. The peas came up in six days, the salsify in twelve, while the Early Scarlet Turnip radishes were fit to eat in twenty-six days after planting.

As was to be expected the grass and weeds grew quickly, so the Planet Jr hoe was used on the 16th, and again on the 18th, the whole garden being cultivated in less than an hour each time. Two rows of radishes were planted at this time and a row of tomatoes was set the 22d. The latter were about a foot high and were taken from a hotbed. A trench was dug and the plants laid down in this, only the tip being left out. A row of Flat Dutch cabbage and two rows of salsify were planted the 23d, and a row and a half each of peppers and Early Jersey Wakefield cabbage were set the 27th. The garden was now planted except the celery, and all that remained to do was to cultivate it well and harvest the crops. The Planet Jr hoe was used frequently, but hand weeding had to be resorted to with the onions, salsify and radishes.

The lima beans finally came up May 14, and to support them the young dead peach trees that were quite branchy were set. The onion sets were used as needed, the remainder being pulled on the 15th and the ground planted to celery. A trench was dug one foot deep and wide, and filled in five inches with good rich soil. The plants were set up to the stems and a little ridge made along the center of the row so that in hard, dashing rains the water would run off to the sides of the trench, thus saving the soil near the plants from settling down hard and baking around them. The plants were set six inches apart in the row.

The first peas were picked July 1, the early cabbage was ready by the 15th, and the lima beans by the end of the month. The tomatoes were staked the 12th by driving stakes on each side of the row, and on these nailing poles about one foot from the ground. They began ripening August 8, and by the 14th, fifteen pounds had been picked and sold at three cents per pound. The celery was watered frequently, the water

being hauled in a barrel in the morning and left standing all day in the sun to warm up. The celery was banked the middle of September and the onions pulled and harvested.

This garden was not large, nor was there a great variety of vegetables raised, yet it seemed to satisfy the needs of Mr. Roberts' family. If it had contained beets, beans, sweet corn, squashes, cucumbers, carrots, lettuce, melons and more peas, it would have been more satisfactory to most people, yet there are some who do not care for these vegetables and are satisfied with a more limited variety. The productions of the garden were not large, and yet when spread over the entire season, they gave considerable "green stuff" to mix with the "pork and potatoes," which constitute the diet of so many farmers' families. There were gathered eighty-six dozen radishes, forty-five dozen of green and three and one-fourth bushels of onions, one peck of peas, sixteen head of cabbage, sixty-five pounds of tomatoes, one and one-half pints of cured lima beans, five dozen green and two pecks of pickling peppers, two ounces sweet pea seed and many flowers, forty-eight dozen salsify and fifty bunches of celery. The value of these products amounted to thirteen dollars and thirty-six cents. The labor expended on garden was six days, four and one-fourth hours, and with two and one-half hours of team work amounted to eight dollars and sixty cents. The manure was valued at thirty cents, the seeds at eighty-five cents, while one dollar would be a fair price for the use of the tools and the land. This brings the cost up to ten dollars and seventy-five cents, and leaves a net profit of two dollars and sixty-one cents, and pay for his own labor which he could not have earned otherwise. In reality the garden earned him ten dollars and eighty-six cents.

The net profit was at the rate of ninety-two dollars and thirty-five cents per acre.

Mr. Roberts closes his report by saying: "The work has been interesting and instructive, and if I had nothing else but the knowledge gained to show for my few days' work I would feel amply repaid for my efforts. The garden has proved both pleasurable and



A LARGE EXHIBIT BY A SMALL GARDENER

profitable. It was profitable to me because I noted carefully the results of my experiments and stowed them away in my memory for use in the years to come. It was profitable to the family because it furnished a liberal supply of vegetables all summer."

An Enterprising Youth of the Hawkeye state, Willie Fay of Independence, Iowa, secured one of the regular prizes of five dollars for his garden story. His

one-third acre produced vegetables valued at forty-three dollars and eighty-five cents. He applied four loads of barn manure and one load of hen manure. The wheel hoe, he thinks, enabled him sometimes to accomplish a day's work in two hours. Melons were the most successful crop, and he saved plenty of seed for another year. Between the severe drouth and some robber cows which ate twenty head of cabbages, Willie had his troubles, but father and brother helped take care



WALTER R. PALMER

of the garden, and the owner was one of the few juvenile prize winners.

A Boy Gardener Who Won a five-dollar prize is Walter R. Palmer, Victoria, British Columbia. Some of the work was done by a Chinaman at seventy-five cents a day. But another phase of the Chinese problem proved unfavorable to profits, since Walter complains that "so many Chinamen here make their living by growing and peddling fresh vegetables that it does not pay white people to grow them for sale." Such

crops as lettuce, cabbage, spinach and asparagus seemed to thrive best. The area of one thousand six hundred and twenty square feet produced two dollars and thirty-five cents worth, and is charged with a cost of only fifty-five cents, but this amount could scarcely have been meant to include the sixteen hours' labor which is itemized in the account.

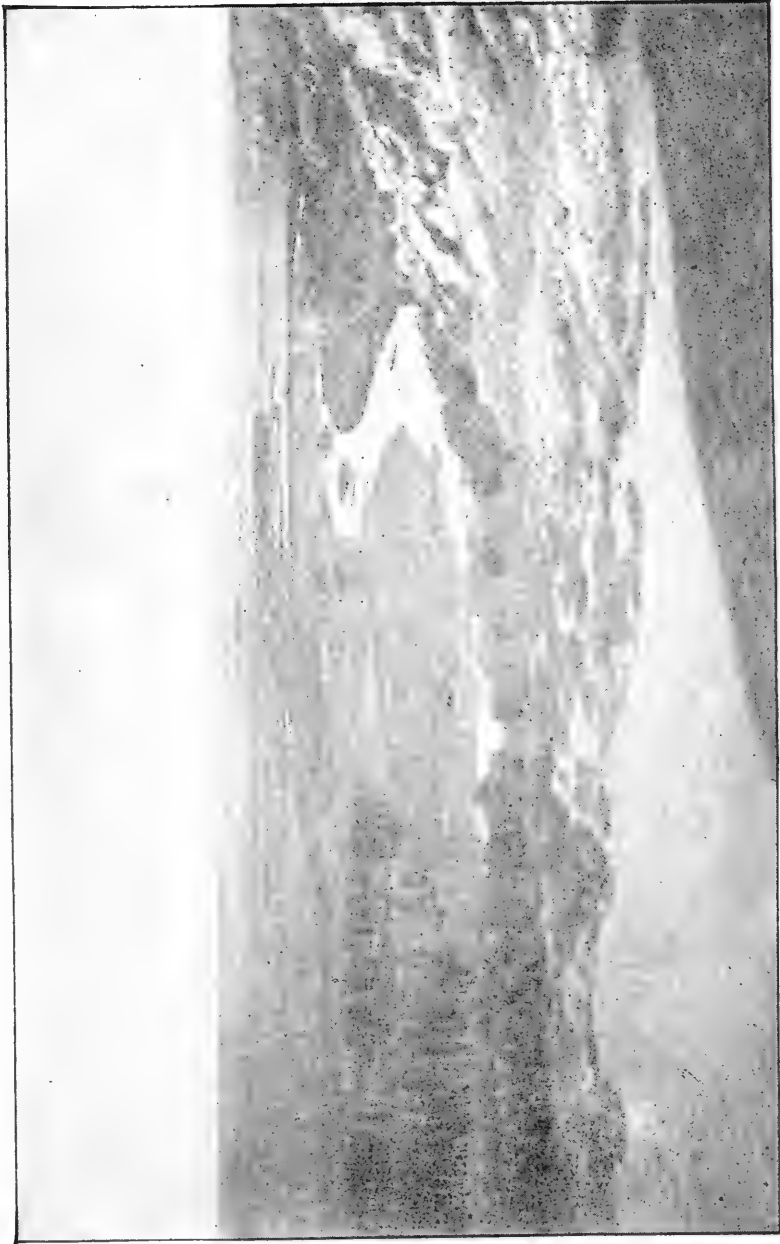
CHAPTER XI

GARDEN IRRIGATION

Water was applied artificially to a very large number of the competing gardens, some using it only at time of transplanting, or to hasten seed germination. But at least one in ten of the prize winners made irrigation an important feature.

In the older irrigated sections like California and Colorado, an artificial supply of moisture for fruit and vegetables appears almost a matter of course; so much so that in some instances the narrators failed to explain the method intelligibly, leaving the process to be inferred from the brief allusions made in the daily notes. In all such cases it is probable that the water was turned into the furrows from the irrigating ditch by the simple methods hereafter described. Given an abundance of water, irrigation is by no means a difficult and complicated operation. As the accounts show, the time required for the work is brief as compared with other garden operations, and anyone with a fair amount of general information on the subject should have no trouble even at the start.

Often a good chance for irrigation has been neglected because of failure to realize the immense advantage which a good water supply gives the grower of fruit and vegetables. Even in sections where the rainfall is large enough for the common farm crops, many prominent gardeners declare irrigation a positive necessity for intensive gardening on a large scale. In the semi-arid parts of the west and northwest, irrigation



THE SITE OF AN IRRIGATED GARDEN

is becoming firmly established and many of the prize winners there found it a great aid.

Water Saved the Garden.—A very fine garden was grown by W. T. Brickey, Hitchcock county, Nebraska, from whose description a good idea may be obtained of the special difficulties and methods.

Owing to the hot summer weather and the light rainfall in this section, says Mr. Brickey, it has



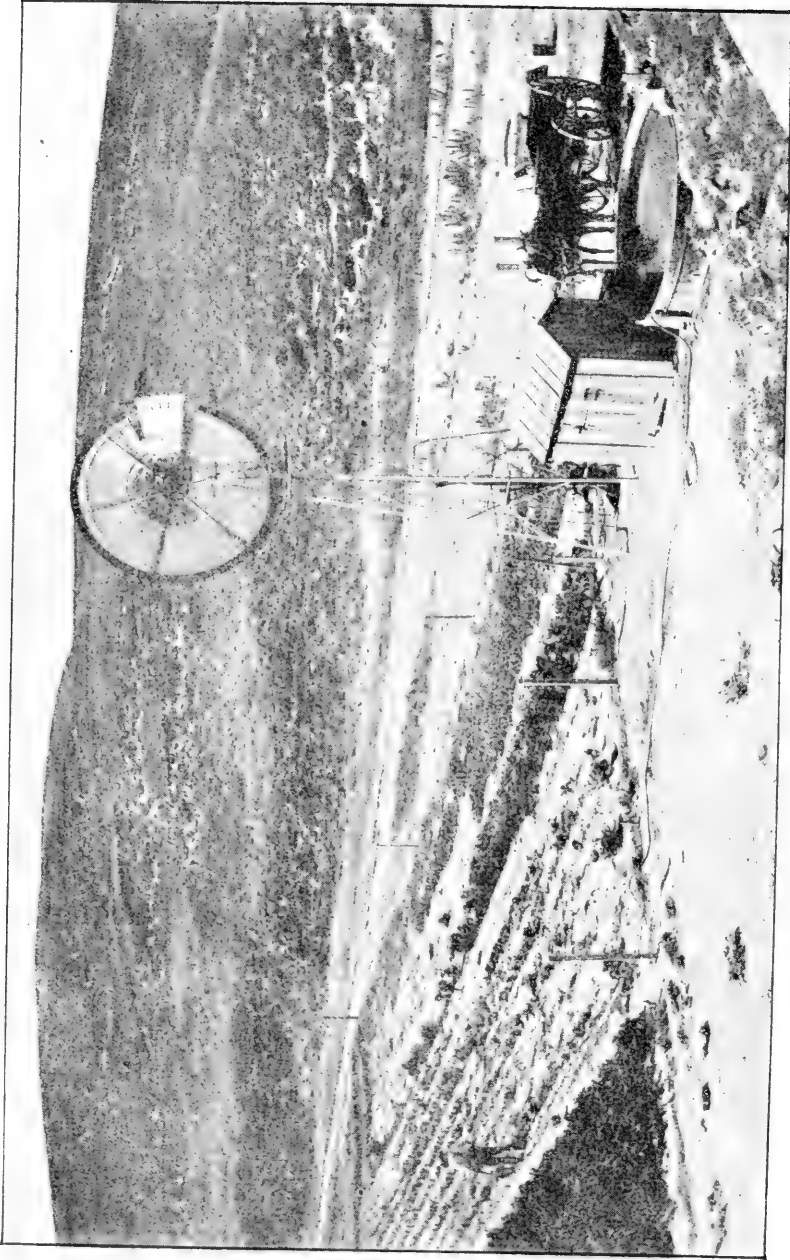
A NEBRASKA GARDEN SPOT BEFORE IRRIGATION

been found impracticable to grow a garden, only in exceptional years, without irrigation. In addition to this, of late years we have been afflicted with a pest of grasshoppers, thus making the growing of a garden increasingly difficult, so much so that few farmers even attempt growing anything in this line more than Irish potatoes, sweet corn

and perhaps watermelons, and even with these, failures have been more numerous than otherwise. To combat the drouth and outwit the grasshoppers are therefore the problems to be solved.

I level the garden by using a common road scraper, taking soil off high places and filling in low places, thus preparing the ground for irrigation.

The system of irrigation will be easily understood from the accompanying photograph. It contemplates only the use of surplus water not needed by the stock. The well is sixty-one feet deep. The pump is an ordinary force pump, two and one-half cylinder, placed two feet from the bottom of the well, with one and one-fourth-inch pipe. The windmill is a Perkins ten-foot, straight stroke, wood wheel, mounted on a twenty-two and one-half-foot steel tower. The water is forced through an inch pipe, from a back cock in the pump, to a trough in the milkhouse, keeping the milk cool and sweet during the hottest weather, and from thence overflows into a common round stock tank ten feet in diameter. Water not required for the stock was siphoned out with a three-quarter-inch hose and conducted to the garden. Frequently the hose was attached directly to the pump, but this was not so satisfactory, as the supply of water was not so constant, and resulted in the upper end of the row getting most of the water, except when the wind blew strong and steady. However, I satisfied myself that cold water, taken directly from the well, was as good for irrigation as that that had become warm by standing in the tank. The photograph shows the process of irrigating. The ditch between the rows was made by the cultivator, the teeth being set close together, and the water running from the tank through the hose into the ditch. Irrigation was given at any time day or night that the water could



(156)

METHOD OF IRRIGATING MR. BRICKEY'S GARDEN

be secured. The dry, porous subsoil easily absorbed any surplus. The difficulty was in getting enough.

I have experimented in a limited way in the details of irrigation. You will observe in the photograph two galvanized iron water tanks in which water has been kept during the season. Cow dung has been soaked in the water, which reached the plant in a liquid form. At intervals when hoeing I have poured it around a hill of pumpkins, a hill of watermelons, a hill of squash, a hill of corn, a hill of potatoes, a hill of cucumbers, a hill of cabbage, ten onions, ten beets, a mangel wurzel, a rutabaga, and instead of pouring the water on the hill, a basin was made in the ground near the vegetables that would hold one pail of water; two holes were made leading from the basin into the manure directly under the plants. Surface watering causes the earth to crust over and allows the roots to run near the surface. Unless the top of the ground is kept wet the plants suffer for want of moisture. My method sends the water under the hill and the roots dive deep to reach it. This method makes strong, vigorous, productive vines and plants, and the yield one-third larger and one-third more in quantity. The hill of pumpkins gave one pumpkin weighing eighty-one pounds, watermelon weighing forty pounds, squash, corn, potatoes, cucumber, cabbage, onions, beets, carrots, all were one-third larger than those not irrigated.

The ideal preparation of ground, according to my view, would be to begin in the fall and thoroughly pulverize the surface as deep as possible with the disk harrow. Then plow six or seven inches deep and repeat the pulverizing. Plow again crosswise, leaving the ground just as turned over by the plow until spring, then repeat the pulverizing process. This would give a deep seedbed thoroughly fined from top to bottom.

Irrigation should have been given during the early

part of the season when the windmill was standing idle. I did not understand then what an enormous amount of water is required for cabbage, and as frequent light showers were falling, I supposed the ground was sufficiently wet.

In irrigating tomatoes, a ditch was first made with the cultivator in the middle between the rows, using the three teeth set close together, or sometimes the large tooth alone. One end of the hose was then placed in the ditch and the other in the tank, making a siphon. The water was allowed to run in this ditch from two to six hours, according to the supply of water available and the requirements of the balance of the garden.

A net profit of about fifty-four dollars is recorded from Mr. Brickey's garden, but he believes that the experience gained and the pleasure of watching and caring for the crops amounted to far more real value than the cash balance. A good garden was so rare in his section that visitors came in considerable numbers. His calendar, condensed, is of interest as showing a gardener's routine in the semi-arid section:

February.—Made first order for seeds.

March.—Constructed a hotbed and cold frame No. 1, starting in these frames cabbages, lettuce, onions, tomatoes and radishes. Also began the preparation of the soil of the garden.

April.—Completed preparation of soil, transplanted cabbage from cold frame to open ground, sent second order for seeds, sowed onions, lettuce and radishes in the garden, constructed a cold frame for sprouting sweet potatoes in the bed, began irrigating the early cabbage, bought drill, wheel hoe, etc., fifty feet of hose and a lawn sprinkler.

May.—Completed transplanting early cabbage, began transplanting tomatoes to open ground, sowed early peas, early beans and planted early potatoes and

early sweet corn, transplanted onions from cold frame to open ground, made second sowing of peas, made a cold frame for planting melons and planted seed therein, sowed cabbage in open ground for late cabbage, cultivated all growing crops.

June.—Transplanted melon plants and planted melon seed in open ground, completed transplanting tomato plants, sowed late beans, thinned onions, transplanted sweet potato plants and late cabbage plants, applied insecticide for cabbage worms, cultivated all growing crops and irrigated as far as possible.

July.—Sowed turnips, also onions for sets, cultivated growing crops and irrigated.

August and September.—Ditto.

October.—Ditto. Also removed all remaining crops from the ground, completing the season's operations.

In the Lower San Gabriel Valley, a part of one of the most famous irrigated sections of the Pacific coast, was a thrifty and profitable garden managed by E. H. Ashley, Rivera, California, winner of the seventh prize.

The garden is in Walnut irrigation district, obtaining water from the San Gabriel river by means of a dam, the water being conveyed in dirt ditches. The preceding winter and spring (our season of rain) being exceptionally dry, irrigation has been practiced this year more or less all the time. In ordinary seasons, however, irrigation is resorted to from about May 1 to the end of September. The water right is paid for with the land, the water being practically free to the users, a nominal charge being made of fifteen cents per hour for a "head" of one hundred to one hundred and fifty "miners' inches" (or one thousand one hundred and sixty to one thousand seven hundred and forty gallons per minute). For garden purposes have used

but half a head at seven and one-half cents per hour.

The bare land itself, including water right, would sell for three hundred dollars per acre (the contestant having a mortgage of two hundred and twenty dollars per acre on ten acres). It would rent at about twenty-five dollars per acre. Interest at eight per cent per annum net. The whole garden equals eighty-nine-one-hundredths of an acre, value two hundred and sixty-seven dollars.

The work of vegetable growing in California is mostly in the hands of Chinese, who are behind the times in regard to methods of work, which makes their competition less keen than is usually supposed. The climate of southern California is not quite so favorable for vegetable growth as for trees. Plants take much longer to come to maturity than in the south or east, owing to the cold nights through the spring, causing the ground to warm up very slowly.

The planting season in this almost winterless climate began the preceding October, when cabbages were sown in seedbed for early transplanting. Garden work during December, January and February was much like that of March, April and May in the east. Asparagus, rhubarb, turnips, radishes and onions were ready to be gathered in March. Tender plants were set in April and grew slowly because of cool nights. Tomato seeds were drilled in the open ground, April 12, setting the drill the same as for radish seed, which proved about thick enough, and the plants were ready for setting May 25.

Rainfall from December 20 to November 21 was only seven to eight inches; a rather dry season for the locality. The time spent irrigating was twenty-two and one-half hours, charged at one dollar and sixty-nine cents or seven and one-half to eight cents per hour for the water, half a head being used for the garden.

This quantity is from five hundred and eighty to eight hundred and seventy gallons per minute, a sufficient flow to flood parts of the garden when desired, as shown in the picture of the onion patch under irrigation. When putting in a second crop the ground was usually flooded as a preliminary step. The onions and the berries were irrigated six times, or monthly from



IRRIGATING EGG PLANTS

February to September, from one-half to one hour each time. Most crops were flooded an hour at planting time. Tomatoes and cowpeas were watered once, sweet potatoes and cabbage twice, peppers four times, egg plants five, onions and fruit six times. One of the illustrations shows the irrigation of egg plants, in furrows between the rows.

Egg plant seems to have been the best paying crop, having sold about three thousand seven hundred pounds of fruit at average price of two and one-third cents per pound for eighty-seven dollars and twenty-six cents, and a net profit of twenty-four dollars. Peppers averaged about the same price per pound. Tomatoes brought fifteen cents per hundred and sweet potatoes one to two and three-fourths cents per pound.

The net profit of this garden was fifty-three dollars and five cents, but as Mr. Ashley did all the labor himself his actual returns, after paying bills, were two hundred and ten dollars and twenty-eight cents.

In the Mountain Section.—Among the difficulties which hinder the gardener in Idaho are the cold summer nights and frosts, which conditions make such crops as tomatoes, egg plants and sweet corn hard to raise, but correspondingly high in price. Mrs. W. S. Jackson, Idaho Falls, Idaho, tried raising these tender vegetables in an irrigated garden, but frost killed most of them. Other years she has had better success. The hardy plants like cabbage did well and this vegetable occupied a greater part of the garden. Receipts from the tract of one acre were one hundred and ninety dollars and two cents; expenses, one hundred and three dollars and twenty-seven cents; profit, eighty-six dollars and seventy-five cents. Writes Mrs. Jackson:

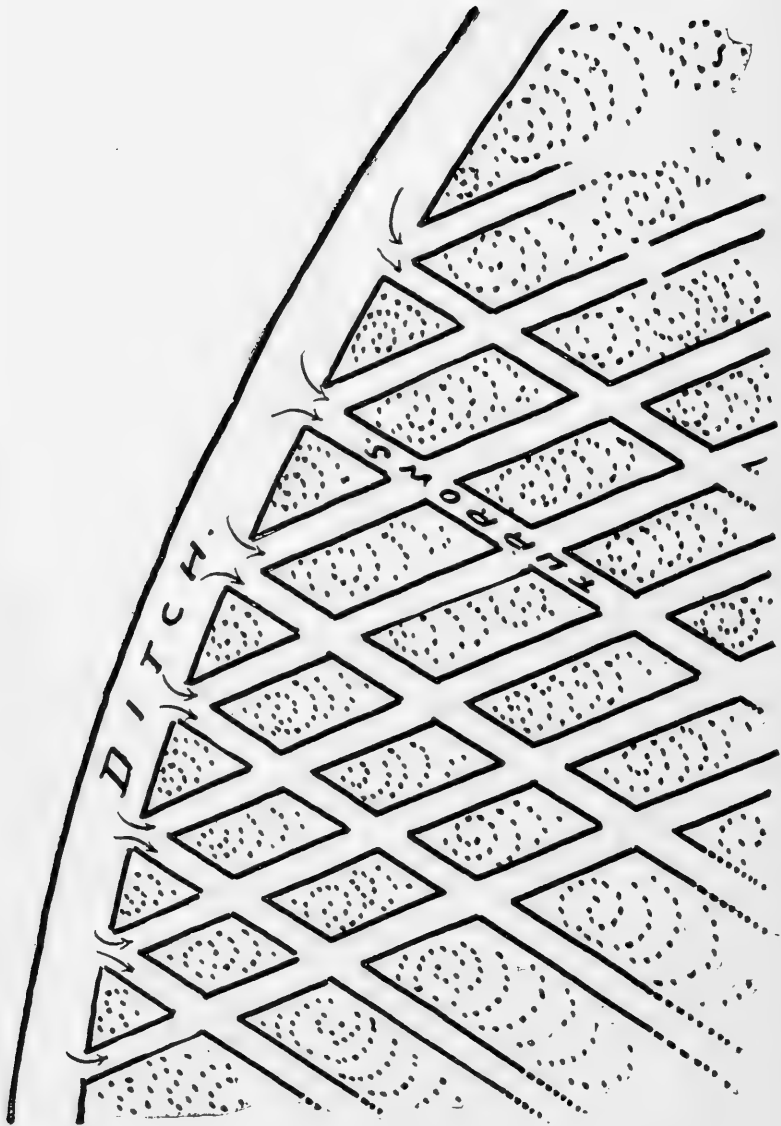
After we had plowed our garden we harrowed it crosswise of the plowing, after which we rolled it. Then we take a lister plow and ridge it; that is, we plow a furrow about every four feet. This is to make the ditches for irrigating. As this leaves the ridges too high and uneven, we take the harrow again and slant the teeth pretty well back and go over the ground lengthwise of the rows. Now it is ready to seed; with a drill it does not take long. We do not use the marker on these ridges, but take the drill and keep it as near

six inches from the edge as possible, putting two rows on each ridge. The ridges are just wide enough to average four to the rod. We wait for the plants to appear before we do any irrigating, as that chills the ground too much for the seeds to come well, and we can depend on enough spring moisture to bring them up.

When transplanting the cabbage to the garden, we set the plants two feet apart in the row and two rows on each ridge, setting the plants in the second row so they are halfway between the plants in the first row. As soon as a ridge is completed, the water is turned into the ditches each side of it and allowed to run until the ground is thoroughly soaked. Then they are watered about once a week after that, depending somewhat on the weather.

Taught by Practice.—After twenty years' experience irrigating garden crops, L. Matteson, Sturges, South Dakota, thinks the best plan is to lay out the garden in diagonal check rows as illustrated. The water can be turned in either direction and the crops may be cultivated in three directions. Some crops, especially tomatoes, are planted closely in double rows, leaving a double space between each pair of rows. Water is let down the narrow space between the two rows, thus, in Mr. Matteson's opinion, saving one-half the water. To prevent tomato rot, he irrigates thoroughly when the clusters begin to form. Prices for tomatoes in his market were one to two cents a pound. Irrigation every ten days was found also to check the lice and worms on cabbages, but if the lice were once allowed a start the wetting afterward did no good.

A Small Irrigated Garden, fifty-four by sixty feet, entered by S. W. Damon, Tehama county, California, produced twelve dollars' worth of vegetables at a cost of five dollars and sixty-seven cents. The land cost



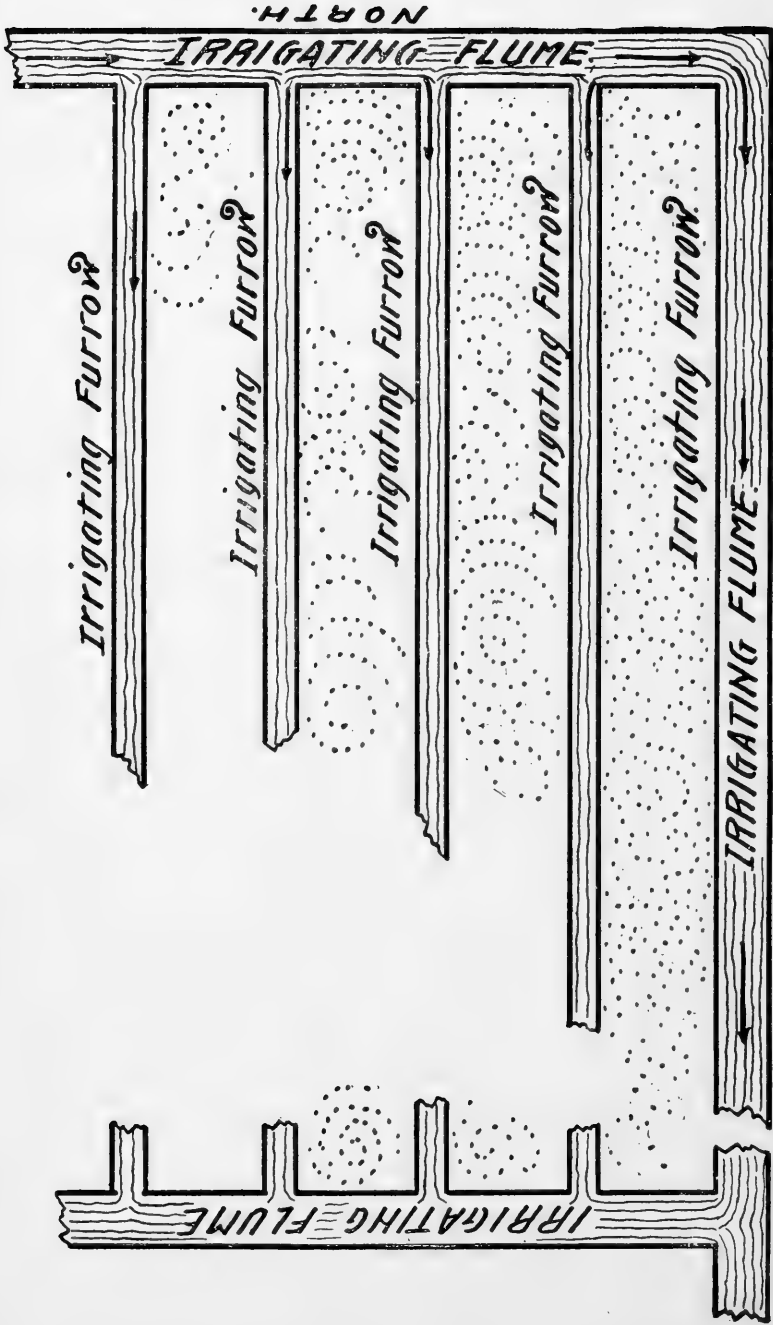
MR. MATTESON'S DITCH AND CROSS FURROWS

forty dollars per acre and twenty dollars per acre more to clear off trees and brush. Soil is heavy clay loam nine feet deep.

For irrigation, the land was laid off in beds three feet wide and water turned into the furrows between the beds. These furrows joined at right angles an irrigating trench which in turn drew its supply from a flume running along one side of the garden. Water when irrigation was needed was drawn from an inch hole bored in the flume where the trench joined it. The supply to the furrows was controlled by a board with two half-inch holes in it at junction of each furrow with the trench. When irrigating, the inch hole in the flume is unstopped, the water rushes into the trench through the small holes into the furrows between the beds, soaking into them and thus watering the plants. By plugging some of the small holes the flow can be limited or distributed as desired. Times of irrigation averaged about once in ten days, occupying ten to twenty minutes each time. Whole labor of irrigating was valued at forty-eight cents.

Watered from a Well.—A good well, a windmill and some piping and hose made a successful garden of D. S. Carnahan's quarter acre in Stafford county, Kansas. Value of product was sixty-seven dollars and sixty-eight cents; cost, twenty-six dollars; net, forty-one dollars and sixty-eight cents. Previous attempts without irrigation had proved failures.

To insure success in this part of Kansas, writes Mr. Carnahan, select ground where it can be irrigated. Then thoroughly prepare the ground by plowing deep; the deeper the better. Prepare the seedbed by making it very fine, as almost all garden seed are small and much depends on getting them well started. Cultivate the surface well, let no weeds grow. Do not let them



EAST
 PLOT OF S. W. DAMON'S WATERED GARDEN

get high enough to pull with the hand, but rake them out as soon as they show their heads.

In watering, the best results can be had by wetting the ground well, then letting it alone until it needs water again. Do not put a little on every day or so. This rule will apply to almost all garden stuff except tomatoes. A good plan with tomatoes is to keep them growing nicely until the fruit is well set, then wet them a great deal.

Sold to the Miners.—A location not far from the gold mines of Cripple Creek gave Philip H. Sheridan, Colorado, a good market for the surplus produce of his half-acre irrigated garden. Sales amounted to seventy-two dollars and cost was fifty-two. He writes:

The garden patch is adobe soil and contains a little alkali. We depend on irrigation altogether to grow our crops, but occasionally we have rains that help the crops some. Each time I irrigate the garden I charge one-half hour against it. The water is allowed to run on the garden nearly all day, so there is very little to do except to turn the water on and turn it off again when it is wet enough. Wages here are one dollar and fifty cents per day for men boarding themselves, one dollar and twenty-five cents for women and three dollars for team and man. I have from three to eight boarders during the season, and we consume nearly all the product, but any surplus we have brings a ready sale at a good price.

A Three-acre Irrigated Garden was managed with considerable profit by J. H. Crowley, Rocky Ford, Colorado. He used land one year from sod, valued at one hundred dollars per acre. Ten large loads of sheep manure and six barrels of hen manure were applied. The poultry manure was first soaked in a pit and then distributed by turning the irrigating ditch through the

pit. The effect of the liquid manure began to show in thirty-six hours.

Water was supplied the garden from a branch lateral ditch running at right angles to the seventy long rows which comprised the garden. Through inch-square openings the water was conducted between the rows along a small furrow made for it with a shovel plow or with a hand plow with furrowing attachment. Irrigation was performed about once in ten days, occupying only about fifteen minutes morning or night. Income from the garden was two hundred and thirty-two dollars and ninety-seven cents; paid for seed, twelve dollars and eighty-five cents; for manure, five dollars; labor, thirty-two dollars and ten cents; interest on land, thirty dollars; incidentals, nine dollars and seventy-five cents; total cost, eighty-nine dollars and seventy cents; profit, one hundred and forty-three dollars and twenty-seven cents.

CHAPTER XII

IRRIGATION IN THE EAST

Several of the best eastern gardeners felt that abundance of water was needed to make their work an absolute success. Asserts L. E. Dimock of Connecticut: "Irrigation facilities are much to be desired. Capital invested in windmill, pumps, etc., for the purpose of forcing water into a position that can be utilized would be a profitable investment; for in a dry season the supply of vegetables is short in general, and it is then that good prices are obtained.

"The hill that grew the largest pumpkin, eighty-one pounds, was watered three times a week through a wooden spout inserted in the hill before being filled, reaching the bottom. One pail of water once in three days was poured into the spout; in this way the water reached the bottom of the hill. The moisture being taken up by the roots is the correct way of irrigation. Water poured on the top of the soil causes the earth to crust over and retard the growth of plants. Moisture deep down causes the roots to run deep and by thus doing gathers nourishment. Hills thus treated produced pumpkins of a size much larger than where no water was used."

This chapter describes the several ambitious and systematic attempts made to secure proper conditions of moisture regardless of the season. Although the extra cost of outfit and labor was considerable, the watered gardens were usually very profitable.

Watering a City Lot.—Worn-out, weedy, drouthy and generally demoralized land made a good garden

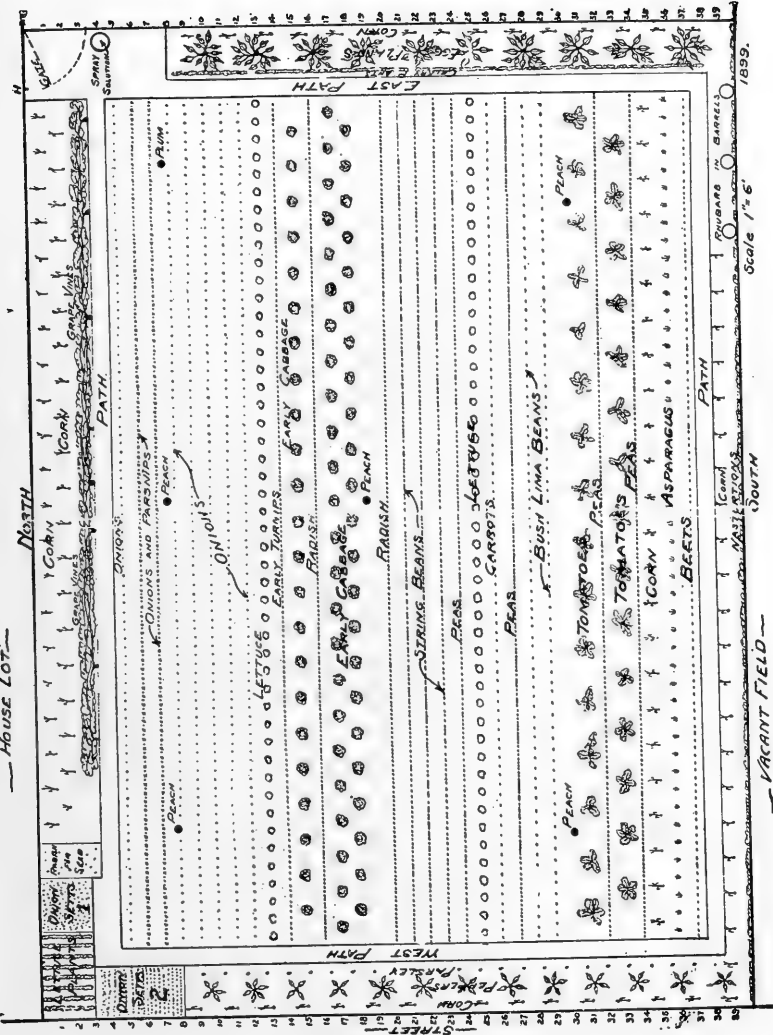
under good culture and the skillful irrigation methods of J. B. Reynolds, a successful contestant living in Burlington county, New Jersey. The location was house lot land on the edge of the city, and the soil had been "farmed to death" by cropping without fertilizing, until weeds were the only crop that would flourish. The garden was carefully planned. The plot of two



FRUIT TREES IN THE GARDEN

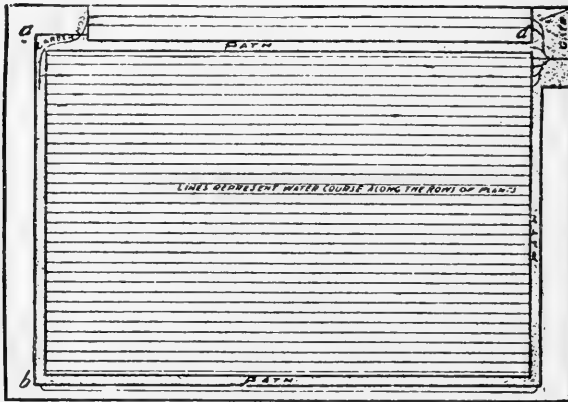
thousand two hundred and forty square feet produced vegetables worth twenty-nine dollars and fifty-four cents at a cost of nineteen dollars and ninety-two cents for labor and seven dollars and fifty-eight cents for other expenses, leaving two dollars and four cents profit. The irrigation is of special interest as described by Mr. Reynolds:

— House Lot —



MR. REYNOLDS'S GARDEN PLOT

When I first began gardening three years ago, particular attention was paid to the laying out of the garden for the purpose of irrigation. The ground originally sloped from *a* to *d* and *b* to *c*, *d* and *c* being about eighteen inches lower than *a* and *b*. From *a* to *b* it was practically level, while at the other end it sloped from *d* to *c*. In laying out the garden I raked and moved the soil so as to reverse the slope at each end. The result was if water is let in at *a* and directed south in the west path, which is depressed about three inches, it will flow to *b*, then to *c*, and so



IRRIGATION PLAN OF J. B. REYNOLDS'S GARDEN

along the east path to *d*. If I want to irrigate the plants of any given row, I put a dam in the west path opposite a point between this row and the next, and cut open the east side of the path opposite this row. The water will then run down the path to the dam, and so down the row and out of the garden at the outlet as indicated. One advantage of this plan is that I can irrigate on a hot day without scalding. If I want to water a row of radishes, for instance, I would first take the Firefly plow, set it down two holes, and strike a

furrow along the north side of the row, throwing the soil away from the plants, then turn on a gentle stream that will just nicely soak around the plants. After it is well wet in, run the plow the reverse way, throwing the soil back against the plants. If the soil becomes too wet, it is thrown back as soon as dry enough. The main point is to have a gentle stream. A fast one will overflow the furrow and run too fast and simply set the surface. This leaves the roots to grow near the surface and the plants show the effect of a hot sun. A slow stream soaks down, and I have often saturated the ground under the plant while the surface is yet dry.

Another advantage of this system of irrigation is the ease with which it is done. I can start in the water on one side of the garden and go to work on the other, only stopping occasionally to change the water from one row to another. I watered the row of early cabbage more than the others, and had them mature and out of the way in time for a crop of celery, while the last heads in the adjoining rows were not matured until a month after the celery was set out. The greatest advantage of irrigation is that you can get the water when it is needed, and do not have to wait for rain. Moles caused a great deal of annoyance, for many times I have found the water running down a mole hill instead of following along a row of plants. By using a blunt stick about one and one-half inches in diameter to punch down the earth the hole will soon be blocked up.

“Water, Soluble Fertilizers and Irrigation make a team that will work in dry weather,” concludes F. W. Kilbourne, New Brunswick, New Jersey, thirteenth regular prize winner, whose garden of one and three-fourths acres paid him seven hundred and fifteen dollars and fifty-three cents at a cost of eighty dollars and

sixty-three cents, the expense account not including cost of labor.

At a cost of ten dollars and fifty cents for three hundred feet of piping, the garden was connected with the city water main, and the water was distributed by hose. Water cost about one cent per barrel. "Beets, cauliflower and lettuce showed most quickly the effects of watering; the onions least of all, although the watering saved them. The farmers around had their onion crops all burned up by the drouth." Upon six rows of Parker Earle strawberries, the effect of watering in furrows opened between the rows with a hoe was to immediately increase the size of the berries. Berries not irrigated were a failure.

By "soluble fertilizers" Mr. Kilbourne refers to chemicals, mostly nitrate of soda, bone black and muriate of potash. These are not mixed, but are applied separately and worked into the soil. The potash is applied in winter or early spring, better results being obtained than from summer application. Bone black proved very good for radishes, and nitrate of soda for spinach. For most crops the three substances were applied in something like equal quantities. The land had been used for truck growing for the past twenty years and had been fertilized wholly with chemicals for three years past, yet the crops had constantly increased.

It was found that bordeaux mixture would drive potato bugs from egg plants, while wrapping in paper saved the egg fruit from a freeze. Lima beans were started in deep boxes in a greenhouse May 10, and picking began July 12. Onions too small to sell were used for pickling or saved for sets. Cauliflower with high fertilizing and irrigation proved very profitable, bringing eight to fifteen cents per head. It was a second crop. The twenty-one rows cost fourteen dol-

lars and fifty cents for chemicals, seventeen dollars for labor and fifteen dollars for commission on sales. There were sold one thousand four hundred and seventy head for one hundred and fifty-eight dollars and sixty cents. Profit on cauliflower, one hundred dollars and seventy-four cents, or nearly five dollars per row. Quoting from Mr. Kilbourne's journal:

June 24, plowed, harrowed and rolled strawberry ground for cabbage. On the 26th, marked out and let the water down the furrows. After the furrows were filled, spread broadcast fifty pounds muriate of potash, one hundred pounds bone black and one hundred pounds nitrate, most of the fertilizer falling in the furrows. We then harrowed lightly to mix the fertilizer and partly fill the furrows, then set the plants in the depression left, just covering enough to make them stand up. The plants were set three by two feet, then cultivated. It was the best cabbage I ever grew; not a single head missing and many of them were too large to go in a sixteen-quart basket. The six rows, one hundred and twenty in each row, were sold for three dollars a hundred. The rest of the plants I set on ground outside the garden that was heavily manured. They did well, but were not as good as those in the garden. I cut all the cabbage on this piece by the first of October and immediately plowed and harrowed in one hundred pounds of nitrate and sowed round-leaf spinach, which was by November 20 of a good size to winter over.

The celery plants in the seedbed were large enough by the last week in June to prick out, and we set them on a piece of ground where they were to be planted finally. After plowing a strip ten feet wide and two hundred and forty feet long we spread one hundred pounds of nitrate and one hundred pounds bone black. We harrowed thoroughly. Then with a

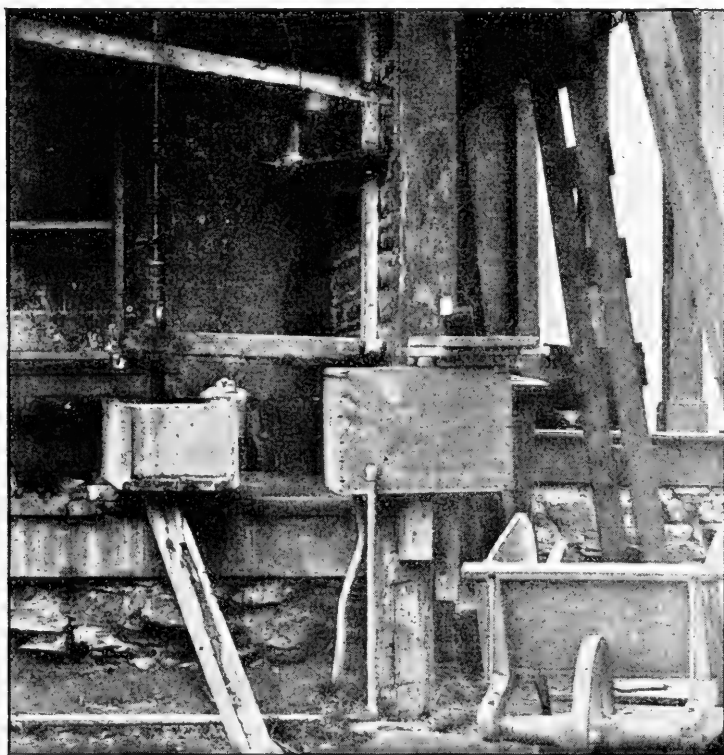
boy to bring the plants, my man and I set them in rows the short way of the piece, two inches apart, and the rows were one foot apart, so they could be worked. The boy brought plants faster than we could set them out, so he had time to water the plants as soon as they were set. The piece held fourteen thousand plants, which we were two days setting out. They should be set with care; if the root is doubled in planting, the plants never amount to anything.

The ground was in fine condition July 20, and we set eighteen rows in one day, four hundred to the row, setting in shallow furrows. Each plant had a big bunch of roots holding a ball of dirt. We watered the bed thoroughly before lifting the plants. When the plants were set we cultivated close to them, filling the furrows. We had fine weather for celery; not too hot and lots of rain, and they grew finely. When the plants were fairly started, I spread four hundred pounds bone black, three hundred pounds nitrate of soda and one hundred and fifty pounds muriate of potash, cultivating in. Cultivated once a week until September 21. On September 5, spread one hundred pounds nitrate of soda between the rows. Commenced banking every other row October 2.

Another Jersey Water Garden (Alfred P. Edge).

—The garden is situated about fifty feet from our kitchen door, and to a busy farmer this is very important. The busiest man has many an odd moment, waiting for meals, etc., when he can easily pick up a hoe and not having far to go can do much work and not miss the time. I have a windmill at the kitchen door to supply the house and barns; this I also use to flood my garden in dry times. We almost always have a drouth sometime during summer. The soil is naturally a heavy clay, but by careful handling its nature has been changed. My fence when I came was a

dilapidated paling with a one-foot board at the bottom; I knocked off the palings, but left the bottom board. I then tacked on woven chicken wire three feet high, and thus have a good fence four feet high and one that never gets out of order. If a chicken gets over, as they do sometimes in the spring, I at once shoot the chicken



INSIDE PLANT FOR GARDEN IRRIGATION

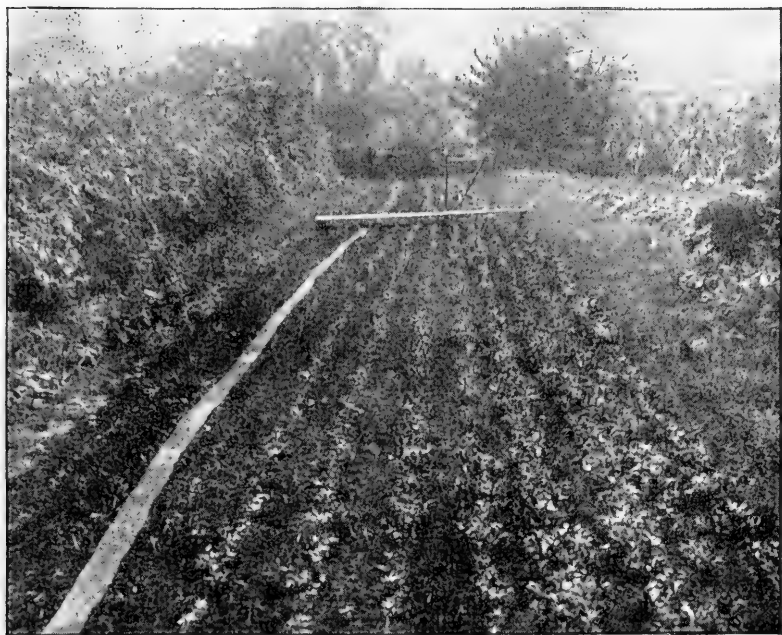
and the trouble ends, as the others seem to take the hint. The garden is all covered at present with a rank growth of crimson clover. This I planted last fall at various times as I worked each crop the last time. This I have done for several years. In the spring I mow the ground

at least twice before it is plowed, and feed it to my cows and thus get a flavor of grass in our butter long before pasture is ready. Plowing the green crop under has a wonderful effect upon a clay soil, as it lightens it up. The soil where the clover is growing can be worked much earlier than where the ground has been bare.

Owing to the fact that my garden has a slight fall from the upper end, it is very easy for me to irrigate any part of it. Some time ago I purchased a lot of second-hand inch pipe and valves for two dollars, giving me enough pipe for my garden twice over. The pipe I laid from my windmill fifty feet away, on the surface of the ground. The pipe has five branches; each branch has a valve cut-off, and there is also a cut-off in the main pipe between each branch. I have a barrel at the end of the pipe into which the pipe discharges. This barrel I always keep full, and from it I fill my water pots for special sprinkling.

When there comes a dry time I start the windmill, open the branch I wish to use, make a small channel with my hoe down the whole length between the two rows I wish to water. The water then runs by natural fall gradually to the bottom of the garden, and I can go away and leave it several hours at a time. Of course the fall is very gradual or it would not work; very much fall would wash. The windmill I have for my supply of water for the house and barns. It pumps from a well at the house into a box at the kitchen porch. The box has two outlets, one running to the barn and the other to the garden; when the water is running to the barn I stop up the other pipe. When things are well soaked I usually stop the flow and with my hoe I draw some dry earth back and fill up the gutter; otherwise I find the ground bakes when the water has been running, on exposure to the sun.

The only way I think I could improve on this plan would be to sink ordinary drain tile a few inches below the surface and run water through these. They would leak at the joints, then there would be no trouble with the ground baking. This I intend to try next year in my celery bed. With us if we do not have some easy



CELERY, DENIM HOSE BETWEEN ROWS

way of using water our gardens simply dry up, as we always have a drouth during the summer. This evening, May 7, I started the windmill, and with ten minutes' work with a hoe had the water running the whole length of my double row of peas, and down through the strawberries below. It would be an improvement if I had a bank in the garden so that I could

have an even flow ; when the wind is light the windmill does not pump fast enough.

I ran the water down the whole length of my peas May 29 to freshen them up, also down row of strawberries. I simply draw a hoe down where I want the water to run, taking only a few minutes. I start the windmill and go away and leave it an hour or so. This soaks the ground for more than a foot on each side of the trench, afterward cover the trench to stop baking. I do not often water the whole garden in this way ; only such things as really suffer in bearing, as peas, strawberries, egg plant, etc. Tomatoes I rarely water ; one year I overdid with my tomatoes and they went too much to vine. Water in the garden must be used with judgment. Because once in a while it is good, it does not follow that all the time is better.

For watering my celery when the plants are small, before they begin to spread, I have a different plan. Two years ago I purchased several yards of denim and cut it into strips and stitched it into a hose about one and one-half inches in diameter, and closed at the lower end. I lay the hose along the bed between two rows of celery, having fastened one end to my water pipe. I start the water and go away ; the pipe fills up the hose and the water creeps out in small drops all along the denim hose. The advantage of this is that the water comes out quietly and gradually, and the ground does not bake after it. It also moistens the ground slowly and evenly all along the bed at once. I tried muslin hose, but that is too porous and let the water out too fast. Denim is just right. If hose is open at the lower end it will carry water wherever wanted. It only leaks when under pressure. This hose I do not use after plants have begun to spread, as it cannot be got between the rows. The hose lasts

several years and the material only costs eight cents a yard. I have used mine two years, and it is good yet.

I boarded in my two oldest rows of celery September 7. I have a lot of old fence boards taken from a worn-out fence; they are five feet long by one and one-half feet wide. These I put up close to the outside row, holding them in place by stakes. I then put boards



IRRIGATING CELERY

in between the second and third rows, enclosing two rows; between these two rows I have a small channel for water. The boards enclosing the two rows are one foot apart at the bottom and slope nearer together at the top. The celery leaves now reach a little above the top of the boards. This is only for the two rows I wish to bleach for immediate use; the balance I simply

enclose by a row of boards on all four sides. This does away with all hard work of hilling up and enables one to raise much more on the same ground, and of course one can afford to fertilize heavily. This plan may have some drawbacks, but if it has I have not found them out. I also cover the tops of the two rows with pieces of old carpet to more effectually shut off the light. This weather celery requires air, so I generally throw off the carpet in the evening and replace it in the morning.

Trees in the garden are a delusion and a snare. They are always in the way and take up more room than they are worth. If anyone should ask for advice I should say never plant a tree in your garden. There is only one thing I know of worse than a tree in a garden—and that is two trees.

Everyone should have Japan wine berries; they come after raspberries and are very fine for anyone who likes an acid berry. They are also excellent for jellies.

I have raised two crops on nearly all my garden. On part of the ground I have planted the third crop. Where the celery bed was I first had early peas, followed by celery, which gave place to my trial strawberry bed.

To shade the plants as I transplant them until they get used to their new surroundings, I use four strips of muslin twelve feet long and nine inches wide, these I tack to small stakes, a stake at about every four feet. I stick them up along the row of plants set out and this shades them from the sun. The advantage of such an arrangement is that they are easily handled, and when not in use roll up into very small space and are always ready. Each day I set out just as many plants as I can protect.

CHAPTER XIII

EXPERIMENTAL GARDENING

Novel features were encouraged by quite a large percentage of the contestants. In some cases the new departure heightened the value of the account, while in other cases the unfamiliarity of the gardener with new circumstances greatly hampered his efforts. Some tried new crops or new varieties, others chose unusual locations, while still others tested untried methods and conditions. Many of these are necessarily included in other chapters.

Reclaiming a Waste.—The solid satisfaction of changing a half barren, stony, untilled tract of one-fourth acre into a good garden and incidentally winning the third Rawson special prize, belongs to C. P. Byington, Cairo, New York, whose little farm is located at the base of the Catskills, ten miles from the Hudson river. The description is from Mr. Byington's account :

Operations in the garden began when the owner moved on the place in the spring of 1897, and consisted mainly in the removal of dead cherry trees, currant bushes and stones; and incidentally, the removal of stones has formed the bulk of my operations ever since. As an evidence of what has been accomplished along this line, there is a solid roadbed for a distance of three hundred feet in the highway fronting the property, composed wholly of the stones removed from the garden; these stones, covered with coarse gravel, forming one of the best bits of road in the town. During the two years since April, 1897, the

garden had received just what fertilizer was produced on the premises, viz., the product of one cow, one hundred hens and twenty ducks, and has yielded seventy bushels of mangels, carrots and turnips and three hundred heads of cabbage, besides all the peas, beans, sweet corn and other vegetables except potatoes used in a family of five.

The soil is a shallow, sandy loam, containing a large admixture of small, shaly stones, and resting on a substratum of shale rock; a light, porous, quick-growing soil, at its best in a wet season, but lacking those qualities and conditions favoring the conservation of moisture. Another extract shows the thoroughness with which this rather unpromising tract was worked for results:

The entire plot was cultivated practically every other day except Sunday with double wheel hoes, setting the hoes quite close together and going astride the rows, cultivating both sides at the same time. The hoes not only cut every weed below the surface, but also break up the moisture capillarity, maintaining a fine loose mulch about an inch deep over the entire surface of the plot. Cultivation in this manner was begun as soon as the plants became visible, and continued regularly throughout the season, or until the cultivator could no longer go through the rows without injury to the plants. When the foliage of plants became so large as to interfere with cultivation, the leaf guards were added, thus raising the foliage out of the way of injury, and enabling cultivation to be continued much longer than otherwise could be done.

Taking into consideration the unprecedented drouth and the shallow, porous nature of the soil in my garden, I have every reason to be satisfied with the results obtained. That my garden was a success is attested by the fact that I exhibited eighteen varieties

of vegetables (all of them available for table use when exhibited) at the county fair held August 22, 23 and 24, winning the first prize awarded for the best exhibition of vegetables.

The results obtained have confirmed my judgment in making conservation of moisture the principal consideration throughout all my garden operations from the very beginning, and unquestionably, to my mind, the one factor which contributed more to that end than all else was the regular daily cultivation of one-half the garden, going completely over the entire garden every other day. This I would in no wise have been able to accomplish without my hand cultivators, one and a half to two hours each day sufficing for a boy to do what, by ordinary methods, would require a man nearly all the time to do less satisfactorily. By this means a fine loose mulch was maintained over the entire garden, in which the moisture capillarity was constantly broken up, and the moisture in the soil prevented from reaching the surface to be dissipated by the sun and air.

Total value of products, fifty-one dollars and ninety-six cents; fertilizer, twelve dollars and twenty-five cents; seed, five dollars and eighty-five cents; plowing and planting, three dollars and fifty cents; cultivation by man at one dollar per day, seven dollars and sixty-one cents; work by boy at fifty cents per day, four dollars and sixty cents; interest on garden and tools, twelve dollars and sixty-six cents; net profit, five dollars and forty-nine cents.

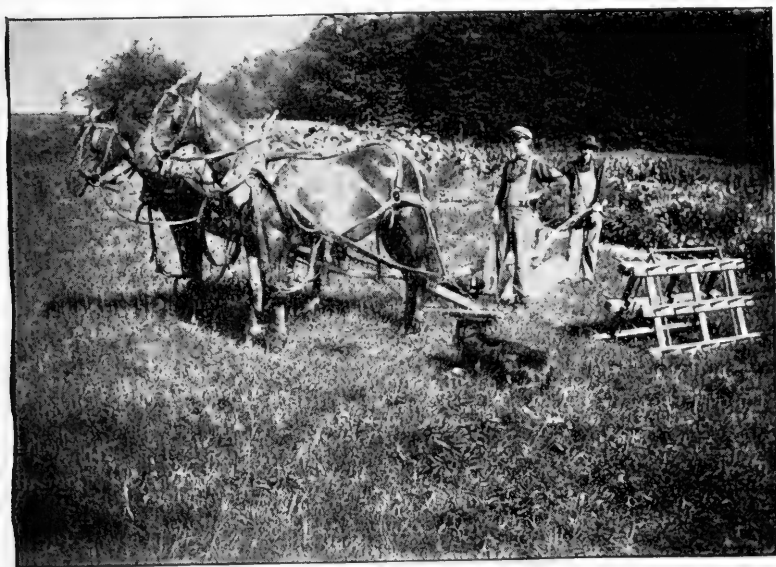
A Melon Garden.—An interesting story was contributed by W. D. Hinds, Worcester county, Massachusetts, who is one of the best known peach growers in New England. He selected a half-acre patch which two years before was rough, rocky pasture, cleared off part of the rocks and set it to peaches. As a garden

crop he chose muskmelons, as they would not injure the trees. A row of melons was carried between every two rows of peaches, also a hill between the trees in the rows. Spring tooth harrows and cultivators were found best for working such rocky land. Five loads of manure were used and one hundred pounds fertilizer. The plants were started in a cold frame from seed planted April 27. "Another year," writes Mr. Hinds, "I should start my seeds two weeks earlier, say April 12, so as to get the melons all ripened by the middle of September. When the first cold days come, people stop buying, and there is no fun or profit in peddling fruit when people don't want it. I should also use more chemical fertilizer another time."

Cutworms were poisoned with a little paris green and molasses mixed with eight quarts bran. The crop was peddled out, but was accounted at wholesale prices, and the total was one hundred and forty dollars and eighty-four cents. Charge was made for care of trees and credit allowed for their improvement. The net profit was thirty-seven dollars and four cents.

Testing the Soil.—A large handful of soil was taken from each of three places in the garden of E. R. Flagg of Massachusetts, and a test for acidity made with blue litmus paper. For this purpose a tiny booklet containing twenty-four slips of blue litmus paper, each about two and one-half inches long and one-half inch wide, was procured from a wholesale druggist for five cents. A little of the earth was placed in a cup and made into a thick paste by the addition of water. Then one end of a strip of litmus paper was pushed into the mud in the cup with the handle of a spoon, care being taken not to touch the paper with the moist fingers lest the color be changed thereby. The paper was allowed to remain in the mud for three minutes, when it was removed, the adhering mud rinsed off with

a very little water and the paper was pinned to the window to dry. The result showed the blue color of the litmus paper changed to a slate color with a reddish tinge, indicating a very moderate degree of acidity. Another sample of the soil was placed in a cup with sufficient ammonia to thoroughly wet and slightly cover it, and allowed to stand for twenty-four hours, when the liquid was found to be about as black as ink, indicating the presence of some organic acids.



READY FOR BUSINESS

Several Novel Features are included in the story of G. W. Everson, Montgomery county, New York, a Rawson prize winner. He gives the receipts of his one-thirteenth-acre garden by months: May, twenty-five cents; June, three dollars and thirty-three cents; July, five dollars and ninety-three cents; August, four dollars and fifty-four cents; September ninety-seven cents; October, four dollars and fifty-two cents;

November, two dollars and eighteen cents; total, twenty-one dollars and seventy-two cents. The labor for the seven months beginning with April was, respectively, four hours, five and one-quarter hours, nineteen hours, ten and one-sixth hours, two hours, five and three-fourths hours, three and one-fourth hours; total, sixty-eight hours, worth at fifteen cents, ten dollars and twenty cents. The owner thinks labor was much less because hand wheel implements were used. Poultry got into the garden and the damage was placed at one dollar, mostly to turnips and cabbages. Lettuce was grown between the rows of onions with some saving of space. Mr. Everson mentions a wet spot in his garden where the soil was lumpy and did not work up well. The cause was a snowbank which did not melt till late. If the snowbank had been scattered he thinks the trouble might have been prevented. "To work a garden early in the spring," continues Mr. Everson, "the garden should be plowed in ridges in the fall." The wheel rake proved a labor-saver in clearing off small stones. The wheel hoe with cultivator teeth was just the thing for hoeing peas. Sulphur proved a remedy for black cabbage fleas.

An Interesting Experiment with old, rough pasture land was tried by E. H. Boutelle of Worcester county, Massachusetts. The object was to make the crops pay for themselves and to take the profit in improvement of the land. The first item of expense was clearing off the bush growth at a cost of over nine dollars. The vegetables were sold on a milk route. Hen manure was bought at fifty cents per bushel and barnyard manure at four dollars per cord. The best paying crops proved to be squashes, string beans and tomatoes. The net gain was nineteen dollars and sixty-seven cents, also improvement of land, reckoned at thirty-eight dollars for the one and one-twentieth acres.

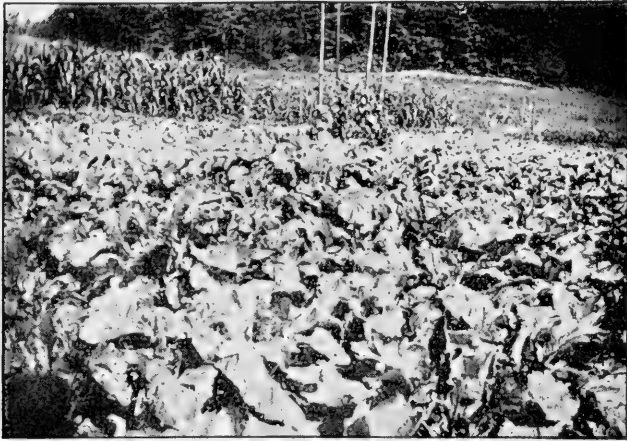
A Beginner's Success.—Having left a city home and a mercantile business to take up an abandoned farm in Worcester county, Massachusetts, neither his inexperience nor unpreparedness dampened the zeal of F. R. Trask. His success shows that his confidence and courage were not unrewarded, the garden showing a net profit of forty-four dollars and fifty-eight cents from one and one-fourth acres, and his account securing the seventh Rawson prize. Mr. Trask is evidently one of those men who bring from city to country an amount of vim and enterprise largely to offset their want of practice, and which enables them quickly to fit into the new conditions. His summary of lessons from his garden shows that he is taking time to think as well as to work:

Have ground planted and manured if possible in fall before. Use fertilizer freely. Plant rows apart so as to use horse cultivator, and use it freely. Use a horse weeder, and keep using it. It kills weeds. It irrigates. Plant the largest variety possible in sufficient quantities for home use, and if intending to market, plant such crops as are sure in large quantities. Plant some of everything as early as possible, and then plant at frequent intervals as late as profitable. I was frightened by some cautious friend crying, "Frost; wait!" Had I done as I wished and no frost came (as it does not at least half of the time) I would have been rewarded with early vegetables. On the other hand, had frost come, would not have lost much, for the second or third planting would have been safe.

Sell all surplus products. If the family cannot use them; do not let them waste, when many families in a neighboring village or city will gladly take all and pay retail price. To such customers smaller quantities of more varieties may be sold than to the wholesale trade.

A year ago "how to dispose of produce" was a serious problem, but the year's experience has solved it for me, although a stranger in a strange land. It is no longer a question of market, but how to produce and carry it to market.

Finally, read. Read agricultural papers, and read experiment station bulletins. Then think of what you read and what experience has taught, and after thinking, be prompt to act along the lines of an educated intelligence.



A WOMAN'S LUXURIANT GARDEN

Sold Produce to Indians.—A two-acre garden at Hominy, Oklahoma, under the skillful management of Mrs. Lizzie Snyder, yielded about two hundred and seven dollars, at a round profit of one hundred and fifty dollars. Soil was sandy loam, second year from the virgin sod, and part of a tract rented from the Indians at one dollar and a half per acre. Expenses were low on account of cheapness of manure and labor, twenty-five loads manure costing only three dollars, and all labor by man, woman and team about

twenty-eight dollars. Customers were mostly the neighboring Osage Indians, who seem to have paid prices fully equal to the average in other sections. The account received one of the regular prizes.

Saved Her Own Seeds.—Seeds for her garden cost Mrs. Alice C. Strader, Columbia county, Wisconsin, only ten cents, since she has for years made a practice of saving many kinds of vegetable and flower seeds from specimens of her own growing. Free seeds from the United States department of agriculture also helped out at planting time. The seed item in this garden shows a balance on the credit side, since the value of those saved far exceeds those planted.



MRS. ALICE C. STRADER

The one-third acre yielded thirty-three dollars and twenty cents, of which the largest item was seven dollars for fourteen bushels of tomatoes. Labor cost eight dollars and twenty-five cents, and manure one dollar and sixty-five cents at twenty-five cents per load. Net profit, twenty-two dollars and eighty cents.

High Feeding for Plants.—Interesting experiments have been carried on in plant feeding by G. M. Sherman of Hampden county, Massachusetts. His plan in brief is to supply liquid fertilizers by means of a porous jar buried a foot or more beneath the surface and filled from time to time through a tube projecting above the ground.

The roots of the plant or tree collect around the porous jar and absorb the fertilizers. Patent has been applied for. Mr. Sherman's experiments have been mostly confined to rose bushes, which in many cases appear to have made enormous growth, shoots extending several inches per day in some cases. The inventor expects the principle to prove of great value in cultivation of all kinds of fruit and shrubs and will attempt to have the theory thoroughly tested at the state experiment station.

A Born Horticulturist is Una E. Knight, Niagara county, New York. Her story is told in great detail, and evidently with keen delight in working amid the beauties of nature and among the plants and flowers of her garden. A great deal of work was put into this garden with no direct return; much attention having been given to various experiments which proved more or less indecisive because of the drouth, and from neglect caused by illness of several members of the family. Expenses for the one-tenth acre were nineteen dollars and three cents, of which two-thirds was for labor charged at low rates. Receipts were twenty-two dollars and eighty-six cents. A novel celery bed is described:

"Near the lower wall was built up a heap of manure a foot or more deep on which was placed four or five inches of fine earth, and all was enclosed in a box-like structure five feet high on three sides, and less on the north side, so I could get in. Here I transplanted my celery plants four inches apart. I watered them copiously from the well every day, or as often as I thought was needful. My plants grew into stocky clumps, some of them eighteen inches high; a red variety, and they blanched well without trouble. All I had to do was to weed and water."

This garden account received a regular award of ten dollars.

A Plucky Bay State Woman, Abbie E. C. Lathrop, Hampshire county, Massachusetts, not being strong and well enough to swing a hoe, did much of the weeding in her garden of one thousand seven hundred square feet with an old butcher knife, and the weeds were well conquered, greatly to the benefit of the gardener's health. She says: "The work of planting, tending and gathering was done entirely by myself, demonstrating that a woman, though not strong, may tend a garden, if she will but take the work leisurely. It is more healthful than bicycling. The keeping of accounts proved very interesting." The account was one of the best of those not winning a prize.

A Successful Garden was cultivated on the site of an abandoned brickyard by Jere Bradley of Berkshire county, Massachusetts, twenty-second regular prize winner. Soil was sandy loam with heavy clay subsoil; area about one-twelfth acre. The work was all done mornings, evenings and holidays, the owner being employed in a grain store. The system was to cultivate with wheel hoe in the spring, then mulch heavily, the result being a garden free from weeds. Hand wheel garden tools were used. Chicken netting was used instead of pea brush. Cabbage and lettuce were grown in a hotbed, melons were planted between rows of peas. Cultivation ceased July 4 and the ground was mulched.

The management shows skill in keeping a constant succession of market crops, giving something to sell almost every day to November 1. Drouth was fought successfully by frequently stirring the soil with garden implements.

Frost Every Month proved a serious drawback in the case of A. C. Butcher, Whitman county, Washing-

ton, winner of a regular prize of five dollars. However, the patch of a fraction over two acres netted him thirty dollars and six cents. The season proved too short for potatoes, cucumbers and other tender vegetables, but he thinks he might succeed next time by planting everything of the very earliest varieties. Corn filled poorly and only the early kinds would mature. Cabbages thrive, but early and medium varieties were best.

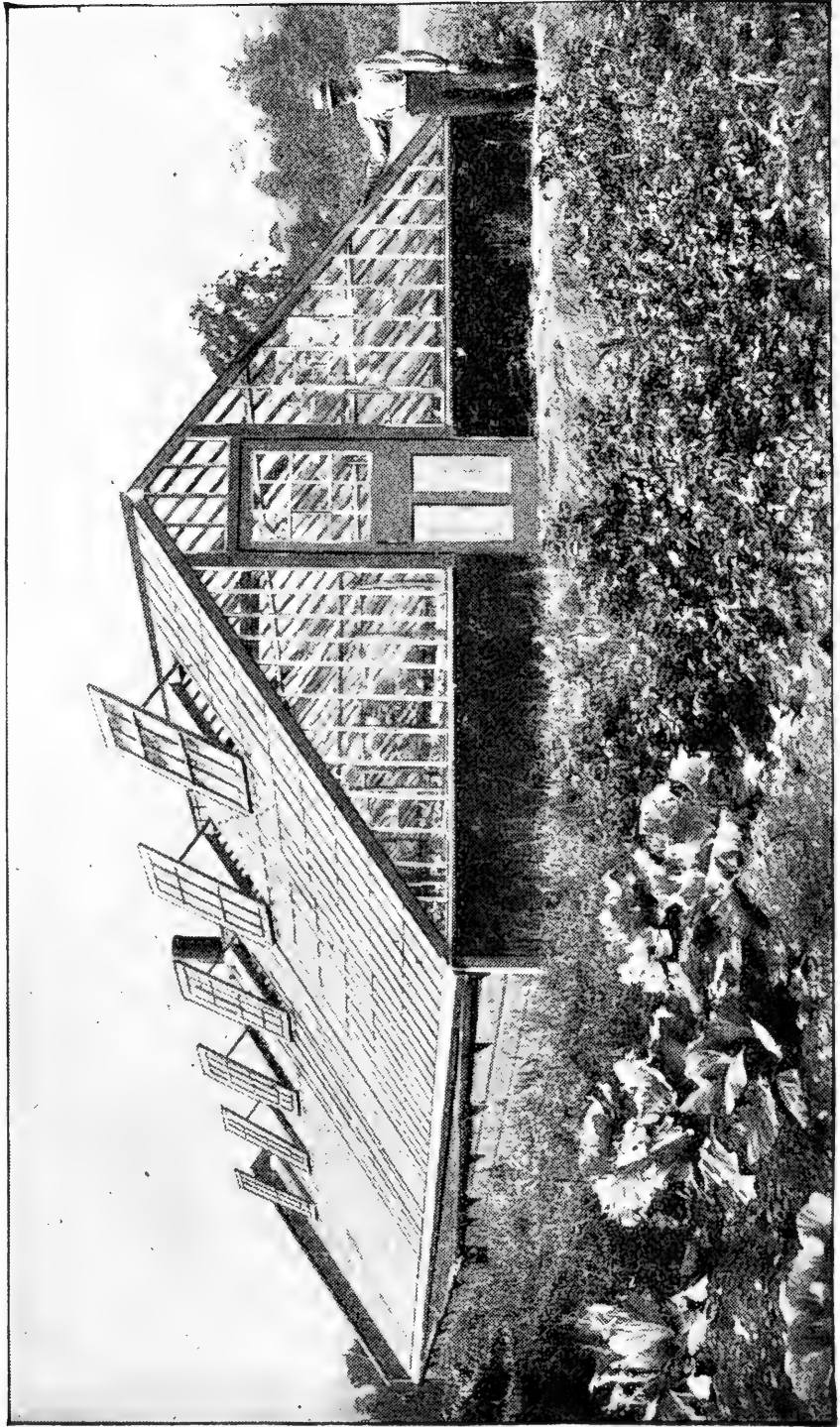
CHAPTER XIV

METHODS UNDER GLASS

For starting all early vegetables, a hotbed or greenhouse is absolutely necessary. The hotbed may be simply a frame of boards set over a pile of manure and covered with a glass or muslin sash, or it may be an expensive structure made by excavating a pit and building a masonry wall of bricks and mortar. This is the best sort of hotbed, and when once built will last for many years, and give better satisfaction than any other style. But the expense is something which the majority of farmers and gardeners cannot afford, so that a pit lined with two-inch plank is the next best substitute. But where gardening is carried on on a large scale a small forcing house or hotbed heated by a small stove will be found much more economical and satisfactory. The forcing house contains a larger amount of air and can be run at a more uniform temperature.

A CHEAP FORCING HOUSE

The ordinary style of forcing house, heated with steam or hot water pipes under the benches, is, of course, the best, but one in which bottom heat is given by a flue made by extending the pipe from the stove under the benches is quite satisfactory. Very good results have been obtained by John Frazer of Washington county, New York, one of the garden contest prize winners, by using a house which was heated with three stoves, one at each end and one in the middle.



A FARMER'S GREENHOUSE

The house was seventy by twenty feet, divided into a center bed nine and one-half by sixty-two feet, and two outside beds next to the wall, each three and one-half feet wide. All seed was sown in rows four inches apart. One outside bed was planted early in March to radish and celery plants in alternate rows, the radishes being harvested before the celery plants needed the room. The other beds were planted to lettuce, cauliflower, pepper, tomato, Prizetaker onion, beet and cabbage seeds. About one hundred thousand celery plants were grown on the one bed. Toward the last of April, sods were inverted on the benches, on which were planted cucumber and melon seeds. These were set in the open ground about June 1.

The hotbed should be placed on land always free from flooding, and with good subsoil drainage, protected from the north and west winds and facing south or southeast. The manure must be well handled, so that the fermentation may be prolonged. Rich, fresh horse manure gives a quick, fierce heat and soon subsides. Mix it with leaves or half-rotten straw, put in a pile and turn over two or three times at intervals of two or three days to get it well heated throughout. Put in the pit, tramp down firmly and evenly and put on the sash. After the heat has subsided to ninety degrees, put on four to six inches of soil, and when this is well warmed up sow the seed in rows four to six inches apart. Water with a fine hose and tepid water as needed. Give air on pleasant days, and protect during cold nights with a covering of salt hay, straw mats or old carpets.

A Farmer's Hotbed.—A hotbed such as is used by a large number of gardeners and farmers is thus described by J. E. Morse of Michigan, who won the grand garden prize of seven hundred and fifty dollars. The bed was six by twelve feet, sunk two feet

below the surface of the ground. In making the framework, hemlock lumber one inch thick was used and posts two by four inches at each corner and midway between. At the north side, the framework extended one foot above ground; at the south, it extended six inches above, giving a six-inch slope to the sash. The glass used in fitting sashes was eight by ten. Horse manure, which had been cured under shelter, freed from coarse litter and forked over a number of times, was solidly tramped down in the bed to a depth of eighteen inches. The sashes were then put on, and left for four days before adding the soil. After covering with soil, the bed was let stand for four days. This allowed the soil to warm up and weed seed to germinate. It was then raked over fine and even, and the soil firmed lightly with a wide board before sowing the seed.

A quick way of making up hotbeds is followed by W. H. McMillen, a large Wisconsin market gardener. He says: "I haul three good loads of coarse manure for each frame, pile it up and let stand for five or six days, then fork it over into another pile, when it will begin to heat, and then pile it over again, and when it is steaming well I pace off the size of the frames, spreading the manure evenly, fifteen inches larger each way than the frames, and tramp it down firm. I then place the frames, bank them up well and put on the sash, and leave it for seven or eight days. Then if the manure is heated evenly, put on about four inches of good earth and let down a sash at each end about six inches to allow the rank heat to escape. After the third day I sow the seeds. Great care must be taken that the earth is warm all through. When the plants are about four inches high, transplant to a cold frame, which is made on the same plan as the hotbed, except with a covering of cloth instead of glass."

Mr. Kinney's Plan.—The ground in the bed should be forked up as fine as possible and left soft and loose, according to the advice of F. L. Kinney, a prominent gardener of Worcester county, Massachusetts. Forest leaves are perhaps the best thing to put in to keep the frost out, and if there is danger of mice, it might be well to let the ground freeze a little before putting the leaves in, and it would be a good thing to put in a little corn and smaller seeds that have been sprinkled with poison while wet, so that the mice, should they find their way in, would not flourish. The bed is now ready to close up with the sash and shutters, and when the sash are all on, put in the last end piece. This work should be done before winter and the bed can be filled with the horse manure at any time.

Put in plenty of manure and cover with eight inches or so of loam. Lettuce is the one great crop that is grown under glass in winter and early spring, and to grow this to perfection it is very desirable, and it is often almost necessary, to have a loose, sandy soil. My soil is heavy and I have tried a great many things to put it in good condition for this crop, but have never been able to get perfectly satisfactory results. Heavy manuring and stirring the soil help considerably. Turnip radishes will grow on most any soil, but long ones need a loose, mellow soil and do not need so much bottom heat as lettuce or turnip radishes.

During March and April many of the sash in Mr. Kinney's place are used for starting plants. Cabbage, cauliflower, lettuce and early celery should be sown about the first of March for the first early crop. It is possible to raise fairly good plants by sowing thinly. We prefer sowing in drills and giving the young plants plenty of air, and when they have three or four true leaves, set them in a bed, about two hundred to the sash.

Items of Care.—In writing of the management of hotbeds, W. I. Anderson advises not to sow seed in them before the first week in March. Then sow cabbage, lettuce, radishes, beets and tomatoes. Use Early Jersey Wakefield cabbage, Grand Rapid lettuce, Egyptian beets, Dwarf Champion tomatoes, Early Scarlet Turnip radish, and it would be well to use Wood's Long Early Frame radish, too, so as to prolong the crop.

Be sure the heat is not too strong when you plant, as much seed is ruined because of this. Remember it gets hot quickly under glass when the sun shines on it, and small, tender plants will soon perish unless they get fresh air. But a blast of cold wind will kill them almost as quickly as the sun. Open the sash in such a way that the wind cannot hit them. In plants raised for transplanting, let your object be to get them stocky instead of spindling, hardy instead of tender, and healthy with a deep, rich green, instead of pale and sickly. Abundance of fresh air and sufficient moisture will do it. Keep as even temperature as you can. Do not hurry the plants. Good ones are better than quick ones. Water heavily rather than often. Stir the soil and keep it loose at all times. Give air as soon as the sun strikes the glass in the morning, but close up early in the evening. Let the plants have all the sunlight possible.

Some plants, asserts Mr. Anderson, such as onions, cabbage, lettuce, etc., will stand more cold than tomatoes, peppers, egg plant and the like. The proper temperature for these two classes differs almost twenty degrees. When possible, grow them under different sashes, where you can regulate the heat if you will remember what I said about constructing the hotbed. About April 1 the radishes ought to be ready to use.

As soon as removed sow in their place celery, peppers, egg plants and a second seeding of tomatoes.

Take the cabbage, lettuce and beets out of the hotbed some days before you plant and give them all the air and cold that they will stand so as to harden them. Then transplant cabbage four inches apart, lettuce five, beets in rows ten inches apart. This can be done in the open ground, as these things will stand freezing. Mr. Anderson has had cabbage plants in open ground when it was twenty-two degrees below freezing and they made good heads. But it will be much better, he thinks, if a frame can be around them over which coverings can be placed in freezing weather. As soon as the tomatoes are large enough, transplant them in the hotbed in the space before occupied by the boxes. They should be four to six inches apart and should remain there until they bloom.

Useful Details.—W. H. Pillon, Ontario county, New York, a leading special prize winner, gives details for forcing several kinds of tender plants, as follows: I sowed egg plant, tomato and pepper seed, March 30, in a small box in the house. Good garden soil was put in the bottom of the box with one-fourth fine rotted manure, filling within an inch of the top, then one-half inch of woods mold. I made little drills three inches apart and one-half inch deep, with a pointed stick. I sowed the seed in these drills and covered lightly, using a case knife and pressing the soil upon the seed with the knife. I used small plant labels, numbered, between each variety of seed. I also kept a record in my diary so that I could tell where each variety was when I wanted to place them in the hotbed.

After sowing, I watered the soil and covered it with a cloth. In three days I watered it again, dropping the water upon the cloth, and after that whenever the soil seemed too dry. The box was kept on a small

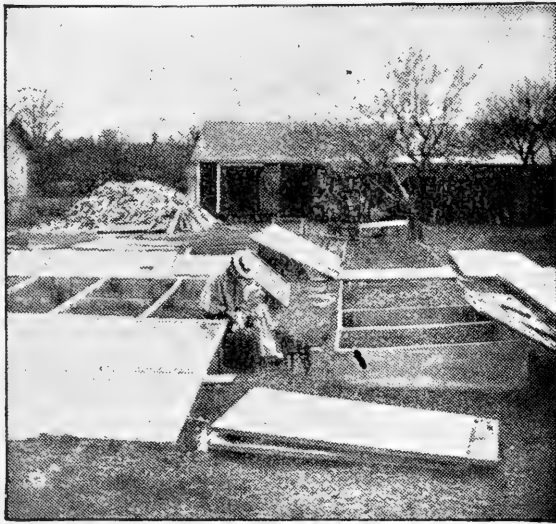
table close to a south window, in a room where a coal fire was kept night and day. At night the box was moved near the stove. Tomato seeds came up finely in seven days, egg plant and peppers fairly well in fourteen days. As the seeds came up the cloth was removed and the box turned each day so as to have the opposite side placed next to the window, as the plants will lean toward the light.

I made a hotbed, April 10, using three sash frames I have had five years. I took out last year's dirt and manure, and in the bottom put two loads of horse manure. One man threw in the manure while another kept it evenly spread and trodden down; not very hard, but so as to keep it from settling. Then four inches of last year's dirt was thrown in, and about an inch of fresh black garden mold spread over it. With a garden rake I drew out all the coarse lumps, leaving the soil fine. The sash was then put on and kept closed night and day, until I sowed some seed. I banked up with dirt outside the frame to within one or two inches of the top of the frame, the bank of last year having been allowed to remain in place the whole year.

Sowed in the hotbed, April 13, cabbage twelve varieties, broccoli one, cauliflower two, lettuce one, asters six, mignonette one, pansies one, verbena two. I made drills four inches apart, one-half inch in depth, with a pointed stick. I sowed the seed in the drills and covered them by brushing a garden hoe lightly over them lengthwise, which also pressed the soil sufficiently close to the seed. I kept a record of the sowing and marked the different varieties with a numbered plant label between each two kinds. The soil was watered with a fine-nosed watering pot and covered with a cloth. After this the bed was watered every two or three days as seemed necessary. When plants came up the cloth was removed. The sashes were kept closed

most of the time after sowing the seed, occasionally some air was given by raising the sashes an inch. After the plants were up, some air was given every day and a good deal of it when the sun shone brightly, to prevent the stems rotting off close to the ground, thereby losing the plants. I find cabbage more susceptible to this disease than tomatoes, although any plant will suffer if not properly aired.

I pricked out tomato plants, April 20, from the box, and placed them in the hotbed four inches apart



HOTBEDS AND COLD FRAMES

each way. The plants were taken from the box by thrusting a case knife below them, holding the plants by the top with one hand while raising the knife with the other, thus avoiding breaking the roots. A hole was made for the plants with a wooden drill. The plants were placed in the hole and the dirt pressed firmly up to them, then some loose soil was drawn up to them on the top of the ground. After being set they

were watered, and while the sun shone, from 9 a. m. to 4 p. m., the sash over the plants was covered with a cloth for two days. They were watered and aired as required, and the ground stirred about them with a dung fork about once a week until they were ready to set out of doors.

A Very Practical Gardener and contestant, G. J. Townsend of Wayne county, New York, describes his successful hotbeds and cold frames as follows: My hotbeds are eighteen feet long and five feet wide. Used two-inch plank twelve inches wide. The most of the sashes are three by five feet. Some are three by six feet, but the three by five feet are the most convenient size. I dug out about two feet deep, filled with good fresh horse manure that had commenced to heat. Tramped well, then put on about four or five inches of dirt that had been worked well the year before, and middling dry. I put on the sashes about three or four weeks before making. Work over the dirt some and the sun will dry it out; then shovel it out one side, and take out old manure and put in fresh. The best dirt is a good sandy loam. Put on dirt and sashes, let stand for a week or so until rank heat passes off. Give air in the daytime. Put a thermometer in.

I worked the dirt fine on a sunny March day in the hotbeds and sowed the seed one-half or three-fourths inch deep in drills three inches apart. I sowed and covered by hand, then watered them. Gave some air on sunny days. When tomatoes are up keep watch of the thermometer that it does not get below forty-two or above eighty long. Let air in on sunny days from nine or ten o'clock to about three or four, and a little on cloudy days if not too cold. To let off dampness when tomatoes come up until second leaves appear, water very little, but keep the ground just moist. If they commence to damp off I loosen the ground

between the rows with Hazeltine hand weeder. Water toward evening, taking the chill off in cold weather. On cold nights I cover the sashes with canvas or blankets; if very cold with fine hay or horse manure. When tomatoes are about three inches high I transplant them to cold frame.

In April I make cold frames same as hotbeds, except use no manure. Set tomatoes in cold frame



MR. G. J. TOWNSEND, HIS WORKSHOP AND COLD FRAMES

about three inches apart. Take a strip about three inches wide and four or five feet long to mark out with. Have the ground mellow. Make hole with right forefinger. In this way I can set three or four thousand a day. If boxes are used they should be made in the winter time. I buy boxes for about five cents apiece at the grocery store that will make from two to twelve dozen plant boxes. I use glass for the cold frames the

first half of April, and five or six-cent cotton cloth the last half. Cold frames need covering every night the first half of April with canvas or blankets. I lost three hundred tomato plants in cold frame by frost by not doing it. Water just enough to keep them growing. About a week after they are set out stir the dirt with a hand weeder.

Massachusetts Methods.—Writing along similar lines, a prominent and successful contestant, E. R. Flagg, Worcester county, Massachusetts, thus describes his methods: April 29 a cold frame was prepared by placing four boards, each about a foot wide, together like a box without top or bottom, so as to enclose a space six feet square. On top of this frame were placed two hotbed sash, each three feet wide and six feet long. The north side of the frame was raised enough to give the sash a pitch of about four inches toward the south. Eighteen inches in thickness of stable manure was banked about the outside and up to the top of the frame.

May 1, the glass was removed and the rich soil enclosed by the frame was spaded up, thoroughly fined, and sufficient soil added to bring the surface, when leveled, about six inches from the glass. A wheelbarrow load of well-rotted stable manure, two quarts of unleached wood ashes and eight quarts of sifted hen manure were evenly spread over the surface within the frame and thoroughly mixed with the soil. The surface was then well raked, all lumps removed, the earth well pressed against the sides of the frame with the head of the rake, and a final raking left the surface of the soil everywhere equally distant from the top of the frame and the glass.

The pressing of the soil against the inner side of the frame is important in order to prevent uneven settling of the earth after the seed is sown. An uneven surface

makes the even and proper watering of tiny plants impossible. After the soil was prepared the seed was sown.

The radish seeds were sown in rows where they could mature, and the other seeds in squares of one foot or less. All seeds were covered by sifting on a thin layer of rich earth and fine sand, equal parts, well mixed. The depth of covering, as a general rule, should not exceed twice the diameter of the seed covered.

The different varieties were marked by small strips of shingle on which the name of the variety was written in pencil. Care was taken in sowing, to separate varieties of the same kind of seed, as All-head and Sun-head cabbage, by some other seed, as tomato or onion. In this way there was no difficulty in identifying all the varieties.

The seeds above named occupied about two-thirds of the area of the frame, and a few flower and other seeds were sown in the spare corner. The earth was gently firmed over the seed by moderate pressure on a bit of board, and a pail of water, moderately warm, was applied with a watering pot having a fine nose. The sash was then placed on the frame and closed down. During sunny days the upper end of the sash was raised an inch or more for ventilation, and luke-warm water was applied when the soil appeared to require moisture.

The seeds were sown May 1, and on May 4, radish, lettuce and cabbage plants were breaking the ground, followed two or three days by the other varieties, excepting parsley, which requires more time for germination. The frame was covered nights with two old blankets, as the nights were cool and frost occurred on May 4, 13, 15 and 22.

As the plants grew larger and the weather became warmer, more ventilation was given by raising the sash at the top and bottom. Warm water was still used, but care was taken to apply only so much as the plants required for thrifty growth. Too liberal watering and too little ventilation induce the rotting of the stems of the plants, known among greenhouse men as damping-off. May 18, the radishes were forming bulbous roots, and lettuce, cauliflower and cabbage plants were of sufficient size to transplant into the unoccupied space in the frame. May 20, the radishes were large enough for use and some were pulled for the table. As the weather grew warmer the ventilation was increased until the sashes were removed altogether and the frame was covered with netting; two-inch mesh was placed over the cold frame to exclude chickens. No future care, except occasional watering, was required while the plants remained in the cold frame.

Forcing Cucumbers and Tomatoes.—Some of the essentials are described by G. C. Stone, a Massachusetts expert: Cucumbers, he asserts, require a temperature from sixty-five to eighty-five degrees. They are not especially sensitive to mechanical conditions of the soil, neither do they respond very quickly to fertilizer. A good soil for cucumbers is one made of rotten sod and horse manure. This makes a light, pliable soil.

They require all the light possible under glass, especially November and March, a matter which is too little understood by those growing cucumbers. Some of the so-called diseases can be traced directly to the lack of light in the house. This is especially true where growers have resorted to the practice of using two layers of glass in their houses. The plants under such conditions become yellow; they cannot assimilate the carbon dioxide from the air properly, as the light is

largely excluded by the two layers of glass and the usual two accompanying layers of dirt.

There are ten fungous diseases peculiar to the cucumber. The wilt is peculiar to outdoor cucumbers. This is caused by bacteria which plug up the vessels, thus interfering with the water supply. This has not been seen on outdoor cucumbers in Massachusetts.

The powdery mildew is more or less common and can be controlled by attention to moisture conditions and light. It is seldom found on vigorous plants of good texture.

The damping fungus is troublesome to young cucumbers and can be prevented by sterilizing the soil.

The anthracnose would seem to be caused by too great a difference between the day and night temperature. On this account it is far more common in the spring in greenhouses when the fires go out.

Besides fungous diseases there are two or three troublesome pests which belong to the animal kingdom, known as aphid and thrip, both of which are controlled by tobacco, and nematodes, which give rise to galls on the roots and can be controlled by the application of heat or by thorough drying of the soil.

Tomatoes require similar temperature and moisture conditions to those of the cucumber. There are some twelve fungous diseases recorded for tomatoes, but the fruit rot and mildew are the most troublesome diseases of these parts. These can be controlled by spraying. They also, like the cucumbers, are subject to nematodes and the same method of treatment applies to both.

Forcing Lettuce.—The ideal soil for lettuce, according to C. E. Hunn of New York, would be a well-drained gravelly or sandy loam, but with care in watering, a soil of heavy texture may be made to produce excellent crops of the loose, open varieties.

The heading or cabbage lettuce is more exacting if a fine quality is desired. The first crop of lettuce from the houses should be ready to use by the middle of November.

For this crop, seed should be sown in September, allowing on an average from six to eight weeks for the crop to mature. A temperature of fifty-five to sixty degrees through the day, with a drop to forty-five at night, will suit all varieties, but in the case of the heading varieties a rise of five to ten degrees at the time of heading will finish off the crop more uniformly.

According to Hunn, the construction of a house for forcing winter vegetables is not a matter of first importance. The three-quarter span house perhaps furnishes as nearly as possible the best condition for forced crops. However, an even-span or shed-roof house grows many crops to a high degree of perfection. As for the inside arrangement of the house, the crops to be grown will have much to do in the matter.

Cool-house crops, as lettuce, radish and the like, are well grown in solid beds, while heat-loving plants, as tomatoes, cucumbers, melons, etc., should be planted on benches built over the pipes. This means that the cost of building a greenhouse depends very much on what crop one expects to grow. The saving in benches and heat in houses devoted to cold crops is considerable, while the ease with which such crops may be grown recommends them to the beginner.

A Minnesota Competitor made a cold frame, April 14, for tomatoes and early cabbage, taking two boards five feet long and one foot wide for the sides, and two boards three feet long and one foot wide for the ends, and made a box with no bottom to it. He set the box in the ground about two inches; dug up the ground on the inside and sowed the seeds. Then he took one of

the storm windows from the house and placed it on top of the box, and the cold frame was complete.

Coal the Best Heat.—Every farmer should have a house garden for winter vegetables, either under a glass roof on the dwelling on the south side, or near. Instead of burning manure to start plants for the farm, they should be started with wood or coal heat. The coal heat is easier to regulate and those who have used both think it the cheaper. We have grown two hundred dollars worth of lettuce in a winter when we had five to seven cents for ten radishes, and six dollars to seven dollars and fifty cents a barrel for lettuce.—[R. Bingam, New Jersey.

Small Frames were made by a New York gardener, the sides being of two pieces of seven-inch board, each eleven inches long, and two pieces of six-inch board, eight inches long, for ends. No top or bottom, Nail them flush at the bottom, so as to make a frame eleven inches long by ten inches wide outside, and nine inches long by eight inches wide inside, with the top edges of the side boards rising an inch above the end boards. Now lay an eight by ten-inch glass between the projecting sides, one-half inch resting on each board. Secure it from slipping by a big-headed tack at each end. Then set it over the freshly planted cucumber or melon hill. It protects from frost, serves as a forcing frame, and keeps off insects while the vines are small. Made on rainy days, of waste boards, they cost nothing but the glass.

CHAPTER XV

SUCCESS WITH SPECIALTIES

While the prize gardens usually contained a full assortment of vegetables, and often of fruit and flowers also, the description in many cases showed that the gardener was more or less of a specialist with some one or two crops. He had grown these leading crops with distinct success and was thoroughly at home in relating the details of their management. Many of these special descriptions are included in the general garden accounts in other chapters, the others are grouped together here under the various crop headings.

Potatoes in New Jersey.—In northern and central New Jersey white potatoes are a staple crop, and the methods are labor-saving and businesslike. They are well described by A. Engle Haines, a Burlington county grower. A rotation followed brings potatoes on same ground once in five years, corn being the preceding crop. After husking in November, New York horse manure of best quality is spread on rye, which is sown to plow down, at the rate of twelve tons per acre. Plowing is commenced about April 1.

The seed is purchased in Aroostook county, Maine. Fertilizer is applied at the rate of one thousand pounds per acre, in rows two feet nine inches apart. Rows of this width are desirable on account of vines covering ground entirely before hot weather. Fertilizer should not have less than ten per cent potash.

The seed is cut, as far as possible, to one eye, and plaster put on immediately. Cutting should be done

four days before planting, so as to heal. Planting is deep enough so ground may be harrowed across the rows, thus disposing of first crop of weeds.

The weeder is used every three days in the afternoon, and never in the morning, until after sprouts are large enough to be cultivated, which is done alternately with a one-horse peg-tooth and a two-horse riding cultivator.

The one-horse arrangement pulls the dirt away, while the two-horse tends to ridge, and by using both the soil is kept perfectly level, which is very important, especially in time of drouth. The weeder follows every cultivation until plants are twelve inches high, making the ground fine and breaking crust around the stems. The ground should be stirred at least every week and oftener if it rains oftener.

During the season of 1900 there was a very severe local drouth, no soaking rain falling during growing season. We succeeded in harvesting a crop of potatoes that year with only six per cent culls. The variety depends on kind of ground, location, etc.

Late Planted Crop was produced with success by R. Bingam of New Jersey, who writes: We are trying to improve farm practice by earlier planting in the south side of ridges thrown up in furrowing to get more sun heat and protection from north winds, and by covering with dry weeds, leaves or hay to protect from frost in early spring or late fall. I have potatoes still green November 21, by covering three times, and on an adjoining farm those planted August 9 were killed October 2. Ours were planted September 7, and are fair size for planting. We make our rows closer and have put one plant in a place, getting more plants per acre and giving each more room to feed in. Instead of placing the food below the roots, where it obstructs the rise of moisture in time of drouth, we place it on the

surface, where it conserves moisture, and rains carry it to the roots instead of to the rivers, as is the case when placed below in our leachy sand. We use rakes for close work among plant roots instead of hoes.

The Potato Field.—Potatoes are first plowed out, then picked up and carried to the cellar. The ground is then harrowed and gleanings picked up. The field is then plowed deeper and harrowed again. By plowing deeper the deep-growing potatoes are thrown out.—[Enos Elton, Douglas county, Nebraska.

I do not believe in planting potatoes early. By watching other people's patches, I have decided that it does not increase the yield to freeze off the tops.—[J. L., Tompkins county, New York.

People that use small potatoes for planting with the idea of saving, lose bushels to save pecks. Large seed potatoes at three dollars per bushel are preferable to small ones as a gift. The potato bug must have attention. Paris green is generally used; a preparation called Bug Death is far superior. One application when the dew is on is sufficient for the season. It adheres tenaciously to the vines.—[L. E. Dimock, Tolland county, Connecticut.

The New Onion Culture is described by E. W. Godfrey, Illinois, as follows: I planted two plots, one of Yellow Danvers, sowing the seed, and the other of Prizetaker, the seed being sown in hotbeds and transplanted. To begin with, I bought Greiner's book, *The New Onion Culture*, and followed his instructions as carefully as possible. In everything except labor, I found his statements very conservative. He puts the labor cost of weeding and hoeing at thirty dollars for seed onions and twenty dollars for transplanted. I put it at one hundred dollars per acre in any good growing season.

One cannot insist too strongly on the necessity of fertilizing. When the labor investment is so heavy, it is the worst of folly to economize on manures. Poor land will hardly pay for seed. Average good land will not more than repay labor and expenses, while rich land, with good cultivation, will return a satisfactory profit. I believe in the transplanting method, provided



HARVESTING ONIONS

the seed can be sown in hotbeds early enough, say from February 15 to March 1, in this latitude of forty degrees, so the plants can be set out in the ground about the middle of April.

In this way, six weeks of good growing weather is gained. By using large varieties, the returns will

amply repay the extra expense of transplanting. But, if for any reason, there is much delay in getting the hotbed started, I would give it up and put the seed into the open ground as early as possible, using plenty of good seed to get a full stand.

The cost of transplanting I have found to be about fifty dollars per acre, that is one man and five boys at three dollars and fifty cents per day ought to



A NEW ENGLAND ONION CROP

pull and transplant twelve thousand sets a day. Labor is of course variable and experts might do more, but with common labor one picking up two thousand sets is a fair day's work. Hence, to repay for transplanting one must get one hundred bushels extra per acre, and this can only be done by using the big varieties and with the six weeks of extra growth. With both these points I think the crop ought to be doubled and yield

four hundred to six hundred bushels extra per acre on rich ground.

The arguments advanced that transplanting saves seed and weeding I regard as of no value. It is penny-wise and pound-foolish to try and save seed. If it saved weeding, it would be a strong argument, but I fail to see that it helps. There are just so many weeds to be pulled. It is of course easier to the worker to have the onions a uniform distance in the row, but my experience shows that the average workman will



PRIZE ONIONS

cover no more ground per day. As to long-handled hoeing to save stooping, I do not think it can be done between the onions. The onion worker must make up his mind to put in the season on his knees. By using padded knee cushions, it is easier.

In Weeding Onions, observes a New York woman gardener, I always find it the best way to use my fingers. To be successful with them you must not allow the dirt to come up over them. When I speak of using

my fingers, I mean where the ground is soft. Run the finger down into the dirt close to the onion and work up carefully and loosen and take away some of the earth, and as they get larger thin them well and take away more earth. They should be, when full grown, standing entirely out of the ground, just the roots only in the earth. I had a little plot in my garden, seventeen by thirty feet, and gathered eight and three-fourths bushels of marketable onions from it.

The Onion Harvest.—The onions, according to the methods of E. Elton, Douglas county, Nebraska, are pulled, throwing five rows into one, and let dry for a couple of days. They are then picked up and sold or put into a building until it freezes through the building. They are then taken out and sold, or kept near freezing point till selling price is better.

Tomatoes were very popular as a prize garden crop. They were quite generally successful, and their profuse yield sometimes saved the day, so far as concerned profit from the season's operations. One of the most complete of the numerous tomato reports comes from A. A. Atwood of Iowa.

His tomato seed was planted in a bed made by driving down stakes and nailing up wide boards and covering it nights and cold days. It was planted April 15, in rows five to six inches apart, and covered one-half inch deep. The plants came up slowly, but grew well, and Mr. Atwood raised about eight thousand from one-fourth pound of seed. The variety was Stone. The ground was plowed seven or eight inches deep, harrowed, cross-harrowed and marked in rows three and one-half feet apart. He set just an acre, beginning to transplant May 24 and finishing June 7, setting the plants three feet apart and using four thousand one hundred and thirty-six. A few plants had to be reset, principally on account of cutworms.

The young plants were hoed June 12, and the weeds were cut out with a hoe on June 19, 24 and July 11. They were cultivated June 14 and 22. The tomato worms were not bad, but he went over the patch and killed one hundred.

Some of the tomatoes were in bloom July 6, and the first were ripe August 12. Picking began for the canning factory September 1, and until September 28,



PICKING TOMATOES

when there was a severe freeze, were sold fourteen thousand five hundred and thirty pounds at five dollars per ton, eighteen bushels to the neighbors at twenty-five cents per bushel, and eight bushels were used at home. At the time of the freeze there were three thousand pounds of tomatoes on the vines. Besides the above there were sold one thousand six hundred plants at ten cents per hundred, making a total of forty-four dollars and forty-three cents

received. The picking cost two cents per crate or seven cents per ton. The cost was as follows: Preparing ground and planting seed two dollars and twenty-five cents, seed thirty cents, transplanting and resetting three dollars and five cents, cultivating five dollars and fifty cents, harvesting and marketing twelve dollars and ninety-five cents; total twenty-four dollars and five cents, and profits twenty dollars and thirty-eight cents.

Southern Tomato Culture, as described by A. Klenke, Palo Pinto county, Texas, presents several points of difference: My way is to plow the ground a foot deep in the fall of the year, manure richly with barnyard manure and some wood ashes, then plow the ground several times during the winter to prevent it from becoming compact.

I set the plants three feet each way. I find frames not profitable, but plant close enough so that one plant will in a measure support another. I put small brush under the plants to prevent fruit from touching the ground. A few times gathering will make regular places for the feet to stand, and the same places should be used every time when gathering tomatoes. I give deep culture as often as possible until crowding plants prevent plowing.

In transplanting during a dry time, I have had good success in the following way: First of all, I have holes ready to receive the plants before taking them out of the seed bed. I then pinch off all shoots except the very top leaves, and set them so as only to expose the top of the plants. I give plenty of water, rake some dry dirt over the wet, and when carefully done no shading is required, and in a few days the plants will be several inches above the ground. When transplanting in the usual way I shade plants for two days by placing old boards or shingles around them to keep

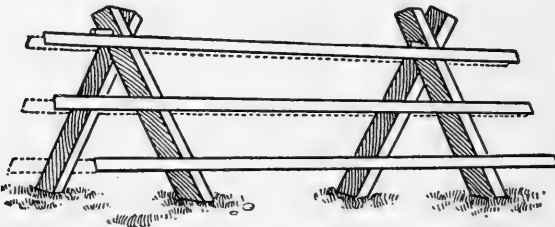
off the sun. By using the above method I need not wait for a rainy spell to transplant tomato plants.

Plants in Boxes.—I started my tomatoes in the kitchen window and let them grow there until May 2, when I planted them out, each plant in a strawberry box, and placed them in the cold frame with my cucumbers. My one hundred tomatoes and twenty-five peppers I set out after I got the water on the hill, June 19. They were good strong plants, all in bloom, and the boxes were full of good roots. I like this way of raising, for it gives plenty of room and makes stocky plants. It does not disturb the roots as when all are set in one box. In setting I cut the corners, placed the box in the hill, then slipped out the box, put the soil around, pressed well, using water the same as for cucumbers. Not a plant wilted, although the sun was very hot. I do not trellis, although I think it would pay.—[A. E. Ross, Strafford county, New Hampshire.

Good Tomatoes.—The first thing to do is to buy a package of Fordhook Fancy tomato seed. Quick germination and steady growth are essential to a good yield. Sow the seed in rich soil from March 1 to 20 and keep warm and moist. When plants are two inches high, transplant in fresh soil four inches apart, keep in good light with less water; transplant the second time, and when the weather is warm and fine, plant in the open field. The dwarf varieties need richer soil than the taller kinds. I raise the Fordhook in this way with the very best results. I sell large quantities of these plants, put in boxes six by eight, twelve plants in each box. This variety gives best satisfaction in this section, as the plants look well when young and need no support; the fruit is beautiful.—[Alfred Fuller, Cattaraugus county, New York.

Once Transplanted is Enough according to F. R. Trask, Worcester county, Massachusetts. May 9, set

out fifteen small Spot Cash tomato plants in open ground direct from seed boxes sown April 10. Other plants were transplanted to larger boxes, according to usual custom, where they remained until May 30, when they were set in open ground. These plants were at this time larger and better looking than those set in garden May 9, but while they were recovering from the shock of the second transplanting the first quite caught up with them and in the end were the better plants. Would also note experiment with an early tomato sowed in open ground May 23, not transplanted at all, nor very well cared for, but it bore abundantly and ripened fruit in October. I have concluded that



MR. EDGE'S TOMATO SUPPORT

except for very earliest use, it is best to transplant tomatoes but once, direct from seed box to open ground, and for late crop the seed box may be dispensed with, sowing in hills in open ground any time in May, and thinning to one plant as with cabbages, etc.

A Cheap Tomato Frame is described by Alfred P. Edge, Harford county, Maryland. Each frame consists of four pieces of three by four scantling fastened together at the top with a wooden pin so that they will open and close. On each side are nailed three strips of shingle lath about fifteen feet long. The frames stand about four feet high when open, and by stooping one can walk the whole way underneath. The frames are

set between two rows so that plants from each side are trained up and over them. After the plants are nicely started, Mr. Edge ties them to the lower strip, but after that they are held by the slant of the frame. In the fall he closes the frames and leans them against the fence out of the way until wanted another year.

Good Melons.—A grower of prime melons was L. E. Dimock, Connecticut, whose luscious products won much glory at county fairs. Six hills were planted, May 17, to Iron Clad Melons, and six to Santiago. The earth was excavated to the depth of two feet, three feet in diameter, and filled with decomposed cow and horse manure, with a liberal supply of hen manure, the whole being mixed thoroughly with the soil. The seeds after being soaked in water for thirty-six hours were planted in each hill and covered two inches deep. A box two feet square, twelve inches deep, with the top and bottom taken off, was placed over each hill and there remained, except when hoeing, until the plants were ready to send out vines, then it was removed. This protects the plants from chilling winds and the vines grow much faster than otherwise. Water-melons are an uncertain crop to those who have no experience in raising them. The soil must be of a sandy loam and if the proper surface can be utilized, and a southeast slope can be had, it is one great factor in melon raising. Two vines only are allowed in each hill and all but two melons are picked off each vine. The ends of the vines are pinched off after the melons have set. On this space forty-eight melons weighed from thirty to thirty-five or forty pounds, and were a beautiful sight.

C. P. Byington's Melon Crop was a grand success; early, abundant and of fine quality. Holes were made in the soil where each hill was to be, eight inches deep and two and one-half feet in diameter. Coarse

barnyard manure was spread evenly over the bottom of each hole to a depth of three inches and covered with an inch of fine soil, on top of which was placed two shovelfuls of compost; and this in turn covered with three inches of fine sifted soil, thus raising the hill level with the surface. The seeds were then planted by hand to a depth of one and one-half to two inches, fifteen or twenty seeds to the hill, placed germ end down, and covered with the hand. Each hill was then sown with a few radish seeds, lightly covered, and the soil compacted. The hills were made eight feet apart for watermelons, and six feet apart for muskmelons.

Cultivation was begun as soon as the plants were up, and continued every other day until August 1, working as close to the hills as the vines would admit, maintaining a fine mulch on the surface to save moisture. As soon as the vines reached a length of three feet, the ends were pinched off to promote the growth of laterals and fruit close to the hills. The object of sowing radish seed on each hill was for the twofold purpose of furnishing a succession of radishes and to protect the young plants from the ravages of insects. As soon as the plants were out of the way of insects, the radishes which had not already been removed for table use were pulled, and the plants thinned out, leaving three of the most thrifty plants to a hill. These above methods apply equally well to squashes and cucumbers.

“Whether the presence of the radishes in the hills had any protective influence, I cannot say; certain it is, however, that none of my melons, squashes or cucumbers were troubled in the least with insects, and the plan is not without value as it furnishes a succession of radishes without utilizing extra ground. The vines made a good growth, withstanding the severe drouth

remarkably well, and fruiting abundantly, both watermelons and muskmelons being available for the table and for exhibition at the county fair the latter part of August, and they were constantly available thereafter until October 2, when an impending frost led me to pick the few which remained, and by keeping them in a cool cellar, these were available until used up."

Squashes and Cucumbers.—Methods as described for these were much the same as for melons. In regard to the summer squash, Dr. W. Y. Fox, Bristol county, Massachusetts, writes: Two plantings of Golden Summer Crookneck were made, one on May 5, and the other July 3. The hills were filled with stable manure and irrigated several times. The striped beetle was kept down by free use of air-slaked lime. The first squashes were cut July 17, and the last October 1. In all we had two hundred squashes, and we appreciate this vegetable as much as any we raise, for it is impossible to buy them in the market that are fit to eat. We want them cut while tender, almost as soon as the blossom falls off the end, while the truckmen do not cut them till the outer skin is as hard as Pharaoh's heart and we must cut them up with an ax. They are also much better when just picked than after knocking around for three or four days.

Early Cukes.—We had cucumbers July 3, notes Mrs. D. F. M., Suffolk county, New York, the preceding year we did not have them till the last week in July. I think that starting them in hotbeds makes a difference of nearly three weeks.

A. E. Ross, Strafford county, New Hampshire, gives further particulars about the early cucumber crop: I planted them in plum boxes eight inches square and four inches deep. I filled them about two-thirds full of good garden soil, then put in the seed. I placed them in a cold frame, made by nailing boards

together like a box without top or bottom. I took off my double windows April 18, and placed them on top, thus making a very nice place to grow them. After they were up in good shape I thinned to four good strong plants. After the third leaf was well grown I filled the boxes full of rich soil, thus having the roots deep, and at the same time the plants were well supported. June 19, I set them in open ground. It was so dry I could not set them before. I put in a ram and got water on the hill, June 16, so I had enough to keep them well watered. I dug large, deep holes, six feet apart, put in two large forkfuls of manure, and filled with top soil. I then opened the hill enough to admit the box. I cut the corners, flattened it out and left it there. I took a pail of water, poured it around the hill, then filled it up and pressed the soil. By this method I did not lose a plant, although some had vines eighteen inches long and all in bloom.

Celery Was a Favorite Crop, both for first and second planting. An excellent account is given by C. P. Byington, Greene county, New York. The seed of Golden Self-Blanching was sown June 1, and transplanted twice before being transferred to the garden, July 15; the first time, when the first leaves were well out, about three-fourths of an inch apart, and the second time, when about two inches high, to larger boxes and farther apart. When transferred to the garden the plants were about four inches high. About one-third of the top and roots were cut off with the shears, to insure a compact, stocky growth. A trench was dug nine inches deep and fifteen inches wide, into which was put equal parts of compost and soil, five inches deep, and the plants were set five inches apart.

By this method the plants are started several inches below the surface, thereby obviating the necessity of ridging so high, combining the advantages of a

partial trench system and avoiding, in a measure, the danger of severe drouth. Cultivation was carried on both sides of the trench merely to keep down the weeds and save moisture, working just enough soil in the trenches to gradually fill them as the plants grew.

The cultivator was continued every other day until September 1, when the first ridging was done by going astride the row with Planet Jr plows, one being set each side the row to turn in. This operation was repeated September 15, and on October 2, boards were set up edgewise, about one foot distant from the rows on each side, to hold the bank while soil was shoveled against the plants. The tops of the plants were held together during this operation until banked up to the top leaves.

Notwithstanding the care taken it seemed certain the crop would be a failure from lack of moisture. Owing to the long-continued drouth the water supply was barely sufficient for actual needs. The expedient was hit upon of saving all the wash water and slops from the house in barrels. Mr. Byington was thus enabled to water the plants thoroughly two or three times a week, always after sundown. While entailing a little extra labor, it was paid for in the quality and quantity of the product. The crop was gathered November 2, and packed in boxes one foot deep, by placing the bunches close together one way, and one foot apart the other, covering the roots well with dry soil from the garden. The boxes were then put away in a cool, well-ventilated cellar.

Banking and Bleaching is thus described by Fred W. Kilbourne of New Jersey: The Golden Self-Blanching celery grows upright and we didn't touch it with our hands in banking. We first loosened the soil with the plow, threw the dirt as high as possible, then a few days later finished with a shovel. We banked

three rows at a time, then a week later three more, and thus had a succession. It needs to be sold as soon as bleached, or it will rust and decay. We commenced selling about October 11, and sold about one row a week. On November 10 and 11, put all the celery left unsold into the cellar, packing the bleached in a wide bed as close together as it could be packed.

The unbleached we packed in beds about three feet wide and eighteen feet long, with a little sand on the roots. We used ten-inch hemlock boards for the sides. This celery will need watering about twice, for which I have a funnel made with a mouth about a foot wide, and a long spout, so that the water can be poured in and carried to the roots without wetting the foliage. We keep the cellar open night and day as long as it is safe, only closing at the approach of severe weather. I expect to have all celery sold, or in condition to sell, by New Year's.

A Northwestern Celery Grower of experience, A. Brackett, Hennepin county, Minnesota, detailed fully his very successful methods: Celery seed was planted in drills eighteen inches apart, on moist, rich soil, on lake margin. The seedbed should be made very rich and the celery planted as soon as the ground can be worked in the spring. It should be kept thoroughly hoed and free from weeds. The plants should be large enough to plant any time between June 20 and July 10. The more compact the ground the more compact will be the celery. Celery grown on loose ground is apt to be pithy and spongy.

The field in which we planted celery was plowed early in the spring, and kept thoroughly cultivated until the time of planting. With a marker we marked off rows five feet apart and ran a celery hiller through the rows, throwing the dirt each way, and leaving the rows about six inches deep. One load of completely

rotted cow or sheep manure was scattered in about four hundred feet of row. With a narrow-toothed cultivator we worked the soil and manure together. Just before planting we took the plants up, trimmed off the tops and roots, leaving a stub of about three inches.

We planted with a dibber, and, the field being on the lake shore, watered all the rows before planting, as the weather was very dry. We kept all the weeds hoed out, and when the plants were well rooted we cultivated at least once a week. We commenced crowding up earth to the celery September 1, and then only to keep the plants upright. We have found that celery banked in hot weather is subject to rust. We commenced banking about September 20, continuing the operation every few days until the celery was hilled to the top.

It is safe to leave celery in the field in this latitude until November 1, when it should be taken up and put in trenches.

We hold our celery in the trenches for the holiday trade. We select a central position in the field where the celery is raised, take up and lay over a few rows, and with the large string plow work as deep as possible, a strip of ground eight feet wide and any length desirable. With a spade we dig a ditch in the center of the eight-foot strip, deep enough to allow the tops of the celery to come even with the surface. Have the celery piled along the trench within reach of the man who is to place in the trench, two stalks side by side, pressing enough dirt around the roots to hold in position. Leave a space of eight inches, digging a new trench, using the earth removed to fill up around the celery in the first row, and so on until the strip is filled. Let it stand in this shape until there is danger of freezing. Then cover with six inches of dirt and allow this layer to freeze nearly through to the celery, then cover

with strawy manure, which will prevent frost working any farther.

Celery buried in this manner is sure to keep until spring. Thirty-six square rods, planted according to the above, cost in labor and rent of ground, fifty dollars and ninety-five cents. Proceeds of sales were ninety-five dollars, leaving a profit of forty-five dollars and five cents.

Blanching Celery with Leaf Mold.—C. Gross, Morgan county, Missouri, took two boards the length of the row and one foot wide, and placed them six inches distant from the plants, one on each side of the row, keeping them in place by small stakes. He next fitted a small board at each end, which was also held in place by stakes, or they might be lightly nailed together, forming a box. He now filled the space between the boards around the celery with leaf mold, straightening up the celery leaves while filling in. Water was then applied until the leaf mold was all moistened through. As it settled down more was put in and watered until the box was full of moist leaf mold. The celery Mr. Gross found to be perfectly and quickly blanched in this manner.

Celery in Cellar.—November 8, W. McDermott, Saratoga county, New York, gathered his celery, placed it right side up as carefully as possible, in a box in the cellar, and kept the tops sprinkled with water say once in two weeks. He keeps celery crisp and tender nearly all winter in this way.

Peas.—A good crop was grown in a dry, hot season, by the thorough methods which C. P. Byington describes. With wheel plows, furrows were made three and one-half feet apart and five to six inches deep, by plowing twice in the same furrow. The peas were then drilled in by hand, using one quart of seed to one hundred and fifty feet of drill, and covered by

reversing plows to turn in, running through each furrow and covering the peas two to three inches, walking on the covered rows behind the plow to firm and compact the soil about the seed, and to retain moisture. The rows were made three and one-half feet apart, that early sweet corn might be planted between every other two rows of peas, leaving a clear space between each two rows of peas to facilitate picking. After the peas were planted and covered, the rows appeared as a shallow trench, about eight inches wide and three inches deep, which as the peas grew, was gradually filled level by cultivation. By this method the peas were started at a depth not so prone to be affected by surface conditions, and the better enabled thereby to resist drouth.

Cultivation was begun as soon as the peas were up, by going through the rows with cultivators, following the cultivators with the rake attachments at the first cultivation, and subsequently once a week thereafter, or after every third cultivation. The crop was cultivated three times a week until in full bloom, keeping the soil constantly stirred to a sufficient depth, smooth and free from weeds.

The climatic conditions which prevailed were not conducive to the best results, but the grower had peas to eat while neighbors with larger area planted and better soil, reported an almost complete failure, having been obliged, many of them, to buy peas for family use, the severe drouth from early in spring lasting throughout the entire growing and bearing period of the crop.

The first crop, planted April 15, while the ground was cool, and not so susceptible to dry weather, obtained a good start and was not so perceptibly affected by the drouth, giving a fair yield, twice as much for the area planted as the later plantings.

Large, Well-Filled Corn.—L. E. Dimock of Connecticut tells how his premium corn was grown, as follows: May 29, he prepared two rows three feet apart, with spaces eighteen inches apart, and placed six kernels around the center, six inches apart. The seed was soaked in warm water thirty-six hours, and rolled in coal tar and then in land plaster. The tar prevented the crows and blackbirds from pulling it up. The plaster prevented the corn adhering together. This method was far superior to the old-fashioned scarecrow. When crows got one mouthful it proved a great plenty for the whole season. Many fields have been ruined by crows that gave the scarecrows no attention. The plants at intervals are thinned to four in a hill. Deep planting gave an opportunity for level culture, and hen manure spread broadcast with stable manure deep down in the earth caused the roots to run deep and no ill effect was experienced from dry weather. The suckers were taken off the same as in tobacco raising, which caused the whole strength to enter the ears, and much larger and well-filled ears were the result.

Field corn matured much better to cut the stalks near the ear when the corn is in the milk. This method gave excellent fodder and much better ears. By the common way of cutting up and setting in stacks, much of the corn becomes moldy and damaged in a wet season. By this method Mr. Dimock found no injury occurred to fodder or ears.

Make Several Plantings.—We are very fond of sugar corn, observes E. G. Packard, Kent county, Delaware, and by using several varieties and successive plantings a few days apart, I secured a steady and abundant supply from July 14 to October 1, and of tomatoes from June 28 to October 10. Also of lima

beans from July 21 to October 2, when our first killing frost occurred.

Second Growth Cabbage.—Growers are advised by Mrs. McDonald, Suffolk county, New York, to cut the cabbage head, leaving the stalk without any large leaves, and cabbage cut during July and August would have four small heads on each stalk in September and October. These were nice cooked, but were especially good for hens.

L. E. Dimock's Cabbage.—The seeds were soaked in warm water thirty-six hours. A coating of hen manure was spread broadcast and a thin mulch of swale grass was spread over the surface. By this treatment in five days the plants began to push through the earth, the mulch was removed. Often stirring the soil and thinning to an inch apart, gave hardy stock plants that, when transplanted, lost no time in developing. When taking up plants for transplanting, a manure fork is used. As much earth as possible is taken up with the plants and placed in a shallow box, after which they are given a thorough wetting. This causes the earth to cling to the roots, and plants thus treated can be transplanted in the heat of the day and take no hurt. Plants transplanted July 8, in just four weeks measured across the leaves three by four inches; four thousand of these kind of plants were set in the field July 6, and gave a field of cabbages much to be admired. Cabbage sown in beds broadcast, when transplanted are weak, puny things, often not having strength to stand alone, and may yield to the elements and leave their place vacant. Cabbage are vigorous growers when rightly treated. Mr. Dimock's method is to use new sward ground and thus no weeds nor club root. To destroy the little green worm that eats the heads, salt, with a little saltpeter, mixed together and sprinkled on the

heads, caused the worms to depart and the cabbage to head solid.

Spinach wants very little covering, according to F. W. Kilbourne, New Jersey. The seed is large in proportion to the sprout that has to push it up. If it is planted deep and the ground crusts, it has trouble in getting through.

“On November 20, the plants on my piece averaged about five inches across. With the beginning of winter I top-dress my spinach with short horse manure, about ten tons to the acre. It cuts at the rate of five hundred bushels to the acre. We begin cutting early in the spring, cutting out the biggest and then cultivating. The cultivating and the nitrate of soda, four hundred pounds to the acre, forces it.”

Egg Plants.—Potato bugs destroyed all the egg plants grown around Mr. Kilbourne's place. “But I saved mine,” he says, “by giving them a heavy dose of bordeaux mixture. I noticed one time when using it for blight that the bugs did not admire the taste, and so I sprayed with a small sprayer that I use in the greenhouse, and it was pleasant to watch them march off the plants. Six plants that I left unprotected as an object lesson were completely destroyed. Anticipating a frost, we had cut all the large egg plants, covered each fruit with a sheet of newspaper to keep them from the air and to prevent bruising, and stowed them away in the barn. We gathered in this way seven hundred fruit that sold at five cents apiece. The day after the frost we cut three hundred smaller ones, but they did not keep as well.”

C. P. Byington's Egg Plant.—Seed was sown in shallow boxes in the house, March 7, and germination and growth encouraged by keeping the soil well moistened with lukewarm water, and the box in a warm, sunny window. The method of transplanting

and transferring to the garden was the same as for tomatoes. Cultivation was done regularly every other day, and maintained as long as possible without injury to the plants. When in blossom, early in June, a few potato bugs found them. These were picked off, and subsequently for a week the plants were looked over carefully every day and every bug destroyed; the under side of the leaves was likewise examined for eggs and these also destroyed. No more trouble was experienced until the latter part of August, when, cultivation having been discontinued, the plants were neglected somewhat, and they were discovered to be literally covered with newly hatched bugs. These were at once brushed off into a pan and boiling water thrown over them. This operation was repeated every morning for a week, when they were again free of both bugs and eggs. The first fruit was available for table use August 12, and constantly thereafter until October 2, when the few remaining fruits of good quality were picked off and kept in a cool place till used.

One Woman's Way.—I have used paris green for cucumber bugs, writes Myra O. Peck, Ontario county, New York, but I like creosote better. To keep them bearing it is necessary to be careful in picking, and not step on the vines, neither break a curl. I did not put water on mine this year to keep them bearing, I hoed the dirt up so deep around them it is a wonder they lived at all, for we had no rain until too late to benefit the garden any.

My method in raising parsnips is to keep the soil soft and hoed very deep. I thin them to about six inches apart. I also keep close watch for caraway worms; my only remedy is to pick them off and kill them. They also bother celery.

In growing peppers, I set the plants about eighteen inches apart. After they get a good start, I go to

the hencoop, get some compost, and hoe a little around each plant. I hoe very deep but not too close to them. I draw the dirt up around them, as they like deep soft earth. I have had some very large fruit of very fine quality.

For beets and turnips, I follow the same method as in raising onions, beets are rather small owing to extreme dry weather. Some turnips weighed from four to five pounds.

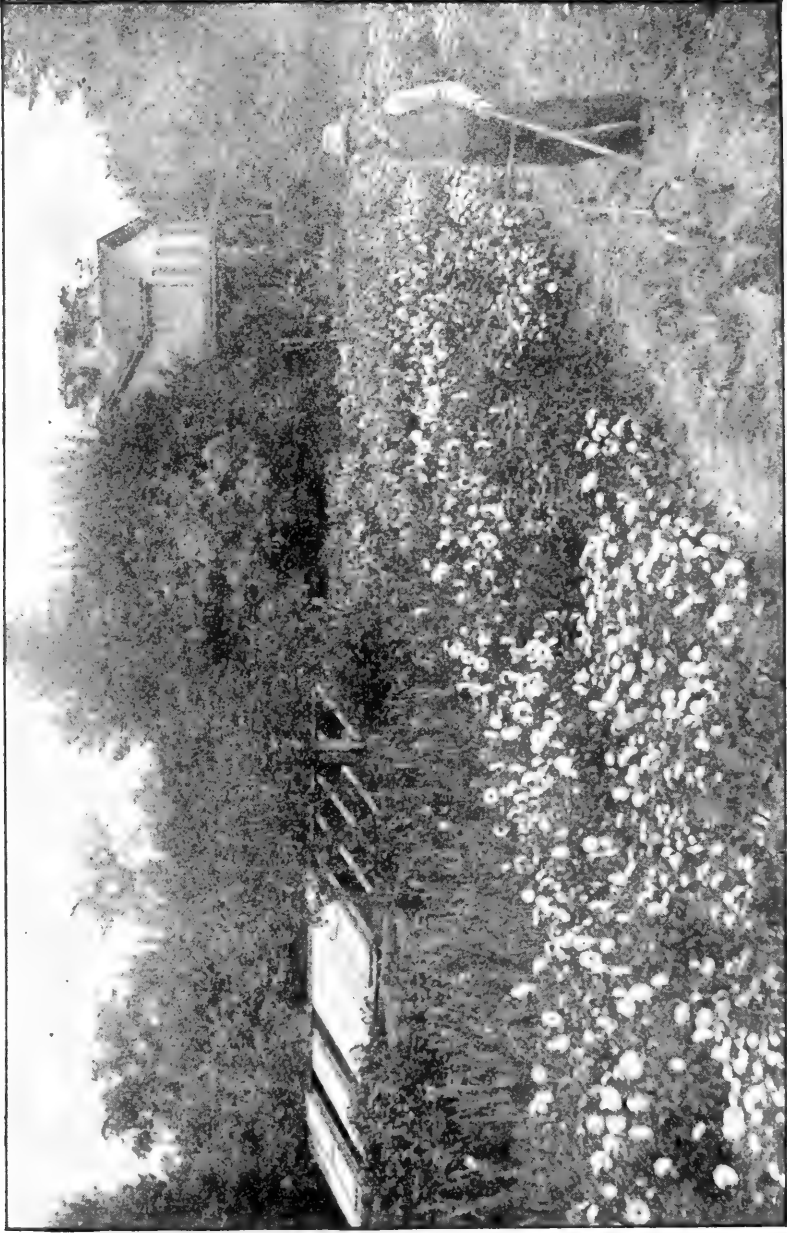
Spring Lettuce.—Seed was planted by A. Brackett, Hennepin county, Minnesota, the first week in March, in the greenhouse, and transplanted in rows three or four inches apart and one inch apart in the rows, then three weeks later transplanted again six inches apart each way. If watered and kept at the proper temperature, they will be ready for market in three or four weeks. Price there runs from twenty-five to thirty cents per dozen. His proceeds were forty-three dollars and eighty-three cents. Expenses, ten dollars and ten cents.

Growing Lettuce.—Three varieties of lettuce were planted by C. P. Byington, Greene county, New York. Iceberg was sown April 21, Cream Butter May 1, and Tyrol May 25. The seed was sown quite thickly in drills one foot apart, thinning out young plants to two or three inches apart. In a week or two these made nice, bunchy plants which were thinned as needed for the table, to about one foot apart, and left to head. The first tender leaves were available for the table twenty-eight days from seed, and the crop continued until the middle of July. Elegant heads of Iceberg were ready for the table the last of June. They were crisp, brittle and tender, and this is a fine variety in all stages. The other two varieties were tender when young, but did not head nicely or stand the drouth as well as Iceberg.

Plan for a Few Herbs.—Every gardener, as advised by George Osborne of Illinois, should have a plot for herbs, such as sage, dill, etc. As these are mostly perennials they should be planted where they will not interfere with the plowing of the garden.

Starting Ginseng.—This unusual specialty, which is attracting increased attention because of the high prices quoted for the prepared roots, is briefly alluded to by John Frazer, Washington county, New York.

Early in September three plots were chosen for planting ginseng. The plots were plowed and all stones and other obstructions forked out to the depth of one foot. Three barrels of fine, well-rotted manure were applied to each square rod of ground, well raked and mixed in to a depth of three inches. The ground was made very mellow and in fine condition. Each plot was divided in beds five feet wide, by placing six-inch boards on edge, held in place by stakes driven into the ground. A walk of fifteen inches was between the beds.



(238) FLOWER GARDEN OF R. N. LEWIS, BRIGHTSIDE, NEW YORK

CHAPTER XVI

PRIZE FLOWERS AND FRUIT

The flower bed was an important annex to many family gardens in the contest, yet the floral portion of the garden received comparatively little attention in the majority of accounts. Although many expressed admiration and appreciation of flower products, the majority were contented with the simplest methods of growing them, as described in the various accounts in other chapters.

Those who took special pride in the aesthetic side of gardening and with the same care and skill that they would employ with the money crops, prepared and cultivated their plots of seedlings, using choice seed, forcing with hotbeds and high culture, produced results which caused many a country estate to resemble a choice section of the garden of Eden. The grounds of a New York state gardener, R. N. Lewis, were at first comparatively bare and unattractive, but when the skillfully managed flower beds were in full bloom, a scene of beauty appeared of which a faint idea may be obtained from the accompanying picture.

One of the few who made anything like a specialty of flowering plants was B. S. Higley of Ohio, the first regular prize winner. His very thorough and successful methods for sweet peas, begonias and dahlias are given nearly in full :

Sweet Peas.—When the peas are ready to climb, I prepare a trellis in this way: The end posts were well braced when set. I nail to each post, crosswise of the rows, three pieces of two by four-inch pine, twelve

inches long, one about eight inches from the ground, one midway of the post, and one at the top. By the use of nails and staples stretch three wires on each side as taut as possible and fasten them to the ends of the crosspieces. Thus I have three wires on each side of the row, about ten inches apart horizontally, and three feet up and down. I buy white binding twine, rather coarse, by the dozen balls. Begin at one end of the row and tie the twine to the top wire close to the post, then go down to the second wire on the same side, wind the twine twice around and knot at a distance of nine inches from the post. Then go down to the bottom wire and fasten the twine eighteen inches from the post. Come up to the middle wire and tie at a distance of twenty-seven inches from the post, and to the top wire at a distance of three feet. Thus I continue slanting forward down and up to the end of the row, when I return in precisely the same way, except that I tie the twine midway between the knots on the top and bottom wires and cross at the knots on the middle wire, tying there exactly over the former knot. This makes a cheap but very serviceable trellis.

Buy good galvanized iron, not steel, wire, store it away in the fall and it will last for years. This trellis is easily cleaned away in the autumn, in which respect it differs totally from poultry netting. It is only necessary to run a sharp knife along the wires and cut the twine, when all the dead vines can be pulled off and carried to the refuse pile.

Tuberous Begonias.—Early in March the tubers are potted in four-inch pots, with potting soil made of one-third sharp sand and two-thirds well-rotted sods and manure. Care must be taken to plant the bulbs right side up. I generally cover them about one-fourth of an inch and firm the soil around them compactly. The top of the soil should be nearly an inch below the

top of the pot. As soon as planted, they are thoroughly watered and placed on a plant frame in a room where a fire is kept up night and day, the stand being in the darkest part of the room. About twice a week water is poured in so as nearly to fill the pots. In about a month the shoots appear, and in six weeks the pots are removed to another room, where the temperature is kept about fifty degrees. The pots are so placed that they will get the morning sun. Here they remain until the time for planting out. They are watered as before, and turned from time to time, since the plants will lean toward the sun. Starting in pots assures strong plants and early bloom.

A few bulbs generally fail to start, so I buy half a dozen each year. About the middle of May the plants will range in height from one and one-half to eight inches. I then plant them in rows eighteen inches apart and one foot in a row. The pots are given a thorough watering a few hours previous to transplanting. With a garden trowel a hole is dug six inches in diameter and six to eight inches deep. The plants are removed carefully from the pots and set at the same depth as before. Fill the hole nearly full with soil, water liberally, cover the wet soil with dry earth and firm compactly.

Dahlias.—Last fall my dahlias, after the frost had killed the tops, had their stalks cut off about five inches above the ground. I cut the soil all around the plant with a spade, to the depth of a foot or more, taking care to keep not less than a foot away from the center of the plants. Then using the spade still, the plants were carefully lifted, taking care not to break off any of the attached tubers. I took considerable soil with the clump and removed carefully to a storeroom where they would not freeze, and permitted them to dry out for several days, when they were removed to a frost-proof

cellar and stored side by side in shoe boxes. I never cover them at all, unless unusually cold, when I throw old bags over them. If the cellar is very dry it would be necessary to fill the boxes with dry sand to preserve the vitality of the tubers. When the time comes to plant, which is corn-planting time, handle the roots with extreme care so as to break off no tubers. Dig holes large enough to hold the whole clump, plant and cover.

The Water Lily Pond.—The artificial water lily pond is found to-day hidden under spreading boughs or in some shaded nook, silently nestling in a remote corner of many of our city lawns; thriving equally as well, and perhaps better than at the country homes, where facilities for water and drainage are not so complete. The pond may be made about ten feet long by six feet wide, sunk into the greensward in a spot overhung with trees. The excavation, varying from five to eight inches deep (so as not to be quite level), is well cemented and piped into the drain, enough soil being allowed to cover the roots of the plants. The water pipe is so arranged that fresh water can be used when required.

Plenty of animal life keeps the plants healthy and the water from becoming stagnant. Numerous tadpoles, frogs, toads, a few goldfish and perch are useful inhabitants of the picturesque pond. The tall cat-tails vie with the Japanese iris, reflecting its own purple, yellow and white radiance in the watery mirror beneath. At the extreme end of the pond may be planted the root of an Egyptian water lily (*Nymphaea lotus*), the rose and favorite flower of ancient Egypt. It thrives in stagnant or slowly running water, and as each day it grows in beauty and ornamentation, it reveals but little of the life-sustaining properties imbedded in its roots, which are meat and substance to the

people in the Menzaleh lake district and to many living along the Nile and on the shores of the adjacent rivulets.

Kissing the sunbeams at the feet of the iris and cat-tails are the floating leaves of the water lilies, spreading their broad, flat surface on the quiet water with a scrupulous regard of ownership in this lily pond. Between the leaves here and there peeps a bud, as if



PEACH TREES IN AN ARKANSAS GARDEN

ashamed of its own boldness, which by to-morrow will gain courage and unfold its beautiful wax-like petals to be nursed into full bloom beneath the sheltered rays of the warm sunlight. The lily pond, a fresh and cooling oasis, even in a garden of rare flowers, will give the most satisfaction for the least amount of labor of any gardening that can be undertaken. In the fall a

thick coverlet of leaves keeps the plants and animal life intact until called from their dormant state by the first songs of spring.

Fruit trees in the garden often added materially to the profit side of the account. In other cases, how-



PROLIFIC CURRANTS

ever, they were considered a decided drawback to the general success of the garden. Several contestants insist that a highly successful garden must be wholly free from shade of any kind. In the irrigated gardens where the vast amount of water taken up by the tree

roots can be artificially replaced, trees and vegetables seem to get along better together than under ordinary conditions. The illustration shows the thrifty growth of peach trees in an Arkansas garden.

Small fruits, especially strawberries and currants, were frequently a part of the prize gardens, and the description has been given with the rest of the account.

A Minnesota Grower.—Five years ago, writes John Tye of Minnesota, I tried an experiment of laying down my blackberry and raspberry canes by bending them over and covering them with straw or coarse litter, but when spring came the mice had killed all the canes, by eating the bark off around the bottom. In August I cut out all the old canes, thin out the small, weak canes, and cut off the tops from those left, about four feet from the ground. After that they grow thick and stocky, mature the wood, and I think stand the cold winter much better than when they are left to thicken and are not cut back. My blackberries make a hedge two and one-half feet thick by four feet high, and any cane that grows outside of that limit is cut off. Thus it is easy for the girls to pick the berries without much trouble, the canes grow so stocky they never need any tying up, and the bearing canes are strong enough in the spring to hold up the new canes as they grow up through them.

The currant branch in the hand of the little girl is a branch that was cut back to about five buds of the new wood. That is all new growth grown during the spring which is above the fruit.

CHAPTER XVII

LESSONS FROM THE WINNERS

After a study of these hundreds of garden accounts, an impression is received of candor and outspoken truthfulness. There is scarcely an instance where inspection or outside investigation shows the least sign of intention to conceal and mislead. Facts were stated with the greatest completeness, including some cases of almost humiliating loss and failure. It would be difficult to pick out several hundred persons of any other business or profession who would describe the operations of a year with such frank completeness, generously passing along to others the gains of their experience and thought.

The substance of the accounts brings out strikingly the fact that any reasonably successful garden may be expected to pay for itself, including fair wages for all work, and leave something for net profit. The showing of the garden in the line of profits was evidently a surprise to many contestants who had never figured up the produce at wholesale price, nor noticed how few full days' work were needed, especially with modern implements and methods.

Cost and Value of a Garden.—The figures which are here presented are based upon the reports of five hundred and fifteen gardens located in nearly every state and territory, Canada and the provinces, so they may be considered as accurate and reliable. Covering such a vast territory, local conditions, which might give different figures, are avoided and the summary becomes

a reliable basis of estimate and is the only thing of the kind ever published.

EXPENSE AND PROFIT OF THE GARDEN

	Farm	Village
Size, square feet.....	24,372	14,866
Value of garden.....	\$48.81	\$568.34
Value of tools.....	18.61	16.93
Interest and taxes.....	3.21	22.73
Use of tools.....	1.27	1.70
Labor	26.34	19.59
Seed	4.32	8.68
Fertilizer	7.75	7.12
Incidental expenses .....	.78	.50
Total cost	43.67	60.32
Value of products used.....	54.04	54.50
Value of products sold.....	30.96	7.06
Total value of products.....	85.00	61.56
Profit	41.33	1.28

Gardens have been separated into two classes—those on farms and those planted by village residents, and an interesting comparison can be made between the two, as shown in the accompanying table. Size and value are the two most noticeable differences. The farmer who wants a garden either takes the little fenced-in spot that has served for this purpose for so many years, or goes out in the field and lays off a piece of half an acre, or as much as needed. The village and city resident is confined to the back yard or the vacant lot. Thus his plot is necessarily smaller and being valuable for building purposes is worth more than the country garden. The figures for value are the average of fifty-six village gardens, which range from twenty-five dollars to one thousand eight hundred and seventy-five dollars in value, and at the rate of from one hundred dollars to over four thousand dollars per acre. The range of value per acre of farm gardens is not quite as great, being as low as five dollars per acre for unimproved prairie land, to three hundred dollars for small California farms with irrigation

rights. The average value of nearly fifty dollars for a garden of a trifle over half an acre is a conservative figure. While it is probably double the value of the farm land, the increase is due to the permanent improvement of fruit trees, plants and vines, asparagus and rhubarb beds, hotbeds, etc.

The value of tools is a trifle higher for the farm gardens, as would be expected; for horse cultivators, plows and harrows which are also used on the farm are often figured in. For this reason we estimate seven per cent for the use of tools here and ten per cent for those used in village gardens, where they are employed for no other purpose.

Interest and Taxes are difficult items to figure, for the conditions are so dissimilar. In the case of farm gardens we have the case of highly improved property used principally for the production of garden vegetables and fruits. On the other hand, village gardens are largely vacant lots or back yards whose chief value is for building purposes. As vacant lots they are unimproved property, and held often for speculative purposes, but as back yards they form a part of the home grounds and a figure proportionate to the value of the entire lot is given them by the owners.

The summaries show that seven and six-tenths per cent was allowed for interest and taxes on the value of farm gardens and four per cent on that of village gardens. With one per cent of the latter for taxes, which would approach two per cent of the assessed valuation, we have three per cent left as interest, which is as much as should be charged up against the land for gardening purposes. Taking out the interest and taxes from the total cost of the garden we have thirty-seven dollars and fifty-nine cents as the actual cost of producing the vegetables which grew in village gardens, and forty dollars and forty-six cents on the farm.

Labor Cost is the most important item. It may be said that the cost of a good garden is eternal vigilance. It is not so much the total amount of labor required as that it be employed at the proper time. One hour a day throughout the season will, with the use of suitable tools, take care of a garden of less than half an acre. The village gardens have been worked with the most economical expenditure of labor. This is because hand cultivators have been used to do most of the work, and, secondly they have been kept free of weeds for several years. Many farm gardens are foul with weeds, being utterly neglected during the latter part of the season, and the hoe and hand work still play too prominent a part in the cultivation. Gardens laid out in long, narrow pieces to allow of horse cultivation have been worked with the greatest economy of labor.

In the matter of seed the difference is quite surprising. In this item have been included cabbage, tomato and other plants which have been bought for transplanting. Most village gardeners have had to purchase these, while hotbeds are more numerous upon the farm in which these plants are raised. Then, too, villagers buy more of the novelties and new, high-priced varieties of vegetables and spend considerably more for flowers, bulbs and plants.

Manures and Fertilizers.—The expense for fertilizers and manure is in favor of the farm, where stable manure, upon which a nominal price is fixed, is largely used. Besides this, one hundred and ninety-five gardeners used no manure or fertilizer or failed to make report of any. Stable manure leads all other forms of plant food in popularity. In two hundred and twelve reports it was used exclusively, forty-three used commercial fertilizer or chemicals and sixty-five used both manure and fertilizers or chemicals. Fresh manure is apt to contain many weed and grass seeds,

but all gardeners have a liking for the use of well-rotted manure, which is not understood by users of commercial fertilizer. The reason is simple. Land which is cropped continually with hoed crops grows heavy from the lack of humus. This is supplied by the manure, the liberal use of which enables the gardener to keep his ground loose and friable.

The most remarkable comparison is probably between the value and amount of produce consumed by the families of the two classes. It is practically the same. The greater consumption of standard sorts of vegetables by farmers' families is offset by a freer use of the rarer sorts, and of flowers, by village people. From the amount sold one must not judge that farmers sell the best and eat the rest. In all cases they have consumed all that were wanted and the kinds sold were very largely a surplus of onions, cabbage, squash, beets and carrots.

From the farm gardens thirty-six per cent of the produce was sold, which paid seventy-one per cent of the total cost of the garden, while less than twelve per cent of the cost of the village garden was paid by the eleven per cent of produce sold. The farm garden paid a profit of ninety-four per cent on total cost as against two per cent for the village garden. Leaving out the item of interest and taxes, the farm garden returned one hundred and thirteen per cent profit on cost and the village garden sixty-three per cent.

Profits of Small Market Gardens.—The average size of farm gardens was found to be a trifle over half an acre and of village gardens one-third of an acre, the latter being of ample size to produce enough vegetables for an ordinary family. The farm garden proved a source of revenue, thirty-six per cent of the total produce being sold.

The value of produce was eighty-five dollars per garden, or at the rate of one hundred and seventy dollars per acre, and the net profit was forty-one dollars and thirty-three cents, or at the rate of eighty-two dollars and sixty-six cents per acre. This is more than any farm crop can approach. Now if these gardens can be extended to four times the size or greater, they will become quite an important source of the farmer's income. On the majority of farms the lack of a good nearby market will prevent the attempt at gardening on a commercial scale, except in favored localities specially adapted to certain crops. But where one is located within five miles of a good-sized village or city, a small market garden may be made a considerable source of revenue.

There are two lines of gardening which may be followed. First, general gardening, in which most of the common kinds of vegetables are planted and marketed at wholesale at stores and butcher shops, or at retail by peddling from house to house.

Second, special gardening, in which only a few kinds are grown, such as may be raised with the least amount of labor, those which are in greatest demand, or those for which a certain plot of ground is particularly well adapted.

Local conditions and circumstances must govern which kind of gardening each should attempt. If one takes up market gardening as the main part of his work, the most profit will be found in growing a full line of vegetables and selling at retail, unless he produces them in such large quantities that this method is impractical. But where the work is taken up in connection with running a farm, and partly as a side issue, it will be found more profitable generally to raise only a few kinds of such sorts as can be harvested and

marketed in large quantities, such, for instance, as onions, squash, turnips, carrots and sweet corn.

The small market gardens of those contestants who sent in reports gave a net profit of one hundred and seventeen dollars and two cents per acre. They averaged two and one-half acres in size, were valued at three hundred and twenty-two dollars and twenty-two cents, or one hundred and forty-three dollars and twenty cents per acre, and produced four hundred and forty-seven dollars and seventy-three cents worth of products, or at the rate of one hundred and ninety-nine dollars per acre, at a cost of one hundred and eighty-seven dollars and twenty-seven cents, or eighty-one dollars and ninety cents per acre. The value of tools used was fifty-five dollars and fifty-seven cents. The labor cost one hundred and eleven dollars and sixty-one cents, seed fifteen dollars and fifty cents, fertilizers twenty-two dollars and twenty-five cents, interest and taxes twenty-four dollars and seventeen cents, use of tools three dollars and eighty-nine cents, and incidental expenses six dollars and eighty-five cents. These latter included barrels, boxes and baskets, twine, poles, insect poisons, etc.

The family consumed fifteen per cent of the total productions, or sixty-seven dollars and fifteen cents worth, which is considerably more than the amount used from the farm and village gardens. This is partly accounted for by the fact that the sweet corn fodder, poor cabbage and many of the beets, turnips and carrots were fed to the stock, and figured in with the amount consumed. It is highly probable that the actual average consumption per family was also greater, owing to there being a greater abundance of vegetables on hand at all seasons.

Reducing the figures to a basis of an acre, we find

the cost of labor to be forty-nine dollars and sixty cents, seed six dollars and eighty-eight cents and fertilizer nine dollars and eighty-eight cents. The figures for seed and fertilizer seem somewhat low, particularly for the latter. This would buy but one-fourth ton of a high-grade commercial fertilizer, while one thousand five hundred pounds would not be an excessive amount, and many gardens use much more.

How to Make the Garden Pay.—The first work to be done to make the garden pay is to put the soil in condition for planting.

No matter what the character of the soil, it should never be stirred when so wet that the particles will not separate freely when the spade or the plow and the harrow are used. It must always be made as fine as it is possible to make it. If the plot is small, the spading fork, if properly used, will leave the soil in fit condition for planting; excepting for very fine seeds, when it will be necessary to use a fine rake, as not a particle of earth should be as large as the seed that is to be put in it.

The manure used should have been provided several months ago, so that it can be pulverized as finely as the soil. Then it should be so thoroughly and evenly incorporated that the one could scarcely be distinguished from the other. When commercial fertilizers are used, as they always should be, in equal proportions, when the soil is continually worked, let them be evenly distributed.

No matter what the size of the plot may be, not more than one-fourth—one-sixth would be better—should be used in the first planting. For profit, as well as for pleasure, plantings should be made at frequent intervals, because there are but few vegetables that are in the best condition for use longer than a few days. As soon as the first planting is made, preparation for

the second should commence, and so on to the end of the season. The moment the first planting has been gathered, clear the ground as quickly as possible and prepare for a second planting, and follow up this plan the entire season. The preparation of the soil, so far as the application of manure is concerned, and making it fine, must be as thorough for each subsequent crop as for the first. Do not think that once working and once feeding is sufficient for the season; it is not.

No more manure should be used at one time than a given crop will require. A surplus is nearly as fatal to the production of a crop as a deficit. Plants to be productive must needs have just as much nourishment as they can assimilate; but not be stimulated to excess, which is fatal to productiveness.

For success, every foot of the soil should be constantly at work producing something. Nature will not tolerate idleness; if the gardener does not plant, she will. There is no reason why, in ordinary seasons, the garden cannot be as green and productive in August as in June. To that end, intensive cultivation is a necessity. The surface must at all times be covered with a growing crop, and so thickly as to, in a great measure, prevent evaporation. But by no means plant so thickly that each plant cannot have all the room for growth and air required.

Room for a horse to walk between the rows is the poorest economy possible, besides it is not necessary. For instance, when we set our cabbage or cauliflower plants, which require the greater part of the season to mature, make an intermediate row of some quick-growing vegetable.

Imitate our up-to-date market gardeners near all large cities. When they set their early cabbage plants, they are in rows thirty inches apart, the plants fifteen inches apart in the row. Between these plants they

put a plant of lettuce, and between each row of cabbage a row of lettuce; then between the rows of cabbage and lettuce they sow a row of radishes, which gives but about seven inches to a row of vegetables.—[C. L. Allen, New York.

What Should a Garden Contain?—This will depend largely upon the size and tastes of the family. It must contain what we might call the standbys, such as sweet corn, potatoes, beans, peas, cabbages, tomatoes and beets. In addition, I would add a large asparagus bed of some mammoth variety, a good strawberry bed of the best sorts, currants, gooseberries, blackberries and other small fruits, with a good-sized bed of rhubarb.

I have tested many varieties of small fruits and vegetables and have discarded the greater part. No one can tell their value by the testimony of seedsmen and peddlers. A test is the only certain way. In Illinois, I used to raise many bushels of raspberries, but here it is difficult to get them to grow. Besides the vegetables and fruit mentioned above, I would add salsify, carrots, radishes and parsnips. Of course the likes and dislikes of every family must govern the plan to a large extent.

In raising tomatoes, I put but one plant in a place. Set the plants in rows four feet apart and the plants four feet apart in the row. Get only the best kinds and those that you know are valuable. Of most vegetables, secure very early and late varieties, so that you will have them throughout the season. A good garden must be well plowed and spaded and then harrowed or raked, so as to make fine the seed bed. Then the seed must be well planted, not too deep nor too shallow. After the plants are up, give thorough cultivation, keeping the ground well stirred and clear of weeds. The wheel hoe must be used freely in a well-

kept garden. One man can do more with it in two hours than he can in a whole day with the old-fashioned kind.—[E. S. Phelps.

Growing and Showing Vegetables.—There can be no general rule regarding the proper size of vegetables or fruits for exhibition, but the present custom of exhibiting vegetables of a smaller size than formerly is a great improvement. This applies particularly to such vegetables as potatoes, beets, carrots and parsnips, as the tendency of these is to grow too large; but with such as salsify and horse-radish, the larger they are (providing they are fairly smooth) the better. To have any of these roots in good condition to exhibit, they should be matured, or nearly so, and to get the plumpness and color which is desirable they should have an abundance of potash.

The tendency to give prizes to extra large specimens of potatoes is not encouraged at this time, and, as the exhibitors are after prizes, if the judges recognize only medium-sized, smooth specimens, those will soon be the kind exhibited. I have raised potatoes of fair quality and smoothness on very heavily manured market garden land, but they are not a crop that responds to heavy manuring.

To grow the best and handsomest potatoes possible, I would use no manure the year the potatoes are planted, but from one thousand to two thousand pounds good fertilizer per acre, about one-half broadcast and one-half in the drill, thoroughly mixed, using large seed cut to two-eye pieces, and planted early in May in drills eighteen to twenty-two inches by thirty to forty-two inches apart, the latter distances for the late varieties. Give thorough cultivation and plenty of paris green and bordeaux mixture, and you should have potatoes of the best quality.

Perhaps there is no vegetable that is more often exhibited and wrongly judged than celery. Celery, to be good for the table or market, should have a head as much as lettuce or cabbage, and to get this head it is necessary to sacrifice the older leaves; in fact, as you bring the head to perfection you lose all of the outer leaves, but the same is true of lettuce or cabbage. Bunches of what I call "celery leaves" may occasionally be picked from among heads of good celery, but the methods of growing the two are entirely different.

To grow the bunch of celery leaves, the plants must have considerable room and a long season of growth. They may grow quite rapidly at first, but should continue growing less and less as they near maturity, because a sudden start will cause the heart to develop, the outer leaves to soften, and a head will then begin to form. I have seen them and have raised some, but do not try to grow them now, as they are not wanted in the markets. In growing the heads of celery, the method early in the season makes but little difference except in regard to the size of the head. If you would have a shouldered head of nice proportions, and not too tall, the plants must be set ten or more inches apart; but if you want nice celery for family use or market, from four to six inches should give a more satisfactory crop. To get celery of the best quality it must be grown rapidly, and it is quite important that it should take an extra start when we begin to blanch it.

Celery that is banked with earth gets this start from the cutting of the roots and the chance that those roots which are left get to work up into the soft earth of the bank. Perhaps the best way to start golden celery that is to be boarded is to give a good watering and work the ground about the time the boards are set up. This gives celery of fair quality, but no method

will give as good celery in the early fall as can be produced later when the weather becomes cooler. Celery grown in this way will not keep so well as that of poorer quality.—[H. R. Kinney, Massachusetts.

For Early Garden Vegetables.—The ground should be plowed deep and well manured to insure the quick growth of all vegetables. I find the addition of a little lime does well in our soil, though it might not on all soils. It does not pay to plant seeds in the open ground until it has become warm. They will not germinate readily, and many of them will be lost.

When very early cucumbers are wanted, I have found it an excellent way to place pieces of sod six inches square on boards and plant the seeds in them. I keep the sods by the kitchen stove until the plants are up, then I remove to a south window upstairs near the stovepipe or chimney, where they get heat from below as well as the warm sun most of the day. As soon as danger of frost is past I plant my sods out and thus I have cucumbers at least four weeks earlier than I otherwise would. The same course can be pursued with melons, and when one raises melons for market it is quite an item to have a dozen hills bearing a month before any of the other growers.

Sweet corn can also be grown in the same way and when one has the variety known as Six Weeks, it does not take long after setting out to have early corn. Of course the window must be kept open when there is no danger of frost, so that the plants may all be hardy, and not notice the difference in climate when set out.

I always start my tomatoes and cabbages in the house and have learned that young tomatoes take root very easily and that it is an advantage rather than otherwise to transplant them.

Peas should be planted as soon as the ground is

warm enough for them to germinate. They require an abundance of manure mixed with deeply broken soil, and should be planted at least two inches deep. I always start my early celery in the house and set it out as soon as I do my cabbages and tomatoes.

Lettuce can be grown large enough for use in a sunny window. I have grown it that way and we have had it to eat from the first of March all through the season.—[Geneva March, Iowa.

Some Good Vegetables Not Generally Grown.—Some of the most desirable garden vegetables are neglected by most farmers and many village gardeners. Spinach should be planted either in the fall or the first thing in the spring, then it will come in when other greens are scarce. If this is once tried you will never be without it. Prepare a small bed in some sunny part of the garden as soon as the frost is out. Sow the seed and nature will do the rest.

Cauliflower is another neglected vegetable. It is almost as easily grown as cabbage. It requires about the same treatment and in many respects is even more desirable. The only difficulty I find in growing good cauliflower is to get good seed, and if ordered from some reliable house there will be no trouble. Get Henderson's Snowball or Burpee's Early. Another vegetable not common and which requires no great skill is kohlrabi. This should be sown early for spring and summer use and then later in the summer sow for winter. It is given the same treatment as the turnip and possesses some of the characteristics of both the turnip and cabbage.

No garden is complete without a good supply of celery. Sow a few seeds in a hotbed or in boxes in the house, then in July transplant to rows in the garden. These should be about one foot apart in the row and the rows four or five feet apart. This can be set

between rows of early peas or beans and the ground thus made to produce two crops in one season. As soon as the first crop is removed, give thorough cultivation. For blanching, the soil may be thrown up about the plants, or if you have a few old tiles these can be slipped over the bunches of celery and they will whiten nicely. The dwarf varieties, such as Boston Market and White Plume, are generally the earliest and best for amateurs.

A few plants of Brussels sprouts will be found quite an addition, and as these are a kind of cabbage, the treatment is the same as for cabbage or cauliflower. The plants grow from two and one-half to four feet high and bear small heads, which are tender and crisp. They should be cooked or served about the same as cabbage. If your family is fond of soups, sow a short row of okra. The seed should be placed a few inches apart, then later thinned so that the plants will be one and one-half feet apart. This crop grows very easily and the long, tender seed pods will be found an excellent addition to any soup. The pods can also be gathered and dried and kept for winter use.

One of the very best and least known garden plants is salsify, or vegetable oyster. This is very hardy and is as easily grown as parsnips. Sow early in the spring in rows twelve or fourteen inches apart. When the crop is wanted for winter, take up late in the fall and spread in boxes and cover with soil. The roots will keep nicely until spring. They will probably shrivel somewhat, but when placed in water will regain their natural appearance. Properly cooked, some people prefer this to the genuine oyster. Probably the best varieties are Mammoth Sandwich Island and Bond's Mammoth.—[F. B. Van Orman, Iowa.

A Practical Farm Gardener.—I do not think it advisable to use the same piece of ground for a long

term of years; and so have this year set apart a spot never worked as a garden before. As it was very rich I have not plowed under any manure. When ready to plant in the spring I shall plow again and use some commercial fertilizer for certain crops. I find that no part of my farm yields more toward the support of my family than my garden, and so I am not very caretul to limit the extent of its bounds.

I find that it does not pay to begin work in the garden too soon in the spring, especially if the soil be clay. I have seen some gardens spoiled for the entire season by plowing when too wet. The soil was heavy at plowing and made more so by the heavy rains of spring and the sunshine. Of all discouraging places to work, a hard-baked garden is the most so. But when the earth is fairly dry and warm, I plow and thoroughly harrow my garden. If the ground be old, a liberal supply of commercial fertilizer should be harrowed in. We used to plant some kind of vegetables, such as onions, radishes and beets, in square or oblong beds; but we some time ago learned that too much labor was required to keep the weeds subdued, and have since put everything into rows, so that the horse and cultivator may do the work formerly done by hand.

The preliminaries arranged, what shall we put in our garden? With us, this plan prevails. Peas and onions go in first. We aim to have new peas by the latter part of June or the Fourth of July at the latest. Then come early potatoes. Our favorites are Early Vermont and Early Market. At first a couple of rows are planted lengthwise of the garden, to be followed in a week or two by another two rows. These furnish new potatoes to go with the peas for the Fourth, and our table supply all summer long comes from these few rows in the garden.

Radishes quickly follow, and as soon as the 1st to the 10th of May we begin to put in sweet corn. Of this we make two and often three plantings. We are very fond of this delicacy and manage to have it early and late in the season. Crosby's Early and Perry's Hybrid are favorites for early planting, and for later use Stowell's Evergreen. Beans, cucumbers, squashes and beets may come now at any time. Tomato, celery, turnip and cabbage plants are started in the house early and set out at intervals in June. We like tomatoes very much and usually put out about twenty-five plants for our own use. A row of rhubarb plants along one side of the garden furnishes material for sauce and pies early in the season. At one end of our garden we also have a few raspberries and grapevines. Strawberries we have in another field. Just as soon as the potatoes begin to peep out we start the cultivator, and from that time on we keep the horse and plow busy subduing weeds. What cannot be done in that way we finish with the hand hoe.

All that remains from the summer's using is carefully harvested in the fall. Celery we bank in October and take in a month later, packing it with plenty of dirt in a deep box in the cellar and covering it with old sacks. Here it bleaches nicely and keeps till far into the winter. Giant Paschal we hold to be the finest. It is very tender and remains fresh until February. Our garden is no longer a source of pleasure and profit; it has come to be an absolute necessity. Very few of us realize how much help a good garden is in maintaining the family. Such a garden as I have described is in every way practical upon every farm.— [Edgar L. Vincent, New York.

Marketing.—In all sections of the country, prices for garden stuff seem to rule comparatively high. In the corn and wheat belts, where staple farm produce

is low in price, vegetables are in some towns scarce and high, and in the drier sections of the prairie states a good garden appears almost an object of curiosity, while prices are correspondingly high. Pacific coast gardeners complain that Chinese competition keeps prices down, yet some assert that Chinese gardeners cannot compete with a garden worked with improved implements. Highest prices were reported by gardeners located near mining settlements. Even in small farming towns, where it might be supposed that most people would have good gardens of their own, prize gardeners often found a demand far in excess of what they had to sell.

Where no market was convenient, enterprising gardeners brought one to the farm; in other words, they took summer boarders. Some who did not care to take boarders sold vegetables to those who did. Still another says: "I sold my garden truck mostly to summer cottagers that were staying here, and so saved all expense of teaming. It was a great pleasure to them, as they could watch the garden from start to finish." These "cottagers" are people who come to the country to live in camp style for the summer and are willing to pay city prices for the best vegetables and fruit.

In some cases produce was sold to peddlers who came to the farm or garden and paid wholesale prices, gathering the produce themselves. The surplus of small city gardens was often eagerly bought by neighbors glad of a chance to secure produce fresh from the soil. But by far the most common method of disposal was to team the truck to the nearest town or city, either selling it to storekeepers or peddling from house to house. Those who had retail routes of this kind usually found them very profitable. In computing the wholesale price, they charged off from ten to thirty

per cent for retailing, but it was several times stated that dealers sometimes sold produce at an advance of forty or fifty or even one hundred per cent above the price they had paid the grower.

retailing it is of advantage in many ways to make regular trips and to take orders in advance. One gardener advertised in the local papers for customers to leave orders at a certain store. These orders were filled on the following day. Others took their own orders direct as they made regular trips. Writes A. E. Ross: "My marketing was all done in the shortest possible time. My method was as follows: I take my load over; it is all sold before I start. That is, I go to my customers, the same as this morning, take their orders for the next morning. I come home, get my load ready over night, and start at six o'clock the next morning. I go directly and deliver and take my orders for the next morning. In this way I have no running around, but get home to do a day's work. I never take an order that I cannot fill."

Tact in choosing crops often played an important part in creating a market where none seemed to exist. Such excellent vegetables as celery, cauliflower, egg plant, muskmelon, etc., are often very scarce in markets otherwise well supplied. Early cabbages, tomatoes, potatoes, turnips, etc., often sold well in places where the late crop of the same vegetable was a glut. The superior produce of irrigated gardens sometimes had great advantage.

Observes W. T. Brickey: "Whatever is grown for market should be ready at the time when people are hungry for that sort of thing, for the human appetite is as changeable as the moon." The gardener who can thus master the market needs no other receipt for money making.

CHAPTER XVIII

A GARDEN SYMPOSIUM

To shed further light upon the results of the contest, a list of several questions was sent to the twenty-five leading winners, asking their advice on subjects considered of direct practical interest, and upon which the experience of the contestants would especially qualify them to express an opinion.

Size of Garden.—The majority of replies suggest that a small garden is sufficient for the average farm. One-eighth acre is the size most often mentioned; many advise one-fourth acre or one-half acre and most of the remaining replies range between one-fourth and one acre. A few think large acreage desirable. A great many advise a rectangular piece and planting in long rows, allowing the use of horse implements in cultivation; rows to be the greatest length that the field will permit.

A good-sized, well-arranged garden is advised by A. T. Giaque, who writes: "As the average farmer is engaged with about all the field crops he can handle, one-half acre is considered sufficient, one-half of which is devoted to garden vegetables for family use, the other half to shrubbery or small fruits. If, however, it is desired to raise all the sweet corn for table use, early potatoes, melons and cucumbers within the garden enclosed, then I would say one acre is none too much. My garden has been enlarged to one-half acre to provide room for the shrubbery awarded in the late garden contest, and has two by twenty rods devoted to garden vegetables proper, one by twenty rods planted to

strawberries, the remaining rod of width being divided to blackberries, raspberries, currants and gooseberries, with young peach trees set out next the fence on the north side twenty rods in length, grapevines along the south fence, with rhubarb, horse-radish and sage along one end fence. I should have stated that off this allotment to shrubbery that the end nearest the house is a block about a rod square allotted to flowers."

Mrs. L. A. Ludwig advises from a dozen square rods to an acre for a family of five or six. C. P. Augur recommends not less than one-half acre for a family of from five to six persons. B. S. Higley thinks that if potatoes are relegated to field culture, one-eighth acre is sufficient for the garden. Mrs. W. D. Goss considers one hundred by forty feet a convenient size. R. J. Clark and others think at least one-fourth acre desirable if berries and fruit are to be included.

Causes of Failure.—"Want of care" is the cause of failure mentioned by the greatest number of replies. The same idea is expressed by the terms "neglect," "poor cultivation," etc. C. P. Augur says: "Any garden will thrive to some extent if looked after with intelligent interest and tilled with cheerful persistence. Fertility is not nearly so necessary as faithful effort."

Several replies emphasize the need of frequently stirring the soil. Others mention the need of general thoroughness. Says A. P. Edge: "Farmers too often start early in the season, but let it care for itself later and wonder why the drouth is so hard on their garden." L. E. Dimock mentions poor seed and lack of proper care in planting. C. E. Belden thinks gardeners try to do too much with insufficient help. "Farmers," writes W. P. Gray, "consider the garden but a small part of the farm, and bringing in no cash, and they put it down as a last consideration."

“Disinclination for personal labor” is the way R. J. Clark sums up his reasons for poor gardens. “When I commenced to make a garden,” writes P. H. Sheridan, “I put everything in too close, and had to do too much hand work, and the vegetables were small, and I would get discouraged and think it was cheaper to buy them than to raise vegetables.”

Another common cause, according to John Tye, is that the garden is left entirely for the farmer’s wife to look after, “and although farmers’ wives on an average make good gardeners and raise splendid vegetables, the farmer himself fails to put up a suitable fence around the garden, and some morning when the good wife goes to the garden to pull some lettuce or radish for breakfast, she finds cows, hogs or sheep have been there before her, and have eaten or destroyed nearly all the vegetables.”

The main trouble, according to A. T. Giaque, arises from getting so much absorbed in the field work as to forget to cultivate it until the weeds have hidden beyond discovery all the delicate plants that are struggling for standing room, or from “planting doubtful seeds in uncertain rows, then turning the garden over to the women for tending, and to Providence for the fruits.”

Other reasons advanced are: “Lack of nitrogen in the soil,” “want of manure,” “loose planting of the seed and at improper depth,” “inexperience,” “lack of natural liking for gardening.”

Fighting Insects.—Prize winners were requested to describe the most effective remedy for insects, according to their experience. Paris green received the most votes, its use being recommended for potato bugs in the majority of instances. Several preferred to combine bordeaux mixture with the green, thus destroying, or rather preventing, blights, etc. In using these two

remedies together, they are commonly applied in liquid form. When green alone is used, several recommend applying it clear with a poison gun, others mix with plaster or flour. One contestant urges that paris green must be used with great caution in the family garden. Another recommends paris green solution in very fine spray for cucumber beetles.

A few prefer london, purple to the green. C. P. Augur prefers as a general insect remedy an emulsion of quassia chip tea, soft soap and kerosene. For potatoes and vines E. R. Flagg prefers Bug Death sprinkled on when vines are damp. Liquid manure is spoken of by B. S. Higley as a sovereign remedy for cucumber bugs. Others use for these and squash bugs air-slaked lime, coal ashes or dust, sprinkled on the vines when wet. C. E. Brookhart humorously recommends "two small wooden paddles; get your bug on one, whack it with the other."

Complains Mr. Sheridan of Colorado: "There is a little insect that eats the leaves of my radishes when they first come up. I dust them with paris green. There is also a kind of scale that looks like flakes of bran that destroys tomatoes. I spray with coal oil emulsion with satisfactory results, also spray cantaloupe vines with the same for a green louse that attacks them."

A believer in prevention is Mrs. L. M. A. Hall, who says: "I am never troubled much with insects, as I burn all litter and garden rubbish early in the fall, thereby killing a great many eggs. On every trip to the garden I destroy every bug and egg, and two large broods of chickens do the rest."

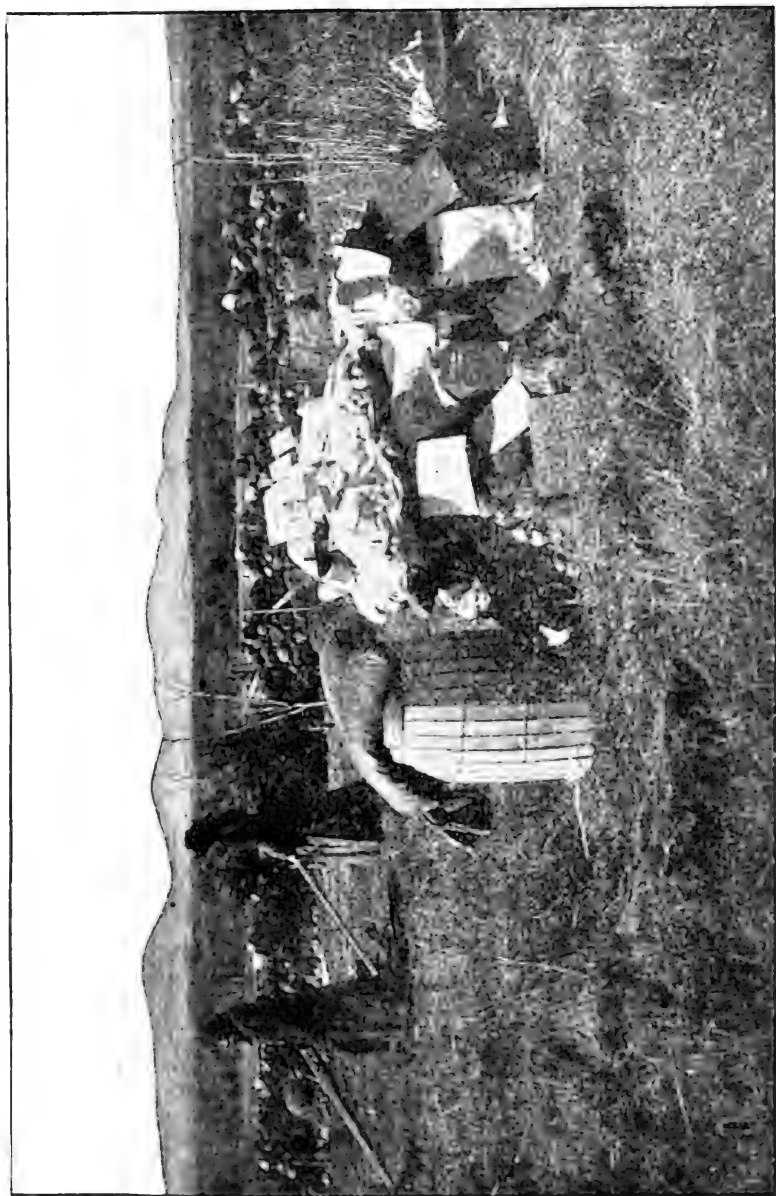
One gardener uses for cabbage worms an application of water in which tar has been kept over night. G. W. Hoover finds kerosene emulsion effective; one quart oil to thirty gallons of water, applied every two

weeks for cabbage lice and similar insects. Hellebore is usually preferred for currant worms, but some use paris green. Slug Shot is mentioned by several. A number speak of wood ashes for onion maggot and to sprinkle on young plants as a preventive.

Worst Weeds.—Purslane is the weed oftenest mentioned, and the only remedy offered is thorough cultivation. A. P. Edge half seriously suggests that gardeners encourage the use of the weed for greens. A close second in unpopularity is witch grass, also called couch grass, etc. When it becomes once established in a garden no remedy is considered effective except cultivation of a crop which requires frequent hoeing and occupies the ground the whole season. In a small garden it is practicable to root it out and carry it away, and this method is frequently recommended, using a harrow to loosen the roots and then raking them off the piece. All agree that persistent cultivation throughout the season will kill it. Several have tried spraying weeds with copper mixtures, but nobody appears to consider this method more economical than the common methods.

Other weeds and remedies mentioned are: Wild lettuce, for which prevention is declared better than cure; Canada thistle, to be dug, dried and burned; knot grass, clean culture; ground ivy, rooting out; smartweed, killed by frequent cultivation; sorrel, driven out by clean culture and by liming the soil.

The Best Six Implements mentioned are plow, cultivator, hoe, steel rake, harrow and seed drill; that is, the six above named were mentioned in the greatest number of replies. Here is C. P. Augur's list: Chilled steel reversible plow, smoothing harrow, seed drill. horse cultivator, spike-tooth cultivator and compressed air sprayer. Mrs. L. A. Ludwig prefers a spade, steel rake, ten-inch plow, whether to be drawn by one or



READY FOR THE SPRING CAMPAIGN

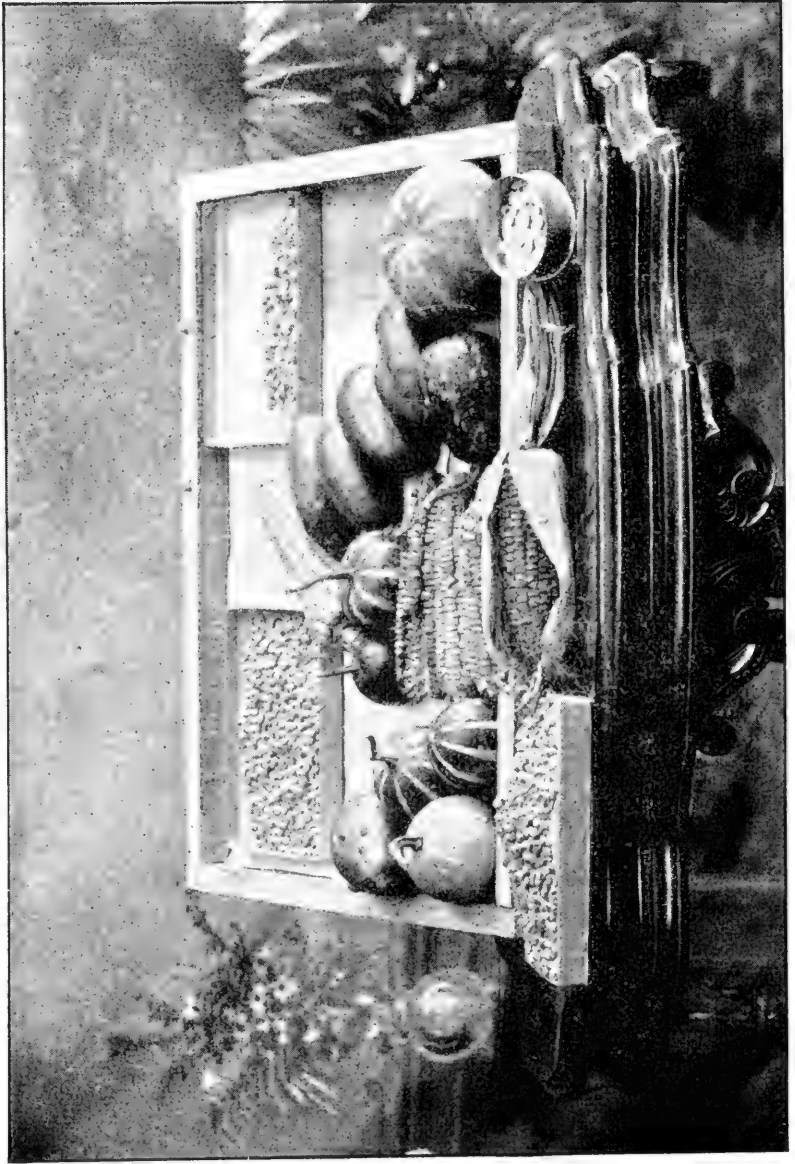
more horses, hand cart, sprinkling can, combined seed drill and wheel hoe. "But better than all, a set of nimble fingers backed by a willing, honest heart and mind." The list of B. A. Higley comprises single wheel hoe, double wheel hoe, spade, shovel, hoe, rake. C. E. Brookhart of Tennessee recommends two-horse steel turning plow, horse hoe and cultivator, steel rake, common hoe, pointed onion hoe, combined twelve-tooth cultivator and harrow. B. S. Rembaugh would choose seed sower, double wheel hoe, twelve-tooth harrow and cultivator, Breed's weeder, Cyclone pulverizer, disk and spike harrow, and a first-class plow.

Most Useful Vegetables.—The six vegetables receiving most general approval for the family garden are given below, with the varieties of each most frequently mentioned: Beans: Bush Lima, Golden Wax and Black Wax. Peas: Nott's Excelsior, Little Gem and Gradus. Tomato: Livingston Perfection, Ponderosa, Dwarf Champion. Cabbage: Early Winningstadt and Sure Head. Corn: Country Gentleman and Evergreen. Onions: Yellow Danvers.

"The choice of vegetables is a matter of taste," thinks A. P. Edge of New Jersey, but he mentions corn, peas, asparagus, tomatoes, potatoes, cabbage, string beans, lima beans, onions, celery and egg plant, without naming varieties.

For a southwestern list is quoted C. E. Brookhart's choice of White Silver-skin onion, Long-standing spinach, Nott's Excelsior pea, Burpee's Green Pod bean, Early Bassano beet, Ponderosa tomato Winningstadt cabbage, Early Summer Crookneck squash, Hollow Crown parsnip, Chartier radish.

"I believe, if I should be limited to only ten varieties," remarks John Tye of Minnesota, "I would prefer onions, beets, carrots, peas, cabbage, beans, tomatoes, cucumbers, lettuce and radish, although turnips, celery



NOVEMBER PICKINGS FROM A WOMAN'S GARDEN

and a few early potatoes should be in every farmer's garden."

In his superb Missouri garden, B. S. Rembaugh found this list desirable: Egyptian beet, Valentine beans, Nott's Excelsior peas, Chartier's radish, White Plum celery, Jersey Wakefield cabbage, Maule's Success tomato, White Spine cucumber, Country Gentleman sweet corn, Early Ohio potato, Tip-top muskmelon.

Southern gardeners will note the list of Mrs. J. W. Bryan of Georgia: Asparagus, Conover's Colossal; beans, Kentucky Wonder; cauliflower, Early Snowball; burr artichoke, Green Globe; celery, White Plume; okra, White Velvet; parsnip, Improved Guernsey; green pea, American Wonder; salsify, Mammoth Sandwich; tomato, Paragon.

A state of Washington competitor, A. C. Butcher, advises Early Rose potato, Yellow Danvers onion, Rust Proof Golden Wax bean, Fordhook sweet corn, Sure Head cabbage, Bliss Everbearing pea, Hubbard squash, Hollow Crown parsnip, Denver Market lettuce and Purple-top Strap-leaf turnip.

A good New England list comes from F. R. Trask of Massachusetts: Red Valentine, Goddard, Worcester Pole beans; Clipper, Gradus, Pride of Market peas; Corey, Crosby, Country Gentleman, Stowell corn; Puritan tomato, Hubbard squash, Columbia beet, Early Milan turnip, Victoria spinach, Hanson lettuce.

This list is from New Jersey: Hanson lettuce, Early Turnip and Long Red radish, Eclipse beet, Ne Plus Ultra and Country Gentleman sweet corn, Winningstadt and Burpee's Sure Head cabbage, Little Gem, Gradus and Telephone peas, Flageolet Wax and Burpee's Dwarf Lima bean, Snowball cauliflower, Danvers onion.

A few winners mention a variety of vegetable or fruit which they consider the most promising. Among those mentioned are Ponderosa, Quarter Century, Success tomato, Gradus pea, Iceberg lettuce, Yellow Transparent apple, Black Jack squash, Self-blanching celery, Scipio bean, Kleckley Sweet and Santiago



HOMESTEAD OF A NEW YORK STATE WINNER

melons, the Idaho coffee pea, Bismarck apple, White blackberry, Rocky Ford muskmelon. "I can name hundreds that were promising before I tried them," observes one gardener, and the unwillingness of prominent winners to praise doubtful novelties is in refresh-

ing contrast to the extravagant talk of interested seedsmen.

Most Desirable Flowers.—Sweet peas lead in the replies, then come asters, pansies, pinks, dahlias and petunias. Nearly all replies mention sweet peas. R. J. Clark of Massachusetts prefers gladiolus, dahlia, perennial phlox, sweet pea, petunia, morning glory.

“Roses in variety first, last and all the time,” urges Mrs. L. A. Ludwig of Kansas, “peonies, gladiolus, perennial phlox, sweet pea, pinks, pansies—but it is hard to stop when there are so many that are best.” Mrs. L. M. A. Hall of Connecticut prefers roses, pinks, hollyhocks, petunias, verbenas, morning glory, gladiolus, asters, phlox, sweet william. Mrs. Bale of New Jersey chooses sweet peas, nasturtiums, phlox, chrysanthemums, roses, asters. B. S. Higley of Ohio, first regular prize winner, and an expert on floriculture, mentions asters, dahlias, gladioli, nicotina, stock (ten weeks) and sweet peas.

Second Crops.—A contest garden making a rather poor showing all the first part of the season was frequently changed to a very profitable enterprise upon adding the value of the second crops. The big returns from some of the best gardens were to an important extent the result of making the land do double duty. Where the garden was irrigated, second crops were usually grown to especial advantage, being largely independent of the midsummer drouth. Celery after a great variety of early crops proved an effective money maker, and is most favorably mentioned in the replies. Next come cabbages and turnips, both profitable crops for market or stock.

Writes Mrs. L. M. A. Hall: “After each crop is harvested, I sow turnips with rye. The best of the turnips are pulled, then the cows and hens have the rest. The rye roots keep the soil from washing in win-

ter, and after a good growth in the spring it is plowed in." The above plan is hard to excel for a farm garden in the north. Many gardeners farther south speak of crimson clover to be sown in late summer and plowed under the next spring. Several find winter radishes the best-paying crop to follow early peas. A Massachusetts grower succeeds in getting a profitable crop of squashes after peas. Another succeeds with late sweet corn. Mr. Hoover of Colorado finds second crop spinach or dandelions profitable.

Prize Bits of Experience.—To the request to state the most important bits of experience gained from the prize gardens, a large number mentioned the training gained by keeping an accurate account. Others valued most highly an increase in their ability to appreciate a good garden. Many spoke of the value of thoroughness, which their work on the prize gardens had emphasized. "Painstaking attention to details and to keeping accounts" is the way Mrs. L. A. Ludwig sums it up.

Declares C. P. Augur: "The most valuable information obtained was the knowledge of how valuable a garden was." "To be patient, work earnestly, fast and hard when the right time comes," was the lesson taught E. R. Flagg. B. S. Higley concluded that "a garden is more important as giving fresh and desirable vegetables than as a source of profit." Asserts A. P. Edge: "I am now satisfied that the garden is the most valuable piece on the farm in dollars and cents."

The value of good seed and thorough cultivation was strongly impressed upon L. E. Dimock. A great source of surprise to C. E. Brookhart was the large per cent of the daily fare of the family that can be obtained from a garden. It was noted by W. P. Gray that a surprisingly large amount of vegetables could be

raised on a small plot by doing a little planning so as to get two crops from the same land.

"No more should be planted," observes Mrs. L. M. A. Hall, "than one has room to allow to grow to its largest size of perfection, and time to cultivate properly. It does not pay to grow an ill-fed, stunted, crowded, ill-cared-for plant, any more than it does such a child." Another contestant was taught that "however well one may do, there is always somebody who can do better." B. S. Rembaugh brought away the idea that "it is wise to always do everything the very best I know how, regardless of circumstances."

"We learned that the strongest plants only should be set, and the weaklings thrown away," says G. W. Hoover. Declares A. C. Abrams: "We have ever prided ourselves on having a good garden, and neighbors and friends have often acknowledged the fact that we were leaders in the van. But the garden contest proved its merits in a financial point of view, thereby stimulating us to a more thorough management of the whole thing in detail. Our experience has proven conclusively, not only for a ten days' trial, but for a whole year, that vegetables and fruit for diet are much more healthful and palatable, say nothing about the economy, than so much of the strong meat and the king's wine."

"Perhaps the most important lesson learned from my experience in the prize garden contest," concludes W. K. Cole, "was the necessity for attention to details; the small things that are so apt to be overlooked—often the difference between failure and loss. Success and profit depend upon these little things and immediate attention. The man or woman, boy or girl, who can and does do the right thing at the right time is an assured success."

CHAPTER XIX

PRIZE PICKINGS

Garden Bookkeeping.—Some of the account books, while excellent as prize efforts, contain too much work for use every year. The best practical books are those which are simple, yet enable the gardener to know just what he is doing. There should be a place for each crop by itself as well as an account for the garden as a whole. All dates, costs and varieties should be recorded, as well as all receipts. It is a convenience to have all crops worked out in acre terms. There should be plenty of room for jottings, a simple pen map or chart of the garden and an index to pages. Books consisting of detachable sheets allow spoiled sheets to be removed and permit also of the use of a typewriter. A page from an account of this kind is shown on Page 279, reduced to one-third. It is from the book of H. B. McAfee of Missouri, a model piece of bookkeeping, although for other reasons not a prize winner. Both in their accounts and in letters written since, very many contestants speak of the great value of a good garden account, as a guide for the following year.

It is likewise of interest to note that although most of the contestants were practical farmers or their wives, the per cent of well-kept and systematic bookkeeping is quite a high one. The contest was not one of bookkeeping, yet a large proportion of the best gardeners know thoroughly the art of keeping accounts in ship-shape manner.

Working the Soil and Crops.—In planting and cultivating my garden, I have depended very largely on

my single wheel hoe, cultivator, rake and plow. Such crops as peas, beans, etc., I plant in very quick time in the following way: After the ground has been spaded and raked smooth, I make a furrow with my plow, drop in my seed, run the plow back the other way on the ridge and my seed is nicely covered. I then firm

SUMMARY.

	Cost	Receipts.	Gain
Beans	\$11.47	\$32.62	\$21.15
Beets	10.14	19.31	9.17
Cabbage	6.45	20.75	14.30
Lettuce	2.85	29.80	16.95
Onions	11.47	55.77	44.30
Peas	13.76	13.40	.36
Radishes	2.09	12.92	10.83
Spinage	8.53	15.10	6.57
Tomatoes FIELD 1)	5.75	12.49	6.74
" " 2)	4.98	39.76	34.78
Turrips	5.23	15.48	10.25
Total	\$82.72	\$ 267.40	\$175.40

A CONVENIENT GARDEN SUMMARY

the earth down with a hand hoe and my feet. I could save time here if I had a roller. I can plant in this way in one-third the time it takes me with hand tools, and do better work, too. In cultivating and weeding I depend entirely on my wheel hoe, and know, by actual test, that I can do four times the work in an hour that

I can do with old-fashioned methods. One does not have to stoop at all, but can stand erect, while using these tools.

After every rain I went over the whole garden with the wheel hoe, and two or three days later with the cultivator or rake, so as to keep the top of the ground loose. During the dry weather I went over the garden about once a week. I found I could easily cover my whole garden in about two hours, and by doing it as often as I did never had any weeds of any size to contend with.

Visitors almost always commented on this lack of weeds, and thought I must have spent lots of time weeding, while I did not consider that I had done any weeding at all. I was simply keeping the ground in proper condition to retain moisture, and in doing so really spent very little time. As all the work in this garden was done by myself in my spare time, the ability to do a good deal of work in a short time is quite important, and the wheel hoe has proved invaluable as a time saver in the two years that I have used it.—[Dr. W. Y. Fox, Massachusetts.

Take time to thoroughly prepare the ground before planting, so that it will be well pulverized, free from stone or rubbish that can clog the sower or weeder. Begin cultivation early and cultivate often. If this is done with the improved tools, but very little hand work will be necessary. Have a supply of cabbage, cauliflower and celery plants on hand, so that if any crop fails the land will not lie idle. Keep tools bright and sharp. Do not plant too thick, but give plants room to grow. Plan to have a succession of fruit and vegetables and work your plan.—[Andrew Kingsbury, Connecticut.

I manure early, usually on the March snow, and freely. My rule is to cover the snow out of sight, then

scatter on a load or two more to fill possible bare spots. I plow the first day I find the ground thawed, and plow deep, running twice over each furrow, the second time in the bottom of the first furrow. I plant everything a little earlier than the neighbors think safe, and replant if killed by frost. The first day I can see the rows I begin hoeing and weeding, and keep it up until haying calls for all my time. I endeavor to walk over the garden so as to see everything in it every day, until the plants are well started and can take care of themselves.—[A. P. Hitchcock, New York.]

In planting my garden, I put everything in rows far enough apart to admit of the horse cultivator; the rows all run the long way of the garden. As soon as any variety was planted, I at once marked it with a stake bearing the name of the variety and date of planting, using painted plant labels tacked to pine stakes. The writing was done with lead pencil and remained perfectly legible for months. The planting of all small seeds was done with a combined hill and drill seeder and cultivator. This same implement with hoes substituted for the seed drilling parts was used for cultivating next to the rows when plants first appeared.

The soil can hardly be made too rich for a successful garden. I want to keep my plants on the jump from the time they first appear until the crop is ready to gather. Good seeds and a rich soil, kept free from weeds and mellow by frequent workings, are conditions which render a good garden a certainty if blessed with seasonable weather and rainfall.—[E. G. Packard, Delaware.]

I never allow any weeds or rubbish in my garden, to harbor mice or vermin, but keep it well cultivated and clean, and I think that is the way to success, not only in the garden but on the farm. I always manure

and plow my garden in the fall. I think it is much better here, as one is apt to plow it when it is too wet if left until spring, and this makes it bake hard and work up lumpy all summer. We can plant vegetables quite a little earlier, too, and this alone is a sufficient reason for plowing it in the fall.—[John Tye, Minnesota.

I have gardened fifteen years, but never had a garden so good as the one I had this year. By putting in the seed with a drill, I got all the seed in the ground and covered properly; every row straight and just as I wanted it. I can cultivate with a wheel hoe just as fast as I can walk over the ground.—[Mrs. Lizzie Snyder, Oklahoma.

I make a point of going over it with either hoe or rake after every shower, otherwise it forms a crust and dries fast. July 22 it is absolutely free from weeds, I believe not one on the plot. Perhaps it would be better if there were more, then I should have to hoe it oftener.—[W. S. Newcomb, Vermont.

My garden has been the freest of weeds of any field I ever cultivated in the twenty-five years I have farmed it here, proving to my mind that our weed seeds are grown and sown every year. To test this point still further, on September 9 I took a basket, went in and pulled up every weed and bit of grass I could find and carried them outside the field. I put in five hours and was surprised to find so many varieties in such a small bulk of weeds. I noted the name of every one I knew and found thirty-four varieties. Who can tell us how many kinds of weeds can be counted on an ordinary farm?—[W. D. Hinds, Massachusetts.

In summing up I would say, and urge the importance of it, keep the garden free from weeds. Do not try to do too much. The greatest mistake I have made in my gardening has been in trying to do too

much. Had I planted less and tended it better, my success would have been greater. A small garden well tilled is far better than a large one overgrown with weeds. My fruit and vegetable garden has been kept clean, but the onion and beet patch were badly neglected.—[N. C. Kneeland, Minnesota.

Using the Wheel Implements.—The value of these new garden implements, the improved wheel hoes, drills, markers, coverers, cultivators, etc., was emphasized throughout the accounts, particularly by those who tried them for the first time, and the conclusion is evident that a garden without good wheel implements cannot begin to compete in the economy of operation with one properly equipped. Only a few are quoted from scores of opinions to this effect:

The Anti-clog weeder does splendid work, kills nearly all weeds and leaves the soil fine and in excellent condition to retain moisture.—[A. L. Coffin, Maine.

Lacking a wheel hand hoeing machine, I put the broad sweeps on my horse hoe and tried the experiment of pushing it by hand, while the plants were small. With judicious setting of the wheel and patience in learning the proper way to hold the handles, I found I could clean out the weeds between the rows two feet apart or less to within an inch of the plants, do it as easily as with a hoe, and about seven times as fast. I don't suppose it was so handy as a special garden tool, but it worked.—[A. P. Hitchcock, New York.

It's only fun to garden with the wheel garden tools. No more backaches and bad tempers.—[Mrs. Hattie Ferguson, Maine.

If the garden is properly laid out and planned, little hand work is required. I lay out the rows far enough apart to work a horse cultivator between them, using a twelve-tooth cultivator. I can run it so close to the rows that but little hoeing is needed. Of course



USING A HORSE HOE AS A HAND CULTIVATOR IN A PARSNIP BED

everything has to be thinned out later in the season, and the weeds have to be cut out or pulled where you cannot run the cultivator.—[C. L. Russell, Vermont.

I think the wheel hoe alone a more serviceable tool in the garden than the combined drill and hoe, in that the wheels are larger and the connecting arm higher. The boys are sure they can do more work with it and do it easier.—[Charles Pierson Augur, Connecticut.

We first run the double wheel hoe, allowing the wheels to straddle the row, thus taking out all the weeds in the row between the rows and leaving only about two inches in the row, which we finish by hand.—[E. Elton, Nebraska.

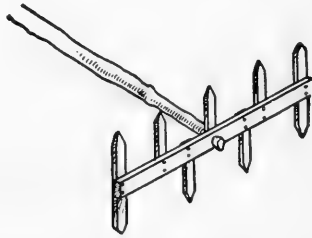
I believe the crop would have been almost a total failure, like some of our neighbors', had we not used a weeder, which stirred the surface of the soil, forming a mulch and arresting evaporation and conserving moisture for the plants. We also owe much to this valuable tool in most all parts of the garden. I consider the wheel hoe to a hand hoe what the mowing machine is to a scythe.—[L. E. Burnham, Massachusetts.

My time spent in work must have been far more were it not for the wheel hoe used before the weeds had a chance to start.—[Mrs. L. M. A. Hall, Connecticut.

I used an old gate to drag over the top of potato rows as the potatoes were coming up. It killed the weeds without much harm to the potatoes.—[H. E. Hale, New Jersey.

Garden Conveniences.—I use a homemade marker when I want to sow only a few seeds or to set out plants. It is made from one and one-half by three-inch stuff, four feet long. In this a pole from the woods is firmly fixed for a handle by boring a one and one-half-inch hole at the center through the scantling. The end

of the pole is sharpened enough to go through the hole and then wedged behind to keep it from drawing out. It is also braced with a piece of lath from each end of the scantling. Pieces of lath one foot long are sharpened and nailed firmly to the back of the scantling, so



that one side makes drills one foot apart and the other side sixteen inches.—[W. H. Pillow, New York.

Protection from Cutworms.—Fold old newspapers and cut into sheets, say nine by twelve inches. Paint with cheap, quick-drying black paint or waterproof varnish. Sticky paper covered with rosin and sweet oil will answer for one season. Cut the sheets from edge to center. The plant being set, slip a paper



around it and place a clod or stone on the lapped edges of the slit near the plant and otherwise secure it against winds. This will flare the edges, cast water to the center, let air under to prevent mold and yet is dark and retains moisture. The grub prefers the ground on

which to travel and will not attempt to crawl onto the paper. The papers if properly cared for will last for a number of years, and can be safely taken away from the plant in a week or ten days.—[Dr. M. W. Streatly, Pennsylvania.

Most vegetable growers and also those who raise flowers are often greatly annoyed by the cutworm at transplanting time. An entire garden set with young plants may be practically devastated in a few nights by this worm. Being a hidden enemy, it is all the more difficult to control. A Minnesota gardener writes :



I have found the device shown at *a* in the illustration very successful in keeping cutworms from injuring my garden. The pest cuts off the young plants just above the ground during the night. To prevent this, take any kind of paper, preferably a stiff wrapping paper used at grocery stores, cut a strip about three inches wide and as long as is required to wrap two or three times around the stem of the plant, leaving enough space for development. Make the hole in the ground, put in the plant and then enough soil to cover the fibrous roots. Wrap the paper around the stem and fill in with soil both inside and out so that one-half the paper will be below the surface and half above,

as shown in the illustration. The plant will then not be injured by the cutworm. I have treated cabbage and tomato plants in this way and have not lost one. I do not know how successful this would be in the market garden, but in my own private plot it has worked to perfection.

I have been informed that by planting a few castor beans here and there in the garden the cutworms will be destroyed. A lady friend planted a few of these on the south side of her pansy bed as a protection from the sun, and she found that she had accomplished more than she had intended, for in the morning when she went to look at her flowers she found numbers of cutworms dead on the top of the ground. It is thought that the worms eat the roots of the castor bean and find them fatal. The great objection to this plan is that



the bean grows so rank and casts so much shade that it is injurious to other plants.

The Little Point Hoe is an implement made especially for us women to use by my uncle, who took a common hoe which had one side of the blade broken off, and cut the other side off, leaving a blade about two inches wide. This has been worn by constant use till only the midrib of the hoe is left, which is worn to a point. In the hands of an energetic woman it is a most efficient tool for destroying weeds, loosening soil and working close to any plant desired.—[Una Eugenie Knight, New York.

A Handy Tool.—The cut above shows a weeder made from inch hoop iron, described by R. J. Clark of Massachusetts, who has a pair of them that he has used

several seasons. Use one in each hand. They are cheap and effective.

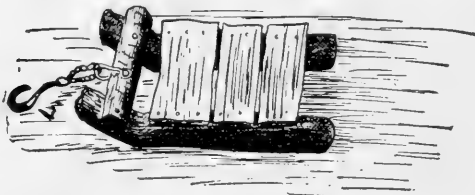
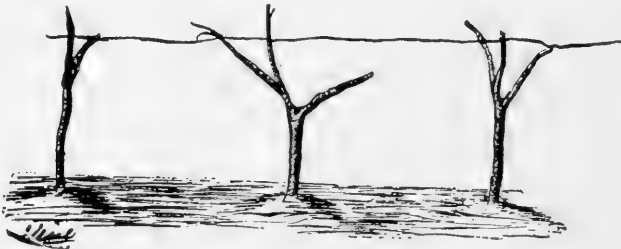
A Long-handled Weeder.—I have used a long-handled, diamond-shaped weeder in my work in the garden. The handle is about three and one-half feet long, or long enough so that I can stand upright and use the weeder, which I find very satisfactory for the work given over to it. The weeder part is made diamond-shaped out of a piece of thin steel, and firmly fixed to the handle. It is the best hand weeder I ever used. This is the testimony of John Costello of Coos county, New Hampshire, who has had much practical experience in garden work.

Markers.—I mark rows either sixteen, twenty-four or thirty-six inches apart. For the latter class the corn marker serves; for the others I simply nail three or four small stovewood sticks on a piece of old scantling, rounding the marking ends a bit, and two bean poles nailed to the top make thills to draw it by. It takes ten minutes to make one, and I find it simpler to make a new one each year, use it and knock it to pieces, than to preserve it.

Lime Sifter.—To sprinkle air-slaked lime on vines, etc., I put a peck or so in a coarse burlap bran sack. Two or three jerks over a hill covers it with the fine dust.—[A. P. Hitchcock, New York.

A Roller Remodeled.—I had a hand roller, or in other words a man-killer, twenty inches in diameter and thirty-six inches long. I came to the conclusion that if properly fitted up it would be better adapted to animal power than human. So out of some lumber I had, I made a frame and shafts combined. Sawed one of the two-by-fours in the center, making two pieces two by two, twelve feet long. The other two-by-four I sawed into four pieces. Three pieces I used for crossbars; the fourth piece of two-by-four I sawed in

the center, making two pieces eighteen inches long. Made journal boxes out of these and fastened them firmly to the lower side of shaft frame. The three two-by-four pieces I used for crossbars, cutting a tenon on the end of each an inch deep, two and three-fourths inches long; then I bored six three-eighths-inch holes through same pieces, also through shafts, bolting them firmly together. Then nailed short pieces across the shafts in diagonal position about a foot long, making them very rigid. The rod that ran through the center of rollers was too short for the shafts. Had



STONE BOAT AND VINE SUPPORT

a blacksmith weld three inches on the same. When this was done, connected shafts and rollers, which worked admirably. Fixed a seat on same and then went to work.—[B. S. Rembaugh, Missouri.

Stone Boat and Vine Support.—A New York state gardener sends drawing of a stone boat, which proved handy when the land was to be cleared off after plowing and harrowing. It is as simple as possible, the runners being made of sticks with a natural bend. A

sketch of a rough and ready support for vines comes from the same source. The stakes are from tree brush, to which is fastened a single wire.

Best Time to Work the Garden.—Cultivating and hoeing in the early morning when the dew is on the earth is far preferable to doing it in the heat of the day. I arise at four o'clock and breakfast at six in the summer season. In the meantime I devote from one-half to two hours in the garden, hoeing, weeding, cultivating and gathering cool, crisp radishes, lettuce, cucumbers, peas, beans, squash, beets, etc., for the morning and noontime meals. Vegetables gathered when the dew is on them are of the finest quality. Early to bed, early to rise, gives a good appetite for breakfast, and adds days to our lives.—[L. E. Dimock, Connecticut.

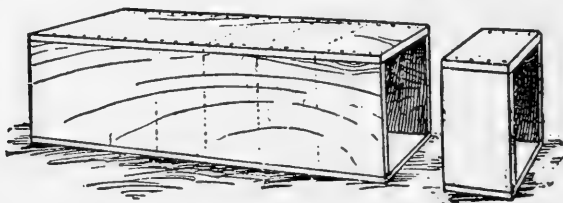
Hand Weeder.—I have a patent device which makes the work a little harder and slower than without it. So I broke a foot off the point of an old scythe, bent two inches of the top at right angles, sideways, hammered the edge of the rest down, wrapped it in a rag for a handle, and found it very useful in some cases. But thumbs and fingers must do most of the fine work.—[A. P. Hitchcock, New York.

Clean Digging.—We have found that for a small acreage, a fork is the most economical instrument with which to dig potatoes, because the plow or potato digger covers a great many which can never be found. Do not put potatoes in the cellar until seasoned.—[A. Brackett, Minnesota.

The potatoes were dug by turning a light furrow from either side of the row, and then raking over the center with the potato hook. This method is used here more than any other. As yet no potato digger has been found that does its work satisfactorily.—[Charles P. Augur, Connecticut.

Scaring the Birds.—As the garden was at a little distance from the house, scarecrows became necessary when the corn began to appear above the surface of the ground. Those used were made from a potato stuck full of the wing and tail feathers removed from poultry strangled for market or home use. A stout string about three feet long was tied around the potato and it was then suspended from the end of a bean pole or fishing rod stuck in the ground among the corn. It takes less time to prepare one of these “potato birds” than to shoot a crow, and when suspended in the field they appear to serve an equally good purpose.—[E. R. Flagg, Massachusetts.

Plant Boxes.—Gardening operations require a great number of boxes. These may be without top or



bottom, to be used with mosquito netting as protectors for squash, melon and cucumber plants, or with bottoms for use in starting plants early in the season. To make such boxes or protectors, by wholesale, follow the plan shown in the cut. Take four wide boards and nail them firmly together as shown. Then saw off the boxes as is also suggested. They are now in shape for protectors. If boxes are needed, nail on bottom boards.—[W. D.

Tomato vines were allowed to climb an upright trellis of wire netting. They needed but little tying and yielded better than those on poles or tied to stakes or trailing on the ground.—[A. E. Lathrop, Massachusetts.

Making Plants Live.—If the season is a dry one, it is a good plan to insert near the newly-set plant an old fruit can with several small holes punched in the bottom, and keep it full of water.—W. McDermott, New York.

Points on Potash.—Last season I did not know exactly how to use ashes, and proceeded to experiment with various garden crops on a sandy soil, clay bottom, southeast slope. On one strip I spread broadcast unleached hardwood ashes at the rate of about five pecks per square rod, or some two hundred bushels per acre, and on another strip half that amount. Above and below these strips I put none at all. In this field in rows north and south and crosswise the strips, I planted potatoes, sweet corn, sugar beets, watermelons, muskmelons, tomatoes and sunflowers. Each strip was treated in exactly the same way in every respect except for the ashes, which were put on early in May.

The corn, potatoes and melons were all much better where the ashes were applied, but not much difference was noted between results of the large and the small amounts. The sugar beets grew the same size on both strips of ashes, but where none was put on the beets were only half as large, although richer in sugar.

With tomatoes best results were obtained on the strip where the smaller amount of ashes was applied. Too much was worse than none, as it caused an excessive growth of vine and a vast number of worthless small tomatoes. I should now use two pecks to the rod. The sunflowers did not show a clear enough difference to report, but I think the ashes helped them. In another place I had a patch of onions and these were very much improved by one hundred bushels ashes per acre, the difference being at the rate of about three to two in favor of the ashes.

Summing up, I found that nearly everything I tried the ashes on was benefited by the application, but that the smaller amount was as good and in some cases better than the larger. As ashes draw moisture and tend to bind the particles of sandy soil together, they serve to help resist drouth under good cultivation.—[R. M. Dunlap.

In a large box I first placed two inches of leached wood ashes. Over this I spread a layer of wheat bran, packing it down with a maul. I continued until the box was full. The box was allowed to stand for two months, when the contents were stirred up and applied to a field. It proved as valuable a fertilizer as barnyard manure or commercial fertilizer. It can be made at a cost of forty to fifty cents per one hundred pounds. It can be drilled in or applied by hand. For wheat it has no equal.—[W. A. Kimble.

In my experience, all valley land or land subject to waste lacks potash.—[J. L., New York.

Two teaspoonfuls potash to one and one-half gallons water will kill the pea aphid without injury to the plants.—[C. P. Augur, Connecticut.

Special Remedies.—With my tomatoes there were some that seemed to be dying, and on examination I found a small mite or scale on the under side of the leaf that looked very much like a flake of bran. I pulled up the worst ones and carried them away to burn, then I sprayed the rest with coal oil emulsion, at a strength of one gallon of oil to forty-five gallons of water and one pound of Russian soap. It seemed to kill nearly all the scales. I had to turn the plants over so I could get at the under side of the leaves.—[P. H. Sheridan, Colorado.

Here hangs my knapsack sprayer, which with me has entirely superseded my old hand and foot force pump sprayer. This little rubber bulb spray throws

the material eight or ten feet high, so that the tops of all my grapes and gooseberries are easily reached.

With a whitewash brush we smeared all the grapevines from the ground to the outer ends of the stems with the blue vitriol solution, with enough lime in it to show quite white. We also did the trunks of all the young trees, clearing away the soil slightly and extending up beyond the first crotch.—[F. J. Bell, New Jersey.

Poles and Brush.—I cut my bean poles when getting wood in the winter, and sharpen them, leaving them handy to the garden. I bring down my pea brush also on top of the wood, sharpen and trim them and put them in small heaps with a weight on them, so they will flatten out and be in shape to set better in the rows. Much time and hurry is saved by doing this work in winter and having everything ready when the plants require it.—[C. E. K., Connecticut.

Experience has taught us that pinching back the vines causes them to bear twice the amount of melons.—[L. C. Wright, New York.

Mistakes.—The season seems too short for brush lima beans. We shall not plant potatoes between rhubarb rows, as they receive too much shade. We should have provided the tomatoes with a trellis.—[Miss Barbara Brown, Indiana.

The Struggle That Wins.—This bit of biography by a New Hampshire prize winner, A. E. Ross, shows of what stuff successful contestants are made: "I remained at home till I was twenty-one and then went to work for one of my neighbors, and continued to work out until 1889. When in search of a place where I could get more money, I came to Somersworth and entered the Great Falls Manufacturing company. I went into the dress room, where I soon learned, and by steady habits I soon secured one of the best jobs

there, which paid ten dollars a week. About this time I married a lady who worked in the card room. It was our aim from the first to get us a home. We commenced by saving every cent that we could. When



PICKING PEAS FOR DINNER

we had one thousand dollars we went to Taunton, Massachusetts, and looked at several places, but saw nothing that we wanted. We came back and went to work. Soon we saw the advertisement of the place we now call home. We found it would take two thousand

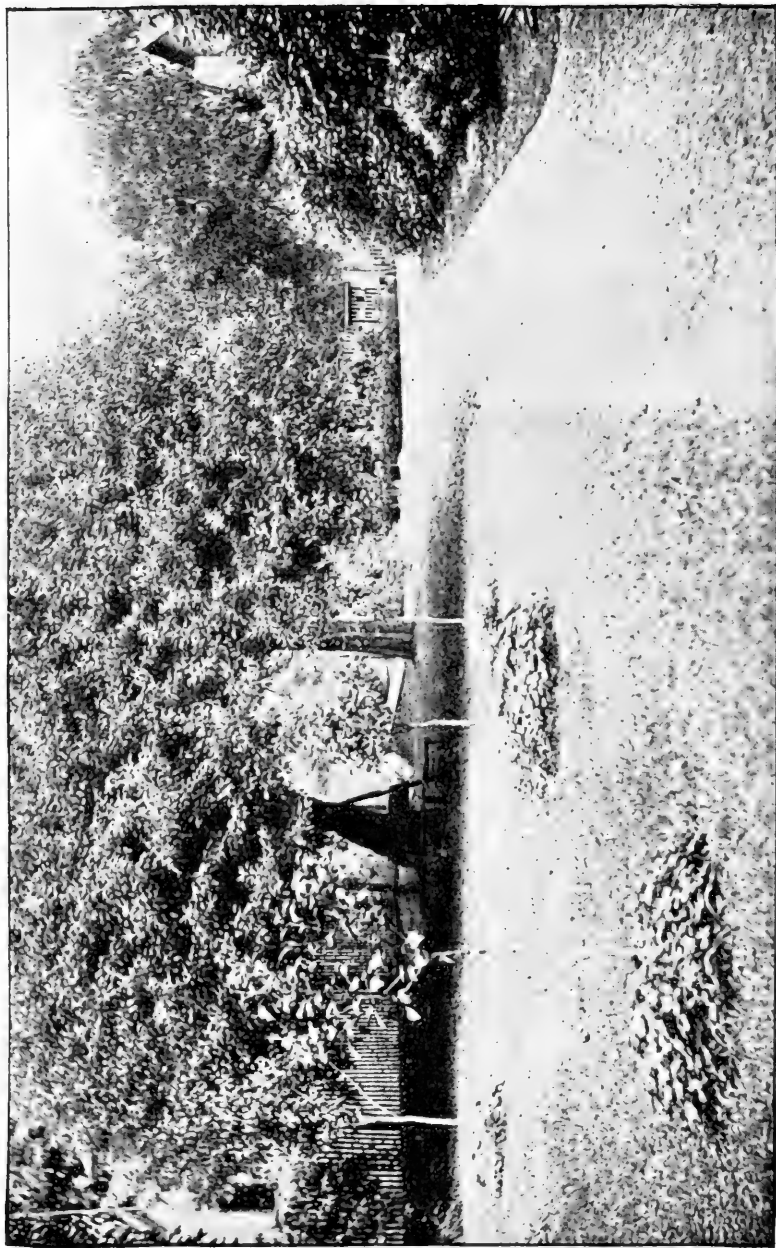
dollars to buy it. We paid one thousand dollars down and gave our notes for two hundred dollars a year, with the privilege of paying up as fast as we could. The mortgage was at the rate of five per cent. At the end of three and one-half years we had paid the balance, bought teams and furniture. Still we kept at work in the mill until we had enough to buy all the tools and do all the repairing necessary. My wife has worked in the shop until now and has quite a neat bank account to her name."

Solid Comfort.—I consider my garden has been a paying investment because of the pleasure in caring for it and the luxury of vegetables on our table, even without any other profit.—[L. E. Burnham, Massachusetts.

If enjoying anything is of any account, the garden has paid beyond expectation. It could be made more pleasurable another year by having greater variety of products.—[Charles Cooledge, New York.

There are some things that do not pay so far as money goes, but which give returns that money cannot buy, and one of these things is the pleasure of seeing things grow and mature their fruit, and knowing that your work brought it to pass.—[R. L. Porter, Massachusetts.

Our garden has been a source of pleasure as well as wonder to us and our friends, that so much could be grown on such a tiny little spot. A row of Caprice nasturtiums fifty feet long in their gorgeous beauty for a fence on one side, and a row of squash vines, trimmed back, with their wealth of fruit on the other, and the rows of cabbage and Brussels sprouts separated by rows of scarlet peppers and tomatoes, with the dark red foliage of the beets and the feathery carrots made a beautiful fall picture. We counted at one time fifteen distinct colorings and markings, from pale yellow to



SHADY LAWN OF A PROSPEROUS GARDENER

the darkest crimson blossoms, on our nasturtium vines, while the foliage was a combination of light and dark, making the plants very attractive. Just the variety for the window box or for anyone who has little space.—[S. L. Parker, Massachusetts.

If I had bought the produce at wholesale prices, the time spent to go after it would more than equal the time spent in my garden.—[G. V. Dewey, Tennessee.

I place more value on the garden than the figures show. Vegetables should be on every farmer's table, fresh and sweet.—[C. E. Deets, Iowa.

We have not been without flowers for our table and sitting room from July to November 1. They have been given to friends and used for church decoration. It adds to the pleasures of a garden to have also all small fruits suited to the climate, and herbs, pie plant and all vegetables.—[Marcia H. Howlett, Wisconsin.

We aimed to keep as accurate account of time spent as possible, and have been surprised that the number of days of ten hours each have been so few.—[Miss Mary Gilman, New York.

The Family Garden.—A good gardener and true lover of country life and work is not repaid in dollars and cents alone. Writes L. E. Dimock of Connecticut: Dry figures can never reveal the hopes, the fears, the pleasure and the trials, that make the family garden indispensable to the perfect enjoyment of farm life. I say our garden, because, while nearly all the labor in it was performed by myself, yet for the whole family the garden is always a place of absorbing interest. The madam likes to stroll there in the twilight hours; the married daughter, with a home and a garden of her own, delights in wandering through its green mazes frequently and make comparisons with the garden at her own home. The son, deep in the knotty problems of Coke or Blackstone, has visions of the home garden

rise before him, and straightway he makes a pilgrimage to its cool shade and its sunny avenues, and forgets the law in eager comparison of varieties of lettuce, or in noting the swelling of incipient melons. The children love it from the burying of seed in the warm earth to the gathering of the harvest. Their eager feet are ever treading its pathways and their eager hands are ever ready to assist in its care. There are other partners. The birds and the bees are there, bless them. Even the chickens feel they are entitled to help.

Garden work was recreating and was performed at odd moments, when resting from the regular routine of farm work. Who can have the sordidness to claim that the crisp, tender, toothsome dainties furnished for the home table, or sent as a present to a friend, can be adequately represented by a few pence set down in a daily account?



PRIZE WINNERS

LESTER C. WRIGHT

was born in Oswego, New York, December 1, 1849. He attended the public schools of that city and the Oswego high school, and then studied law, intending to be admitted to the bar. When his hearing began to fail him he gave up law, and for the past twenty years had



L. C. AND FRED P. WRIGHT

been engaged in market gardening at Oswego Center, about three miles from Oswego City. Mr. Wright had the reputation of being one of the foremost gardeners in Oswego county. He was the originator of the Early Leader tomato, introduced some years ago.

Many people from Oswego visited his garden each year, and it was always a pleasure with him to explain his plans and methods of culture.

His death, which occurred on June 4, 1900, was mourned by a large circle of friends and acquaintances, as he was taken sick while at work in the garden and died after a short illness of six days.

FRED P. WRIGHT

was born in Oswego, New York, in 1880, and has worked at market gardening for the past seven years. Under the able instruction of the senior member of the firm, L. C. Wright, he has become one of the leading young gardeners of this vicinity. During the past seasons of 1900 and 1901, he successfully carried on the market gardening business as before his father's death.



MR. AND MRS. A. T. GIAUQUE

A native of Ohio, Mr. Giauque has been twenty-seven years a resident of southeastern Iowa, and has been actively identified with affairs about him. He was twenty years a resident of Nebraska. For forty years he was a member of the Methodist Episcopal church, and was a soldier for the Union during the

Civil war. He is in his fifty-eighth year, having been a farmer since he was sixteen years of age, when his father moved to a farm, leaving it mainly to the care of himself and a brother two years younger. Possessed of an exuberant enthusiasm, Mr. Giauque always enters heartily into any scheme for securing better methods and higher standards in the calling of his choice. Ambitious always to have a good garden, he has usually had one, when it has been possible in that dry climate.

BRAINARD S. HIGLEY

was born on a farm in Windham, Portage county, Ohio, of New England ancestors, September 1, 1837,



B. S. HIGLEY

and has always resided in Ohio. Nearly his whole life has been passed in that part of Ohio known as the Connecticut Western Reserve. Until he was twelve years of age he attended country schools—most of the time at one held in a log cabin. At the age of twelve his parents moved to a nearby village, where he prepared

for college in a select school. In 1855 he entered Western Reserve College, from which he graduated in 1859 with the third honor in his class. He studied law in Cleveland, Ohio, and was admitted to the bar in July, 1860. He was married to Miss Isabella R. Stevens (who still survives), January 1, 1861.

Mr. Higley, born and reared on a farm, always took great interest in agriculture, and since marriage always had a garden. Part of his life his professional and business duties were so engrossing that he could give his garden little personal attention; but the garden was invariably the most charming place for him when he could be in it. Beginning April, 1, 1898, he has devoted his entire time to his lawns and garden, and a neater, better kept and more attractive garden will be hard to find anywhere. He keeps a close record of his doings and the results, whereby from year to year he can see and recall his mistakes, successes and the outcome of all his experiments and work.

INDEX

	PAGE		PAGE
Ashes for the Garden.....	293	Cold Frame, A Minnesota	210
Asparagus	35	Care of	205, 206
Atwood A. A., Sketch of.....	51	Preparing	206
Tomatoes of.....	218	Cole W. K., Garden of	56
Avery Estella, Home Garden of.....	125	Comfort from the Garden	297
Bale Mrs. W. R., Diary of	128	Contestants, Number of	2
Bean Poles	295	Corn Culture	57, 107, 232
Beans	53, 96	Early	96
in Grand Prize Gardening ...	7	in Grand Prize Gardening ...	20
Lima	106, 146	Cucumber Culture	131, 225
Beginner, Methods of a	189	Bugs	235
Begonias	240	Diseases	209
Belding G. E., Profitable Gar- den of	101	Experiments with	31
Bell, T. J., Methods of	93	Extra Early	225
Berries, Marketing	119	Forcing	208
Birds, To Scare Away	292	Watering	33
Blackberries, Care of	245	Cultivating Garden	104
Boards, Vegetables for	263	Currants	245
Bookkeeping, Garden	278	Currant Worms	269
Bordeaux Mixture for Potato Bugs	174	Crops, Best Second	275
Boxes for Plants	292	Cutworms	186
Brickyard Gardening	193	Protection from	286
Brussels Sprouts	260	Dahlias	241
Brickey W. T., Profits of	158	Denslow L. A. and E. S., Gar- den of	141
Burnham L. E., Garden of	62	Diary, A Woman's Garden.....	128
Byington C. P., Expense Ac- count of	185	Dibble Miss S. A., Sketch of.....	118
Cabbage in Grand Prize Garden- ing	9	Digging, Clean	291
Worms, Remedy for	268	Dimock L. E., Methods of	64
Cabbages	40, 175	Dole Mrs. J. E., Calendar of.....	123
L. E. Dimock's	233	Earliness to Secure Vegetables.....	258
Second Growth	233	Eastman L. J., Expense Ac- count of	100
Calendar, A Garden	96, 105, 261	Edge A. P., Expense Account of	90
A Gardener's	41	Irrigation Methods of	180
of Garden Irrigation	158	Exhibition, Vegetables for	256
Calkins Mrs. H. R., Account of.....	138	Expense and Profits of Gardens.....	247
Cauliflower	259	Expenses of Grand Prize Gar- dening	14
Celery, Banking and Bleaching.....	227	Experience, Prize	276
Boarding Up	92	Failure, Causes of	266
Branching with Leaf Mold	230	Farm Garden Patch	77
Culture	138, 175, 181, 259	Feeding the Soil	112
Bed, A Novel	192	Fertilizer, Application of	95
in Cellar	232	Cost of	249
in the Northwest	228	in Prize Gardening	14
in Trenches	226	on Sod Land	112
Prize	257	Soluble	173
Chickens in Garden	177	Use of	86
City Man's Garden	78	First Prize Gardening	83
Clover, Crimson, in the Garden	177	Fisher E. C., Diary of	136
Coal, The Best Heat	211	Five Acres Enough	27,

	PAGE		PAGE
Flagg E. R., Fertilizer Garden		Hauck J. B., Account of	81
of	103	House Lot of	79
Flowers, Most Desirable	275	Herbs, Garden	237
Foot E. N., Principles of	111	High Feeding for Plants	191
Expense Account of	112	High Grade Gardening	63
Forcing House, A Profitable	211	Higley B. S., Sketch of	83, 303
A Small	211	Hill C. L., Account of Garden	
Frazer John, Forcing House of	195	of	46
Fruit and Vegetables of John		Hired Help	86
Tye	74	Hitchcock, A. B., Profits of ...	75
Fruit Trees in Garden	244	Hoe, A Novel	288
Garden, Advantages of a	91	Holton Edith, Methods of	71
A Busy Farmer's	60	Hotbeds	80, 109, 197
A Connecticut Valley	52	Making up	198
A Good Family	115	Management of	200, 201
A Half-Acre	142	Substitute for	31, 90
A Home Farm	75	Horticulturist, A Born	192
A, in San Gabriel Valley	159	Hunn's Forcing House	210
A Large	47	Implements, Best Six	269
A Late	113	Wheel, Use of	283
A Little Suburban	100	Indians, Selling Produce to ...	190
A Luxuriant Home	73	Insecticides, Use of	95, 105, 129
A Luxurious	48	Insects, Fighting	267
A Natural	76	Remedies for	80
A Productive Southern	140	Interest Accounts	248
A Quarter-Acre	100, 114	Irrigation and Fertilizers	165, 173
A Small Farm	71	by Windmill	176
A Suburban	93	Details of	161
A Successful	136	from a Well	165
A Twenty-Acre	37	Garden	80, 126, 152
Comparison of	247	Hose for	180
Conveniences	285	in Mining Districts	167
Cost and Value of a	246	in Mountain Sections	162
Crops, Choosing	264	on Three Acres	167
Land Taxes on	248	Plant, A Cheap	178
Mr. Hall's Fertilizer	114	Preparation for	157, 172
of a Hustler	69	Process of	157
of Mrs. G. H. McCluer	74	System of	155
on Chemicals, A	110	Kinney F. L., Forcing Methods	
One-Third Acre	62	of	199
Patch, A City	101	Kirk Mrs. R., Income of	134
Produce, Value of	251	Knife, Gardening with a	193
Size of	265	Kohl-Rabi	106
Small Market	250, 252	Labor, Cost of	249
The Family	299	in Grand Prize Gardening	5, 16
Vegetables, List of	80	Value of	36
Work, Methods of	41	Lettuce, Growing	236
Gardener, A Boy	150	Spring, Forcing	208
A Zealous	143	Lord C. E., Success of	76
Gardening, Benefits of	121	Ludwig, Mrs. L. A., Story of ...	127
for Elderly Women	117	Lyman J. G., Profits of	114
General and Special	251	Manures, Cost of	249
Grand Prize	5	Spread on Snow	280
Instructions for	252, 255	Market Garden	289
in Washington	194	Small Garden	262
Practical	260	Melon Crop, A Successful	223
Giaouque A. T., Methods of ...	69	Garden, A	185
Ginseng, Starting	237	Vines, Pinching	295
Grapes	35	Melons	144
Bagging	91	Good	223
Gray W. P., Small Garden of ..	61	Mistakes, Garden	295
Guild Amelia, Account of, ...	134	Model Account, A	132
Hall Mrs. L. M. A., Profitable		Moles and Irrigation	172
Garden of	131	Money from a Minnesota Gar-	
Hand Garden Roller	289	den	45

	PAGE		PAGE
Morse J. E., Sketch of	10	Roberts Oscar, Methods of	145
Muskmelons	186	Rules	1
Novel Features	183	Salisfy	260
Onions	38, 65	Seeds, Saving	191
Harvesting	218	Starting	84, 120, 207
Maggot, Remedy for	269	Shade for Plants	182
The Culture of	214	Sherman G. M., Experiments of	191
Two Methods with	216	Sketches of Prize Winners	301
Weeding	217	Soil Culture	86
Paris Green, Use of	268	Testing the	186
Parker S. L., Profit of	112	Working the	273
Parsnips	235	Solid Comfort	297
Pasture Land, Reclaiming	188	Southern Vegetables	273
Peas	54, 107, 258	Space, Saving	100
in Dry Weather	231	Spinach, Winter	234
Sweet	239	Squashes, Culture of	102, 121, 225
Peppers	235	in Grand Prize Gardening	9
Perseverance Under Difficulties	140	Strawberries	34, 39, 54
Pillow W. H., Winnings of	108	Irrigation of	174
Pit for Forcing	195	Prize	75
Storing Vegetables	95	Struggle That Wins, The	295
Plants in Boxes	221	Summary, A Garden	279
Starting	129, 197, 293	Third Crops	182
Planting, Wide Rows	281	Tomatoes 7, 28, 57, 88, 134, 218, 255	
Pleasures of Gardening	299	Ashes for	293
Poison, Receptacle for	95	Culture, Southern	220
Porter R. L., Methods of	101	Diseases of	209
Potash, Points on	293	Forcing	208
Potato Bugs, Poison for	214	Frame, A Cheap	222
Potatoes, Culture of 34, 39, 57, 107		Good	221
as a Late Crop	213	Plants in Grand Prize Gar-	
Early Planting of	214	dening	17
Field, The	214	Profits of	219
for Seed	214	Transplanting	86, 221
in Grand Prize Gardening	14	Tools, Care of	89
in New Jersey	212	in Grand Prize Gardening	14
Prize	256	List of	269
Weeding	213	Sharp	88
Practical Success, A	56	Townsend G. J., Forcing Meth-	
Prize Fertilizer Gardens	103	ods of	204
Prize Winners, Sketches of	301	Trellis for Tomatoes	292
Products, Surplus	189	Vegetables, Early	258
Profits, How to Secure	253	for Exhibit	256
Profits of Small Market Gardens	250	for New England	275
Pumpkins, Growing Large	167	Neglected	259
Queries of Grand Prize Garden-		New	274
ing	19	Varieties, Promising	274
Radishes	129	Waterlily, Culture of	242
and Melons	224	Weeder, A Hand	291
Raspberries	40	A Long-Handle	289
Care of	245	A Novel	288
Reclaiming a Waste	183	Weeds, Worst	269
Rembaugh B. S., Expense Ac-		Wet Land, Reclaiming	188
count of	27	Widmer O. R., Methods of	60
Sketch of	25	Wineberries	182
Remedies, Special	294	Woodruff Prize Garden	55
Reports of States	3	Work, Best Time to	291
Reynolds J. B.; Irrigation Meth-		Wright L. C. and F. P., Sketch	
ods of	170	of	301
Rhubarb in Grand Prize Garden-		Wright L. C., Account of	27
ing	9	Yield of Vegetables	49

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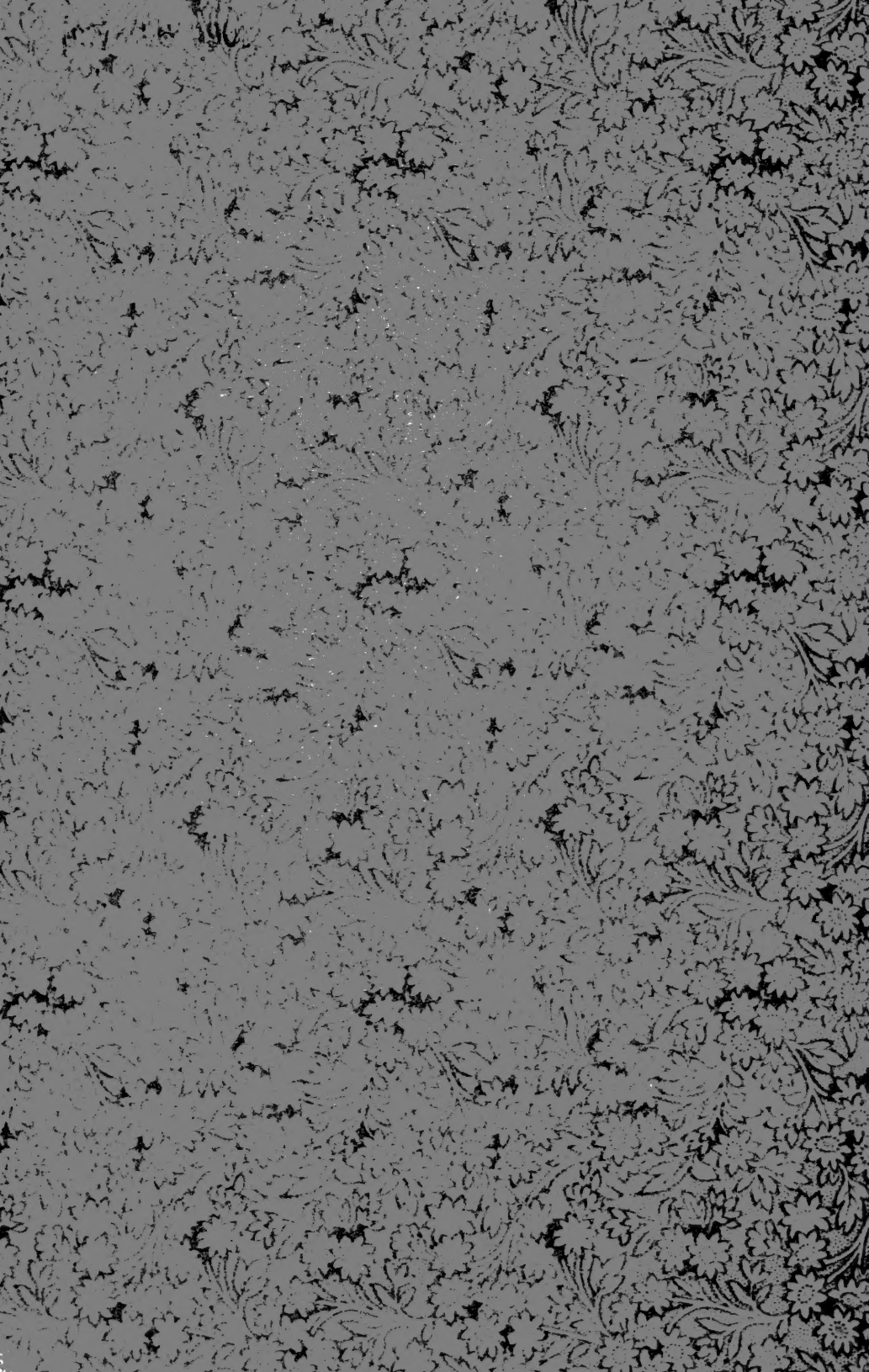
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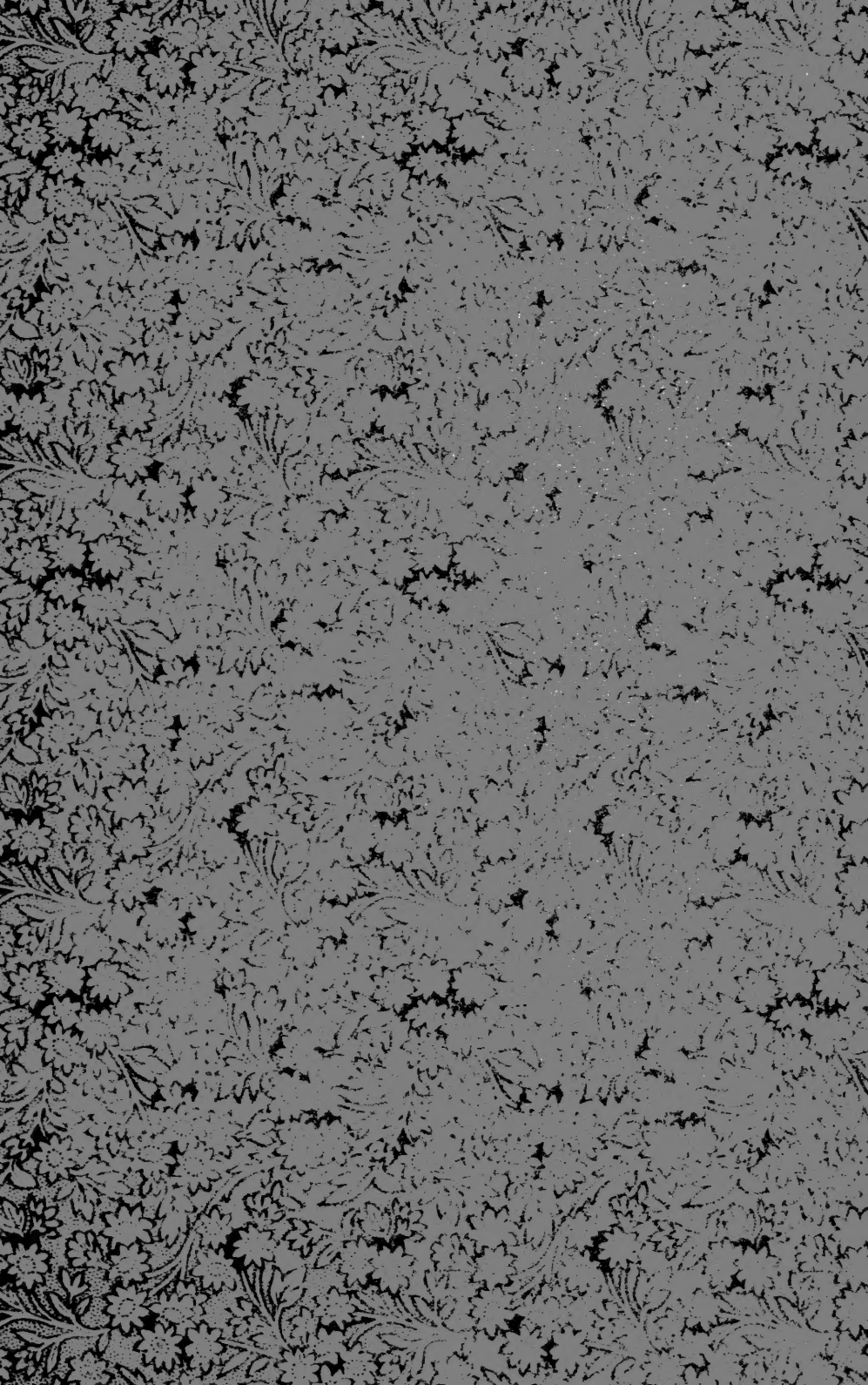
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