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THE COUNTRY HOME



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A TRELLIS OF
WOOD
STRONG AND SIMPLE

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THE COUNTRY HOME

BY

E. P. POWELL

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THIS BOOK IS DEDICATED TO ALL THOSE WHO, WEARY OF THE CONVENTIONALISM AND CONFINEMENT OF CITY LIFE, BELIEVE THAT THE BIRDS SING AND THE BROOKS LAUGH AND THE TREES GROW AND THE FLOWERS BLOSSOM FOR THEM; AND THAT IT IS ON THE HILLSIDES AND ALONG THE VALLEY SLOPES THAT THEY MAY FIND MOST OF HAPPINESS, CONTENT, AND PROSPERITY.

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THE COUNTRY HOME

CHAPTER ONE

INTRODUCTION

THIRTY years ago the great economic problem of the world was how to check the drift of population into congested city life. The English and German governments employed commissions to investigate the problem, while in this country the labor department of the government was working, both directly and indirectly, on the same problem. It has happened that while experts investigated, Providence gave the solution. Electricity as a motive power began to displace steam early in the nineties. Rural telephone service, which had been refused to the country by the Bell companies, as an unprofitable investment, began to spread like spider webs all over the valleys and hillsides — absolutely abolishing farm isolation. Free rural mail delivery followed, extending to the outlanders privileges which had been exclusively urban. Trolley roads, a little later, began to creep around the

valleys, and feel their way like fingers of fate up between the hills. The postal authorities promise now that within four years they will have covered every square mile of the United States with free mail service; while well within that time it seems probable that no reputable farmhouse will be without its telephone. This is an evolution that constitutes a revolution. Urbanism spreads out into suburbanism, and suburbanism widens to cover the larger part of the country, because the advantages of contiguity are no longer sufficient to overcome the advantages of individual living. The close contact, the smoky air, the pinched freedom of action, the deprivation of orchard and garden, no longer seem tolerable; because they are unnecessary.

The mischief of packing population began with the introduction of steam power. The steam age began about 1830. Many of those now living remember its inauguration; some will see its close. In 1891 Professor Orton, our most eminent authority on coal and kindred subjects, said in a brilliant monograph: "The age of coal is nearly ended, and with it the reign of steam." All known deposits of anthracite coal in the United States, the Pittsburg seam alone excepted, he affirmed, would be ex-

hausted by 1930, and that we must react to a more quiet mode of life, and a larger use of wood as a fuel. Electricity was already working out the solution of the problem of congested population — as well as the isolation of scattered population.

It is not true that the people deserted the country for town life because of any lack of appreciation of country comforts, and of the desirability of free and independent methods of living. Farm machinery had lessened the number of men required to do farm work; while manufacturing machinery gave employment to larger numbers in the city. In 1790 the percentage of the population in the cities of the United States was only three and one-third per cent; in 1890 it was about thirty per cent; and in 1900 fully one-third of all our population was resident in the cities which contained more than eight thousand people. In New York State seventy per cent of the population was urban; in other States it graded from seventy-six per cent down to fifteen per cent. Conditions which thus drew the people into masses reached their maximum influence about 1894. From that date the reaction has been steady. Those industries which were taken away from homes by steam power are returning, to be done by electric

power. Articles of clothing, as well as cheese and butter, are once more becoming matters of domestic and cottage industry. The great factory assemblages of population are slowly giving way to small manufacturing and agricultural groups. In France electric motors furnish power to domestic weavers for about fifteen dollars a year for each loom. In the city of Lyons alone, five hundred looms for weaving have recently been installed in private homes. The results are more regular employment and an increase of the earnings of the weaver, while he becomes at the same time owner of a country home and a garden — if not a large acreage, without rent. Power is secured from stock companies, which supply electricity to a given area — town or otherwise — and distribute this power to houses, at a maximum charge of about one dollar and fifty cents per month.

This is the future of country life. The revolution that is suggested must be at once reckoned with by social economists. Industrialism, and not mere sentiment, is working away from the cities countryward. We have, approximately, a solution of the factory problem — the overcrowding of workmen, and especially women and children, in huge

buildings. By the new conditions the physical strain upon the workman is reduced, and with him can more freely cooperate the women and children, and the old men of the family. The sanitary conditions in large factories, however improved, will ever remain dangerous to the finest development of physical life, while the moral atmosphere will lack individualism. But the domestic manufacturer need not be confronted with unsanitary conditions, while working out his individual tastes and living his own ideal. These new industrial conditions point toward cooperative conditions of industry. They indicate that the growth of suburbanism is not to be strictly and solely a development of agriculture. During the steam age there has been a sharp alienation and differentiation of manufacturing from agriculture; during the electric age we may look for a much closer association. This will be a reminder of life when our mothers spun and wove the clothes of the household, and our fathers not only held the plow, but made their own shoes and built their own houses. There will, however, be a differentiation of industries even when the factory is abolished. The problem with which social economists have been wrestling, and which has taxed

the energies of civilization, is evidently within the grip of industrial laws. Cities are still growing, but they are growing at a greatly reduced ratio. Summing up all statistics for comparison, we find that, of the increase of population between 1880 and 1890, considerably over sixty per cent went into our larger cities; but between 1890 and 1900 the proportion that was added to urban life was reduced to a little over thirty per cent. Since 1900 the ratio has been reduced still farther. Public sentiment is becoming enlightened, and the taste for country life is rising almost to enthusiasm.

Meanwhile another remarkable evolution is taking place in the reorganization of the school system. The new town is becoming a school town; that is, the school is rapidly becoming the center of town life. It is no longer the tavern or the saloon or the village store that controls public sentiment; but prospectively the school is to be the center of the town unit. The rural schoolmaster is departed, and with him the roadside district school. With the graded school comes in a remarkable advance in the grade of teachers; and their influence is felt through the town, as well as within the school. The school building is open, not only for the train-

ing of children, but for night classes, for lectures, and for various musical and art associations. This consolidation of the town about the school brings the homes and the school into closer relation, and harmonizes all the intellectual and moral life of the community.

Our first care must be the creation of real country homes. Here we shall have the primal art of nature to assist us, with its latest interpretations by science. It is a new thought of high art that is growing among the people, that instead of buying pictures to hang on our walls, we may better create them on the sod, with living plants and running brooks. Literature also is turning its face countryward. Nature books rival novels in popular use. They express the new stage of social evolution, and confirm the desire to escape from the limitations of city conditions. In other words, we are going back, and to what God wrought — intending to cwork with him.

The object of this book is to meet the growing tide as it moves from congested cities into the freedom of home-making in the country; and we shall aim to add, as far as possible, influences to broaden life in its new environment. Having gone over the road myself, with the advantage of having been

country born and country bred, I shall perhaps be able to help others to avoid mistakes, and take quicker advantage of opportunity. Whoever seeks the country should seek it for a definite purpose, and understand that he must educate himself to make that purpose workable. There is study ahead, as well as work. You will find no industry so complex as agriculture — rightly pursued. Every science will have to be subsidized for help. There is, however, sufficient common purpose in going back to the land, to make the book I offer of practical use to a wide range of readers. I shall not theorize, but shall deal with facts; and while telling what may be done by the many, will only describe that which has already been accomplished by the few.

Fifty years ago suburbanism meant the building of villas and mansions in the outskirts of cities — as going into the country meant going to Newport and Saratoga. Democracy in country development is displacing aristocracy. Suburbanism means to-day a movement of the people all along the line, to adjust themselves to home-making, apart from, and generally remote from large nuclei of population. Books, published fifty years ago on country life, sketched objectless buildings with city plots

about them. For poor people they designed arbor-like buildings with fancy turrets and pinnacles; and for the wealthy they offered Fifth Avenue palaces, to be constructed along boulevards. This book has nothing to do with boulevards or villas. I aim simply to go out with the people who have a heart sickness after life in the green fields, and to help them as I can in adjusting conditions to desires, or desires to conditions. What we want in the country is men and women who intend to live as common-sense folk; will lift the social level with simple brotherhood, high aspirations, and a humanity filled with Godliness — unaffected, pure in heart, and democratic.

This book will not concern itself specifically with cooperative colonies. These are hopeful, and those in charge of the Salvation Army are promising to be successful. My appeal must be to individualism and to individuals; to men and women who have had their eyes opened to the folly of that sort of life, which characterizes the bulk of our city population — a population where cooperation has dropped into deadly competition, and where money has become absolute. A studious man, or woman, on a small farm, possessed of industry and intelli-

gence, needs very little capital, but can win a decent living out of the soil. We must dread most of all the herding instinct, and any tendency of folk to become unable to live out of elbow contact with their neighbors. My purpose, in fine, is to help you to get acquainted with the trees, bugs, brooks, and birds; to develop a capacity for society with things, and to open that big book whose pages are pastures and forests and meadows, and farm-clad hillsides. We shall have very little to do, or to say, concerning the accumulation of wealth; but much of the evolution of a simple life, where wealth is of little importance. In the country our first aim is not to amass, but to produce; not so much to spend, as to create.

CHAPTER TWO

SELECTING A HOME

WE face the most difficult problem at the outset, and I assure you this is the most difficult chapter for me to write. There are so many kind of folk, and so many sorts of places, that to put them together with any nicety and fitness is a serious problem. Nature hates uniformity and conformity. Even on the prairie it will be impossible to find two localities exactly alike. Among our hills and valleys, how glorious is the variety of knolls, swales, nooks, slopes, and brook-visited meadows, where one may pronounce the word Home with delight? What we add to these various places should be as unlike as they are themselves dissimilar.

Suppose we take a trolley where it runs its fingers up into the little valleys, and look about among what used to be isolated farmhouses. Perhaps you would prefer to secure a ride with Rural Free Mail carrier, Route 16, and go over the hills where

the corn fields or the hop fields stand in rich alluvial, and where orchards divide the clover fields, while there are still some bits of original forest in sight — maple, beech, and ash, nearly always flanked with butternut, chestnut, or walnut. Do you see anything anywhere that you would like to call your own? I do not doubt but that in half an hour's ride you will have craved a dozen spots, and you will hardly know which one you like the best.

The right sort of location ought to please on sight. You will recognize something of yourself when you see the place where you ought to establish your home. The fact is, every one of us has already grown a good many tastes, opinions, emotions; and probably some whims, that we shall have to outgrow; and these must be gratified, in selecting a location, or they will make trouble hereafter.

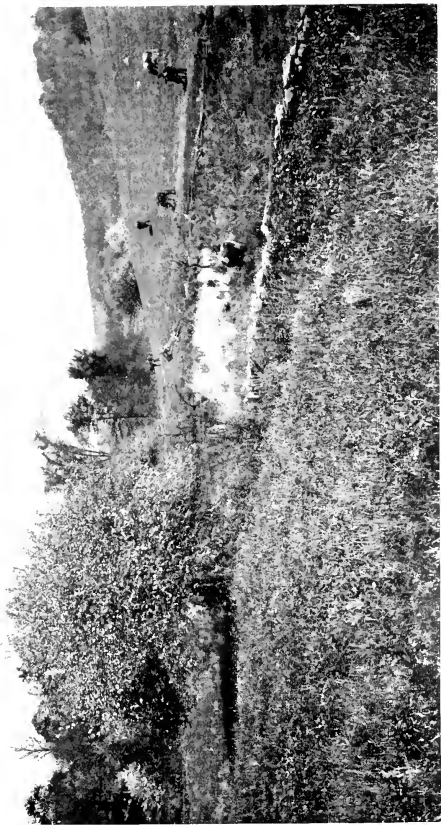
Those who go to distant states, where climate and soil and trees are all novel, are homesick for old scenes and old conditions. Do not go into the country unless you can find some place that recognizes you and will make itself familiar with you — that is, appear homelike. I have friends who feel that there is nothing like a broad, flat, level meadow for

beauty and for comfort; nothing like a prairie for a farm. For my part, I shall have to live on a hill-side, or be miserable. I do not wish to see all creation; but really a good share of it, in miniature, suits my present selfhood. I want a nesting place where the hills clap their hands for joy and say, "Behold what God hath made for man!" In such a place one can do a great deal for God, and for himself. Look about and see how man has fitted into these glacier-carved valleys. Count the orchards that have displaced the forests; and see how the creeks are turning mills, and how everything else is waiting on the master, man.

There are so many delightful spots; and we are going to have a home where the squirrels chatter, and the birds sing, and the beechnuts fall like hail. Spell that word HOME in big capitals; for it is only in the country that one can find the best home-making material. The brooks are tumbling out of the gorges and jumping down the declivities for us; bluebirds and robins are singing to welcome us; and the sun will spend its rays in creating for us golden harvests. There are so many beautiful homing spots unoccupied that one wishes he might live at once a dozen lives. I never drive along an

unfrequented road without seeing places that seem to beckon to me to come and make up ready material into a home. New England has hundreds of places that make me homesick to leave behind; it is the same in lake-dotted Wisconsin, and in Michigan, with her walnuts and hickories, and rivers sentinelled with oaks and pines. I selected Central New York and the Oriskany Valley as, of all, the homefullest spot in America. I shall not expect to win you all for immediate neighbors; but this is an age when we can whisper across a continent, and gird the world with our "good morning."

All this time we are on our hunt for a home, a place where we may plant ourselves, and grow. The trolley whisks us by red cottages, half hid among pear trees; other brown ones that are perched on knolls, where the owners are husking corn — themselves seated on huge pumpkins, while jokes fly as fast as the ears; for husking-bees are not yet quite things of the past. Here and there we look up the most delightful side roads, where we get glimpses of cow barns, with Holsteins standing in the brooks, whisking flies from their backs; while others lie chewing cuds under the willows or the apple trees. Your mood changes with the scene; yet everywhere



GLIMPSES OF COW BARN, WITH HOLSTEINS STANDING IN THE BROOK

you have one deepening conviction that man was never intended to live out of relation with nature. You think of rows of city houses as so many graded prisons. Those who live in them, even in artificial luxury, are deprived of the very best that God prepares for us to enjoy.

At the close of the first day we will sit down for a council. We have seen and taken notes of a dozen most inviting places — spots that seem to need us, just as we need them. There are many things to consider; our pockets as well as our eyes, our hands as well as our heads. It is folly to undertake a task that will be beyond our experience, and will so overburden us with novel cares that we shall stop in despair, and crawl back into town life. You may be sure of one thing — that no work needs more tact, patience, resolution, and wit than that of the farm. A home in the country during the twentieth century will mean the liveliest sort of intellectual activity.

In the first place, we do not want too large a place; only what we can manage and completely master. Most of us will not be experienced land-tillers, and would not know what to do with a hundred acres, if given to us. Besides this, the old style of extensive farming is now steadily passing out in favor of

intensive farming. This means so cultivating a few acres as to get more out of them than the old-fashioned farmer used to get from ten times as many acres. Probably ten acres to twenty will be all that any one of us can comprehend and put to the best use. Five acres is the wiser limit for one who has spent most of his life in factories, or in mercantile work. There are some exceptions, where heredity speaks out strongly, and one has an instinct for land improvement.

The second point to be careful about, is not to go too far from the city. It is not yet possible to restore the old-time independence of country life. Cities will pour out a big multitude into the free fields; yet cities will remain. They will be our markets for a century to come. We need the non-producing crowds to buy our potatoes and apples and garden stuff; so do not locate too far from the market.

The third point to consider is the lay of the land. Generally avoid facing northwest winds. Locate where you will be shielded to the windward with either hills, or forests, or both. In some parts of the country it will be easy to take advantage of the protective influence of a natural wood belt; yet you

must become, if possible, the owner of such a belt of timber, or it will be cut down after you have planted yourself under its shelter. This is a matter of far more importance than appears on a pleasant summer day. Temperature often varies two or three degrees within an eighth of a mile. While it is true that you must master conditions wherever you go, you do not need to make the life-struggle more serious by an ill-chosen location. Perhaps you do not know, yet it is true that climate so varies that fruit-growing, which is favorably carried on under the shelter of a range of hills, is barely possible in the valley, and impossible at the top of the range. The best position, as a rule, faces the southeast — with the colder winds broken by the hills above. Such an exposure also takes the morning sunshine, which is especially conducive to plant-health and growth. But it is not your orchard that you must alone provide for; you are going to grow children, and these will need the best possible natural conditions for health and sweetness. Conditions that will grow a first-rate Northern Spy apple are none too good for growing red-cheeked and warm-hearted children. A southeast exposure gathers the heat all day, and is prepared to resist

cold at night. In the spring or the autumn you will escape frost, when your neighbors not far away will lose their tomatoes and corn.

Avoid homing near a swamp — certainly a swamp that you cannot control and drain. We are getting more light on the mosquito question; yet it is not worth our while to select this kind of a battlefield. A hillside is far better, or a slope that looks over a valley, unless your culture is to be specifically that of plants that need a mucky soil — such as celery. Our Eastern States afford a vastly greater variety of locations than the prairie states, where, however, the conditions are easily understood, and where there is compensation in depth of soil and easily cultivated crops.

In this hunt of ours we shall find that there are hundreds of old country places for sale. These may be tolerably pleasant as they are — with the single exception that they express other folk. Most of them will, however, need, and are capable of, transformation. If I were to take my choice I should select one so far run down that little is left of the old ownership. Then I would begin to study, and to plan renovation — always a delight, if you can see your way through. There will be piles of

brush to be cut from the untrimmed trees, and you must learn your first lesson in country economy — that is, to save the wood and use the ashes. You will perhaps retain a residence in the city while you are having the more important changes worked out and your first garden is planted. But as soon as there is safe water and good shelter, I recommend you to move onto your new place, and begin to grow to it, or make it grow to you. Do not get in a hurry at any point, but study every feature of the property, and move with deliberation.

I have laid out and planted several places for myself, and for others, and I always do it first on paper. We can do it over and over again in that way, until we get the proper relations of things. Almost surely you will find that there are some things about any old place that are valuable to retain — a few choice trees can certainly be made companionable. The house, in some cases, will be a real acquisition — quaint, human, homeful. In the garden you will find some old plum trees, and in the corner, mixed with weeds, you will find sage and wormwood. Currant bushes and possibly berries are half covered with grass, but can be transplanted into a cleaner garden. The charm of it is that you

cannot do all the transforming at once — it is a growth. Meanwhile you are yourselves transforming, and are seeing more clearly what is natural and beautiful and wise. I myself prefer that the plot that you select be without a house; but have a grove and an orchard, or at least a few trees. It may have been a pasture; and if so the soil will not be barren, although it will greatly need cultivation. More likely, in buying an old place you will find confusion. A dozen ideas of successive owners or tenants will have grown over each other, and created a snarl, which will tax your patience to straighten out.

We must, however, get at this matter more specifically, and find out what each one proposes to do in the country. That is not very unlike asking, What are you? What do you want of the trees and the soil? I should like to feel that every one of you intend to establish frank, honest relations with the material world — or a piece of it — yourself furnishing the soul. That is, you mean to open your mind to the physical universe; and so let the universe open its mind to you. You do not intend to build a home with your eyes shut, and your ears shut, and even your sense of smell aborted. “Of



THE HOUSE IN SOME CASES WILL BE A REAL ACQUISITION

course not," you say; "it is absurd to suppose it." It is absurd, sure enough; but I am confident that most people in the country do not see, or hear, or even smell adequately. They know almost nothing of what is going on about them. Any bird is just a bird. An apple tree is an apple tree, and nothing more. They have no intimate acquaintances among the bushes and the animal creatures. "Yes," said a visitor, "this is fine; but it must be awfully lonesome." I said, "I had forgotten that. It is indeed lonesome until you get acquainted. Do you hear that tree toad? He is an acquaintance of mine. Do you hear that catbird? He is a close friend of mine. Then do you see that every bush and every tree I myself have planted, and I know its life-thought and purpose? Lonesome? The city is the place in which to be all alone."

The day laborer, the lawyer, the merchant, the school teacher are all seeking country homes for different reasons. I have a letter from a Philadelphia schoolma'am who says, "I am dead tired of this treadmill work. If I could have a school and carry out my own ideals I would enjoy it. So far American education has looked out for the individuality of the pupils, but has forgotten that the teacher

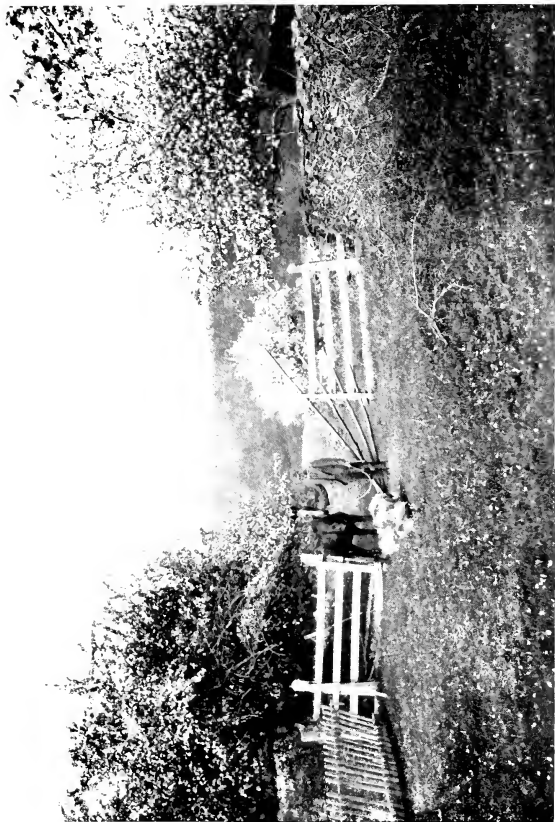
has any. I must carry out other people's feelings and views. Very well, I am going into the country to make a home for mine own self. I have about two thousand dollars to use, and now I want your advice. Can a woman make a living in the country, without a man to take care of her? Why cannot I keep bees, or raise chickens for broilers, or have a greenhouse, or grow small fruits?" To be sure, you can do all or any of these things, if, with a small capital, you have grit and judgment. Another letter is from a young fellow who says, "I was born in the country, but my schooling did not fit me for life on the farm; it only taught me how to 'do business'; I did not understand that farming is business. City life seemed to me something better and larger than country life, and handling capital to be the greatest possible ambition. I have done business, and I have handled capital. I begin to see now that my life is not broad, but desperately narrow. I wish my children to grow up with the trees and the birds. I should like your advice about how to get a home, where we shall be right in the line of what I call modern progress — that is, progress toward simple and natural life. I shall gradually let go of city work, and my ambition will be to create

a country home that will pay its own way." That is the sort of home this book is intended to lead toward. Anyone with a decent start can make the most beautiful home in the country pay its own way — that we lay down as a fundamental principle, that the useful and the beautiful can go together.

Our friend the school teacher may take a wide range of choice. If bee-keeping is selected, it should certainly be in connection with the growing of small fruits. Bees make large quantities of honey from orchard flowers and from the small-fruit garden. In another chapter I shall explain the value to the bee-keeper of linden trees — or, as they are commonly called, basswoods. But if you determine to grow flowers your market should not be remote. Florists thrive best in the near suburbs of cities. I know, however, a woman who makes a splendid living raising turkeys, and she is located forty miles from market. There is always a splendid opening in the way of growing fowls and furnishing eggs; and this occupation does not positively require that you live near a city.

Whatever occupation you make a specialty, bear in mind that, with modern, scientific methods, more

money is made and a better living won from ten acres of intensive farming than from ten times that number of acres broadly tilled. I have but nine acres, and they are at least one-half devoted to ornamental trees, shrubs, and flowers; yet I find it possible to sell from one thousand to twelve hundred dollars worth each year of small fruits. Flowers, if sold, might add to this cash income. Such a place, combining the beautiful and the profitable, must in all cases be located at no great distance from a good market. Trolley lines will, however, soon be picking up our loaded wagons and hauling them to market; — so that we may have our gardens twenty-five or possibly fifty miles from the city. At present I should prefer not to be more than from six to ten miles from my customers. Even this will necessitate very early rising, and considerable loss of time in driving to and fro. The market gardener has the same requirements as to distance; while he must look more carefully as to depth of soil. Fruit requires strong clay; truck or vegetables require more loam and sand. For this reason the grower of vegetables must generally locate on the flat lands and the river bottoms, while the fruit grower seeks the hillsides and plants under the shelter of the



A PLACE COMBINING THE USEFUL AND THE PROFITABLE.

forests. I do not consider any of these lines of work naturally distasteful or inappropriate to woman.

The day laborer needs the country quite as much as the man of capital, but for different reasons. In the first place he has his home free of rent, and in the second place he can increase his dietary by home-grown vegetables and fruit. He can also keep a cow and pigs. Nor is it a small item in his suburban home that he can raise alfalfa enough to feed a horse. But in the third place he can give his children a chance out of the streets, and can associate their ambitions with the thought of home life. It is a sad lot for a family of children to grow up without being able to speak of any spot in the world as their own home. Transit will not, however, let the day laborer exercise so freely the choice of location. He must go back and forth to the city, every morning and night, and with speed. He will not be able, as a rule, to care for a large lot, while he must locate within easy reach of factory, or shop, or store. He is also least prepared, by training, to come out of herded life, because less actuated by individualized tastes. This is fortunate, however, because it is not yet possible for the largest cities to move the whole population to and fro as easily as a completed

suburbanism will demand. Yet there remains no reason why, in all but the most massive cities, the tenement system should not loosen its hold upon the common laborer, and release him from its horrible confusion, with its grime and smoke.

A good country home for a man who goes daily into a city as a teamster or porter, should contain at least one acre and a half, and be two miles by trolley from the city line — adding a few rods of walk from the station. I know such a home on a side street, that runs, winding somewhat, near a creek, and not far from a grove of maples. From the door can be seen a half dozen similar homes, a smithy, and a large truck farm. On this truck farm are employed other laborers, who originally came from the city. The ground is sloping and sufficiently irregular to give easy and good drainage. The house is a pretty, eight-room structure, planted in a plain garden, where there are a dozen apple trees, with intermingled pear trees, plum trees and cherries. Besides these there are currant bushes and raspberries enough for a small family. Near the corner of the house are three hives of bees. You see also that there is a cow in the shed. It is not altogether a model house or a model home; but it

gives the owner fresh fruit and vegetables and his winter potatoes, while it lowers his meat bill, because he has his own milk and chickens and eggs, while he is forming the habit of using more fruit. In the course of five years, by saving rent and keeping well on a better diet, a horse has been added to the family group. When this was done the wife and children could enjoy life better, and they could much enlarge and improve their garden. The wife, a woman of common sense, found a few private customers for her eggs, apples and vegetables. This led to more berries and flowers, until her income equaled that of her husband. If this book gets into the hands of many such people — and that is just what I wish — I would say, be sure of one thing, that you do not indulge in shame for any honest work. It is not a disgrace to sell — peddle, if you choose to call it — what you have the wit to produce. Above all, keep out of your children's heads that earning is less honorable than spending. I have poor neighbors who, for their dear lives' sake, would not take a load of vegetables or berries to market. False shame is always a mark of degeneracy.

Riding between Boston and Albany I chanced to sit with a Boston merchant. "I live out here," he

said, "at Wellesley Farms. Some days I do not go to the city at all. It is not necessary, because, by telephone, I can keep in close touch with my city affairs, and can direct them as well as if in the store. I spend a large share of my time with experimental farming. You should see my pears!" Then he launched out into an enthusiastic discourse on country life, and what it was doing for health and comfort and intellectual broadening. Of course, such men have very little to carry into the country, except money and art. They will make some comical blunders, but will be sure to work out notable experiments, and will do a vast deal to make country life every way more admirable.

With ministers I have special sympathy — men who in this age are compelled to hold on largely to the conservative past, and wear themselves out, because they are not allowed to adjust their work to the living present. They are no longer allowed to be pastors of the old, shepherd sort, and must be keenly alert to hold their own, until their nerves give out with the tension. Then they are "broken down ministers" — sadly at loss for any retreat. Every minister should cultivate horticulture; and whatever else he does not do, he should secure early in life a

vacation country home — here he should spend his off weeks, not exactly out of harness, but cultivating a sympathy for nature, and allowing nature to express a sympathy for him. In this way he will be prepared at any time to take care of himself, if forced to leave the professional field. Such a home will not only welcome him in his old age or ill health; it will also render him more independent in his preaching, and save his manhood as well as his intellectual vigor.

It only remains to sketch a country place where a family of moderate income may retire, without being compelled to spend anything more for its keep than it pays back in crops. This is my ideal of a country home. Whatever may be our income otherwise, five or ten acres of land should be so handled as to pay its own way, and support a family. With rent removed, and many of the conventional expenses of city life avoided, a family may live in the country on from eight hundred to twelve hundred dollars a year. This amount can be taken from the sale of crops without sacrificing the beautiful.

This new home of ours, in all its varieties, you will observe has certain converging lines. The tide outward from the city is carrying the people, under

the influence of conditions that seem at first quite similar to those which surrounded our fathers of seventy-five years ago — conditions that created a great degree of uniformity in customs, and a very fixed equality of privileges. But looking deeper, we shall see that old things are not to be repeated. There will be a combination of country and city life — country freedom with city culture. New ideas will take root easily, and new methods. The latest scientific information will be sought and applied. No one will be isolated. These new homes will be joined by telephones, so that they can talk together, plan together, laugh together. I think we shall have an age of real democracy — at least of growing democracy.

I shall close this chapter with a few general hints. The first of these and one of the most important is that, wherever you establish your home, you do not undertake grading natural slopes into terraces or levels. Nature has probably as much wit in fixing the land as you can show with your plow and scraper. The most you should undertake is to remove unnatural roughness, and fill up gullies; but you should not in any way disturb the general lay of the land. When that sort of improvement is once

begun, there is no end to it; and the result is more and more unsatisfactory. It throws your house lot out of relation to all the rest of the land. I see every day a noble hillside, where the houses were fitted to the land. But there came a wise man who undertook to fit the land to his house. He created a level in the side of a beautiful slope. This left a crude bank above and another below. These were disagreeable to look at, and more than compensated for the possible beauty of a smooth lawn. Then the easy-graded sidewalks fell into steps and flats. This remarkable achievement in the way of improving nature was soon rivaled by three or four more like it, until now there is neither form nor comeliness, nor a touch of nature to a quarter of a mile of superb building sites. My readers will find these artificialized hillsides quite too common. Where terraces are created they have to be kept mended after every rain, and as the arable soil is mostly removed, it is always difficult to sustain fertility.

As a rule, take nature very much as you find her; grow to your surroundings, instead of shearing every thing to your preconceived views. When you have done you should have fitted yourself in, almost as

simply as a tree would have sprung up from the soil. In general terms, leave the artificial behind you; and do not undertake to create a bit of city lawn right in the heart of nature's lawn. Be simple and straightforward in all your relations to the world around you. No directions of mine can guide you here. What you have to do is to make a thorough study of nature, and of what the brains of men are naturally called upon to do in the way of improvement.

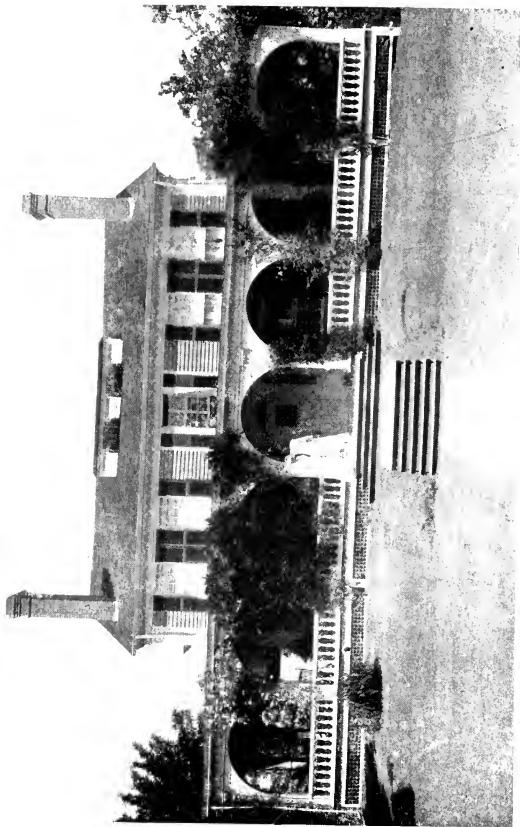
I have said nothing about fences, because there should be none. It is possible that you will locate where the stock law is not enforced; and you will then, of course, be compelled to protect your property. But fencing against our neighbors is happily becoming a thing of the past. Wherever it must be done, use wire, or, possibly, hedges. Hedges are invaluable on a highly ornamental place, but are less and less popular as line or division fences. They should never be planted by the street side. Wire fences, without barbs, can be constructed very neatly and stoutly and cheaply, and are so inconspicuous that they should be preferred to boards and pickets. Stone fences may be in themselves beautiful; and when run over with ivies or bittersweets are invaluable as natural accessories.

As your place progresses it should express one concrete single idea. Most places undertake to make a bundle out of gathered notions. They put together as much of the useful or of the beautiful, or both, as can be collected by the owner. He buys whatever he hears of as desirable, especially what agents urge upon him, and places his collections as conspicuously as possible around his house. His property not only does not express himself, his taste, his likes, his imagination, his growth, but his utter lack of all these. I never could see why a house should be surrounded by all the queer things and all the pretty things collectable; for this is to create a museum, not a home. Around the house let nature do largely as she will, with your brains and hands to cooperate. Better a half-dozen hearty native trees, in free development, full of birds' nests, than a lot of dwarf trees and weeping trees and homesick trees from China, each out of harmony with the others, and with the place which you call home. This unity should include the whole property—house, barns, gardens, lawns. Your business is to see that this unity is sustained, and no part of the home allowed to run down.

CHAPTER THREE
GROWING THE HOUSE

NOWHERE in the world should industry be allowed to express itself more freely than when putting together material for a human soul to live in. Anyone going by such a home should easily be able to say, "That is Tom Jones's place — I'd know it by the look of it, by the free and easy approaches. It looks like him." Those animals which grow their own houses grow them to fit. You know a fish by the shell he lives in.

The country house should stand far back from the street. It should be, if not near the center of your property, at least so near the center that no part of the land shall be difficult to reach. What you want is not to get close to the public way, one of a long succession of houses, but to have elbow room for your tastes, and to get out of the eye of the critic — the unmerciful critic who refuses to let you be unlike himself, a whit better or worse. If you



WHAT YOU WANT ELBOW ROOM FOR YOUR TASTES.

have five or ten acres, the chances are that somewhere about your property there will be a natural center. You will see this when you come to study the slopes, the swales, and the outlooks. From this heart-spot your life and work can pulsate most easily to all the parts. It is wonderful how the country is gotten up for this sort of individualism. You will surely find a knoll or a ridge upon which you can stand with a friend, and looking over the valleys and hills, say, "Is not this beautiful?" It is on that spot you should begin to take root; and your house should grow over you and around you — not to shut out those visions, but to take them in.

The next and most positive consideration is that a country house must not be a city house transferred to rural surroundings, and in this way misplaced. A city house is what it is from necessity, and as a rule city houses must be very much alike. Each one and all together express neighborhood — pieces of something else. But a house in the country should mean a home; a place to live in and to grow in and to be yourself in. Yet all over the land we find stiff and formal imitations of those habitations which city restrictions compel to be built. On one side of these buildings we find no windows, or very

few. Without any reason at all where land is abundant, the bricks are piled up three stories high; and all around this structure we find only one small, bayed window, and a narrow porch, utterly uninhabitable — scarcely large enough for two or three chairs. There is a pinchedness everywhere, in striking contrast with the broad and generous nature that surrounds it. Such a house, planted at a conventional distance from the street, has a conventional grass plot in front, where is to be heard the eternal racket of a lawn mower, shoved back and forth across the grass. This is not a country home at all, nor has it any fitness outside of city limits. If you go into the country, study first country needs, country fitnesses, country possibilities, and then adjust yourself to the same.

In the next place, it is to be of absolute importance that you plant your country house where you can secure good drainage. The sewerage must easily flow away from the house. Anything like stagnation should be avoided. If you have a swale or slope behind the house I advise you to carry all kitchen and closet sewerage to an open cesspool, not less than four hundred feet from the house. This cesspool can be easily made also a compost

heap, wherein you accumulate wastage from the fields and barns — using care not to block the sewer vent. In this way the house waste will become incorporated in the compost and make it doubly valuable. I have studied all the systems; and some of them are excellent, if conditions are right. The Waring system distributes sewerage admirably, until the pipes become clogged. After that there is serious trouble, if the land lies level. The soil will sometimes get over-saturated, and poisonous effluvia arise out of our meadows. At all events keep in mind, while establishing your house, this question of easy and secure drainage. You cannot rely on servants to carry house slops to a safe deposit. If the vegetable or flower garden be very near the door, the water of washing days can be profitably used about the plants and bushes. A bed of dahlias is a good thing near a kitchen door — or a bed of roses or of phloxes. These are all good drinkers and good feeders. If you have a row of pear trees at hand you can direct your help to dispose of considerable liquid waste about their roots. Salt water and brine may go to an asparagus bed or to a quince orchard, and a lesser amount of it can safely be distributed about pear and apple

trees. But a country house without any complete system of drainage is lacking in the prime essential — both for decency and for health. The pipes to the cesspool should not be less than five or six inches in diameter, because small pipes will surely be clogged with accumulation of greasy material. On the other hand, very large pipes are not easily flushed, and do not carry waste away with sufficient rapidity.

The cesspool I have described is, however, advisable only for homes that cover several acres. For small homesteads the safest and neatest plan is the earth closet. I append a description of a good closet from the pen of Dr. Julius Nelson, of the New Jersey Agricultural Experiment Station. "Shallow pits should be provided, with bottom and sides of brick laid in cement. We have a pit as small as four by four feet and three feet deep, adequate for the needs of a fair-sized family. The closet is to be built in front of this pit, with its rear projection one and one-half feet over the front side of the pit. The remainder of the pit is roofed in by a door hinged to the back of the closet. Everything is to be so tightly closed as to be fly-proof. In the closet should be kept a barrel of earth, or ashes, and a dipper.

The dirt to be used should be exceedingly dry, and be used freely. The pit should be emptied once in three months." Such a provision as this is open to the dangers of neglect; and it is also open to the difficulty that it does not take care of kitchen waste and slops. One of the government bulletins warns us that, "The supposition that because the privy stands on slightly lower ground than the top of the wall, and that because the well cannot become infected by surface drainage, there is no danger to be apprehended from the privy, is all too common. It is practically impossible to judge by the surface of the ground, of the various strata of soil below, some of them capable of conveying sewage contamination several hundred feet. The very fact that the liquid in a privy vault seeps away, is sufficient evidence that it has struck some porous strata and is going somewhere; and the frequent cases of typhoid and diphtheria, on what should be thoroughly healthful farms, are ample proof that it finds its way to the source of drinking water. Another fact that should not be lost sight of is, that wells are usually fed by underground courses, and one of these may pass directly beneath the privy vault."

I never saw a dozen decent cellars in my life.

Either the lower or ground floor is a real story, with furnished rooms for housework, or it is a semi-dark, uncomfortable, and often ill-smelling storage place. We have got, before we can grow a house, to solve this cellar problem — the real footstool of human life. The right sort of cellar is not less than eight feet to the ceiling, with grouted floor, thick walls, half above ground, and thoroughly lighted. Such a cellar should be as clean and as sanitary as the upper floors, and should be perfectly safe for sleeping rooms, if needed for that purpose. Civilization covers nothing so outrageously barbarous as filthy cellars, where, among decaying vegetables and storages of mildewing barrels and bins, diseases are cradled, to break out above stairs when conditions are favorable. Therefore, first of all look out for your cellar. Your vegetables and your fruit will need moist storage, and should on no account be placed in the basement of your house, but rather in a storage-room under a part of your barn or carriage house. While digging for such storage, I tapped a spring which flowed so that I could, by piping it, retain it under the floor. This is left open at the head so that the moisture may modify the atmosphere. Remember that a fruit cellar should not be

dry, although it should not be so damp as to be liable to mildew.

The ordinary kitchen is a disgraced adjunct, where is caged that terrible and temporary foreigner which we call help. It ought to be the brightest, and, in some sense, the homefulest room in the whole house. Here is the center of a lot of thinking and of household art. Here are to be discovered and invented those marvelous concoctions which create good temper as well as good digestion. A mean kitchen will have a blighting influence on every room in the house. I put in, therefore, a strong plea for a reformed kitchen. Permanent seats, which are also lockers, ought to be arranged for it, together with a plenty of cupboards. Every kitchen, besides an adjacent pantry, should have as adjuncts a vestibule and a storeroom. Both of these should be neatly finished — not places for litter and carelessness. The storeroom should be large enough to contain barrels and boxes of food, and whatever else would crowd a pantry. I take it for granted that every rational country household buys by wholesale what it cannot grow, and so saves in the cost, while securing fresh goods. Where wholesale purchasing is impossible for an indi-

vidual, it can be secured by the clubbing of half a dozen families. The vestibule of the kitchen should be an orderly receptacle for overshoes, heavy boots, blacking brush, brooms, and should have its hooks for wet wraps and umbrellas. Along one side it should have a locker large enough to serve as a receptacle for slop pails. These pails are essential to receive such waste as will be carried to the barn as food for animals.

When woman has thoroughly realized the fact that a home kitchen is the most perfect laboratory in the world — for applied chemistry — she will lose her distaste for this field of domestic economy. This will go far to solve the problem of household help. The art of cooking and general homekeeping will be looked upon as a scientific achievement, and by no means a drudgery to be placed on the shoulders of a lower class.

The dining-room is a social room, and ought to be especially cheering. It should be very light, although not sunny. It should be furnished with cut flowers; not to conceal the grossness of eating, but because in the orchard and garden are combined the flowers with the fruit. Diet in a country house consists very largely of fruit and nuts and

cereals; and the meat should be garnished with herbs. A dining-room provided with apples, pears, grapes, berries, and with home-grown butternuts and walnuts is the ideal. Then right-cooking becomes a science, to supplement and not to thwart nature. A true pumpkin pie is the summing up of generations of brainwork; or was it an inspiration of some Connecticut maiden? I do not know, only I know I shall never be ashamed to eat a very large piece of pumpkin pie — “such as my mother made.” A boiled potato, “dried off,” cracked open, floury and sweet, with a touch of golden butter, is better than the nightingales’ tongues of Heliogabalus. With all, in due season, there should be a pitcher of home-brewed cider, made of clean Spitzenburgs and Pound Sweets, half and half. In a true dining-room you test, comparatively and scientifically, the quality of your new beans and corn and cauliflowers, and you study the comparative merits of your new sweet peas and nasturtiums. It is here that you learn what to grow, and what to make an object of culture, as well as of cultivation.

The primitive Saxon house was an All (or Hall). The first differentiation of this original Hall was

sleeping rooms. You will certainly allow every member of your family a separate room at night. It is quite enough that we should cooperate in work, in play, and throughout the day shall fuse our lives. We do not have sufficient opportunity for individual evolution at the best. Much physical illness and more moral enfeeblement depend on the fact that our selfhood is impinged upon all sides. So, whatever else you do or do not do, let each child have a room of his own, where tastes and thought and life cannot be elbowed. Let him think alone, and plan alone, and, above all, sleep alone. The social side of the family is pretty sure of getting sufficient opportunity for development. If the child's tastes are peculiar, even *outré*, let them mainly alone. Conformity is altogether too strong a drift in our heredity. Then, whatever else you yield, do not yield your own private room.

The library is no longer the most important home center. Books do not have that strictly authoritative position that they had half a century ago. Yet in the country one still needs translators and interpreters. The growing list of nature books, and their increasing popularity, indicates the need on the part of the vast bulk of our population, of help for very

common seeing and hearing. Most people see in exceedingly narrow grooves. Besides, there is this peculiar danger, not to be overlooked, that as we come closer to nature, literary culture will lose too large a share of its influence. I would have my country-bred boys and girls as close to the so-called "Humanities" as to the Sciences; that is, as close to history and mathematics as to botany and geology. They should learn to comprehend pure literature; and to have a taste for Whittier and Burns and Scott and Phillips Brooks, and all that is stimulating to pure thought and art and poetry — climbing up to Shakespeare and the Bible. So the library will be a delightful cozy room, or alcove, where good books lord it. The atmosphere must suggest great thoughts and great men. You must feel the British essayists, and the American essayists as well. Here the supply must be according to your purse somewhat, yet it can easily include a hundred character-making volumes — enough to establish an atmosphere. The family and private rooms may also have books of appropriate sort, but they ought not to prevent at least a book nook, even in the homeliest cottage. Be sure that you do not rely on borrowed books. They smell of dirty hands and tobacco

smoke, and then you have no feeling of friendship with authors who are only visitors.

I have advocated individualism strongly, but it should not be allowed to go too far. The kitchen used to constitute a family room, but to-day, even in country houses, the kitchen has become a servants' retreat; and in too many cases no substitute has been established. Every home, especially every country home, should have a family room. This should be the heart of the house, where all gather together for conversation, for music, and for sport. It should not be the reception room — devoted to strangers — nor the library, nor the laboratory; but a room in which to grow a family spirit — to keep up the oneness of the housefolk. Without it your boys and your girls will seek social life elsewhere, and the social life of your own house will only be that conventionalism which is sure to be bred where outsiders are included.

A conservatory is not really as necessary in the country as it is to have the surroundings of the house bright and cheerful for winter; yet nearly every country house may have, if it will, cozy corners for potted plants. I shall give you my experience in arranging a house room for this purpose, and then

tell you to what I have settled down. I began with a small conservatory, capable of holding perhaps fifty pots. This was placed, as it ought to have been, facing the east — with the south end closed against the sun. The morning light is best for plants, as it is for folks. Growth goes on mostly under the impulse of the dawn. Babies and plants should be seen by the rising sun — old folks also, if they would have sweet dispositions and long lives.

But after a time I found it difficult to keep the floor from having wetted spots, and there were rotting boards. The atmosphere was not the best, and not good altogether to let loose into the house. There is nothing worse than sick plants to poison the atmosphere; and it was not always easy to keep every plant in robust health. Then I tried a simple table and a sunny window — using the conservatory for another purpose. I turned a couple of marble tops bottom upward, and they made capital plant stands. On one of these, in a large, sunny window, I now grow magnificent pelargoniums, five feet high, and back of these there are a few fuchsias. On another stand, in a north window, grow Rex Begonias. Other plants are kept in the balcony that is enclosed for winter, and for summer is open for a hammock.

Here are geraniums, with a Virginia Coxe rose, a couple of Chinese primroses, and nasturtiums galore. I think this plan of scattering plants about the house is on the whole preferable for most homes in the country.

But my special delight is in fruit-bearing plants. It is just as easy to grow a dwarf orange, with its delicious perfume and its golden fruit, the guava, with its sweet flowers and abundant fruit, as it is to grow flower-bearing plants. The American Wonder Lemon is, all in all, the most perfect pot plant that I have ever grown. It is loaded constantly with flowers, twice as large as orange-blossoms, and the lemon itself is larger than any Florida orange — while its quality is perfect. A lemon may be seen growing on a tree two feet high, and weighing from one to two pounds. Dwarf peaches may be grown with equal ease in a cool, light room, if the trees are given an annual rest. I recommend my readers to try growing in pots fruit-bearing as well as flower-bearing plants.

So you see I have practically given up the idea of a conservatory; and as for a greenhouse, it is even less advisable for the majority of our country houses. I have seen them tried repeatedly; but in nearly all

cases they are either soon abandoned or they are receptacles of a lot of worthless stuff, not well cared for. I am writing for those who have not a mint to draw upon, and to whom rational economy is common sense. It will not do, when moving into the country, to undertake such an annual outlay as will destroy the charm of free life and the enjoyment of nature. I prefer to have bright spots about the different rooms of my home, and I like to see the sun laugh when it looks into a bedroom window and finds a begonia or a primrose. It at once shines its best, and works at the carbon gases until they are woven into leaves and flowers.

A home shop is essential to every complete country home. This is a matter of economy, and, in repairs alone, will be worth annually more than its cost, while in time saved it will prove to be even more valuable. When village repair shops are from one to five miles distant, it is no mean item of loss to be compelled to leave the plow or the hay field or the harvest, to secure an hour's work at forge or lathe. My own shop is always called upon at least once a week. It is furnished with engine, lathe, forge, and all tools necessary for carpentry as well as for turning. A screw can be turned or a bolt made at short

notice. It is not difficult for my boys to make a new chisel or some similar tool, to help us through a hurried job. Here is our saw for cutting wood, our bone-grinder, and a cider press for utilizing waste fruit. We sometimes grind one hundred barrels of apples in a year into cider and vinegar. All this, or nearly all this, is material that is allowed to go to waste on large farms. If a chair or table be broken, it goes to the shop; and so it is with all those forlorn happenings that generally stock a storeroom with useless rubbish — that finally finds its way into bonfires. But construction is even more important than repairing. A shop leads a boy to try his skill. He thinks, he invents — he and the tools think together. The chiefest of drawbacks with recent farm life has, next to isolation, been its sharp alienation from all industries but land tillage. The factories stole from us, one by one, all the industrial arts, out of doors and indoors. The mothers gave up their spinning, their weaving and their knitting; and the fathers gave up their building, their shoemaking, and their cheese and butter making. The farm was left to the duller work of every-day drudgery. Science had not come in to teach the charm of comparative culture, and agricultural tools had not

lifted drudgery into enterprise. The shop is a needed alliance of mechanics with agriculture. It not only makes tools, but better-rounded characters; and it widens the power of our young folks.

We are living in an age of science. This requires that we shall readjust our land culture to precise methods. The tendency is to smaller homesteads, better tilled. We are learning to intensify and perfect, and so to get our harvests gradually up toward a maximum. In order to accomplish this, our children must be educated to scientific methods of seeing and hearing, as well as doing. Before grammar and arithmetic must come the art of using the senses. Entomology has become a part of good farming. We must know our friends among the insects from the foes. All this brings us to another differentiation in house-growing. We must have a laboratory — a room where chemistry, geology, botany, entomology, ornithology supplement land-culture and tree-culture. It should be a large and well-lighted room. Mine is over the shop. One corner is furnished for chemical experiments, another for botany, and another for entomology; but altogether, these combined illustrate their application to horticulture. All about us are cross-bred corns, beans, and

other seeds or esculents that have been scientifically produced by ourselves. No matter how simple and elementary the work that you can accomplish here, do not fail of having a laboratory. Where house room is not abundant, it may be an adjunct to the barn. This and the shop will become the center of much family thought, and more attractive for your young people than any social device that would draw them away from home.

Your chimney should be built out of doors, with just as little as possible contact with woodwork, and the flue should be so small that the heat of the fire will easily send the draught upward. Nearly all smoking chimneys are caused by the fact that the fire is not strong enough to send up a column of hot air to overcome the dropping column. In other words, the chimney draws backward. To lift the chimney higher does no good, but makes the trouble worse. Old-fashioned fires, made of piled logs in huge fireplaces, would heat big chimneys and drive upward a column of smoke and heated air; but our furnaces and grates are not able to do this if the flue be large. An open fireplace is desirable in the family room if possible. Never will this world happen upon anything more homeful than the old-fashioned

open fire of logs, with brick hearths to catch the sparks, and all the family around it, telling stories and cracking nuts, or paring apples, while the mother turned the great wheel or knitted at a home supply of stockings. But whether we have an open grate or not, we should at least make sure that every chimney be based upon the ground.

If I were to build another house I would not have an ounce of plaster in it, nor a square of paper pasted over mortar. This is always subject to fading or to breakage. It opens the way to the display of bad taste, and in a few years it has become the harbor of disease germs. Every room should be wainscotted in some neat wood that can be oiled or varnished as you will. It need not be costly or it may be as ornamental as your means allow. A house wainscotted with Georgia pine has an initial cost very little exceeding that of one properly plastered and papered; and it will need nothing more than oiling for fifty years. In case of infectious disease, thorough washing of the walls and thorough aerating of the rooms make them safe for occupancy.

A white house in the country, if deeply imbedded in trees, is all right, but a white house standing near the street is in all ways disagreeable. The neutral

tints, so popular fifty years ago, have the advantage of making the house inconspicuous — as it should be. But what we want is to have all our associations suggestive of our needs and emotions — that is, the house should suggest our living ideas and cares. Green and red are two colors that nature seldom tires of using; and it is much the same with warm yellow. Blue is used much more cautiously and delicately. A dark-red house, trimmed with dark green, very generally fits into the surroundings which nature offers in the country.

Outbuildings should never be allowed to mar the symmetry and the unity of the home buildings. They should not break up or break into the idea that the place is intended to express. Greenhouses are a part of the idea of a florist's home, but they are not a natural part of an ordinary home. An observatory is generally a ludicrous pretence, unless you have a telescope, and study astronomy. Of all absurdities nothing can be more disagreeable than water-closets and cesspools in full view near a house—even though they be behind it. In fact, we should not so build and arrange our lawns that there shall be any part of the grounds which can be said to be back of the house. True homes front all ways, not

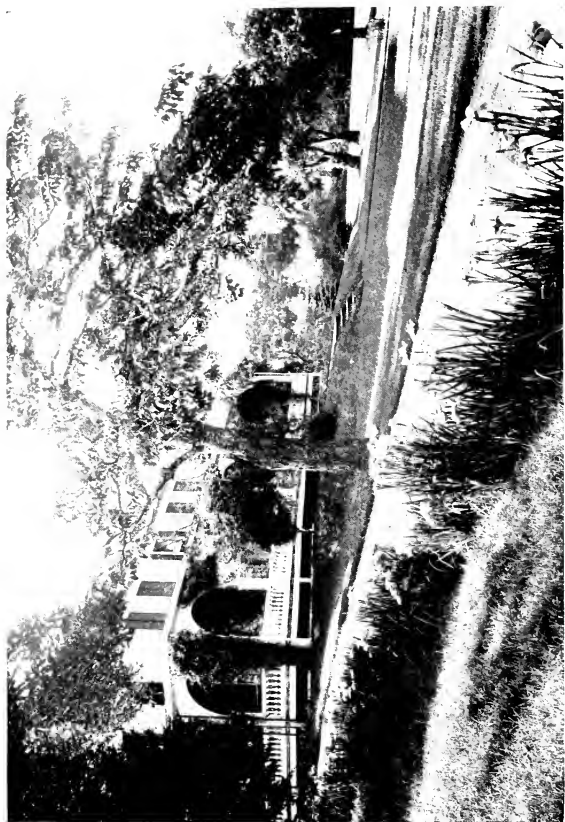
simply toward a public road where Tom, Dick, and Harry drive by. Generally the front away from the street should be the more healthful, and freest from possible annoyance to the eye of him who is living the place into shape.

It is a curious fact that economy in house building is almost always shown at the foundation. Cellar walls should be solid, thick, and eight feet high — no wasteful economy hereabout. There is no reason why one should creep about a dark underground dungeon to find potatoes for dinner. Where stone is plentiful, it is the only and fit material for foundation of either house or barn. Where stone is scarce, grout may be convenient — made of broken stone, sharp sand, and cement, laid slowly and thoroughly between plank supports, that are pulled up as the wall rises.

Do not construct any half story. They are hot in summer, and generally uncomfortable at all times — without being economical. There is no reason why walls should so slope that we cannot stand erect anywhere about a room. You may spend more in five years trying to heat a cheapened house, with thin walls and ugly cellar and cheap materials, than a really well-built house would have

cost. Meanwhile you will never be comfortable or happy, or safe from pneumonia. But, however well you may have constructed your house, double windows for winter will often pay for themselves in conserved heat.

This evolution of the house you will have seen has been simply an evolution of a human being. It has been yourself, learning to express yourself in different adjustments. As anyone gets to be better educated in his separate faculties, each of those faculties expresses itself in an apartment. A right sort of a house finds one out and reveals one to one's self. The whole house, altogether, is the whole human being working out into expression and separate functioning. Now all around us we set the birds to singing and the trees to growing, while at the heart of all this life the soul lives. Your house should be where you would seek yourself on a pleasant day, among the trees; and where of a stormy day you would like to find a retreat. Do as the crustaceans do: have a shell that you can use when you need it. You are yourself still more important than the wood or the brick that you have used. It is being made to express your feelings. You have not set it in a row along the roadside just



IT STANDS ON A KNOLL WELL AWAY FROM OTHERS

to have it, that is, yourself, looked at, and so that you can look yourself at the go-byes. It stands on a knoll well away from others, thoroughly individualized; and from its porches and balconies and windows it enters into soul-possession of the valley, the opposite hills, and even says to the sun and the moon and the sweet air, "You are mine."

*"One harvest from your field
Homeward brought your oxen strong;
Another crop your acres yield,
Which I gather in a song."*

Emerson

CHAPTER FOUR

WATER SUPPLY—WELLS, CISTERNS, ETC.

Too many country homes undertake to get on without adequate water supply. Very few have perfect cisterns and entirely safe wells. This deprivation is seldom necessary, and takes away from country life one of its chiefest privileges. To be out of washing water half the time, or for a single month, is a serious burden to a housewife; and for wells to go dry in hot weather involves not only suffering, but danger to health and life. The water from a shallow well of fifteen to twenty-five feet in depth is never quite safe; and after a drought such a well is filled with surface water, that easily flows in through the shrunken and cracked soil — after which the water becomes a positive menace. Most of our brooks are no longer quite free from some sort of pollution, and should not be used for drinking, unless directly at the fountain head. Even there spring water, before it is adopted for a family

supply, should be analyzed, and all the surroundings should be thoroughly examined. If your spring is analyzed as wholesome, and you are sure that it cannot be contaminated from some neighbor's drainage, build over it a spring house, of stone, if possible, and in this have a stone box for keeping meats cool, and a tank for milk cans.

Wells are contaminated not only by surface water, by slops, and by barnyard drainage, but by subterranean streams that encounter cesspools or other contaminating substances. In this way typhoid fever bacteria, as well as those which cause diarrhea, dysentery, and probably other diseases are carried into the human system. It is thought that such epidemics as cholera are frequently caused by polluted wells. A well must therefore not only be placed on high ground, but we must make sure that the under-soil strata do not seep toward it. The impervious strata may slope so as to run water under the soil for quite a distance and turn it into a well. The ground immediately around the well should slope away from it, and the waste water from the well itself should not be allowed to soak down into the ground, carrying with it surface impurities and stagnation. But you cannot even then be sure of

safe water until you have inclosed the shaft with a water-tight wall, reaching down to solid rock. Then lift it above the soil for at least one foot, and you have probably made your well as safe as it can be made by this sort of precaution. After all is done, have your water frequently analyzed. Too much depends upon our drinking water, both in the country and in the city, to allow of economy standing in the way of the utmost precaution.

As a rule, the only positively sure and safe water for drinking is that obtained from deep rock. By drilling this will be, in the long run, the least expensive supply — not only as avoiding doctors' bills, but as being absolutely adequate at all seasons. I have three dug wells, but as they changed flavor as well as chemical constituents at different seasons, and were also liable to give out during protracted drought, I added a drilled or artesian well. This well, although on high ground, struck excellent water at the depth of seventy-two feet — thirty feet being in solid rock. The water now stands at about one foot above the ground surface in the pipe, and if not confined, would constitute a flowing well. This is a rare chance; but it is not difficult to obtain a well where the water shall stand at only a few feet below

the surface. The cost of my own well was one hundred and twelve dollars, to which must be added ten dollars for pump and plumbing work. In some localities the drill need not go down more than forty or fifty feet, to secure a permanent flow of absolutely safe water; yet, within a mile of me there are points where a good supply has not been reached at even two hundred feet. This depth would make the cost of a well not less than between three and four hundred dollars; yet even at that figure it is a valuable investment — far better than if the same amount were put into costly furniture, or even an expensive house.

As a rule, hilly land is not dry land, but frequently is just the contrary. The locality should be studied with care, and where you find that you easily strike springs near the surface, you can calculate that veins in the rocks can be found at a reasonable depth. In all cases you should watch the man who operates the drill; for, at one dollar and fifty cents a foot, he is tempted to drill by an excellent flow of water, without reporting it to you — indeed, I think this is not uncommon in such work; and houses are frequently supplied with inferior water from a greater depth, while excellent water has been piped against.

Many veins of saturated shale will be touched that supply mineralized water, and you may decide as to whether these will be acceptable for your house supply. One of my wells gives me a strong flavor of sulphur — too strong at some seasons for table use. Another well gives me a strong taste of iron, with a slight taste of sulphur.

Having a drilled well, or any other thoroughly safe supply of water, it should be invariably carried directly into the house. If it be from a flowing well, or from a pure spring, pumping will not always be necessary; but in most cases a force pump must be attached to your kitchen sink, or to a basin of marble or iron, in some convenient corner of the room. Drainage from the basin should be connected with the general waste pipe, so as to assist in carrying off the refuse or the greasy water of the sink. The pipe that conveys the water through the soil and into the house should be of iron, and the connection should be carefully looked after. Too much precaution cannot be taken against lead pipes, or against lead at the joints. Removing lead pipes from my own well — purely from a sanitary point of view — some years ago, I employed a plumber who cemented the joints of the iron with a soft red

lead paste. As a consequence my whole family was poisoned, one son almost fatally. Lead poisoning is one of those fearful dangers, involving terrible suffering, that cannot be too carefully guarded against — not only in well pipes but in faucets and receptacles. An ignorant or careless plumber may undermine the health of a household, even while apparently providing against danger. Let the water which will be used for drinking purposes be brought through iron pipes, carefully cemented with graphite mixtures. Water obtained from a deep well is always as cold as it is safe to use, and you may cut off your supply of ice. Ice-water is always more or less dangerous, while cold well-water is almost never injurious. It is of an even temperature, and sufficiently cold for rational purposes.

One of our ablest sanitary writers tells us that “Well-water, as it is found in the ordinary community, is rarely safe — where it is safe is the exception. One well of absolutely untainted water may be found to ninety-nine that are more or less impure.” The same writer, speaking of reservoirs, urges that, while possibly they may be suitable for human use, the probability is that they contain

germs of disease. Nor can it be overlooked that freezing these reservoirs or ponds does not destroy injurious bacteria. The use of the Pasteur filter is recommended in all houses — even where the water supply is supposed to be absolutely perfect. The alum treatment is also efficacious, but not the most reliable.

Water supply for your barn and stables should be as pure as that for the house. While animals may not be, apparently, sickened by the use of tainted water, they often are diseased; and a cow's milk is certainly vitiated by what she drinks, as well as flavored by what she eats. You can carry water from a drilled or artesian well into your barns and stables, and obtain a constant supply of pure, cool water. It should be carried directly into the stalls, through pipes that supply separate drinking basins. Wastage from these troughs can be easily provided for, down the grouting to the drainage pipes. In this way animals can drink when they choose — not when they must. If possible, have your well on ground above your buildings, and carry the water in pipes that tap the main well tube, or can be filled by pumping. Flushing-tanks in each stall regulate the supply. By this system the saving of work

is a large item, while the cleanliness of the stable is better secured.

The use of a windmill on a farm is just beginning to be understood in our Eastern States; in the Western States they are far more common. Where a small supply of water is needed and a very small tank is used, the results may not be satisfactory; but for a large stable, with a large tank and large mill, this is the ideal system. A small gasoline engine will do your pumping far more steadily and certainly, while it will also do other work. A small steam plant, although more expensive, is in the long run most economical. When pumping is done by an engine the distributing tank may be quite small, as it can be filled every day. The working by wind is more fitful, and the tank must sometimes hold enough to last for several days.

Of cistern water a country house can hardly have too large a supply. There should be enough for very free use in the kitchen, for the washing and the scrubbing, and enough for bathing. A modern family holds a bathroom among its chief requirements, and very justly so. Whatever else you fail to do, at least compel your children to take a daily bath in clean,

fresh cistern water. If this water be caught on the roof, the gutters and the pipes as well as the roofs should be kept clean. A very good plan is to bury your cistern under ground — anywhere about your house, even under the driveway. I have a wooden cistern which has been in use twelve years. Opening it two years ago, I found almost no decay, and very little deposit; the water was absolutely clean. An open cistern of stone, in my cellar, gives me far more trouble. In fact, I do not recommend a cistern inside the house under any conditions. But wherever your cistern is placed, the pipes should lead directly into the kitchen. Either directly from the cistern or from a reservoir, water should also be carried to the bathroom and to the sleeping rooms.

Irrigation is too generally considered as a provision belonging only to extensive farming, and home-making on arid lands. It will hereafter be a method of supplying water for the gardens and meadows and field crops of intensive farming. We are growing less and less patient with the enormous loss in our strawberry beds and our truck gardens, caused by dry spells, just in the nick of time. The loss runs up in the aggregate to hundreds of millions every year.

The remedy by tree and forest planting, and by reservoir control of spring floods, is a slow one to compass; and it will remain incomplete, without a system of artificial distribution of the water. At any rate, the Eastern farmer is facing the problem of how best to spread water over his very uneven fields; mainly obtained from wells, by windmills, and held in reservoirs. Occasionally brooks can be utilized without windmills, the water being dammed to a height sufficient to compass its distribution over lower fields. Small lakes, more common in Michigan and other Western States, can be brought into service. The windmill and tank must, in many cases, be on the bank of the lake. Unfortunately, we can seldom work out the problem by a general system, as is done in arid sections of the West. It must be thought out and wrought out in each case according to conditions.

Our Eastern homesteads have to meet the problem of irrigation over very uneven ground. The difficulties are so complex in the New England and the Middle States, as to induce us to anticipate enough annual rain, and in spite of repeated disappointment, to put off artificial preparations. Statistics, however, show that at least one year out of

every five, and generally two out of every five, crops are reduced by drought so largely as to bring down the farmers' profits to a meager minimum, if not to wipe them out altogether.

It must, however, be noted that the land-owner can supply his crops with a very large amount of moisture without resort to an irrigation system. The full effect of ditching and of cultivating—that is, stirring the soil, has never yet been fully appreciated by gardeners and farmers. Running the cultivator all summer keeps the soil loose and retentive of moisture. In very many cases this is all that you will require in the humid states. We must, however, place great emphasis on the frequency with which the work is done. In berry gardens, and in vegetable gardens, the usual custom of cultivating once or twice does not begin to cover the requirements of even an ordinary year. The work should be begun early in the spring, and the cultivator kept running until the crops are about ready for harvesting. Bear in mind that about fifty per cent of ordinary soil is not soil at all, but space filled with water and air. What we want is to keep the soil in such a condition that it can be very full of these water cells—constantly refilled

from the atmosphere. If not stirred, a crust is soon formed against the air and moisture. At the same time that the loose soil absorbs and retains the moisture, it takes in, with the water, fertilizing elements from the surface and the air.

We must also anticipate another point, that drainage is quite as truly a method of keeping soil moist as it is of keeping it from being wet. Contradictory as this may seem, it is nevertheless true that good drainage is one of the best ways of preventing serious damage from drought. Undrained land is soggy in wet weather, but is not retentive of moisture in dry weather. It bakes hard, and vegetation is killed outright. There is hardly a piece of land in existence that will not be better fitted for resisting a dry spell by being well underdrained. Tile or stone drains should be placed from twenty to one hundred feet apart and three to four feet below the surface. The cost will, of course, vary quite largely — from fifteen dollars per acre to forty-five or fifty. The profit, however, derived, in the way of increased crops and decreased damage from drought, will compensate the land-owner very speedily. I have found, still further, that good drainage enables the roots of many plants — such as alfalfa

and strawberries—to strike much deeper into the soil, and feed at a greater depth. In this way many good things go together—drainage, irrigation, and an increase in our ability to use natural resources. I find the record of a twenty-acre field, which usually yielded twenty-five bushels of corn per acre, but after thorough drainage yielded sixty bushels of corn per acre—and paid, in a single year, the entire cost of tile-drainage. The outlet of the system of drainage should be into a larger drain, and thence, by a free outlet, into a large stream, or elsewhere, without doing damage.

After a full consideration of the provisos I have named, thorough drainage and thorough cultivation, there will still remain, even in our most humid states, a great loss in all sorts of farm crops, and especially in berry gardens, so long as irrigation is not applied in a regular and scientific manner. We must make our country homes on a basis of an unfailing supply of water and entire deliverance from the chances of the seasons.

Intensive farming is the growing of a large number of crops in the place of one or two crops, and the application of scientific principles so as to secure the very best results. This involves a growing

need for artificial irrigation. Strawberries and raspberries net growers from three to four hundred dollars per acre; asparagus and vegetables bring a profit of from one to three hundred dollars per acre. It will not do to subject these crops to the chance of abundant rainfalls. Where it is done, the maximum profit of four hundred drops down to one hundred, or even less. It is clear enough that the losses of a single year would more than pay for an irrigation plant on a farm of ten acres. In the State of Connecticut four hundred and seventy-one acres were reported recently as irrigated, at a cost for ditches, pipes, pumps, reservoirs, and all other appliances, of a little over sixteen thousand dollars. This would be an average expense of about thirty-four dollars per acre — to be paid for by the onions ruined by a drought on one-quarter of an acre.

In arid lands, which are, as a rule, more level, the expense of irrigation is only about ten dollars per acre. These lands cover vast areas, fit to make homesteads for millions of our people. This problem is, however, one for the nation, rather than for individuals. President Roosevelt justly says, "There is no one question now before the people

of the United States of greater importance than that of the water supply and the reclamation of the arid lands, and their settlement by men who will actually build homes and create communities. Throughout our history the success of the homemaker has been but another name for the upbuilding of the nation." Irrigation by the government, supplemented by individual economy, shows that in Arizona, where high-class fruits are cultivated, a family of five can obtain a good living upon forty acres, or even from twenty.

A bulletin issued by the United States Department of Agriculture reports on the cost of a small system of irrigation. It makes its estimate of a ditch one and a quarter miles long, with main laterals five-eighths of a mile long. The first cost of removing the dirt from the ditches would be a little over sixty-two dollars. The cost of head-gate, drop, division boxes, and other appurtenances is set down at one hundred and twenty-five dollars, adding twelve dollars for making levels and running lines. The total cost will not be far from two hundred dollars. The annual outlay for maintaining ditches and irrigating will be about sixty-eight dollars more. In this estimate the farmer is supposed

to hire all the work done. If he can do the work himself his outlay will be mainly for lumber, reducing the cost about one-half.

It not unfrequently occurs, in our hilly states, that a farmer may dam a glen brook, and lead the water to his house, or to his barn, or both, at the same time doing more or less irrigating. I know one who has constructed a very solid dam, at an expense of about two hundred dollars. From this reservoir pipes lead the water down a swale, to his house and outbuildings. At the house he has established a hydrant, from which a hose, in case of fire, could cover his buildings with water. Another pipe supplies a tank with flowing water, in quantity sufficient for a large number of cows and horses. The kitchen garden can be irrigated by leading a hose from the hydrant near the house. He can flood his celery when he pleases. A small strawberry bed has its paths a little deeper than usual, and these become irrigation ditches when necessary. "Does it pay?" "It certainly does, in half a dozen ways. The barn supply alone, of pure spring water, would compensate for the cost of the dam; but, you see, my house is practically safe from fire. I carry some fire insurance, but I don't

rely upon it. In my judgment insurance never makes good an honest man's loss. His house is full of himself, sir, and an old man never feels like building another. If he does, he will never be quite at home in it."

I have tided over one or two droughts in strawberry time with a pipe dropped into a well, and then, with an elbow, carried down among my beds. You have to start the flow, after which it works by siphonage. Of course the flow will soon empty an ordinary well; and the well must, itself, stand considerably higher than the field to be irrigated. It is not an admirable provision, but may save us a heavy loss when we have no better provision. In all cases, just as soon as the wetted soil is beyond the mud state, you should run a cultivator, and turn the drier soil to the top. This will hold in the moisture for two or three days; otherwise it will dry rapidly, and leave the surface of the soil baked and cracking. Then if the drought comes, the irrigation may prove to have been a positive damage. Even when watering with pails, the wetted soil should at once be covered with dry soil, to prevent evaporation. Never sprinkle a strawberry bed, or any other ground, with the idea that the soil or

plants will be benefited by a casual sprinkling. The earth must be thoroughly wetted, so that the moisture will reach the roots of the plants, or more harm than good will be done.

The best time of day for irrigating is open to discussion. If water be applied in the morning it is more readily evaporated by the heat of the day; if applied in the evening it is working at the roots of the plants, to feed them all night. Mr. Saunders, a skilled horticulturist, gives this rule: "Water at any time when the plants need it, only water thoroughly. When I am told that watering in the sunshine, at noon, will burn up my plants, I answer that the plants will certainly burn up if I do not water them." The most important point is to see that the wet earth is mulched with dry. Cultivating is often called soil mulching.

It is equally important to use mulches about trees, in order to retain moisture and to keep the soil in a condition to absorb moisture. Many people use mulches in their strawberry beds, filling the paths with cut straw or other material that will prevent evaporation. The best material to apply about young trees is probably coal ashes. It is sufficiently porous, and yet, if laid thickly about the tree, it

will do admirable service. Tan-bark is often a convenient substance, while chip-waste will serve, where it can be obtained in quantity; better yet sawdust. Weeds will not easily come up through the ashes, but will, in time, work their way through sawdust. The mulch should be removed once a year, the soil thoroughly forked, and then the mulch replaced or renewed.

You can coax a brook to do almost anything, from turning a boy's mimic wheel to forming a carp pond or a cranberry bog. A neighbor has built a dam across a brook, and it goes down to irrigate his garden, to fill water-lily tubs, and then create a garden pond, where he has a fountain constantly playing. But the best part of the brook is, after all, up under the limbs of the huge willows, where the bare-footed boys can wade, or take a noonday bath. Utilization of brooks does not consist wholly in the use of the water for houses, barns, and irrigation. Always buy a brook, if you can, while seeking a country home. The most beautiful thing in the country is a brook that sweeps and tumbles, and whirls about and eddies, — kissing the overhanging rocks — that bathes the tree roots, plays with the pebbles, dashes spray over the lichens, and then carries



THE MOST BEAUTIFUL THING IN THE COUNTRY IS A BROOK

off autumn leaves, to hide them under logs, or spread them in the meadows for humus; and all the while is the happy home of fish and salamanders, and of crabs that walk sideways and lift ridiculous gauntlets to the man in the moon. A country without brooks is always a lonesome place. The New England States and the Middle States are in nothing else richer than in those streams that gush out of the hillsides. If you have one it is for you to study, to companion, and listen to its advice. I mean that man, who cannot live by bread alone, cannot live by bread and water — that the poetry of a country home is just as essential a part of it as the gardens and the orchards.

In the making of new homes in the country, especially in the West, nothing so fixes family life — so settles it to a locality and creates the home feeling, as a good well. It was about water that Eastern civilization clustered and developed, and it is not wholly otherwise with us. So it is that health, comfort and homefulness all unite about the deep and copious well. The cost is absolutely nothing as compared with the resultant blessing. As I write I read of a drought in Texas. The writer says, “There are few wells hereabouts; and most of the

houses are built adjacent to streams.” “Age,” says an eminent physician, “is dryness and ossification. To remain young, drink water — pure and soft water. Judicious fasting, plentiful water-drinking, deep breathing, daily bathing, individual thinking, bring health, beauty and success.” I shall feel that my book has failed of a chief end, if it do not quicken in you a resolve that, whatever else you deny yourself and your family, you will make sure of a deep, unfailing supply of pure water.

CHAPTER FIVE

LAWNS AND SHRUBBERIES

THE creation of a beautiful lawn is the work of an artist. If you have culture yourself, it will find shape and expression without trouble in lovely grass plots, and in the grouping of trees and shrubs. You must never get very far from nature; that is, you must not adopt artifice and artificial arrangements that bring you into contrast sharply with natural grouping. The first thing to do is to lay out a drive. If you have secured an old homestead with trees, the drives must adjust themselves to whatever is in the way. Fashion just now has a whim for straight paths; but common sense and good taste place the entrance or entrances of your place where they will allow an approach to the house, very nearly as you would stroll in if there were no roads at all. In this way the drives would probably start not far from the corners, and would curve about your shrubs and trees; and at every

point they would give you a view of your house, and of your property so far as possible; and they would pick up beautiful outlooks in the valley below, or into some adjacent or distant landscape. A group of shrubs will cause a bend in the road; then you pass through a grove possibly, under an old linden, or around a Kentucky coffee tree with its strange armlets drooping down almost to the ground.

I do not argue that a poor man should trace out long drives and make picturesqueness the dominant idea in creating a country homestead. Yet the poorest resident in the country cannot afford to omit a regard for the beautiful. In the long run the cheapest place gains in money value by having sacrificed a little in the way of making things pleasant to the eye. "Well, sor," says a neighbor from Erin, "says I to Margaret, 'I'll not say but the pig will have as good digestion a little out of the sight of the people, and a few roses in his place.' And Margaret, says she, 'I've a feeling we needn't make ourselves conspicuous for weeds and frog holes.' So betwixt us we just imitated the fine places upon the hill; and, sor, now we can think beautiful things ourselves." My Irish friend hit the mark pre-



BEAUTIFUL LOOKS IN THE VALLEY

cisely. The educative force of a beautiful place, or an effort at creating a beautiful home, is very great and constant. The influence is interactive —always so. You become admirable by admirable deeds; and beautiful by planting beautiful things. This is really the object and end of this whole drift toward the country. We wish to get out of the city in order to plant fine ideas in the soil.

It pays to make our roads well at the outset. It almost always occurs that in any neighborhood there is some specific material peculiarly adapted to making roads. My own drives were first thoroughly drained with six-inch pipes—nothing else will do on a hillside. When a flush of water comes it must be carried away with rapidity. These pipes lie about eighteen inches under the surface, and wind their way with the drives, until they come together in a larger drain, and thence into the highway. It needs considerable study and watching of the work of showers to determine just where a little additional work shall be done in the way of surface drainage. You can soon determine just about where these cross-cuts and side-cuts are necessary. They should catch the water before it accumulates, and throw it to one side, or into the

pipes. In this section I find no better material than furnace slag for a basis; and over this a thick dressing of red shale. This sort of material, of course, cannot be secured everywhere. But where it cannot be obtained, there is either a deposit of gravel within reach, or possibly coarse sand, which can be laid over broken stone. At all events, do not be stingy in the way of making your drives sure and solid at the outset. Otherwise they will soon be broken up, and make you continuous trouble. I have a length of private drives far longer than is needful for many country homesteads, but I find no difficulty in keeping them in excellent condition by top dressing once in six or eight years. The slag will hold good for almost any length of time. Like all other road-making, the secret lies in watchfulness; neglect for a few weeks will render your drives very much like our common highways, a complication of ruts and puddles. I imagine that a good private driveway becomes an example for the public road commissioner. It will be necessary to go over these drives about once a month, to remove any litter and to hoe out grass and weeds. Drives should not be indulged in at all unless they can be kept tidy. I find a few of my neighbors are

inclined to consider drives and walks so distinct, that the driveway for wagons is not allowed to pass around the house. I am inclined to think that our best way is to have good, broad drives, passing entirely around the house, and thence to the barn. Hedges I shall speak of in another chapter, and refer to them here as often finding their best service in bordering a driveway.

As a rule, the front lawn should not be given to flowers, although occasionally it may be a shrubbery. But if you are the owner of four or five acres, or more, it will be better to have a tree lawn between you and the street. Reach your shrubbery and your flowers where there is a degree of privacy. We certainly are not going into the country to hide ourselves, or to have all our enjoyments to ourselves alone; but we do desire, and we do need, a retreat from publicity. When we get off the front door-step of city life we do not intend to become squatters along the roadside of the country. But multiply your retreats as you may, you will find abundant opportunities to invite your chosen friends to sit with you in rustic seats under your apple trees, or to walk with you among your floral pets. With walks and drives rightly adjusted, a

ten-acre homestead may easily have devoted an acre, or even two acres, to selected trees, either at the front of the house or flanking the front. An English homestead is generally open toward the street, while the drives approach through bordering shrubbery, or under trees. Our American landscape, with more slopes and hills, gives us greater opportunities for broader views over valleys, so that a street front is not so essential. If you have but two or three acres, or if you are a truck farmer, needing economy in the use of land, still plant a half-dozen fine trees before your cottage—a beech grove, perhaps, or a group of lindens, or a grove of maples. An orchard neatly kept is just the thing; only, I am afraid, it will sadly fail of proper care. The awful neglect and the abuse that apple trees undergo make it dangerous to recommend them for a front lawn.

The laying out of a tree lawn must not be allowed to depend altogether on your taste, for it is this laying out of your home that is going to create a better taste. Especially do not mistake a mere greedy desire for trees as a safe guide. There are really no sights in America more unpleasant than the front lawns of our average country homes.

Odd trees and weeping trees are made conspicuous, and then made more disagreeable by multiplicity. Evergreens are made monstrous by shearing, and these are thrust into the eye of the public in rows. Evergreens should almost never be planted in rows — never except for windbreaks, or a possible avenue.

A maple grove is a delight always — provided you understand the maple characteristics. Most people utterly fail to grow sound and clean maple trees. It is a tree that must be well fed with soil humus; and the bark must not be exposed, by careless trimming, to the sun. Better by all odds than the sugar maple, for a lawn, is the Norway. This is the very ideal of all lawn and shade trees. Its growth is nearly one-third more rapid than any other maple, and its milky, acrid juice prevents it from being acceptable food for worms. I do not think I ever saw one in any way defoliated or injured by insects. It is, however, susceptible to winter blisters. The water maple is another glorious affair; and if you will take a little care, you can get specimens fully equal to the most superb Japanese maples. For myself I love the beech, either in a grove or as a single tree. Very unique and very

charming is the Kentucky coffee tree. The male combines a drooping form with fine spread of limbs and elegant foliage. I know of no insects that ever assail it. Elms must be planted only where you have abundant room for their full expansion—not less than a diameter of a hundred feet. A white elm is intensely individualized. It is itself, to the finger-tips of every limb. It has no desire for coöperation, and it does not like close neighborhood. The red elm is unfit for lawns, because it is in a stage of indecision in its evolution—not quite willing or ready to spread out its limbs low down, and not quite ready to lift them aloft like a white elm. The cork barked elm can be found very generally in the New England States and New York, and is fine for a small lawn. This tree also does not like to be crowded. The cork barked maple is peculiarly suited to small lawns, having a very round head, not exceeding twenty feet in diameter—rarely that.

Among our native trees, I know of few that for general planting are preferable to the magnolia acuminata—a thoroughly hardy tree, growing as erect as an arrow could be shot. This tree holds its arm in a fine curve, without the least drooping.

The sassafras is another tree adapted to small lawns; and in addition to those named, what can be finer than the catalpa? Some of the crossbred varieties do not attain a very great height, and can therefore be used where space is limited. Mr. Teas has introduced a fine purple-leaved sort that is remarkably beautiful, both in blossom and in leaf. Our hardy native catalpa is suitable for large lawns, either for single trees or in groups. Other small lawn trees are the salisburia or ginkgo—a very unique representative of vegetation that covered the earth before our deciduous trees. I myself admire very much the foliage and the growth of the persimmon. It is entirely hardy as far north as Canada; growing 30 to 40 feet high, and bearing great loads of golden fruit that, if not picked, make the tree conspicuous all winter.

Yet when all has been said and done, we have two native trees that surpass everything else for roomy lawns and avenues—everything excepting the Norway maple; I refer to the white elm and the linden or basswood. I should plant the basswood partly because of its noble foliage, and partly because of its delicious flowers. It is the great honey tree of the world. The linden has this

admirable quality, that if bruised in the bark it will readily heal over; while the maple is almost sure to spread decay at damaged points.

I append a list of what I conceive to be the twenty-five best lawn trees: The white elm, the Huntington elm, the white ash, the native beech, the double red-flowered horse chestnut, the native linden, the Norway maple, the Wiers cut-leaved maple, the sugar maple; the swamp or water maple, magnolia acuminata, the American white oak, the macrocarpa or burr oak, the tulip tree; adding to these for evergreens the Norway spruce, the American arbor-vitae, the white pine, the Scotch pine, the hemlock; and for nut trees adding the butternut, the hickorynut, the walnut, and the chestnut.

A good list for a small lawn might be made out of the following: the cut-leaved weeping birch, the purple-leaved beech, our native bird cherries, the double-flowered cherry, the double rose-flowered crabapple, the Camperdown weeping elm, the mountain ash. To these may be added the double-flowered peach, the double scarlet thorn, the rosemary-leaved willow, the magnolias *Soulangeana* and *tripetala*, Wiers cut-leaved weeping maple, the Japanese maples, and the Russian maples.

Where only one very choice tree is needed, some consideration must be made of what is wanted of the tree. There is no more homeful tree than the common butternut. One of these planted near the house will reach out its huge arms and shake down bags of nuts; adding very much to household good cheer, and to the children's happiness. It is a hardy, long-lived tree, but it hates neighbors. If crowded, the limbs will die, while underneath and about the roots almost nothing will grow. It is a curious fact, however, that there are friendships in vegetation. The wild cherry will nestle very closely to the butternut, and thrive; but an apple tree or a pear tree positively refuses the association, while vegetables and corn sustain the same prejudice. Another tree for single planting is our magnificent weeping white elm. This, as I have already said, needs room, and abundance of it. It should be trimmed up when young, until it gets its lofty outlook and sweep of limbs. The Norway maple is, if given abundance of room, one of the most magnificent trees for single planting that I know. Its foliage is dense enough to make it a fine resort in midsummer, and in autumn its color is unequaled. A single white oak will also make a lawn by itself.

One white cut-leaved birch is admirable near the house, but do not be tempted to plant two or three of these unique trees in juxtaposition. I have a golden poplar which I highly esteem as a remarkable tree for color, and for close proximity to the house; but for shade it is not eminently good. Possibly, however, we have not one tree for single planting more complete, when we estimate both foliage and flowers, than the *catalpa speciosa*.

I am strongly tempted to go somewhat beyond the restrictions of this chapter and give you a list of trees much longer, including many that are seldom seen about our country homes, but that well might be planted. I shall content myself with naming a very short list of choice trees, from which a selection may be made. There are several varieties of the Norway maple — all of them exceedingly beautiful. I think the best of these is Schwedler's, which differs from the common sort in the purplish green of its older leaves, following a crimson shade. The European alder is a remarkably rapid growing tree, with roundish foliage, and adapted to moist positions. The hybrid catalpas I cannot recommend too strongly, both on account of their superb foliage and equally fine flower. The golden-

leaved and the purple-leaved are hybrids not to be overlooked. The weeping beech is a very picturesque tree, with spreading and tortuous limbs—the foliage very beautiful. The *virgilia lutea*, or yellowwood, is one of the finest American trees. It gives us a round head, of light green-shaded foliage, turning to a warm yellow in autumn. In June it is covered with pea-shaped flowers, hanging in long racemes. This tree belongs in your small lawn list, as it rarely reaches a height of more than twenty feet. The *gleditschia*, or honey locust, is a rapid growing tree, with exquisite foliage; but I cannot recommend it unless you are able to secure the thornless variety. Another good small lawn tree is *Kœlreuteria paniculata*—a Chinese tree with a small round head, covered in July with golden flowers. In the Southern States, of course, our list of magnolias may be considerably enlarged. Be sure that this tree is never moved in the autumn. The tulip tree, or whitewood, is a magnificent tree found in our Western States, and fully equal to *magnolia acuminata*—with the single exception that the growth is more easily made one-sided and defective. The *negundo* maple or box elder is another native tree of attractive habit and rapid

growth. It has leaves like the ash, but its seeds class it among the maples. The paulownia, or empress tree, is a superb importation from Japan. Its flower buds are sometimes killed, but otherwise it is able to endure our severest winters. The leaves are twelve to fourteen inches across. In some parts of the country the buckeye, or Ohio horse-chestnut, is indispensable. It is much larger than the ordinary horse-chestnut, and its leaves are smoother. The nuts are an attractive feature of this tree. Most of the poplars are a nuisance on a lawn, but the Lombardy has its place, especially on high points. It is also useful for windbreaks. Reaching its steeplelike limbs straight upward, it can be planted in close, hedge-like rows. The list of good oaks is very long. The scarlet oak and the pin oak are two of the very best. Several of the willows are meritorious, because of their early blossoming or their golden or silvery foliage. The royal willow and the golden willow and the laurel-leaved are three of the best. On a small lawn the Kilmarnock weeping willow is not out of place, if not too conspicuous. Of the lindens, the European white-leaved, from Hungary, is a superb tree in all ways. It is notable for its whitish color, its

perfect form and its acuminate leaves. The fern-leaved linden is also an elegant tree. The common European linden grows to a large size, with large leaves and fragrant flowers. The list of choice elms is also very long, and full of attractive trees. The English elm is very spreading, and with smaller leaves than our American. The nettle-leaved elm is a very curious tree, with some claims to general planting.

We now turn to the shrubbery. I know that at the outset most of my readers will be unprepared to follow me when I recommend giving to shrubs a large space. They will yield about a flower garden, but that there should be a half acre or more of blossoming shrubs they cannot believe essential. But watch nature, and observe that she plants her hillsides not only with groups of trees, but with great patches of bushes; and these are really the glory of the successive seasons. While I write I look over the valley, and see plains of sumac—slopes of half an acre each that blaze with it. Then all up and down the sides of the creek run a shrubbery of elder bushes, twisted and twined with bittersweet, and grape vines full of huge clusters of purple berries. All above these hang willow

limbs, which are also fringed with great masses of the yellow berries of the bittersweet, and clusters of white clematis seeds. A little while ago a group of red-fruited wild cherries stood out in rich relief on a knoll in the valley; but now the birds have eaten the cherries, and are chattering and feasting to-day in a half-dozen mountain ash trees that fill a hollow near the mill. Our home world is wonderfully supplied with blossoming shrubs; and I never discovered half of them until I began to make a collection.

I recommend the following, that you will find generally wild about New England and the Middle States — the barberries; the dogwoods, in five or six varieties; the wild plums and the wild cherries; the elder, the filbert, and the rubus in variety. Besides these the thorns are, many of them, exceedingly beautiful, and the double ones as well as single ones have found their way into the woods. The Tartarian honeysuckles are naturalized over quite an extent of territory, and many of the spireas that are scattered everywhere are beautiful indeed. For early Spring bloom the ribes in variety are very fine; also the mahonia, a native evergreen shrub. The fly honeysuckle and the rock maple are found

over a large extent of territory. The euonymous, more common in the West, is also found in the East in wet localities; while the high-bush cranberry is one of the grandest ornaments of a dozen states. The Judas tree, another Western shrub, can be grown everywhere in our lawns. *Cornus mascula*, *cornus paniculata*, and *cornus florida* constitute three of the best of the dogwoods. The pawpaw is as beautiful for the shrubbery as it is excellent for fruit. It likes moist soil, but can be grown on high soil by mulching. Of course we have nothing finer than the laurels and rhododendrons, where they can be grown. In the Southern States the *Stuartia pentagynia* is a superb plant. Among our wild plums should be included the purple-leaved. Every section of the country has, beside those named, a choice assortment of bushes which will adjust themselves to lawn growth. In this section I find the hazel bush to be exceedingly beautiful in October, and the hopple bush — a hydrangea-like shrub — is delightful in midsummer. The latter is difficult to transplant, requiring mucky soil and partial shade.

The whole world has been ransacked to add to our list the beautiful shrubs that nature has given

to other lands. Our mothers, of seventy-five years ago, had only the common lilac and the white. To these we can now add a collection of at least fifty grand, new sorts — a list constantly increasing. Among the best of these, and most easily obtained, are the following: *Josikæa*, a Hungarian production with a tree-like growth, and dark, shining leaves; it blossoms after the more common sorts. The Persian lilacs, both purple and white, have smaller foliage and more delicate branches, covered with superb masses of flowers. These varieties are entirely hardy, and should be in every one's garden or shrubbery. The *cærulea*, or blue lilac, is another fine sort; as is also *Charles X*, with its stout limbs and its heavy, red clusters. *Princess Alexandra* is one of the largest white-flowered; and *Marie Legraye* is another white sort, carrying magnificent panicles. Among the newer sorts of very fine quality, and now easily obtained at a small cost, are *Jean Bart*, a double variety with rosy, carmine flowers; *Frau Dammann*, a single white with very large clusters; *Leon Simon*, another double, with bluish crimson flowers; *Ludwig Spaeth*, with immensely long panicles, and each single flower very large, with reddish purple hue; *President*

Grevy, a beautiful blue, with very large and very double individual flowers, measuring three-quarters of an inch in diameter. This is one of the finest of all the lilacs. Michael Buchner is a dwarf, bushy variety, with very double pale flowers of a delicate lilac hue. This list does not include one-half of the really choice new lilacs.

Another of the old-fashioned flowers is the syringa or mock orange. The newer varieties number at least twenty-five, and are all the way from bushes of two feet to twelve feet in height. A good collection covers a long season, of not less than two months. One of the dwarf varieties is double, and the flowers are rosettes, equal to white roses — but they are sparsely borne. Three or four of the choicest are the grandiflorus, with very large flowers; the nivalis, with cream-colored stamens; the Gordon, which has very profuse flowers very late in the season. The golden-leaved syringa is a small growing bush, with golden yellow foliage; and the willow-leaved has leaves curled at the edges; while the downy-leaved has soft, satin-like leaves.

The old-fashioned hydrangea, which our mothers grew in tubs, has been supplemented by the

oak-leaved, a very hardy native bush with leaves like the oak; and the *paniculata grandiflora* — a magnificent shrub when well grown, with huge bunches of white flowers a foot in diameter. These are produced in August and September, when very few shrubs are in flower. For this period of the year one should also have a good collection of altheas — sometimes known as Rose of Sharon. Nearly all the varieties are entirely hardy, but they may require a little protection until two or three years of age. It must be borne in mind that all shrubs, like all trees, are more tender when young than after a few years of growth has ripened the wood. I find, however, that one of the handsomest of the altheas, a double variegated sort, is susceptible to freezing after it has become matured. Among the more beautiful varieties are the single purple, the double red, the variegated-leaved, and the painted lady. One variety of the double fails to expand its flowers, but it is all the more interesting because its buds, instead of opening, become large and solid masses, fruit-like. The flowers of the althea remain open but one day, but the succession is continuous, covering the whole bush with a mass of bloom for six weeks.

For your convenient reference I append a list of what appears to me to be twenty-five of the best shrubs for general planting. Altheas in variety; barberry; deutzia in variety; dogwood in variety; euonymous, American and European; Tartarian honeysuckle in variety; hydrangea paniculata grandiflora; lilac in variety; prunus triloba; Japan-quince in variety; purple fringe; ribesaureum; spirea in variety; syringa in variety; viburnum in variety; weigela in variety; elder; forsythia; exochorda; Chinese privet; dwarf horse-chestnut. To these add, according to locality, for evergreen, mountain laurel, rhododendron, mahonia, and box. ✓

In the arrangement of shrubs, as of trees, we must remember that we are planting for the whole year, and not to have something in the spring or for midsummer only. It is not difficult to so arrange our shrubbery as to modify the dullness of winter, as well as the warmth of summer. I recommend you to plant very freely of the barberries and the high-bush cranberry. These, with warm, red berries covering them all winter, make January comfortable at least to the eye. In March and April they draw the cedar birds and the pine grosbeaks — beautiful birds that are very companion-

able. They anticipate spring for at least a month before the hyacinths lift the soil — sometimes they are here all winter. I do not know a handsomer and better behaved bird than this pine grosbeak. If he drop a berry on the snow he gets down and picks it up — a touch of economy which the robin despises. The cedar bird would be more welcome if he never extended his stay until cherry time. You can, however, afford to plant an extra tree or two especially for this cheerful visitor. You will hardly get too many barberries. Standing almost anywhere about your lawns or near your barn, they give us a touch of brightness that no other bush equals. The high-bush cranberry has a tendency to top-heaviness and splitting down. Your best way will be to surround the limbs with a heavy wire — placing a piece of old rubber between wire and limb.

In the arrangement of shrubs, as of trees, beware of the conventional. The Indians always planted their apple orchards in groves, instead of in rows. From the standpoint of beauty they were correct. Rows are made essentially only to allow the plow to cultivate the soil. A few hints in planting may be worth the while, but in general simply

try to follow nature's methods. (1) Rows are always to be avoided, except for windbreaks, and for bordering straight drives. (2) Shrubs that have poor outlines when standing alone should be grouped. (3) Do not repeat the same effect in your grouping, but seek variety. (4) Each group of shrubs should bring out, if possible, a succession of bloom. (5) Low-growing shrubs should stand in front of the taller. (6) Avoid fancy grouping and geometrical outlines. (7) Walks should not go anywhere or nowhere, but somewhere; and if they bend they should be bent around something. (8) When you get through planting, the effect should be that all parts fit together — as the parts of a group create a single whole. Your shrubbery and your lawn should not be so individualized as not to fit together, and then bear no natural association with your gardens and orchards.

The aim of this book is everywhere to steer clear of pettiness and small local effects, in favor of general and unified beauty and utility. For this reason we have nothing but disapproval for those lawns that involve fussiness and cost, and therefore are without adequate compensation. We should not indulge in little show lawns or in trifling lawns,

which belong nowhere but in the city — where even a spire of orchard grass dare not swing its blossoms alongside a daisy. I am told by a government expert, in one of his reports, that “a good lawn demands great skill and judgment in its making, as well as in its maintenance. The chief charm of a lawn consists in an even stand of grass, of uniform color, kept closely mown.” This is pure humbug. A large country place, or a country place of only two or three acres does not call for any such sort of lawn. Grasses are nearly all beautiful — in blossom as well as when sheared close to the ground. A country lawn mowed three or four times a year is satisfactory and fits to the country; but a little piece of grass plot, over which the lawn-mower is rattled all summer, is neither appropriate nor satisfactory. I sincerely recommend that you abolish these intolerable machines altogether. They have no natural use about a country home. Once more, quoting from my expert authority, I am told that “in order to secure a perfect lawn we must use a pure grass, such as Kentucky blue grass, or the mixture must be so perfectly made from grasses of like habit of growth and of coloring, that a mottled effect will be avoid-

ed." Pray tell me why a mottled appearance on a lawn is to be reprehended? And tell me, further, why nature never found this out? She mottles things without shame or apparently the least thought of making a blunder. The educated eye finds nothing in the country more beautiful than the variegation of color. No two trees on our lawns are shaded the same green. Shall we undertake to eliminate all but one color? Shall we refuse to allow a maple to stand beside an oak, or in autumn shall we forbid the crimson and the gold to mingle with the green? It is very vital for us to get rid of these false notions of natural beauty. A bit of undandelioned grass plot, dug at, picked at, and fussed over, will do in a city or village; but on a true country homestead let nature laugh and play and have her own way.

CHAPTER SIX

WINDBREAKS AND HEDGES

THERE is no one subject more important in every case of establishing a country home than planting of windbreaks. We can greatly modify climate, and, what is more important, can break the force of windstorms by such provisions as I shall describe. It is not always possible to secure a home under a western protected slope; and even when it is possible, the wind will sometimes inflict injury. A strong growth of arbor-vitæ or hemlock, or of some deciduous tree of close growth, like beech or linden, is sometimes a necessity, and always an advantage. This subject has not yet received anything like enough consideration among farmers and residents in the country. Nature always attends to it promptly. Along fence lines, or wherever she pleases to work, she starts a growth of bird-sown trees and shrubs — abundantly of wild cherry and mountain ash. To them the wind adds its



NOTHING IS MORE IMPORTANT THAN PLANTING WINDBREAKS

contribution of ash, maple, and elm seeds. These make rapid growth, of a miscellaneous but generally beautiful character. Elder bushes, dogwood, and many other beautiful wild bushes form fringes; and grapes with bittersweet and clematis climb and festoon them. The wise farmer understands the value of these buttresses against storms, and does not cut them; but the man who makes a clean sweep counts them rubbish, and roots them out. He will suffer for it in a decreased crop, in unbalanced temperature, and in broken trees.

The artificial windbreak is a very tall hedge, or it is a close row of trees. A strip of natural woodland will serve the same purpose, if the owner takes pains to cultivate it, trim it, and prevent destruction. The extensive farmer can do nothing wiser than to plant one acre out of every ten to forest trees. The result of needless forest destruction carried on through the nineteenth century has made our summers hotter and dryer, and our winters not colder, but liable to excessive extremes. Our smaller homesteads, however, suffer quite as sadly from the unbroken storm as do the larger farms. The sweeping wind bears away the moisture of the soil, and dries up the plants. It snaps

off well-loaded fruit limbs, and breaks down petted lawn trees.

Among the best large trees for windbreaks, on or around the country home, are the lindens; because, while close-growing and big-leaved, they also furnish vast stores of honey for the bees. I frequently recommend this tree, especially our common native basswood, to my friends, because of its honey value alone. As we shall see in Chapter Thirteen, bees are essential to fruit growing, besides furnishing to us a very important share of wholesome food. A row of twenty or thirty lindens will give these active friends the best of all pastures. The foliage of the linden is delightful for beauty and for shade; and the tree is absolutely hardy and healthy. Beech trees are also very stout and very compact, so much so that nothing can be better for windbreaks. They grow more slowly than lindens, but when they are grown, they also contribute for our pleasure a liberal supply of nuts. I have a warm affection for a beech tree. I wish I might see them planted as freely as they once grew wild in the days of my childhood. Norway maples make a superb windbreak, and sugar maples also make a fine stand against storms, if they are kept

healthy; but, if hacked with saw and axe, they soon become diseased, and the homes of pestiferous insects; they are then brittle before the wind.

Another economic windbreak may be made of apple trees. When there is only one row these can be planted as close as twenty feet. Care must be taken, however, in selecting tough-wooded sorts. Most of our seedlings are not easily broken, but Baldwins and Roxbury Russets would soon become a mass of brushwood. The Wealthy, the Duchess, the Golden Russet, the McIntosh, and nearly all apples of the Pippin family, especially the White Pippin, will stand firm, and bear heavy loads of fruit. You will, however, have to keep out suckers and look out for borers, exactly as you would in an orchard. Crab apples are especially adaptable for making these protective walls, and they are very useful for fruitage. Set them about fifteen feet apart in a row. Let all apple trees, crabs included, branch out four or five feet from the ground. They will then bend down enough, with the first load of fruit, to make the wall close and compact. A hedge of Martha, Florence, or Whitney crab will be glorious in blossom, and especially glorious in fruit.

But for small places I do not know of a windbreak better than can be made of the Buffam pear. This tree grows like the Lombardy poplar, erect, stiff, and tough-wooded. It is so compact that you may set the trees eight or ten feet apart, and so make almost a solid wall. The fruit is only medium-sized, and so near to the wild fruit in its temper, that it bears enormous crops; and those in the shade are nearly as good as those in the sun. Not a high-grade dessert fruit, it is not insignificant for canning and jellies, and is particularly excellent for pickling. Another point not to be overlooked is the glory of a Buffam hedge in autumn. In October no other pear is so superbly colored with crimson and gold. The Sheldon pear makes a good windbreak, but the wood is brittle. The Anjou is one of the best, on account of its compact growth.

For a low-growing windbreak nothing is more cheery than a row of dwarf apples, standing close in a row. Among the best varieties for this purpose are the Astrachan, the Salome, the Porter, the Gravenstein, the Summer Rose, the Hubbardston, the Ingram, the Golden Russet, and the Tolman Sweet. All of these varieties will give you excel-

lent apples, and will not take up too much space. The demand for crab apples is so greatly on the increase that a hedge of dwarf crabs might be specially profitable.

However, our best resort against severe winds, and our best ally against a hard climate, are evergreens. These trees, which represent a vegetation antedating our deciduous trees, are still of immense importance to us. Get behind a large Norway spruce on a windy November day, or behind a good arbor-vitæ hedge, and you will be able to determine their value in modifying the climate. For this section, and generally through the Northern States, the American and the Siberian arbor-vitæ are the best for general planting. The white pine is an evergreen that takes heartily to our Northern homes, and is beautiful almost beyond comparison. The hemlock is another native, of close growth and elegant foliage, and when properly trimmed is one of the very best for hedges and windbreaks. For hedges I prefer the arbor-vitæ, and have hedges of this admirable cedar that are more than fifty years in growth, and without a breach. The Norway spruce ranks very high, not only for ornamental hedges, but for strong windbreaks. The trees,

however, should stand at least twenty-five feet apart, and be allowed to develop individual strength. Do not trim up any of these trees, but let them set flat on the ground. The arbor-vitæ and the hemlock can be planted more closely, so that the limbs interlock, as in a low hedge. Select, as a rule, an evergreen which is native to your own section, and can be obtained for the digging. In New Hampshire and Maine I should take the white pine. What magnificent windbreaks has nature made of these trees, on the farms which touch the mountains of the Granite State.

Among other less common but really excellent evergreens for our purposes are: (1) The golden arbor-vitæ. This variety is of Chinese origin, and is very beautiful with its yellowish-green foliage. I do not think it quite hardy north of New York. (2) Two small growing varieties of arbor-vitæ with foliage golden and beautiful, are the Hovey and the George Peabody. (3) The retinosporas are all excellent, but two of them make beautiful bushes or small trees, with rich golden color and a plume-like foliage. These are *retinospora plumosa aurea* and the *gracilis aurea*. (4) Among the most upright growing evergreens there are some fine ones;

like *pyramidalis arbor-vitæ*, which resembles the Irish juniper when seen at a distance, but is hardier and more useful. This tree is one of the best for small homesteads. It ought to be planted not only for windbreaks, but for contrasts on our lawns. (5) The junipers, both the Swedish and the Irish, are exceedingly fine erect-growing evergreens for medium-sized hedges. The Irish variety stands from ten to fifteen feet high. (6) In the Southern States the Irish yew and the English yew can be planted to great advantage. The variegated yew is edged with golden yellow. (7) Among the large and stronger-growing evergreens, two of the best for screens and windbreaks are the Austrian and the Scotch pine. (8) The Siberian *arbor-vitæ* must not be overlooked. It closely resembles the common variety, only that its foliage grows *cultriform*; that is, perpendicular instead of horizontal. It bears trimming admirably.

In the Western States we generally speak of windbreaks as farm-shelter belts. There they should be thick and strong, to meet the broader sweep of the winds. Cottonwood and poplar and willow serve a good purpose on large homesteads; but smaller homes should confine themselves to

poplars, pears, apples, and evergreens. Bear in mind that the pear is hardier and longer-lived than the apple—with the same amount of care. Mr. L. B. Pierce, a first-class horticulturist of Ohio, says, “It seems strange to me that so many of our Western farmers get along, year after year, without windbreaks. My place is warmer than many others because of the evergreens, which have been planted twelve to sixteen years. Northwest of my house is a row of Norway spruce. Last year I thinned them out, and found some thirty-four feet high. I set them originally six feet apart, and took out every other tree to sell. I have a little windbreak to protect my kitchen, and the snow goes off there some days before it does anywhere else. It makes an excellent shelter for the yard and the house. I know men who have six-foot fences around their barn lots, where arbor-vitæ would serve just as well, and last for thirty years. If it grows too fast at the bottom you may remove some branches. The bottom ought to be at least four feet wide, or the lower branches will die. Put your protection on the northwest of the house, or even an orchard placed there will be a protection, and keep out a good deal of cold.” Another Ohio

nurseryman, Mr. J. J. Harrison, says, "Many homes are almost desolate for want of common-sense protection. We have screens in our nursery, and the difference between being behind them and outside of their protection is almost the difference between being chilled through and being by a fire. Most of the trees needed can be obtained by any one from a pasture lot or the edge of a forest."

In some of the Western cities school-houses have been carefully protected by windbreaks. In Chicago some one has planted Irish junipers in boxes, and these are used for screens in school yards, as well as for an ornament. The idea has caught so that it is not seldom one may see these junipers standing around a kitchen door, or to conceal refuse piles. They have the advantage of being movable.

Now you will wish to know more about strictly ornamental windbreaks. Among the shrubs, the Tartarian honeysuckle is incomparably the best. I have described this shrub more fully in another chapter. It is hardy, beautiful in flower, and more beautiful in berry. Best of all, it quickly renews a breach. This is a notable and very valuable peculiarity. There are three varieties, distin-

guished by red, white, and pink flowers. The white is the least rank grower; and everywhere the pink-flowered is the strongest and best for hedge or windbreak. The *exochorda grandiflora* is a rare shrub, hard to propagate, but superb for our purpose. I wish it were vastly more common. The sassafras, cut back, is admirable; and the mulberry is among the best. Beeches can be cut back and made into solid walls, if you choose. The Rivers purple-leaved beech naturally is very thick and close.

In all cases it is well to select shrubs and trees that will furnish bird food, or bee food, or both. You cannot conceive, until seen, the amount of food furnished by a single tree of mountain ash. A windbreak of this tree would proclaim your residence to be a bird paradise. Birds of passage seeing it would drop down for a breakfast; and the fame of it would go out north and south, until you would every year have new varieties of birds — singing to you songs of cooperative love. The wild cherries are also valuable in the same way. The birds eat the red sorts in July, and the black ones in August and September. Nor do I see any reason why that beautiful bush, the elder — which

Horatio Seymour called the handsomest in America — shall not hide under the windbreak, and along fence rows — both for the berries that feed the birds and those that we ourselves consume. An elderberry tart is a toothsome affair, even after we are seventy.

A bee-house should have special shelter, and I advise a windbreak clear around the yard, or at least on two sides. If open to the wind at all, let it be on the south and east. Of course these protective hedges should not be so high or so near the hives as to entirely exclude the sun. No orchard will do its best without a windbreak; and this is particularly true of a pear orchard. It often happens that a high wind in September strips the trees of half their crops — just before they are ready for harvest. I have had almost all the pears from exposed Anjous tumbled to the ground and rendered unfit for storage. It is a sad sight to one who has watched such a magnificent fruit develop all summer, to find his Christmas pears snatched away from him, and flung, worthless, upon the ground. As a supplement to windbreaks of pears, I suggest spreading a good litter of soft grass or hay under the trees during the autumn months.

Hedges are low windbreaks; windbreaks are high hedges. Hedges along the street, or elsewhere, as fences, I do not admire or recommend. Fifty years ago there was a great wave of hedge planting. Everybody must have a hedge of osage orange; then the thorn trees came into popularity, and then the willow, and the locust. Now there is hardly a good osage-orange hedge in the State of New York, and very few left in the Western States. Those that remain are ferocious and unmanageable. It is a serious task to undertake to trim an osage-orange hedge; and it is a more serious job to root out one that has got beyond trimming. The willow proved a fallacious fraud, and the hawthorn, so beautiful in England, suffers in the United States from our hot summers, and from the woolly aphid. The honey locust or *gleditschia* proved to be much better for hedging; and there are still scattered about the country many fairly good hedges of this plant. It is very handsome in foliage, but it is liable to be gnawed by mice in the winter and not seldom girdled. The thorns are very objectionable, and when they fall into the grass become dangerous. It is not safe to leave the trimmings in the pasture, or allow them to get into the hay from the meadow.

But the very best deciduous hedge-fence has proved to be the buckthorn, or blackthorn. This plant is adaptable to shearing, and can easily be kept in bounds. It is ornamental, and if it gets too high, it can be cut down to the ground and started afresh — which you cannot do with an evergreen. If a fence is absolutely required, use wire or stone by preference; but for a hedge fence, use either buckthorn or gleditschia. There is a variety or spore of the latter, without thorns. If this can be secured in quantity, the hedge will be quite as solid and fully as protective as if made of the thorny sort.

Beech and apple hedges will turn animals, but will be more or less eaten by them. This does not affect their value, but in the long run the growth is made more dense. In the West and Southwest the cockspur thorn is used very commonly and effectually for strong hedges. I have seen such hedges grown over with wild grape vines; and in other places dewberries were loading them with fruit.

While I would almost abandon hedge-fences, I would wish to see a greatly increased use of hedges for ornament, for shelters, for nooks, and for

bordering drives. For screens they should be used with great freedom. They break up extensive plots, forming pleasant retreats, diversifying the grounds, creating shady places for seats and hammocks, and hiding clothes-lines, hot beds, and compost piles. However, avoid the petty; be sure you do not cut up your lawns into meaningless bits.

One purpose of ornamental hedges is to make a large display of some eminently beautiful shrub, such as lilac, or *hydrangea paniculata grandiflora*, or Japanese quince, or Tartarian honeysuckle. I never saw a farm that did not have some place which a hedge of Tartarian honeysuckle would not glorify, and at the same time be itself an object of conspicuous beauty. Some of our shrubs we can hardly have in excess if planted separately; as hedges they can be multiplied even more freely. I have seen the Judas tree in April stretching out its long lines of rich, lilac-hued flowers along the rear of a garden; in another direction, a little later, Persian lilacs flaming all across a mound; while, alternating with these, altheas would glorify the same mound with superb flowers in August and September. "It is the finest thing I ever saw," said my friend; and the hired man held his hoe for a

moment, and said, "Sir, it honors the world." A lilac hedge should consist of trees six or eight feet apart. The suckers should be kept out very cleanly, or you will get few flowers and many stems. The barberry should front evergreens, to bring out the fine scarlet of its berries; as a hedge it is likely to multiply deadwood, and for that reason must be carefully trimmed twice a year. Set your *hydrangeas paniculata* at least eight or ten feet apart, with *weigelas* alternating. The object, in all cases, is to secure a profusion of bloom through the early months, followed by as abundant flowers in the autumn. For instance, your lilacs blossom in May and June, while your *althéas* begin in August and continue till October.

The time for planting evergreens is the same as that for deciduous trees. The notion that it was advisable to plant in August has been entirely dropped. Set your trees early in April, and plant precisely as you would deciduous trees — only with more precaution. Before digging your trees the trenches should have been already dug. Make these about three feet wide, and at least two in depth. Fill the bottom with loose earth, not too rich, and yet not solid clay. Saturate this dirt

with water; and when you have obtained your trees, wet the roots constantly as each one is set in its place. We call it puddling the roots, because we pour the water in until the ground is soaked. In digging and carrying evergreens, be sure that the roots are never exposed to the sun or the wind. As soon as out of the ground, wrap them with wet matting or with wet straw. If not planted as soon as dug, puddle the roots in a pond or brook. When you plant, draw out only one at a time. Evergreens, however, do not like to stand in wet soil — that is, most of them do not. The hemlock will grow in a swamp, but does much better on well-drained, high land. As soon as your windbreak or hedge is planted, mulch it. Use either coal ashes or sawdust. Always bear in mind that barnyard manure must not come near the roots of fruit trees or evergreens — or, for that matter, anything that you plant on your lawns. A top dressing of thoroughly decomposed manure will do no harm, but is not advisable. As soon as your tree is set, or sooner, if more convenient, cut back very sharply. Bring all the plants into shapeliness — removing from one-third to two-thirds of the wood. Your hedge will not be beautiful till after several years of careful

trimming. If you will follow these hints carefully, you will hardly ever lose an evergreen bush or tree.

Deciduous hedges need to be trimmed twice a year, first in April or May, and again in July or August. Cut, each time, as close as you can to the old wood, for the hedge will gradually gain in diameter in spite of trimming. One inch each year makes in ten years twenty inches more of spread; and if carelessly you leave three inches, your hedge will have widened, in the same space of time, sixty inches, or five feet. So you see there is danger that you will make a nuisance instead of an ornament. Evergreen hedges must, however, on no account be cut but once a year, and that once must be in March or April — just before the new growth. More harm is done to fine evergreen hedges by cutting them in the summer and autumn, than by all other causes combined. Again and again people ask, What is the matter with my arbor-vitæ hedge, or my hemlock? Inquiry shows that they have pruned in the summer, thus cutting away the new growth, which nature was preparing for winter protection.

A hedge is ornamental, not only from the amount of shearing it gets, but sometimes from a modicum

of neglect. Most of our blossoming shrubs have an individuality of their own, and this must not be stripped away by the shears. To trim them all in straight lines would ruin the meaning of the plant. If you want a shrub that will stand either neglect or shearing, take Tartarian honeysuckle. Always mulch your hedges as soon as planted, and renew this mulch every year till the plants are thoroughly established. A convenient and excellent material is ashes from anthracite coal — that from bituminous coal contains too much sulphur to be used freely.

Hedge growers, while learning to abhor the monstrous and misplaced, may make hedge-growing contribute to the general beauty of a place by such contrivances as living arbors, bowered seats, and arched walks. One of my living arbors, slightly dissociated from the hedge row, lifts its peak about twenty-five feet high, and inside is a cool, shaded inclosure of eighteen feet in diameter. Originally intended to be a place to conceal refuse, I have found it more useful as a retreat. With seats and a hammock it is delightful in the hottest days. The roots of the arbor-vitæ create a dry mat inside, like the floor of evergreen woods. If left to arch over



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a sidewalk, your hedges may easily give a cool, arbor-like pathway. One of my own leads to an inclosure, where is found a well, useful for watering the lawn. Over the well is trained an arbor of grapes. Hedges for screens are of great importance. This is not only to cover the disagreeable, but to secure quiet nooks and inclosures for wells, hotbeds, and reservoirs. These, although not unpleasant suffixes of a home, cannot be made to blend pleasantly into general lawn work.

CHAPTER SEVEN
OUT IN THE ORCHARD

IF I have not said that something else is the most beautiful thing in the world, I will here say that the uttermost development of physical beauty is an apple orchard, in full bloom — unless possibly it be the same orchard when the apples are crimson, and bend the limbs down to ask you to share the feast. I remember a gray-haired mother, whom we led gently to her chair under the snow-white blooms that fell noiselessly to match themselves with her snow-white hair. All the painters of the Renaissance never painted a picture like that. It is a possible everyday picture, where an honest man wills to create a true home in the country. So you see I shall not ask you out into the orchard, just that you may know the commercial value of one hundred apple trees, spaced in rows. Going into the country you will need about twenty apple trees, ten pear trees, ten plum trees, and as many cherry

trees — to begin with. You will find out, in due time, how many more to plant. These, at least, are necessary to make country life wholesome and comfortable. The list should be made out to extend over the longest possible season.

Of the cherries, the sour varieties are most important, and will drop easily into this succession: Early Richmond, English Morello, Montmorency. But the length of the season is very likely to be dictated by your robins, orioles, and catbirds. A really first-class bird is a good judge of good cherries, and so ardent an admirer of the fruit that you will have to discuss ownership. In the first place, you must plant two or three times as many trees as will supply your own table — in this way counting in the birds. Even then there may not be enough. Where your neighbors are not also growing cherries, robins will come to you by the hundred, and strip your trees. I shall have something more to say about this in another chapter, and shall more fully describe the remedy. What I wish to say here is that cherry trees occupy very little ground, that they make good windbreaks, and will grow and bear heavy crops, when planted in very close array along fence lines. Encourage your neigh-

bors to plant, and in time you will find that the birds are so distributed as not to make a very serious factor in cherry consumption.

The old English Morello can be obtained almost anywhere on its own roots. It should be planted when quite small, as it begins to bear when two or three years old, and at five years is a heavy cropper. Gradually thin out the top, and slightly raise the limbs, until the tree is twelve or more feet in diameter. I have picked sixty quarts from a well grown tree. Sold at ten cents a quart, this is six dollars for a very small space of ground — eaten, it is lots of comfort for the same space. Cherry pie and cherry rolls have been unanimously voted good enough for the folk at home. When protected from the birds, as I shall describe elsewhere, and thoroughly ripened, the so-called sour cherry is nearly sweet, and the mild acid is very wholesome.

The May Duke is one of the finest trees, and one of the noblest cherries on the list. It is as good for the table as for the kitchen. It is not quite as hardy to resist frost as the Morello type, but generally comes through all right, as far north as central New York and Boston. The Dyehouse is even earlier than the Richmond, and is a sure cropper

very far north, but the quality is only second rate. I have planted several of the Russian importations, but have found none to equal those I have named. A new claimant for favor is The Baldwin, said to be marked for hardiness, earliness, and productiveness, while it is of the very highest quality. This new variety will probably be of more advantage on account of its upright growth, almost like the May Duke. The Montmorency is already known under half a dozen varieties — all large and late, and exceedingly valuable for dessert purposes. The best variety is the Stark Montmorency, a selection made by Stark Brothers of Missouri; probably a seedling. Seedlings of Montmorency are easily produced; and we may at any time find among them a decided improvement.

Of sweet cherries I prefer for general culture Gov. Wood. It is very hardy, a superb cherry for the table, and very prolific. I never fail to get fruit of Gov. Wood, when Black Tartarian and the Bigarreus fail me. After this variety, select Dikeman for a cold region — a cherry that originated in northern Michigan. The fruit is large, black, firm, and of excellent quality. It is very late to come into ripening. Reine Hortense is a very

satisfactory variety, and growing in favor. It is a very bright red fruit, and the tree is unusually stout. Rockport and Napoleon are the best Bigarreaus. Windsor is a grand, new variety, ripening late in July. The fruit is plum color, and the quality is excellent. With me it has come into bearing late, and its fruit buds do not prove to be as hardy as Gov. Wood. I have not yet fruited Allen, but am told by good judges that it is deserving of most universal culture. The size of the fruit is large and heart-shaped; and both the fruit buds and the tree are very hardy. For cold climate, in addition to Dikeman, Allen and Gov. Wood, I would confine myself to the sour varieties.

Cherry trees should be planted either as I have suggested for windbreaks or for avenue trees, or may be set alternately with apple trees and pear trees. If so set, after the apple trees have grown a dozen years they will have reached out to need the space. By that time the cherries will have done their best work, and you will probably have planted more elsewhere, so that they can be removed. When you do remove them, dig them out, instead of cutting them off at the ground.

The list of plums is being so greatly extended by

improved native sorts, and by crossbreds, that it taxes me to reduce the list of really fine varieties to a size suitable for a modest country home. Of the older plums Green Gage still stands foremost for quality. Among all our fruits I do not know another one that so concentrates richness in a case-ment of beauty as this old Green Gage plum. It should be grown on high, open sunny spots, and never in wet and shady places. It is a long-lived tree, giving annual loads of fruit. With it plant that magnificent plum, the Magnum Bonum, provided you have near it some of the very early-blooming varieties, like Abundance, to pollenize its flowers. Unfortunately, if grown alone it is liable to bear only scattered fruit. Well-pollenized by a neighbor, it will be loaded so as to need thinning and supporting. I sold from a single tree in a single year plums to the value of eighteen dollars. Coe's Golden Drop is another indispensable; and Shropshire Damson is a very valuable variety for cooking and canning.

Of newer sorts, Victoria is one of the surest and noblest, bearing great, red plums of good quality, and in profusion. Pond is another large and handsome plum that bears enormous crops; quality

only moderate. Bradshaw is very early, large, prolific, and valuable for home purposes. Two fine late sorts are Reine Claude, and Grand Duke, the first much like a large Green Gage, and the latter a very large purple plum, of good quality. Monarch is a noble plum every way — in quality, size and cropping; I hardly think you should undertake to get along without it. Of yellow plums, by all odds the finest that I have seen is Peter's Yellow Gage, while the common Yellow Gage is an inferior variety — although large and productive.

Of the newer productions from cross-breeding, we have Burbank — a straggling grower, but loaded with beautiful golden plums touched with scarlet. However full the limbs may be loaded, the fruit never rots on the tree. Red June is a handsome, very early, purple plum, of excellent quality. Wickson is a noble plum every way, except that the tree grows very upright and compact, so as to seriously interfere with the production of choice fruit — unless the top is kept open by annual trimming. But now I am entering that enchanted land where Mr. Burbank, "The Wizard," is working; and just to name his new varieties would fill a page. Of the best are Gold, Gonzales, Chabot, Shiro,



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Sultan, Apple, Matthews, Climax, America, Hale, and Bartlett. I am not sure that every one of these is due to Mr. Burbank; but it will not give him undue honor if we attribute to his skill a few originated elsewhere. His farm of thousands of acres, at Santa Rosa, California, is the greatest experiment station in the world. There, as in the Garden of Eden, he creates new fruits, and new flowers, and new vegetables, about as fast as the rest of us can name them.

Of our native sorts of plums a few enthusiasts already have collections of at least two hundred and fifty or more varieties. The collections are so very large that it is difficult for any one at present to speak with authority as to what half-dozen are best for planting. I think that among the best for a quiet garden are Hawkeye, Weaver, and Wyant. Yet when you are altogether through with your study of plums, there is one sort still to be named that in almost all sections of the United States deserves to head the plum list for common people; I mean the Bleecker, or Lombard. It is a tree that grows so easily, and bears so profusely, while the fruit is of such splendid canning quality, that it is the plum for the four corners of the United States.

The tree does not grow so shapely as some, and if left alone, sends up innumerable suckers. On this account you will find that the Bleecker is short-lived, and needs very frequent replanting. However, you can get so many small trees for your replanting that it will cause you little trouble to always have enough Bleecker trees, while the small trees will begin to bear at three years of age. The market call for plums is first for Bleeckers, and after that for Shropshire Damson and Green Gage. The plum is, *par excellence*, the fruit for preserves, for jam, for puddings; and no country home can comfortably begin its career without a few plum trees. Meanwhile, you cannot afford to wholly overlook the prunes — which are only a sort of plum. Among the best sorts are Fellenberg, Sugar, Pacific, and Giant — say one of each.

A select list of pears, affording a good succession from July to April, would be, for early summer, Margaret, Tyson, Clapp's Favorite, Bartlett; for autumn, Flemish Beauty, Onondaga, Seckel, Sheldon; for early winter, Anjou, Danas Hovey, Lawrence, Nelis; for later winter use — to be kept like winter apples — Josephine, Patrick Barry, Col. Wilder, and Oliver DeSerres. There are so many

more really valuable pears that the list will be sure to leave out some one's favorite; and I shall not undertake to name many really excellent pears for localities. My only object is to give you a good list, covering the full season. Flemish Beauty, unfortunately, can no longer be grown, unless sprayed very early and repeatedly with Bordeaux Mixture; and even then it must stand on high and open ground. It cracks and blights, but is the most delicious dessert pear in the world — besides being a superb variety for canning. All in all, for first rank as a table pear, except for color, the Sheldon is the king. The Seckel is ideal in flavor, but is too small to be grown for market. Tyson is slow to come into bearing, but is one of the most delicious early sorts. Clapp's Favorite must be picked ten days before it is soft, and matured in a dark storeroom or cellar — then it keeps admirably, and is of superb flavor — otherwise it will rot at the core, and has no flavor to deserve attention. Onondaga is one of the best stand-bys for immense crops of large, clean pears that I have ever grown. I like it more and more each year. The tree is very tough and hardy. The fruit, when well ripened, is fine for eating, and is always splendid for can-

ning or pickling or preserving. Lawrence is a delicately sweet, medium-sized pear, of a clean, bright yellow, and is ripe in December. It is preferable to grow this sort grafted high in old trees. Anjou is another prince of pears, when we consider its keeping qualities, its high flavor, its rich color, and the ideal form and growth and health of trees. Picked in October, it will keep until January, and be in prime condition for the holidays. Josephine is a medium-sized pear, and might be taken for a small Anjou; it is in prime eating in April. Patrick Barry is said to be the best of the winter pears for very late use, but I have not yet fruited it. You will see the charm of having a bin of winter pears that will keep as nicely as winter apples. If you grow but one or two sorts, I should select Anjou for early, and Josephine for late.

I do not wonder that such men as Wilder and Downing became pear enthusiasts. It is a noble fruit, and every year we are able still to produce improvements. Among the best of the newer sorts are Koonce for very early; Fame, Alamo, King Carl, Ozark, Triumph, originating in the midwest; and Rosney, Vermont Beauty, and Worden's Seckel of Eastern origin. On your ten or twenty acres

you have no room for second-class fruits, even if they will sell; for as sure as human progress, inferior stuff will, after a while, stop selling. For this reason I say plant no Garber or Kieffer. Picked very early, and handled with great care, Kieffer is sometimes tolerably good—generally it is unfit for table use. I hesitate to say that a pear should be handled with more care than an apple, for I hold that an apple should be so picked and stored that not one cell be ruptured. The pear, however, must be handled with the utmost caution, or it will be very quick to decay. The profit in pear growing for market lies wholly in sympathetic treatment.

The pear tree must be planted without manure, in clean soil; must be kept free from suckers; mulched with coal ashes, or some other clean material, and washed often with kerosene emulsion. You must be sure that a young pear tree does not get checked in its growth. You should never plant the little whip-stalks that are sent out from some nurseries; they will in ten years' time not make one year's growth. Get good, stocky trees, six feet high or more, and plant as I have directed. Keep the bark clean, and the roots moist, and

every weak shoot cut out. The pear tree is hardier than the apple, and needs less care—except to see that it does not get choked or checked in growth. However small your homestead may be, don't try to get along with less than three or four pear trees. Plant them near the house, and in sod land; but, as I have directed, thoroughly mulched, and annually forked about. When you have become a thoroughly naturalized countryman, and possibly a market gardener, you can plant your pears in rows and plow among them.

For a country home you can afford to plant peaches quite freely, even where there is very uncertain fruitage. I have best success with Carman, a noble and beautiful very early peach; followed by Waddell, one of the best in the whole list; and this by Champion, a nearly white freestone of magnificent quality. Seedlings of early Crawford are very likely to give you satisfaction, and old trees of Crosby are nearly as hardy as Green Gage plums. This variety needs thinning out very sharply, to give you a decent feast. Those who have never eaten peaches right off the trees know much about them. I rarely find one in market that comes near the notch of that juicy, rich, sweet, absolutely sat-

isfying fruit that I used to pick up in my Michigan orchard. So here in New York I keep on growing peach trees, because sometimes I get a crop — generally more or less Waddells and Champions. Mountain Rose is another hardy sort; and Admiral Dewey, Holderbaum, Kalamazoo, Captain Ede, Mamie Ross, will endure zero weather, and are all of the finest quality. In a climate just out of the peach belt give no room whatever to late varieties, for they will not perfect themselves before freezing weather.

The quince can claim a place with your orchard trees, or in the garden of currants and berries. I have them growing in both of these relations. I like a quince bush also near the house, or one occasionally showing its golden fruit in the shrubbery. I hold it to be indispensable, in October, November, and December, to have a dish of baked quinces on the dinner table. It is the perfection of table luxuries. Cut open, remove the core, and cover with butter and sugar; and let conversation cease. The old orange or apple quince is the one most commonly planted, and is a thoroughly good sort. The pear-shaped variety is a trifle later, but is a much better keeper, and I think of better quality. I

recommend that you get a tree or two of this variety, if you can find them. Quinces that are in no way cracked or bruised can be stored in a cold cellar and kept until February. Among the sorts highly recommended are Meech and Champion. Mr. Burbank has recently originated a sort that can be eaten out of the hand. He has named it the Pine-apple. There is no doubt but that the quince will, after a while, be so improved as to class with pear and apple as a dessert fruit.

Whether you are creating a quiet home or a market garden, you will want to possess a couple of mulberries, a couple of persimmons, and two or three pawpaw trees. The best mulberry is the Abundance; the best persimmon you will have to get by grafting; and the best pawpaws you can only secure either by digging them from the river bottoms, or by buying very small trees of one or two nurserymen, who have admitted them to their catalogues. Unfortunately, no American nurseryman has yet taken up very seriously the improvement of the American persimmon, while the Japanese varieties are not hardy north of the Ohio River. We ought to be able to create as grand fruits as the Japanese, and will, in due time. Mr. Munson, of

Dennison, Texas, has a variety which he calls the Honey Persimmon, and describes as very sweet and rich. It will be worth our while to plant this and test its hardiness in the North. I find the Missouri varieties, grafted into native stock, are all entirely frost-proof in Central New York. The paw-paw will grow anywhere in our gardens, but it likes water, and if the season is dry the fruit will either drop or be flavorless, unless the trees are abundantly irrigated. I see no reason why this delicious fruit, a sort of hardy banana, should not be grown everywhere in our gardens. I get a half bushel each year from a tree ten feet in diameter and the same in height. A single persimmon on my lawn is covered with two or three bushels, each year, of the most beautiful golden fruit.

The apricot and the nectarine are two fruits not as yet generally planted in the North. We have, however, varieties of apricots that are entirely hardy — quite as hardy as the plum, but not so sure to be fertile. The Superb, a Kansas seedling, is just now the favorite. It is a high-flavored, handsome and prolific variety; but where the climate is mild, perhaps the Harris or Moorpark should be preferred. Of the nectarines I believe that the Boston and the

Downton and the Pitmaston are as good as can be procured. The trees need about the same culture and the same soil as the plum.

But having surrounded ourselves with this great Rosaceæ family, and become well acquainted with its members, and having made a loving alliance with them all, we shall agree that the princeliest member of the family is the apple. Life would be a very different thing if we were to be deprived of this noble fruit. It is getting to be one of our chief exports, as well as more a part of home dietary. One of our ablest medical writers says, "Life can be prolonged more easily by eliminating a large share of meats, and using much more freely fruits — but above all by a daily use of the apple. Ripe apples should be eaten twice a day, and before meals."

I am going to make for you three lists of apples which I can commend. The first list will include twenty sorts, for a place of twenty or more acres; then a list of twelve for a smaller homestead; and, finally, a list of six for a half acre or acre. Beginning with summer, I should select Red Astrachan, Yellow Transparent, Summer Strawberry and Primate. Add to these Sweet Bough, provided the orchard stands very open; but in close orchards

this variety will be worthless. For autumn select Gravenstein, Porter (grafted high), Fameuse and Shiawassie Beauty. For delicious dessert fruit, add President for October, Princess Louise and Walter Pease for October and November — possibly all grafted on one tree. The Scott is one of the finest for December and January.

My selection for winter apples would be Baldwin, Spitzenburg, York Imperial, Hubbardston, Mother, McIntosh, Northern Spy, Rhode Island Greening, Sutton, and Pound Sweet. Where the King apple will thrive, and do its best, it is certainly the most beautiful and magnificent of fruits; but it is quite autocratic, and will not grow on all soils. It should be grafted high on old trees. There are two other sorts of the very highest quality, which also require this top-grafting — the Spitzenburg and the Swaar. The reason for this is that the bark of all these varieties is liable to winter killing. In sandy soil the Jonathan and Grimes Golden are unsurpassable, both in beauty and quality. In the Hudson valley, and a few other localities, the Newtown Pippin is an ideal, keeping until May, alongside the Golden Russet. It requires rich soil, lots of sunshine, and the fruit should be

sharply thinned. The Baldwin should never be grown in a close orchard; so also the Pound Sweet, McIntosh, Shiawassie Beauty, and Princess Louise and Walter Pease are all seedlings of Fameuse or Snow, and they are all worthy of such parentage. Of the sweet apples Tolman is fine for baking, but it is no longer popular in market. Pound Sweet is the one most in demand, and when this apple gets the sun it is a glorious product. If grown in the shade it is worse than worthless. Although a fall apple, it can be picked in October and carefully handled so as to keep until March.

Now for a closer list of twelve prime sorts — just about enough for home use. For summer you must have Astrachan, followed by Gravenstein, and then Fameuse; and a tree divided between Princess Louise and President. For winter you must certainly have, for early use, McIntosh and Hubbardston, and then Baldwin, and Spitzenburg, and Northern Spy — the last being the absolutely indispensable variety anywhere and everywhere. But if you positively must be satisfied with five or six trees, take these for succession: Astrachan, Gravenstein, Fameuse, Pound Sweet, Rhode Island Greening, and Spy. It is a good

plan on a very small home plot to graft two sorts into a single tree.

There are other varieties that, as an apple enthusiast, I dislike to omit, especially some of the newer sorts that are being originated every year. The Yellow Bellflower is number one in a Michigan list; and the Roxbury Russet is another great apple for that state, and for some other sections; but in New York State both of these are so badly infested with codlin moth that it does not pay to plant them. Sutton's Beauty is probably destined to be one of the greatest of our market apples — resembling Baldwin. Wagner is a sort of cross between Spy and Mother, a glorious fruit; and I think it is generally a successful grower. Summer Rose is of very excellent quality, and a very beautiful summer fruit, but it is too small to enter into a short list. For my own use I should surely include in every list the Summer Strawberry, and it is equally fine for market.

Every one in the country needs at least two crab-apple trees, not only for the fruit, but for the beauty displayed when the tree is in full blossom, and again when the fruit is ripe. I consider a well-shaped crab-apple tree, bursting into bloom before all other

apples, to be as ornamental for the lawn as any tree that the world affords. I would select for early varieties Paul's Imperial and Whitney, and for late varieties Dartmouth and Hyslop. In another chapter I have something to say about the use of crab-apple trees for windbreaks. They not only serve admirably when used for this purpose, but they have the additional value of furnishing a large amount of fruit for market and for cider, and for a much favored jelly.

I shall venture to add a list of apples for a strictly Northern section, beyond the apple belt. You will be safe in selecting Tetofsky, Wolf River, Pewaukee, Gideon, Northwestern Greening, Yellow Transparent, Wealthy, Longfield, Fameuse, and Duchess of Oldenburg. These will prove to be in the main entirely hardy in the Dakotas, Wyoming, and Montana. For a section below the regular apple belt, a good list may be made out as follows: Yellow Transparent, Duchess of Oldenburg, Early Joe, Primate, Golden Sweet, Early Strawberry, Fall Wine, Fall Pippin, Gravenstein, Jacob's Sweet, Jonathan, Northern Spy, Porter, Shiawassie Beauty, Grimes Golden, White Pippin, Stark York Imperial, Stayman's Winesap, and Mam-

moth Black Twig. To this list are being added some very excellent varieties, originated in the Southwest. You will observe that a few of the varieties named thrive from the extreme North to the extreme South.

All these lists do not include some of the grandest apples in the world, partly because we do not yet quite understand how generally some of them will thrive, and again we do know that some apples are very local in their attachment. Among the most promising new varieties, the Delicious and the Senator are two from the Ozark Mountain region. Wismer's Dessert is a new Canada apple of extraordinary beauty, and very hardy. The tree is a good grower, and I suggest that you do not overlook it. Stuart's Golden is a medium-sized apple — delicious, digestible, and a long keeper; good for eating from November till the last of April. The best new sweet apple that I have recently met with is Danchy's Sweet; and a close second is Sconondoah. We are just entering the apple age, and new varieties will hereafter multiply with great rapidity, although we shall probably never give up a few of the older sorts, such as Spitzenburg, Baldwin, Hubbardston, and Northern Spy — a

magnificent quartette. Our children will eat more apples, and they will hear less of some of the most destructive diseases.

The soil of an orchard requires to be strong; and in general almost all sorts thrive best in clay — although there are exceptions. It must be remembered always that the production of large crops of apples, or of any other fruit, is a heavy draft on the fertility of the soil; and unless means are used to replace the elements that are withdrawn, soil exhaustion will follow. That sort of food which is needed in one soil will not, however, be suited to all others. An apple orchard can be renewed in its fertility most conveniently by plowing under what are called cover crops — in the main clovers, peas, buckwheat, and cow peas. The object is not only to give direct food to the trees, but to add to the humus or decaying vegetable matter. Leguminous plants, including the clovers, beans and peas, have the peculiar ability of taking nitrogen from the air, and for this reason become the very best of crops to be plowed under in an apple orchard.

As a rule, do not set young apple trees in vacancies that occur in an old orchard; certainly not

while the old roots still remain and are decaying in the soil. The old trees have in all probability left the soil exhausted, and the old wood while decaying poisons the new. This is less true of plums and cherries than of apples and pears. I have named a few apples that prefer sandy soil; others dislike limestone soil. Most apple trees have their idiosyncrasies. In Central New York we fail to get such Jonathans and Grimes' Golden as are grown in Ohio and West Virginia. One of the apples that thrives over a very large area is the Northern Spy. It is a deliberate tree, slow to come to bearing, but afterward is very constant and prolific. In all cases remember that fruit trees cannot effectually serve you unless you serve them. They must be fed, or they cannot feed you in turn. Their office is to take the elements in a raw state, and work them over into delicious food for human beings. In this way we really are compatriots with the trees in our orchards. I am convinced that the very best plan for large growers of apples is to pasture the orchard with sheep or with hogs. These will destroy all the defective apples, while they keep the soil enriched. Where the methods suggested above are inconvenient, mulch your

trees with a strong compost made of barn manure, ashes and lime.

Nearly all orchards are seriously injured by lack of foresight in planting. The trees are set too close together, and when they are grown their limbs not only interfere, but shade the fruit, so that it is rarely perfect and high-colored. A good apple cannot grow in the shade. It must be made of sunshine and fresh air. Many of the enemies of the apple work only in the shade, especially the tripeta fly. The true distance for planting apple trees is about thirty-five feet apart—better forty, with plums and cherries intermediary.

If you set fruit trees in the fall, it must be only when the soil is dry and easily workable. After the tree is set it should be staked in, and firmly tied with very coarse twine or bast. Leave the dirt somewhat mounded, so that the water cannot settle about the tree during the winter. Pound down the dirt, except a few shovelfuls which may be left loose on the top, over which spread the mulch. Be sure not to wait until the moisture is dried out of the loose top soil, but apply the mulch at once. This is particularly needful when planting is done in the spring. The whole difference

between success and failure will depend upon this one point of retaining moisture about the roots.

Trimming is the next all-important matter. Trees received from nurseries are seldom pruned, unless you so order. Even then it will be necessary to cut away branches that have been broken in the shipping. Cut off all small and feeble twigs, close up to the bark. Then cut back the stouter branches, from one-third to two-thirds. On each twig leave the last bud pointing in the direction you wish that limb to grow — which will, of course, be outward and not inward, so as to spread the top open to air and sunshine. You will soon get the knack of shaping a tree-top. Limbs must not lop over each other, nor intertwine. But be sure to dig out all suckers that have started about the roots; and keep these out at all times. If carelessly removed, twenty will come in the place of the one that has been cut away. Remember that if suckers are allowed to grow on the body or on the limbs of trees, they take the vitality from the bearing limbs; and in a few years these will become barren — then brittle, and then will break off. The tree becomes a mass of useless rubbish, incapable of renovation. A beautiful apple or other fruit

tree, neatly trimmed and never neglected, is a sight the owner may be proud of; but an orchard of any sort left to shift for itself is a disgrace.

I have spoken of shaping fruit trees; you must not, however, be fooled by pictures of ideal trees. The fact is that no two varieties of pear trees have the same ideal; and no two varieties of apples form exactly the same shaped head. A Seckel pear is ideal when the head is nearly round; an Anjou is ideal when very nearly a pyramid; and a Buffam has for its ideal a column much like a Lombardy poplar. You must study varieties, and adjust your trimming to each sort. A Spitzenburg apple droops its limbs over till they touch the ground; a Northern Spy apple seeks to become round-headed, and must be controlled about limbing out at one spot; an Astrachan is also round-headed, and retains that shape through life; a Russet throws its limbs out nearly horizontal; and so you may go through your whole orchard and find a strong individuality everywhere.

I shall have more to say about bees in another chapter, but here let me tell you that you will find a large share of your fruit blossoms cannot perfectly pollenize themselves — a fact that repeats itself

in the vineyard and in the flower garden. The Bartlett pear and the Anjou are marked instances in the pear orchard, while among your apples the more self-sterile include Astrachan, Ben Davis, Fameuse, Gravenstein, Grimes' Golden, King, Rhode Island Greening, Spitzenburg, and Roxbury Russet. Insects are needed, and especially honey bees, everywhere to carry the pollen grains from one tree to another. It often happens that a very rainy May prevents insects from flying, and so the apple crop becomes greatly reduced, if not a failure.

I have not forgotten that, in many cases, you will be buying an old homestead, and so you will come into possession of a few aged and more or less derelict fruit trees. One of your first questions will be what to do with these. Begin by removing the dead limbs and every sucker, except possibly a few very strong ones that will help to make a new head for the tree. In most cases these, having grown for several years, will have devitalized the tree and started decay. You cannot make over these old trees, yet you may get some service from them while you are growing new ones. Young apple trees will come into bearing in four

to five years after planting, and will give fair crops in six to eight years. If you buy your trees headed low they will begin to bear much earlier than if headed high. Pear trees especially should be limbed low; for in this way standards will come into bearing as early and as profusely as dwarfs. You must, however, bear in mind that you may wish to plow among your trees after they have grown, and that will be impossible if they are not headed six or seven feet high. Handle an old pear tree very much as an old apple tree; that is, completely clean it, remove the suckers, scour with kerosene emulsion, and paint over wounds. If there are holes, carefully cover from the weather by tacking over them pieces of tin. I have got from old, broken Onondagas and Seckels, that were nearly dead, by careful treatment, shoots that formed new heads and bore good crops for many years. It is a curious fact that some varieties of apples, like the Porter, are never so good on vital trees as on aged, decaying ones. Therefore, go slow about cutting down an old fruit tree until it is quite unable to pay for itself. I have four apple trees, set by a missionary to the Indians in 1791, which still yield abundant crops.

Apples, and indeed all fruit, should be handled like eggs. If a picker drops or tosses them into a basket, even three inches, he should be discharged. Such handling bruises a few cells, and at once begins decay. You will often hear people say, "My apples are not keeping well." If you notice, those people will say the same thing another year. The year has seldom anything to do with it. The trouble is in the handling of the fruit. After being laid in the basket, it should be taken out by hand into a wagon, upon clean blankets or soft hay, then taken to the cellar, and after careful sorting, be laid into the bins from the baskets. It should be put in storage just as fast as picked. At each move handle softly and kindly, and after that, if graded properly, the high grades will not rot in a cool storage room.

Grading should leave apples in at least three assortments. No. 1 should be absolutely perfect fruit, to be stored or barreled. This grade should go with honor. It should stand for all that you are. If you lie in your fruit-grading you are not to be trusted anywhere, and you cannot trust yourself. Store your fruit in bins about fifteen inches in depth — certainly not more than two feet in

depth. Of course every apple is sound, and you have been as honest with yourself as with your customers. With proper experience you will learn that the bins of Kings and Spitzenburgs should be sold by the end of January, while those of Greening, Baldwin, and Jonathan may remain into February and March, and Newtown Pippins and Swaars and Russets can be held until May.

Your No. 2 apples should be graded about as those commonly seen in market as No. 1. They will sell at a lower price, and they will keep until midwinter, but they will need examination and occasional sorting. The No. 3 grade includes only fruit slightly defective, of the choicest sorts. The balance should go as quickly as possible into cider; but even the cider apples should be graded, so as to use the most perishable stock first.

Every one who owns fifty apple trees should have a small cider press and a gasoline engine. Such a press should turn to cider all wasting products—either apples or pears. When there is not a good market for cider it should go into vinegar barrels. Whenever your crop is one hundred and fifty barrels, if you have cared for it properly, about ninety barrels should be first grade; about

thirty should be second grade; and thirty more should go into third grade, or cider. Let no wormy fruit lie in your orchard at any season of the year, for the larvæ of the moths will pass into the ground, and make you future trouble.

I am in danger of keeping you too long in the orchard. I love the sight and smell of apple trees, as well as the sight and smell of the fruit. I have a dozen sorts lying about my desk, flanking the books and papers, and they are quite as beautiful and fragrant as the nasturtiums in a great bowl of water, and mignonette in a vase with a rosebud.

I have intended this chapter to cover a wide field; yet there is a wider field still opening before the fruit grower. The government is enthusiastic over a new fruit produced by the experiment stations in charge of the Agricultural Department. This is a cross between the orange as it grows in Florida and the hardy citrus which has been grown successfully through the most of the apple belt. This citrus, while yielding flowers of exquisite odor, had given us no fruit for consumption. The new variety is a thoroughly good dessert fruit, but of small size. This, however, matters little; all we wanted was to have the door opened in this

direction. With the zeal and enterprise heretofore shown by our horticulturists, it is almost certain that within a few years we shall have oranges growing in our Northern States — certainly as far north as the Ohio River. Those who have time for farther experiment will find the growing of figs possible as far north as Pennsylvania. The summers are sufficiently long and warm to secure a strong growth of the tree, but the fruit will not mature unless there is protection to carry it through the winter. It is recommended to wrap the fruiting shoots in matting and straw, or to build temporary sheds over the plants. My opinion is that fig-growing will be successful precisely as we grow peaches — that is, in pots or boxes which can be removed to sheds or sheltered places during the winter. I am successful in growing quite a number of fruits, which will not endure the winter's temperature, in tubs, as suggested above. The peach belt can be widened very decidedly in this way. The fruit matures readily, and is of as fine quality as that grown in a peach orchard.

The possibilities in fruit culture, where a person owns but a small area, are not yet appreciated. Everywhere about the country there are waste

spots, unremunerative to the owner, which might be devoted to plums, cherries, apples and pears. From the Bureau of Plant Industry I borrow the following estimate of fruit-bearing plants that can be grown on an area of sixty by eighty feet. You may have three rows, one containing six trees of dwarf pears; one containing six specimens of dwarf apples; one containing six plum trees; one containing six cherry trees; one more with six peach trees; and thirty-two grape vines distributed around the entire garden, at intervals of ten feet. Beside these trees, it is possible to grow on the same area forty plants of red raspberry, forty of black raspberries, twenty of blackberries, and three hundred strawberry plants. Imagine for yourselves how much comfort and profit may come from so restricted an area of fruit.

CHAPTER EIGHT

STRAWBERRIES AND THEIR KIN

THE strawberry is a member of the Rosaceæ family. There are four families of trees and plants, without which mammals, including man, would have found it very difficult to exist on the earth — certainly to secure progressive evolution. These are the rose, the cereal, the solanum, and the palm families. In our temperate zone the rose or Rosaceæ family is the most important coöperator with human kind. It includes in our orchards the peaches, plums, cherries, apricots, pears, and apples. But this is not all, for when we pass over into our gardens we find that the blackberry, the raspberry, and even the creeping strawberry are all of the same kin. I have had a good deal to do with a part of this family in other chapters; I am here to consider the strawberry and its near kin — that is, the raspberry and the blackberry, including the dewberry. Think how much of the brightness

and poetry of existence is associated with these berries; and if, then, you widen out your vision to take in the whole family — including several varieties of trees that do not give edible fruit — you will see that it is of royal blood.

You will be tempted, at the very outset of your home-making in the country, to plant a large strawberry bed. There are certainly few sights more beautiful than a row of strawberry plants loaded with blossoms and ripening and ripe berries. The fruit simply covers the ground. For most people it is a very wholesome fruit, although I have found a few to whom it was a poison. Yet I advise you to go slow in planting strawberries, for the reason that there is no fruit that needs more specific attention and continuous care, and for that matter more horticultural skill, than this little vine. I would surely begin with a very small plot, and I would experiment with only two or three varieties to begin with. In the first place, the bed must be prepared very carefully, to exclude not only roots of weeds, but weed seeds. If you enrich it with barnyard manure in which there is clover seed and grass seed, you will have only continuous labor and small crops. The soil should be light and friable,

thoroughly worked, and very strong. Really good vegetable soil, in which can grow the best potatoes, onions, and beets, is good strawberry soil. I should lay out my bed with relation to adjacent crops, so that the horse-cultivator can do the work at the same time that it goes through the raspberry or other small-fruit rows.

If the soil needs fertilizing, apply the most completely decomposed barnyard manure, with which may be mixed a good proportion of ashes. If the ground is inclined to be stiff you may work in a large amount of coal ashes from anthracite coal. These loosen the clay soil, and allow the absorption of nitrogen. Where commercial fertilizer is used, apply, in the fall, kainit and phosphates. The following spring apply nitrate of soda — before the blossoms have appeared, and when the leaves are dry. One of the Experiment Stations gives the following formula: Cottonseed meal, five hundred pounds; acid phosphate, one thousand pounds; muriate of potash, two hundred and fifty pounds per acre. You can easily estimate the proportion needed for your small bed. This formula should be applied late in the summer or late in the fall. Nitrate of soda can be applied in the spring, in con-

nection with this mixture, at the rate of about one hundred pounds per acre. Another Experiment Station recommends precipitated phosphate five hundred pounds; kainit, one thousand pounds; nitrate of soda, two hundred pounds—the nitrate of soda being applied in the spring, and the rest in the fall. But if you have fairly good garden soil, not heedlessly exhausted by previous cropping, you make your own manures. I have said in another chapter that I would in all cases compost manures. The compost which I apply to my strawberry beds comes from the house drainage and waste, after it has been thoroughly intermixed with decomposed barn manure and coal ashes. I cover my strawberries in the fall quite freely with this compost, applying liquid manure in the spring. If your bed is near the barn, be sure that you have every ounce of liquid manure caught in a stone reservoir, or at least a sunken barrel, so that you may save it for your berry plots, including the strawberry.

The position of a strawberry bed must depend also upon your ability to irrigate. Unfortunately, there is not one of our crops so easily spoiled as this delicious berry. We are very liable to dry spells

in June, just when the strawberry is swelling and ripening. If possible, have the bed where the irrigation will be easily achieved. Carrying pipes from your reservoir or well, it is not a difficult matter to flood a small bed between the rows, thoroughly soaking the roots.

Most of us find it inconvenient to grow strawberries in hills, which, after all, is the ideal plan for most varieties. Some of the best varieties are useless with any other method of growing. If grown in hills we must keep all runners from getting a start, and the tilth must be very clean. Some varieties will make hills as large as a peck measure, and will give proportionately large crops. The usual culture is in rows, and this I recommend for nearly all who are not professionals. In planting have your rows four feet apart, and set your plants one foot apart in the row. When the runners start, your first attention must be to see that they run mainly in the row, instead of starting off across the intermediate pathway. If set in the spring, the matted row will be quite complete by fall. If we set in the summer there should still be considerable growth made, and something of a row established by November. I prefer spring planting, provided

the soil is not sticky. The ground, in fact, should be rather dry than otherwise when the planting takes place.

Here comes a very particular point in the culture of strawberries. The plants, if received from a distance, should have had a good bath, of an hour or two, in a brook or a tub of water. The ground being friable and clean, draw your line; then with a trowel dig a small, shallow hole, and have the ground slightly mounded in the bottom. Spread the roots over this, shove on the dirt, and crowd down with all your might. If you have got the dirt just right, the plant will be left with the crown exactly level with the general surface of the ground. Mark you, it must not stand above, nor must it be crowded at all below — it must be absolutely level with the general surface. After having crowded in dirt to cover the roots, slowly pour in a quart of water, then throw over loose dirt, and your planting will be a success. You cannot set a strawberry plant as you would a cabbage plant — that is, with indifference to the exact depth of the crown.

Now if dry weather sets in, and watering becomes essential, irrigate regularly, if you can, with pipes. If you have not any such convenience, dig

a hole about as large as the palm of your hand by the side of each plant, once in two or three days, and pour in a quart of water, slowly. Then scatter over dry dirt to hold in the moisture. Two such waterings will serve for a week. On no account whatever sprinkle a strawberry bed or water the plants very slightly. Do it thoroughly, or let it alone. The bed will get along far better without you if you are unwilling to be thorough.

Strawberry beds are generally renewed every year — that is, new strawberry beds are set, while the old one is allowed to do what it will for an additional year. This is too much trouble for a small country place, and it is unnecessary. A strawberry bed, with proper care, can be made to do good service for three years, or even more. Best crops, of course, will appear on fresh beds, but the old beds, carefully handled, will give good satisfaction. In order to secure this perpetuity of a bed you must keep the rows very narrow, by cutting off the suckers; but about every second year you must let the runners form midway rows, while you fork out or plow out the old plants. My custom is, after a bed has borne two years, to set it to currants or raspberries, without entirely uproot-

ing the plants. The strawberries are allowed to give me some small returns for a year or two more, while the substituted plants are growing.

A strawberry bed must be invariably covered, in order to make it secure from heaving out or freezing out during the winter. A few of the newer, long-rooted varieties take so strong a grip on the soil that, while no hardier, they are not as liable to be heaved. But in covering, we have to remember that the object is not so much to protect the plant as to prevent freezing and thawing of the soil. The real difficulty is thawing after freezing, and then freezing again. After experimenting with all sorts of covering, I am satisfied that our best plan is to use compost such as I have described, distributing it freely along the rows about the first of November. It should not cover the tips of the leaves. The plants should be visible all along the rows, otherwise you will find that you have smothered and rotted more than you have saved. In the spring, with a little movement of a rake, this compost can be settled down into the rows as a fertilizer. Autumn leaves make a fairly good covering, provided they can be held in place with trimming from your raspberries or other light

brush; but be careful not to smother your plants. I have used sawdust very satisfactorily, because it need not be removed, only raked into the alleys in the spring. I believe tanbark is considered a good covering by those who can get it. Cut straw is used by many, but this sort of covering is liable to draw the mice, who will use it for nesting, and then gnaw the plants. I am careful never to use straw, either for covering or for mulching in the fall, but an old, decaying straw heap can be utilized in the spring, either as mulching about trees or as a mulch between the rows of strawberries — pushed up close under the stems, that would incline to droop over and get soiled. This mulching of a strawberry bed is exceedingly valuable in the way of retaining moisture and tiding over a dry spell. When the bearing season is past the mulch can be forked under on a small bed, or in larger beds it can be taken away for other uses.

As for varieties, I shall not undertake to give you anything like a complete list, simply because, before my book gets to you, there will be other new and promising sorts on the market. Every year sends out two or three really good new sorts, and a good many more that deserve testing. Just at

present, if I were to set a strawberry bed, I would select for quite free planting Miller, Sample, Wm. Belt, Howell, Gandy, Senator Dunlap, and Glen Mary. These are all what we would class as medium early, excepting Gandy, which is one of the latest and one of the best. Miller makes a very large plant and is a strong rooter, the berry being "perfect"—that is, it does not need another variety to pollenize it. The plant is a great bearer and a great runner. The fruit is very large, roundish, conical, bright red, and of excellent quality. Its ripening season is rather late than early. Sample is, all in all, as good as any variety that I have tested. It is healthy, extremely productive, very large, and runs well. It is one of the varieties that make long, strong roots. The fruit is very large, dark, rich red in color, and in quality good. Wm. Belt is another thoroughly tested and universally noble berry, perfect in the way of self-pollenization, bright red and glossy in color, very large, and of the highest quality. Its ripening season is a little after medium, although it gives some berries quite early. The plant is very large, and makes plenty of runners. Howell is a very tall-growing sort, with long fruit stems and with long

roots. The berry is quite large, and is borne in great quantities, while the quality is best. Gandy is a late berry, and very prolific — especially in clay soil. The plant is not very large, but sends out long runners, and is healthy. The fruit is excellent in quality, and of bright color — having a rich fragrance in the box. This is a good variety for those who wish a strawberry bed to continue for several years. Glen Mary has given about as good satisfaction, in localities, as any berry ever planted. On clay soil and low ground this variety will be a failure; but on well drained, or gravelly, or light, soil, it will be a great success. Plants are large and stocky; the berries are dark-colored and firm. It has been reported to yield 20,000 quarts to an acre.

Another variety that is highly recommended is Ridgeway. This variety is held by some growers to be the very best on low, wet, or clay soil. It is a perfect pollenizer, and a very healthy plant. The fruit is medium size and very uniform. Brandywine is a very popular variety, with large, heart-shaped, bright-colored fruit, of excellent quality. With me it does not give heavy crops. Haverland is a berry that is truly wonderful for the quan-

tity of fruit that it will yield. There are two troubles in connection with it: the berries are rather soft, and in a wet season the heavy stems tip over and rot, while in a dry season the plant is quickly affected, and the berries are small. Senator Dunlap is a new variety of very high quality, yielding a huge crop of rather large berries, of splendid quality. It will also be good for a home bed, where sale is not thought of. Parsons' Beauty is another new sort that I have tried with satisfaction. The plant is very large, the foliage dark-colored, and the roots very long and strong. It yields immense crops of dark-red, conical berries. The quality of this berry is rather tart than sweet. Downing's Bride, sometimes called Kitty Rice, is another variety that can be recommended in high terms for a home garden. The fruit is large, of fine shape, and in quality probably not surpassed by any other. If you wish for a berry of the most remarkable size and quality, but a poor bearer unless grown in hills, take Marshall. Where you are petting your strawberry bed, this variety and Howell, grown side by side, will give you immense pleasure. Gibson is rather susceptible to frost, but is a wonderfully fine grower, while the berry is

large, very rich red, and of good flavor. The Mark Hanna is a new sort, the crowning work of that veteran horticulturist, M. T. Thompson, of Rio Vista, Va. It is said to be extremely large, rich in flavor, and very beautiful. It is a good shipper, and promises to be every way democratic in adapting itself to soils.

Rough Rider succeeds admirably as a very late berry on some soils. It is a strong-growing plant, and very productive of a high-colored fruit. Oom Paul is reported as doing finely. The plants are vigorous and the berry among the largest. However, all these varieties, grand as they are, cannot displace the old Bubach—a variety that can be depended upon, almost everywhere, to give us splendid crops of the largest-sized berries, with only reasonable culture. The plant is very large, sending out just enough runners, and always healthy.

I have named enough of the old and new varieties, and have given them a just description, but I have not named two or three sorts which will still require to be mentioned for those who will make strawberry growing for market a specialty. For these Warfield, Bismarck, and Gandy, with

Bubach and Clyde, constitute a quintette that can be relied upon; add, probably, Senator Dunlap.

A good deal has been done recently to secure very early and very late sorts of strawberries. Nothing better than Gandy has been secured for very late; and for very early it is doubtful whether we have secured anything better than Michel's Early. Johnson's Early seems to be winning its way among good judges. In my own ground I rely upon my own seedlings, one of which, number 9, ripens close after Michel, and continues to bear nearly through the season. Excelsior is early, but useless on account of acidity. Texas is a very early sort which may prove to be of extraordinary value. Palmer, I fear, is a failure; I certainly get no fruit from it worth the ground it grows on.

I recommend that you begin your small-fruit garden with a rather free planting of red raspberries, as these will be more easily grown than strawberries, giving you prompt returns, and can be relied upon for steady revenue. A field of red raspberries, properly cultivated, is good for ten years; I have continued a field for sixteen years. I do not advise the retention of old plants beyond ten or twelve years. The plants should be set in thoroughly clean

ground, well prepared and fertile, in rows five feet apart. The distance in the row must depend upon the variety that you are setting. Some of the fancy sorts, like Turner, give magnificent berries, and plenty of them, when grown in hills; but they will not yield enough to pay for their ground if grown in rows. On the other hand, the Cuthbert will do better in rows than in hills. The same is true of Golden Queen, which is a sport of Cuthbert. The canes when planted must be cut down close to the ground, so that new suckers shall be sent up from the roots. Nothing in the way of fruit can be expected the first year; you must first grow your canes. If these are well cultivated with plow, cultivator, and hoe, you will have a fine lot of bearing canes, ready to give you a crop the second year from planting.

After the picking season is over, you must go through your rows with a sharp corn knife, and cut out the old canes — leaving new ones to give you the next year's crop. When these canes are removed, fork them out of the rows, and burn them. Now drive stout stakes at the head of each row, and intermediate stakes every twenty feet. Hitch wires to run on each side of your row, stapling them to

the intermediate poles, and then draw your new canes up between the wires, where they will be held firm, and not broken down by winter snow. You are ready next for clipping the tops of the canes — down to about four or five feet. You are now prepared for winter — unless your land lies so that fall plowing will be advisable. On hillsides, of course, you will not do fall plowing, for you will suffer too great loss by wash of winter and spring floods. If the ground lie level, by all means plow in October, throwing the dirt toward the plants.

In the spring you will begin again with your plow, thoroughly working the soil and then running your cultivator to level it. After this you will run the cultivator until close after picking season. However small your berry lot, I advise you to work it with plow and cultivator. The cultivator is of more value than all irrigating systems. It is even better than frequent showers. Keep it running, wherever you can, all summer.

The best varieties of red raspberries for planting, either in large fields or in small, are the Cuthbert and Golden Queen, and Shaffer's Colossal. The Cuthbert made a revolution in raspberry growing, making it possible to grow three times as many

berries in a given space, of a larger size, easily portable to market, and of a fairly good quality. The canes are not absolutely hardy, yet we are confident of a fairly good annual crop of Cuthberts. Golden Queen is hardier in cane. The berry is a rich golden yellow, and quite as portable as its parent. No other yellow berry is worth the raising, unless it be seedlings of the Golden Queen — which, I find, are quite likely to spring up in our fields. The Shaffer's Colossal is an enormously large, purple berry. It is a cross of the black raspberry with the red, and nearly all seedlings of it will revert to the black parent. I prefer it decidedly to the Columbian, although the latter is a very strong grower, yielding enormous crops, and the berry is less perishable. Probably, if you are growing for a distant market, you had better plant the Columbian. For canning the purple berries have a flavor quite preferable to the red, while the yellow sorts give a very different flavor, and do not hold substance well in the can.

Another red sort of decided quality is the Turner. This berry is passing out of cultivation because it needs so much care. Still another excellent old variety is the Clarke. In a small, private garden

the Clarke and Turner, kept in hills, will delight the owner. The Loudon is a recent candidate for favor, and is a splendid berry for home use. It gives enormous crops, and the berry is of rich quality, but if you are growing for market you will find the Loudon will hardly keep over night. The canes are not so tall as the Cuthbert, but they are frost-proof. The Marlboro is a very early sort, of a bright red color, and high flavored. It is all right for a small garden. A new variety just placed on the market, called the King, is said to be a very strong grower, very hardy and productive, while the berry is a good shipper and the color bright red. Most of our very early berries have proved to be rather weak in the cane. Haymaker is another recently introduced berry, which will probably be very valuable for home use. It is soft but of high quality, and an enormous producer.

My conviction is that those who make homes in the country should always be experimenting in the way of growing seedlings, and that with no plant are we more sure of fair, if not excellent, results, than the raspberry. I have been able to originate a large number of really good varieties of red and yellow sorts, which add a good deal to my pleasure

and to my profit. I do not think that, all in all, any one of them is preferable to Cuthbert or Golden Queen. With the black raspberry I have been even more successful. It is my custom to let the bird-sown seedlings in my vineyards grow until they can be trained to the trellises and show their quality. The result has been some remarkable new sorts. What we want now is a berry that will give us as heavy crops as the Cuthbert, with higher quality and an absolutely hardy cane. A purple as good as Shaffer, and absolutely hardy, is also desirable. However, Shaffer, although it kills back somewhat every year, is very sure of giving us a heavy crop.

Of black raspberries I hesitate to name any varieties as most excellent. I should prefer to see you follow my suggestion in the way of growing seedlings—provided you get your seed from the old Gregg, an enormous berry, but not hardy. Perhaps the best early black raspberry that we can purchase from the nurseryman is the Kansas. It is a strong, vigorous grower, enduring most extreme cold and droughts, and bearing enormous crops. The berries are very large, jet black, and of splendid quality. So far as I have grown, the best

late variety is the Nemaha. This is a favorite berry for market, because the fruit is of the highest quality, and carries well. The bushes are very strong growers, very healthy, and quite hardy. A new variety called the Cumberland is said to be the largest of all blackcaps. It is probably a seedling of the Gregg, and very much like that variety. The canes are stout and stocky, producing immense crops. The probabilities are that we shall have new seedlings in this family of blacks — that is, the Gregg family — covering the whole season, and even preferable to those I have named. A very common and very excellent sort is the Palmer — a berry that ripens among the very earliest.

It is impossible for those who have small gardens, and pay little attention to them, to grow black raspberries with any such freedom as they grow red. The red reproduces itself by suckers, and in that way the old rows can be sustained for years by simply cutting out annually the dead canes. The black raspberry, on the contrary, propagates only by rooting at the tips of the canes. If you desire to multiply them, you must see that the tips touch the ground and are not disturbed while rooting. An old stool of black raspberries

will not last more than three years in a bearing condition.

The blackberry is ugly in its disposition, and in its cane has yielded least of all to civilization. It is curious that this magnificent fruit has come along down to us with so many friends, yielding such a delicious fruit, but in no way giving up its defense against the enemies that it had in the wild state. Old Humphrey says, however, that "Ye blackberry is a prime teacher of patience and endurance. It scratcheth and teareth, in order that it may make us sweeter-tempered. Whoever filleth his pail with this delightful fruit, will go home cheerful in spite of ye tatters and ye thorns." In our gardens we are getting some magnificent varieties, if we only knew where to put them. I have found it convenient to have a double row of blackberries growing along a side of my property which is easily entered by strolling boys. I find that since these have grown the lads have forgotten where my vineyard is. They will walk many a rod further, on their route to the swimming pond, rather than undertake to cross my lot. The blackberry needs a moist place, but never wet, and it demands deep, rich, strong soil. I have grown it without culti-

vating, allowing it, after the first two or three years, to fill up the whole lot with canes and take care of itself. This plan will work very well on a long, narrow strip. All you have to do is to cut out the old canes each year and burn them; then with your hedge shears cut off the tops of the canes down to about six feet. It is, however, wiser, if you intend to grow the finest berries, to keep the plants in rows and thoroughly cultivate.

The best varieties in my grounds, and I have tried and tested nearly all the new ones for the last thirty years, are the Eldorado and the Ancient Briton, with Snyder — a grand sort if the season is all right. Unfortunately, if the season be very dry, the Snyder will give very small berries, with few drupes. I should not undertake to grow the Snyder without careful cultivation. The Eldorado is a strong, stiff cane, bearing enormous crops of delicious fruit. The Kittatinny is a variety not easily to be rejected, although it kills back more or less each winter. It is a magnificent fruit, and has a habit of bearing somewhat through the autumn months. Most of the advertised sorts are quite tender and utterly worthless, excepting south of New York State. As a rule, do not plant a black-

berry that grows with a sprawling cane. The Wachusetts is advertised as thornless, but is not. The Wilson and Rathburn varieties are undoubtedly extremely valuable in some sections. The Agawam is a very sweet berry, but of a sprawling growth. The Taylor is one of the best in flavor. I have a seedling of my own, which I call Red Jacket, that resembles the Snyder, but is superior to that variety. Several new berries are just coming into the market, and of these I judge that Blower's will prove to be of the highest quality and value.

The planting and the culture of the blackberry are very similar to that of the raspberry. You must cut back the canes when planted, close to the ground; set in rows at least eight feet apart, and plant one foot in the row. Run your cultivator rather shallow among your blackberries, so as to break the roots as little as possible. These roots make a mat throughout the whole soil. They will not trouble you much in running down hill, but will run up hill with rapidity. Keep the soil rich with wood ashes and plenty of compost, that I have described elsewhere. Barnyard manure will do no harm as a rule, while it serves also as a mulch.

The secret of great productiveness is heavy feeding. I have not mentioned the dewberry, because I cannot recommend you to plant it. Its culture is about the same as the common blackberry, except that it must be tied to stakes. If allowed to crawl in its natural manner, the vines must be laid upon brush or straw. The fruit is grand, and comes earlier than the blackberry. After many years of trial I have dug all sorts out of my ground — so far as I can get them out.

Strawberry blight must be met by a prompt, thorough, and frequent application of Bordeaux Mixture. Raspberry and blackberry rust require prompt digging out of the plants and burning. This rust indicates a previous enfeebled vitality, and in all probability a lack of proper food. Anthracnose is another raspberry and blackberry disease, which requires a thorough application of iron sulphate before the leafage in spring, and applications of Bordeaux frequently, later.

To have all the strawberries and blackberries that you want for a single year without paying for them will be a novel experience. You will send a few specially fine baskets to your city friends as an aggravation to their lot, and as a lure to win

them out into God's country. You will boast of your Bubachs and Samples and Senator Dunlaps — twenty to a quart. Your strawberry dishes will be frequently enlarged in size, and so also will your cream pitchers. We do not do things on so small a scale out in the country. My cream pitcher holds a quart.

Currants and gooseberries are not in the Rosaceæ family, but they are so closely associated with them in home use and market that they must find a place in this chapter. There are several species of currants grown by American gardeners. The *ribes rubrum* includes all the red and white varieties, and *ribes nigrum* the black varieties. The growth of all varieties and the culture is about the same. The currant likes a moist soil, but not wet, and clay in preference to sand. It will, however, grow in almost any soil, with proper tillage. But to do its best the currant must be abundantly fed. I apply my compost either late in the fall or early in the spring. Thoroughly decomposed barnyard manure is excellent for the currant, if applied at the same season as the compost. The black currant is rather more drooping in growth, and needs to be set somewhat wider in the row than the red and

white varieties. There is, however, quite a difference in the several varieties of white and red. Some of them are very erect, like Cherry, and others very decidedly spreading, like the Versailles and Fay. I should set my currants in rows, about five or six feet apart, and three feet in the row. If you wish to cultivate both ways, set your plants about five feet apart each way.

For varieties select, first of all, for home use, White Grape and Versailles. The White Grape is a yellowish-white currant, of most delicious quality and large size, and it is prolific in its bearing. The Versailles is, in my judgment, the very model of red currants for beauty, bunch, growth, and quality of fruit. Fay's Prolific is another red variety, scarcely to be distinguished from Versailles, except that the bush is not so firm and erect. It is a very popular currant, but not one whit better than Versailles in any respect, and not so good in a few particulars. Among the newer varieties North Star is recommended as having long stems; White Imperial as being an improvement on White Grape; London Market as being extremely vigorous in growth and an enormous cropper; Pomona as being an enormous yielder of

small-sized fruit; Perfection as being an improvement on Fay, with the flavor of the White Grape, while Wilder is a very strong grower, and very productive, rivaling the Fay in size. All of these that I have tried are either inferior to White Grape and Versailles, or nearly identical with them. I am inclined to think that Perfection, at least, will be an improvement. It was originated by C. C. Hooker, of Rochester, N. Y., and is a cross of Fay with White Grape. Of black currants the Champion has been generally planted, but Black Victoria is an improvement in productiveness, flavor, and size of the berry.

Currant seedlings are easily started, and, if seed is selected from the choicest varieties, we are sure to get interesting results. Some day we are to have a currant as large as a gooseberry or cherry, but I do not think we shall ever improve the flavor of the White Grape. Among my own seedlings I have a bush that stands seven feet high, with diameter of five to six feet, perfect branching, and bearing enormous loads of fruit equal in size to Fay.

The gooseberry should be grown almost all ways precisely like the currant. The rows should run,

if possible, north and south, allowing the sun very freely to reach the fruit. At the same time it must be borne in mind that a very hot June will sometimes blister a large part of the crop and ruin it. The best soil for the gooseberry is clay; in fact, it will never give its best results on sandy soil. For manures apply strong compost, with ashes or barnyard manure that is thoroughly decomposed.

The gooseberry starts into growth very early in the spring, and must, therefore, be planted very early. Set in rows, about six feet apart; or, if to be cultivated both ways, the plants must be five feet apart each way. The trimming of the gooseberry must be somewhat unlike that of the currant, as it bears best on young wood. In the case of the currant we remove nearly all the suckers each year; but with the gooseberry we cut out the oldest wood and the weakest suckers. We must prune, also, to encourage upright growth, cutting away the most drooping stems. The English gooseberry will thrive best where there is partial shade. I find that gooseberries, as well as currants, give admirable results when planted in rows between grape trellises. Our American varieties are not all of them of pure, native blood. Several of them are

wildings, bird-sown probably, from European sorts grown in gardens. These are likely to show their English parentage and refuse to endure a very hot sun. I have one variety, found in a pasture lot, which ripens a brilliant scarlet fruit one week earlier than any other gooseberry, but it positively demands shade.

Among the best foreign varieties are Keepsake, a very large, straw-colored berry, and an immense cropper with ordinary care—a delicious fruit. Lancashire Lad is another English variety, bright red in color, very large, and of superb quality. Whitesmith and Crown Bob are two more choice English sorts. The most commonly planted is Industry. The berries of this sort are of the largest size, of excellent flavor, and dark red in color. The bush is a strong, upright grower and a great cropper, but the berries are hairy, and, to my taste, inferior to some of the others. Among our American varieties, the best known are Houghton and Downing, neither of which would I recommend you to plant. Columbus is a fruit of much larger size, handsome, greenish-yellow, and of the finest quality. The bush is a strong grower, and not at all subject to mildew. Josselyn is an American seed-

ling of good size, very hardy, and of fine quality. Among my own seedlings I have not only the early one, mentioned above, but another that ripens its fruit in September. There is something very attractive about the effort to grow improved varieties of these small fruits. They come into bearing when young, and if not worth the keeping we have wasted little time and space in the effort. I wish more people knew what a grand fruit the gooseberry is at its best. Gooseberry jelly is one of the most delicious with which the housekeeper stores her cupboard.

The propagation of gooseberries and currants is identical. Take cuttings in the fall, as soon as the wood is ripened, seven to ten inches long. Propagators generally put these in bundles, in a cool cellar, over winter. I prefer planting them at once — setting them obliquely, in clean ground, in a furrow where they can be two-thirds under ground. Draw the dirt on, and ram it down very tightly. When done the row should stand a little above the level of the soil, to avoid the settling of water during the winter. The cuttings should be about one inch apart in the row. It is easy to multiply either gooseberries or currants by layers, or an old bush

may be pulled to pieces, making a large number of new ones. When planting your currants and gooseberries set them quite deep in the soil. In another chapter I have referred to the insects that attack these plants, and have given the remedy.

I do not like to leave my small-fruit garden; indeed, were you here in June, July, or August, you would find me, pretty surely, among my berries. They add largely to the profit as well as pleasure of a country home, but nowhere else will you need to exercise more clean culture and common sense. The strawberry abhors a shiftless man, and gives him only nubbins. The raspberry and the blackberry revert to their wild habits and become thickets on the least provocation.

CHAPTER NINE

TONS OF GRAPES

THE one fruit that, next to apples, should constitute a prime article of diet, is the grape. Not only in the vineyard can we have tons, but literally tons more on our buildings, and still other tons on our trees, rockeries, stone walls, fences, stumps, and arbors. The best grapes can be made to climb trees and cover our barns as easily as the wild ones. In this way utility combines with beauty. Vines grow quickly and come soon to bearing. If the market is poor, eat grapes, and let the children have all they desire. It is cheaper and better food than meat and vegetables, and they never tire of it. I recommend that you go out before breakfast and sample a half dozen sorts; repeat the experiment before dinner, and, if the digestion is poor, take nothing else for supper. Take an enthusiastic friend with you, and make notes, discuss and compare, and so your vineyard will be an annex to your library and study.

The evolution of grapes and grape growing has been marvelous. About forty years ago a single carload glutted the New York market; now a carload a day is dropped into consumption without a ripple. A single good-sized family can use a ton of grapes in the course of a single year — for jellies, marmalades and dessert. Vast areas are now given to growing grapes, yet the price seldom drops so low as to make the business unprofitable. The Concord was discovered about 1850; the Delaware was disseminated by Mr. Campbell, of Delaware, Ohio, a little later. These two grapes made us independent of foreign sorts, and began a revolution, so that now a good grape catalogue will offer over one hundred standard varieties. Most of these are hybrids, or crossbreds, produced by the attentive skill of men who deserve from their country higher plaudits than generals and admirals. Rogers' Hybrids numbered over half a hundred, and were followed by Dr. Grant's delicious Iona and Israella; and then by Rickett's seedlings, which include such superb grapes as Jefferson. Just now Mr. Munson, of Texas, is at work adding such grand achievements as Brilliant, Headlight, and Wapanuka. Mr. Moore, of Western New York, has added two

remarkable productions, Moore's Early and Diamond.

Looking over select lists of grapes, I often wonder if we hopelessly differ in our tastes, or if those who make the lists have ever tasted the grapes they advertise so confidently. I have grown eighty varieties, besides a large number of seedlings of my own, and I am constantly compelled to protest against the dissemination of many of those that are sent out as of the highest quality.

If set down to the selection of half a dozen best grapes, I should begin with Worden, black; Herbert, black; Niagara, white; Hayes, white; Eldorado, white; Brighton, red; and Lindley, red. Already I am running over my number, yet am loth to leave out Goertner. Lady is as good a white grape as has yet been produced, and it is the earliest of all good sorts, but with me it bears very few and poor clusters. I think the difficulty is largely due to lack of self-pollenization. I have not found it easy to supply this lack. Jefferson should come into the list of prime sorts for a homestead as far north as Southern New York. It does not always ripen in this latitude, although the vine and fruit are perfectly hardy. In all the list of excellent varieties the two

that are nearest to ironclad are Golden Pocklington and Moore's Early — both of which rank close up to the select half dozen. Moore's Early is a noble grape every way, in the growth of the vine, in hardiness, in size of bunch and grape, and in prolific bearing — after it once begins to give fruit. The Pocklington is equally grand, both in vine and fruit. It needs, however, a long season to bring it into perfection, not being fully ripe before about October 10th. It cannot, therefore, be recommended as far north as Massachusetts, and Central New York, Northern Ohio, and Michigan, except in sheltered localities. Agawam and Diana are two of the best keepers, and Agawam is certainly one of the best grapes for vineyard culture.

I have heard good judges pronounce the Iona the very best grape in existence, but, unfortunately, the Iona is quite tender in northern latitudes. By covering the vines with leaves or compost I am able to secure some noble bunches that are unexcelled in their winelike flavor. Others, going through my vineyard, are quite emphatic that the best of all grapes is the Herbert. It certainly is one of the richest of all our grapes, but, like most of Rogers' Hybrids, it is not a self-pollenizer. In my

selectest list I have placed Worden. This grape is a positive marvel. It is a seedling of Concord, but, unlike that grape, it is sweet as soon as colored, while a Concord is sour until it has reached the stage of shiny blackness. The Worden may be classed as the very best early black, and Herbert as the best late black. Niagara is another magnificent production, carrying its huge bunches, in prodigious quantities, on vines that are remarkably healthy. Lindley and Brighton are incomparably fine among the red grapes, but each has its drawbacks. Lindley is very long-jointed, and not a perfect self-pollenizer; in fact, quite defective, while Brighton is the poorest self-pollenizer in the whole list. Large vineyards of this grape were planted in the Hudson valley, and were plowed out by the indignant owners before they found that it needed a good neighbor, like Worden. Goertner is a much better self-pollenizer, but not quite perfect.

I should include Diamond in my list of the very best varieties, if it were not so irregular in its date of ripening, and, when ripe, were not so variable in quality, while to this we must add that the vine is unusually susceptible to disease. For running headlong over rocks, and climbing over arbors,

August Giant is one of the very best vines, and the grape is of better quality than the average Concord; it ripens, however, in October, and never in August. Delaware is a delicate grape, of rather weak growth, unless the soil is of the best and culture equally good.

Among the sorts of later introduction there are several varieties of the highest quality, and ultimately to be ranked with the very best I have named. Colerain is a seedling of Concord, a white grape, very sweet, ripening very early, and keeping very late — or through the grape season. Esther, Nectar, and Rockwood are three more of very fine quality; Rockwood I especially admire for its rich quality. Nectar holds its clusters long after ripe, and is a grand family grape. Campbell's Early has jumped into favor, and is a good rival of Moore's Early. The McPike is an enormous bunch and berry, of high quality and recent introduction.

Massasoit is a very early and fine red grape, which I throw out with regret because of its tendency to rot, while the Concord must be rejected where it does not get time to entirely sweeten its juices. It can easily and fully be superseded by

Worden. In the grape sections, such as around Lake Keuka, of course Catawba will hold its own. Niagara is not quite equal in quality to Hayes, and it has no advantage over that variety except its huge bunches. The Hayes is one of the earliest to ripen, and is of most delicious quality. I am sorry to say that Niagara, when it reaches market, is very seldom thoroughly ripe — not so ripe as to bring out its entire sweetness and richness. Eldorado has proved, with me, not a very prolific bearer, but its quality is very similar to Hayes — that is, best.

In our Northern States we do not care for grapes to ripen much before the middle of September. If they do, they are very sure to be attacked by the oriole, who does his work recklessly, spoiling ten times as much as he eats. Fortunately, this bird has gone South by the first of September — he is very regular about it — and we are glad to bid him good-by. The beautiful but pert rascal drops down in flocks on his way South and adds to the destruction wrought by our home birds, immense quantities of bunches being picked to pieces, for the hornets and honey bees to finish.

For Southern States a different list is needed.

Mr. Munson, of Texas, who is one of the very best fruit authorities in the United States, selects, among other varieties, for the belt reaching from Delaware through Tennessee and Missouri, and south of that state, Moore's Early, Worden, Brilliant, Green Mountain; and for south of Tennessee, Worden, Niagara, Herbemont, Scuppernong, and Gold Coin. It will be seen that Worden and Niagara come very near being cosmopolitan grapes, while Moore's Early follows close after. Another good authority places among the best varieties for the Gulf States Concord, Niagara, Moore's Early, Goethe, Lindley. Goethe is a superb grape, but in the North needs covering for the winter; even at the best, we very rarely get the full quality of such a grape in our colder climes.

The grape does not need special soil, nor half so much special knowledge as the books imply. All the varieties I have named will grow in any good garden soil. Terraces on steep hillsides are all right with imported soil, but they are not at all necessary. Most of the Chautauqua vineyards face the north, but I should prefer that my vineyard face east or south, if possible. I like a location that will absorb a good deal of heat during the day,

and carry safely through the frosty nights. My own location is on a hillside, somewhat valleyed out, and generally facing the southeast. I escape the late spring frosts and early autumn frosts, that touch my neighbors half a mile above, or down in the bottom of the valley. This sort of location, if possible, is good for all garden and orchard purposes.

Set your vines about eight or ten feet apart in the row, and the rows ten feet apart. This allows a row of currants between, which do not cut off the sun from the grapes. It is absolutely essential to have the full force of the sun for perfecting the grape. Plant two-year-old vines, and buy of the very best nurserymen, directly — and not through agents. Generally it is preferable to set in the spring, because the ground is easily got into good shape. If you set in the fall, mulch with coal ashes — not with straw, that mice might nest in — and leave it slightly heaped about the vines. Cut back each vine to two eyes; then spread the roots carefully, and pack the dirt tightly, until you come to the mulch, which you leave lying loosely, and, as I said, slightly mounded. Your trellis will be wanted the second year, and should be made of posts set

by every third or fourth vine, and with three wires fastened to the posts with staples. When such a trellis is done, it is practically a high fence. The bottom wire is generally placed from two to three feet from the ground, the top wire at six feet. I grow my vines a good deal higher than marketmen, because I wish to lift them above berries.

The fact is, you will not find the grape a good surplus crop for market when grown on a small home lot, and with usual care. The great shippers can afford to sell for prices that would not compensate you for your care and expense. Twenty years ago I sold my surplus of Delawares and Rogers' Hybrids for eight to ten cents a pound. Now when I go into market they will not bring me over three or four cents a pound. I find it convenient, and quite as profitable, to invite a dozen or twenty stalwart college boys to spend two or three hours of Sunday afternoon with me, during October and November—discussing books, grapes, and manhood. I am sure that no grapes ever found more appreciative customers. All in all, I advise you to grow just as many grapes as you can consume, having a small surplus for fancy market and enough to give away.

I shall not undertake to expound the systems of trimming grapes, because for the most part these systems are puzzles. Experts quarrel over their favorite methods. I will refer you to Bailey's *Cyclopedia of Horticulture* for a description of the systems most in favor. A still better way will be to visit a good vineyard—in the Chautauqua section, or Hudson valley section, or in Northern Ohio, or in Missouri, and see the work in operation. There is, however, nothing more important in grape growing than thorough trimming. This should be done in late autumn, or winter, or very early in the spring, before the sap starts. All vines, of all varieties, will be better for being laid down in the winter. This is all that I do with my varieties, except the *Duchess*, *Iona*, *Goethe*, and *Delaware*, which are carefully covered. *Concords* and *Delawares* are too poor for the time spent on them. If you grow them at all in the North, you will get the sweetest from vines that climb hand over hand, in a wild way, up the trees. A few of the late-ripening grapes, such as *Jefferson* and *Iona* and *Goethe* and *Pocklington*, may be grown on the south side of the barn, in a glass house, but the vines carried up through the roof and trained on

the side of the barn. This will very much increase their hardiness, and hasten their coming to maturity. I have them growing in a peach house, and carried up as I describe. Sweetwater grapes and Black Hamburgs may be treated in the same way.

To grow grapes on your barns and outbuildings they should be planted about ten feet apart, and as they grow they must be protected from animals by a stout wire netting. When they are high above danger of browsing, box in the trunk of the vine with boards; then spread the arms over the barn or other building, on wires stapled crosswise. These wires should be about two or three feet apart, and on no account should the vines be fastened directly to the building. Tie the vines to the wires, and when you desire to let them down you have only to clip the strings. The wires will not hinder you from repainting your building. All other climbing vines, such as roses, clematis, bittersweet, should be treated in the same way. Be very sure that grapes like Brighton or Lindley, if run over your buildings, have good neighbors to pollenize them — otherwise you will have your labor without compensation.

The art of keeping grapes depends upon (1)

picking them just when fully ripe, not over-ripe; (2) removing every defective berry, and handling the bunches very tenderly; (3) packing in clean baskets, holding six or eight quarts, about half full, and with thick, brown paper above and below; (4) carrying at once to a cool, dry room — but not a drying room. On the other hand, a warm cellar will not do at all, and rarely any cellar. The storage room should be closed and dark. There should be no odors of any sort about, for grapes are very quick to absorb evil odors. I had used tarred paper to ceil my fruit cellar, and in a single week's storage every grape was spoiled and apples were damaged. (5) Wrap, if you will, each bunch in tissue paper. (6) Look over your baskets once in two weeks, and use them according to their tendency to decay. You will soon discover which of your varieties are good keepers, and I know that you will decide upon Agawam, Diana, Alice, as among the best, while Worden, although thin-skinned, if very carefully handled is not a bad keeper. Catawba is, of course, our best long-keeping grape, although I find among my seedlings from Herbert, Diana and Hayes some very good rivals of Catawba. With these very simple

precautions, and without cold storage, I am able to have grapes till the end of January.

I have said tons of grapes advisedly, for you can, by following my suggestions, grow half a ton on your barn, and another half ton on your arbors and house. The season can be extended from September first to February or March, and so you will find that your home consumption will be something enormous each year. I have recently read an article on longevity by a French physician of note; he says: "Live in the country if possible; eat little meat; eat fruit freely every day, before breakfast and before dinner, and especially let your dietary include cherries, apples and grapes; go to bed early, and rise early; keep your temper, and be cheerful. There is no reason why you may not live one hundred years. In old age one may live almost entirely on fruit, cereals and nuts." If my book induces every reader to plant a vine of Worden, another of Niagara, and another of Brighton, I shall have added to the health and happiness and longevity of mankind.



A SHIBIBERY AND A FLOWER GARDEN

CHAPTER TEN
AMONG THE FLOWERS

THERE is no possible floral display like an orchard of apples, pears, plums, and cherries — and peaches if you can grow them. Yet it is an easy matter in the country to have a shrubbery and a flower garden. I say easy because you must not lay out for so much work and care that you will get weary of your best things. Fifty years ago vegetable gardens were worked with a spade, and flower gardens our mothers dug with a knife — digging forks and trowels were unknown. Sunflowers, nasturtiums and hollyhocks grew in the vegetable garden, but the pinks, cinnamon roses, and annuals came with the most terrible backache. I shall try to tell you what flowers will be most satisfactory, and at the same time most easily grown.

Waste very little time on inferior things, for in the country you will have enough to do to fully and enjoyably occupy every hour. Be prompt to throw

aside coarser plants that do not add to the refinement of your lawn. For this reason I discard balsams and zinnias, holding that the despised nose has special rights in a flower garden. But we shall do well to go farther, as most of the annuals take more time and room than they are worth. The culture of flowers ought always to go on with the culture of ourselves. When we discard second-rate things it shows that we are growing; the flower garden is enlightening us, and not merely pleasing us.

Do not be too sure that single flowers are always the more beautiful. There is beauty in geometry and mathematics; so there is in the symmetrical arrangement of dahlia petals, and in the fine art of the General Jack rose. Some flowers are more beautiful in their single specimens, because only in these can the fine penciling of nature be displayed — as in the gladiolus and the salpiglossis. A double hollyhock may, however, be the climax of shading and color, as well as of artistic arrangement.

Of course every woman who makes a country home will have her favorite flowers, which she will desire to multiply; then in all neighborhoods there are flowers which have secured a special welcome,

and these will be adopted. After fifty years of flower growing, I have a list of favorites that I cannot get along without. One of these, if not the first of all, is the old-fashioned nasturtium — a flower that never says enough, that will give you continuous bloom, in profusion, from June till frost. As it grows low on the ground, it can be covered easily through half a dozen frosts, till there comes a freeze. The fragrance is wholesome, and the flower lasts long when cut. You can cut sprigs as freely as you please, and they will not be missed from the bed. The sweet pea well grown, as it seldom is grown, is one of the most charming plants in the world. I have it on trellises eight feet high, and from these we gather constantly great bunches of flowers through four months of the year. The trellises are just far enough apart to admit of free passage and sunshine. If the aster were sweet it would rank among the noblest of our flowers; as it is, few can compete with it in clean, bright, good-hearted blooms, coming in the cool autumn months, and not easily frozen. I like best those flowers that mark evolution, and this the asters do admirably. So also do the perennial phloxes — one of the grandest of all our flowers for country homes. But

just now perhaps sweet peas mark the very finest work, the genius and the patience of our best horticulturists. Brains also have been put into new cannas and gladioli; and what a supreme poem is such a rose as Virginia Coxe, or Balduin — a poem written equally by an inspired hand and soul!

The tulip is my special delight, nor can I ever get too many of them, everywhere about my land. Let me tell you a secret. When you set a bed of strawberries, push tulips down four inches deep in all the rows, and six inches apart. Here they will blossom early in the spring, before the strawberries blossom, and they will get out of the way, all but a dry stalk, before you pick your berries in June. In this way you will have the most magnificent floral display, without decreasing in the slightest degree your crop of fruit. I am planting this year not less than a full bushel of bulbs in my new beds. Once in about three years your strawberry bed will have worn out, and must be renewed; dig tulips also once in three years, and follow up your new strawberry beds. They multiply with great rapidity, and if you dig ever so carefully some bulbs will be left in the soil, so that in time tulips will show

wherever a strawberry bed has been, even twenty years before — in gardens or in grass. They will do no harm, but will glorify your property, while you will be able to pick them by the armful. This is the way to have all that you can want of this magnificent flower, all that you can admire, and all that you can give away. Besides, you can sell or give away the bulbs by the hundred, and start an honest tulip mania all around the town. If this chapter does no other good than to teach you how to grow tulips easily, and enough of them, it will be quite enough to repay me for writing it.

A good collection of roses is much more rare than it ought to be. I am afraid that this is because growers confuse buyers with indiscriminate praise of hundreds of sorts, most of which need special culture. It is also in part due to the fact that we cannot cure country people of the habit of entertaining agents and buying their extraordinary and impossible offerings. As a rule, these peripatetic peddlers are rogues. Their promises are high colored, but the products are just the other way. A good list of roses for a quiet country home would be, of June flowering varieties, Crimson Rambler, Cabbage, Mad. Plantier, Yellow Ram-

bler, the Wichuriana varieties; and, if there be still room, don't forget the old Damask and the Cinnamon. The Wichuriana is a recent importation from Japan, with beautiful, glossy foliage, and covered with large single flowers in June. Hybrids give crimson flowers and pink flowers, some of which are double. They all run rapidly by suckering, and are most admirable for covering rough places or filling in among rocks. These Japan roses are not particular about soil, or about anything else. They are people's roses. The old Cabbage rose deserves a place, not only for its beauty, but from association with our mothers and fathers. It is, however, a grand rose in itself, and quite hardy. Crimson Rambler and its children are marvels of florescence. Considering that they are almost absolutely hardy, nothing can be better for a blossoming hedge or to border a walk, only remember to have sweet peas or some other climbing flower to follow later in the season. These can grow on the same frames, and not be in the way until the Ramblers are through blooming.

A thoroughly good list of Hybrid-Perpetual roses might include one hundred varieties. I will name sixteen sorts that will give you entire satisfaction.

These are, Alfred Colomb, Louis VanHoute, Victor Verdier, Anna de Diesbach, Chas. Lefebre, Countess of Oxford, Gen. Jacqueminot, Mrs. John Laing, Paul Neron, Margaret Dickson, American Beauty, François Levet, Dinsmore, Vick's Caprice, Ulrich Brunner, Prince Camille de Rohan. This list leaves out a host of good ones, but it will probably be larger than most of my readers will need to plant. Special favorites with me are General Jack, Dinsmore, Ulrich Brunner, Jules Margotin, Alfred Colomb. Perhaps these will be all that you can afford.

Of nearly hardy roses there is an immense list, and where your protection is fairly good they make the most satisfactory plants because always in bloom. My list begins with that grand rose, La France, followed by Kaiserin Augusta Victoria, Clothilde Soupert, Malmaison, Balduin, Liberty, Hermosa, Virginia Coxe, Meteor, Perle de Jardins, Papa Gontier, Mrs. Robert Peary, President Carnot, Maria Guillot, Belle Seibrecht, Mad. Abel Chatenay, Souvenir de Wootton, Mad. Caroline Testout. Here again we are leaving out many fine roses — more than we are including — but the list includes some of the very best and hardiest. If you

can only plant half a dozen, take *Hermosa*, *Balduin*, *Liberty*, *Clothilde Soupert*, *Mrs. Robert Peary*, *Virginia Coxe*. The grandest new rose of 1903 in my bed was *Gen. MacArthur*, and the best of the previous year was *Virginia Coxe*.

The hybrid tea-roses are practically hardy, requiring only hilling up in winter, although among them there are degrees of power to resist the frost. On the whole, this is one of the very best classes of roses for general planting. It has the advantage of giving us very sweet flowers and perpetual bloom, with a considerable degree of hardiness. Among the best new ones are *Admiral Dewey*, *Admiral Schley*, *Clara Watson*, *Antoine Revoire*, *White Lady*, *Mrs. W. C. Whitney*, and *Mad. Jules Finger*. Quite hardy, also, and exceedingly fine are the *Madame Cochet* set — the yellow, the white, the red, and the pink flowering. If you wish for three exceedingly fine and hardy climbers, select *Climbing Meteor*, *Climbing Wootton*, and *Climbing Clothilde Soupert*. The old *Baltimore Belle* and the *Queen of the Prairies* are not quite hardy north of Philadelphia. I am obliged to lay them down and carefully cover them every winter.

Any one in the country can grow lilies very liber-

ally if they know what to do with them. The Madonna or Candidum lily, the old-fashioned Tiger, and the Lancifolium are most satisfactory, most hardy, and multiply most rapidly. The Madonna and the Japanese lancifolium should be grown in the same bed, for succession, the first beginning to open in early July, and the latter about the middle of August. No language can describe the glory of these lilies. They need only good garden soil, and there must be no manure near the roots. Much mischief is done by getting manure in contact with the bulbs. I have had nine hundred Madonna blooms in a single bed of a dozen feet in diameter; the fragrance, pure, strong, and wholesome, filled my garden and shrubbery. I do not know of anything more perfect than a stalk of lilies three or four feet tall, and crowned with five to eight blossoms, each six inches across, and waving perfume like a censer.

The Japan lancifoliums are glorious in all ways, and are so easily grown that, like the Madonna, you can plant them anywhere. As the bulbs multiply rapidly, it is well to plan for them along your grape rows in the vineyard, setting them where the plow and cultivator will not reach them. Next to

these lilies, for general value and easy culture, are our native *Canadense* and varieties. These generally are seen in moist meadows, but they do even better when transplanted into garden soil which is deep and friable, and still better if well mulched. Plant them without manure, and six to eight inches in depth. The *lancifoliums* should be set down about five inches, while the *Madonna*, which forms autumn leaves, should be set only two or three inches deep, so that the leaves will spread over as a winter protection. I find but one difficulty in securing all these lilies by the thousand; that is, they are liable to start too early in the spring, and get mowed down by late frosts.

You will, of course, find a good deal of interest in planting *Auratum*, and *Longiflorum*, which is a variety of Easter lily; and there are many more very fine sorts which you will find catalogued, but as a rule you will get better satisfaction with those I have named above. *Auratum* should be planted nine inches in depth, and *Longiflorum*, which is so noble a lily that you may well afford it patience and care, must be planted seven or eight inches in depth.

Among perennials, after roses and lilies I place

foremost the phloxes. I do not refer to the very inferior sorts which are so common in the country, but to those gorgeous varieties which are being propagated and slowly disseminated. I have been able, by selection, to secure from my own seedlings an array that is the glory of my grounds for three months. Some varieties begin to open by the first of July; others are not expanded until late in September. Obtain a few choice seeds, resolutely throwing away the poorer results, and you are quite certain of securing something that will be exceedingly valuable. Take my word for it that you will have a display which, for beauty and sweetness, will rival roses.

If the gladiolus were perfume-giving, it would be the ideal flower for country cottages. By planting in succession, from April till June, you can have blossoms from July till November. It multiplies freely, and will generally prove hardy in the soil through winter. Some of the varieties, hybrids of *ramosus*, need never be lifted except to divide the roots. In fact, I am not sure but that some of the most magnificent sorts will get to be a nuisance simply from their persistence, hardiness, and rapid increase. Standing erect, the gladiolus needs only a few inches

of space, and for that reason can be planted in beds largely occupied by other plants. My choice for a gladiolus bed would be borders, about three feet wide, with evergreen backing — beds in which we may grow our hyacinths in early spring, and some of the choicest early tulips. Here the stalks can be tied to wires or to stakes. The array of new sorts is more gorgeous and bewildering every year. There is nothing more startling, to a person who has grown gladioli since the first improvements about 1850, than the evolution that has gone on. I am growing some superb strains that sweep through nearly the whole gamut of colors, including blue. You can buy the bulbs by the hundred from our large growers, at a very low rate, so that the gladiolus constitutes a particularly valuable flower for one who is just beginning country life.

For autumn flowering I have great satisfaction in growing pansies from seed sown in boxes in April and transplanted to borders not too sunny. While the earlier pansies are liable to exhaust themselves during the summer, these later productions give their glory in September and October. Another autumn flowering plant that should be included in a small collection is the scarlet sage or

salvia. Set it in a cool, loose soil, and you will find the brilliant scarlet most comfortable as the weather passes away from the heat of summer. It is well to have a few plants standing singly and conspicuous — even in your vegetable garden. I especially admire a long border or hedge of this magnificent flower. It will succumb to a snapping frost, and for that reason it would be well to have a few plants growing in pots. Among our autumn flowering plants the cosmos is valuable and easily grown. I have sometimes had difficulty in getting it into perfect bloom before freezing weather. The anemones are not open to this objection, because they will endure a very decided freezing. Along the border of your autumn corner be sure to have a few plants of hellebore, or Christmas rose. This will defy the frosts of November, and will frequently lift its blossoms right through three or four inches of snow.

Admire bulbs, bedding plants, biennials, and annuals according to taste, yet the average country home will rely, and ought to rely, chiefly for its floral display on blossoming shrubs. These we have not yet more than begun to develop and appreciate. Our woodsides, our swales, our forest openings

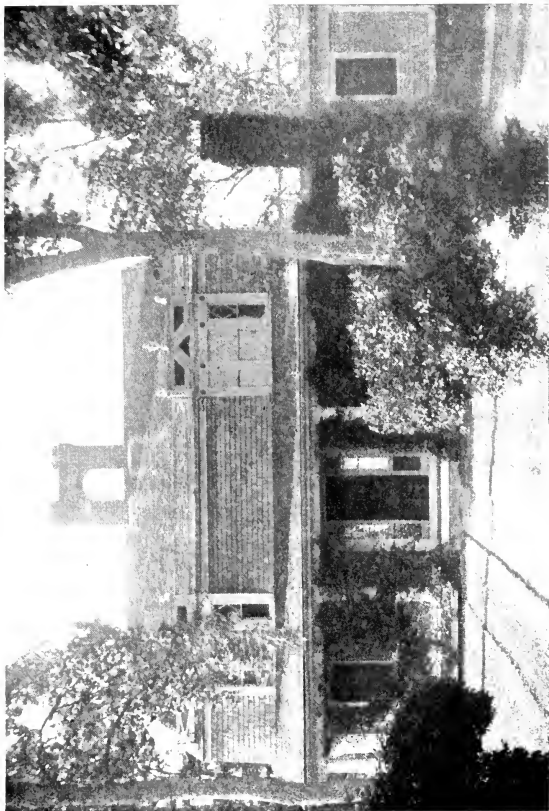
and pastures contain varieties that are seldom seen about our houses. Some of these are overlooked only because common. I have discussed them sufficiently in another chapter on lawns and shrubberies, and here I refer to them only for their flowers and their fitness for winter foliage. The world holds nothing finer than those fringes along the forests of Pennsylvania, Maryland, and Virginia, where the laurels and the rhododendrons interweave their arms over hundreds of acres, and seem to begrudge room for other shrubs equally glorious. Along the Susquehanna nature has miles of gardens finer than those of the Tuileries. I have looked down the mountain-sides of Pennsylvania over such vast fields of flowers that I have felt the utter impotence of any landscape artist to plant a garden. You must learn to see the beauty of what is common. You will be especially interested in studying the variations in every-day shrubs — in growth and in bloom. I have found a superb weeping choke cherry, and although weeping things are mostly morbid freaks of nature not to be multiplied, this is elegant both in form and fruit. It is constantly to be borne in mind that shrubs, when once planted, make comparatively little work,

which is more than we can say of our bulbs, our tubers, and our bedding plants. You have to keep out deadwood and feeble suckers, and mulch well, and your bushes give you sure compensation. Whether you grow them for flowers, or simply to constitute a shrubbery, remember that simplicity, and not formal stiffness, is your guide in trimming.

At this point I propose to make a list of flowers, as I did of fruits, for the laborer's cottage, where the space for flowers must be unusually limited, yet where flowers are needed to lighten and enlighten life as they are nowhere else. Around your door and over your porch run Crimson Rambler roses, and with them the wild native clematis and its improved variety, *paniculata*. Make room for these roses very near the door — *Hermosa*, *Balduin*, *Clothilde Soupert*, *Gen. MacArthur*, *Gen. Jacqueminot*, and *Meteor*. They will take but little room and but little care. On the other side of your doorway a bush of old Cinnamon rose, or, better yet, one of the Scotch roses, will be a perennial delight. No one is too poor or too busy to grow tulips, as I have suggested, in the berry gardens. In this way the plainest laborer's cottage can have great masses of color and sweetness at no cost

worth the mention, and may even make the sale of bulbs a matter of income. Of perennials, make a great deal of phloxes and larkspurs. In addition to the old-fashioned lilacs and mock oranges, you can at least collect some of the native shrubs, which will beautify your street side and your fence line. Any one may glorify his cheap homestead with Tartarian honeysuckles, barberry bushes, and high-bush cranberry. These constitute a triplet of beauty through the larger part of the year.

I have noticed that the poorer classes of country residents are fond of the dahlia. They like symmetry, and the lesson is a good one to teach order and carefulness about the household and the lot. These can be grown near the kitchen door, and will render innocuous a place which would be otherwise a sink-hole for slops. If now you can go farther and spend a little time upon bedding plants, above all buy a dozen geraniums in the spring, when they can be got for a very small sum, plant them in almost any garden soil, and surround them with asters, petunias, or pansies. Instead of leaving your pig-pen to be a nuisance, slant up behind it a trellis for sweet peas. I am especially anxious that around your barn shall grow grape-



OVER YOUR PORCH RUN CRIMSON RAMBLER ROSES

vines, in order to add largely to your profits and to your food; yet with these it is not impossible to twine, without detriment to the fruit, a good number of climbing roses. Over stone piles let a bitter-sweet grow; and if you have stone fences, it will take very little labor to start in growth, beside them, Virginia creepers. In this way, by simple devices, the plainest homestead, where money income does not exceed four hundred dollars a year, may be glorified so as, first of all, to strike a visitor for its beauty. At the same time your windbreaks — which should never be forgotten — may be a combination of the beautiful and the useful in the way of crab-apple trees and mountain ash, while under the shelter of a Tartarian honeysuckle hedge stands half a dozen bee hives, which shall add a generous quota to your comfort and to your profit.

A country home can rarely indulge in costly palms and similar decorations for the winter. It is not necessary, because a few fresh bouquets of Christmas roses, with clippings from your barberries and your evergreen mahonia and your hemlock hedge will carry you well into midwinter. Our best preparation for the white months is to dig a few of our common May-flowering shrubs in

November, place them in a cool cellar or out-building for a few weeks, and then, as needed, bring them into the house. It is not necessary that these shall have anything more than simple boxes to hold them during their residence in the kitchen or family room. After three or four weeks of waiting in a sunny window they will burst out into bloom quite as gloriously as in May when out of doors. The best shrubs for this forcing purpose are the common lilacs, some of the spireas, the mock oranges, the deutzias, and the Judas tree. The Japan Judas tree, and some other half-tender shrubs which will not blossom in our open grounds can thus be made very useful. About three weeks before you desire bloom, bring a plant, well-boxed and watered, into a warm, light room. Keep it well watered and occasionally turned before the window, and the buds will soon begin to show themselves. I have lilacs in midwinter that perfume the whole house. The yellow-flowered ribes, or native currant, is specially good for our purpose, and is very floriferous.

After the flowers have decayed, set the boxes back into the cellar, and in the spring into the ground. It will take a year of recuperation before they will

again be strong enough to make flower buds and be fit for another winter forcing. Of course we have to select small bushes, and this is our chief trouble. Lilac bushes are generally too large, or else mere suckers, but a row of these can be had in preparation along the side of your garden. It is not quite easy to determine flower buds from leaf buds on the lilac, but as a rule flower buds are much rounder and fuller. In addition to shrubs, be sure to dig one or two clumps of *hemerocallis fulva*, or yellow day-lily. This plant is peculiarly good for forcing. It gives a succession of richly-perfumed, lemon-yellow flowers during a full month or six weeks. I have had over eighty flowers, in succession, upon a single box. The fragrance is delightful at any season, but most charming in winter.

I suppose you will be admirers and lovers of the hyacinth. I am not quite an enthusiast to agree with you. I very much prefer the tulip, although the latter does not so easily develop its beauty in the winter. The best possible treatment of bulbs for winter is to place them in pots according to their size, and then plunge the pots in the garden soil, an inch or more below the surface. Be sure to select

a place where water cannot settle around the pots. Leave them there until you find by examination that the roots have well filled the pots, which ought to occur within four to six weeks, sometimes sooner. If freezing weather sets in, cover with straw or litter, and boards over that. When you are ready for bloom, bring the pots into a warm room and water freely; it will need another month to fully develop the flowers. Be regular about applying the water, but never allow it to remain in the saucer. It is not difficult to produce a sickly condition of plant roots, especially bulb roots, if they must remain over-saturated.

House plants are as good as house doctors, if properly treated, but water-logged or half-rotten plants are disease-breeders, and should never be permitted to remain in the same room with human beings. The pot in which plants are grown should be cleaned inside and out, and should never be allowed to develop fungus growth, while the soil should be pure and sweet. The use of dirt taken from a half-fermented pile of compost is dangerous. It will kill your plants, and it will certainly poison yourself. Many a mysterious illness comes from carelessness about house plants. Nothing can,

however, be more valuable, from a sanitary standpoint, than a few clean, healthy, and growing plants. They use up the carbon gases, just as outdoor plants do, and they give out, for our use, oxygen and ozone.

Next to shrubs for winter decoration and enjoyment, I hold the most delightful house plants are dwarf-growing oranges, lemons, and other fruit-bearing plants. One of the best of these is the Otaheite orange, a mere bush of three feet in height, but constantly covered with oranges in all stages of growth, and with exceedingly sweet flowers. Unfortunately, this orange is worthless for eating. Still better is the American Wonder lemon, bearing a fruit four or five times the size of a common lemon, and of the highest quality for use. The flowers on this little tree, of three feet in height, are twice the size of orange blossoms, and exceedingly sweet. If confined to a single house plant, I believe I would select this one. The Krumquat orange is a beautiful small tree, of less than two feet in height, very compact and handsome in growth, bearing an edible fruit and giving us very sweet flowers. You can also grow the guava in pots, and will get from it a profusion of sweet

flowers, and very nice small, edible fruit. All of these give you not only flowers and fruit, but healthful odors, and foliage which is the perfection of shining green. The dwarf oranges hang on two or three years, so that you have flowers with green fruit and yellow fruit at the same time. Altogether, I do not know of anything that I should recommend to a farmer's wife as more available for house plants than these tropical fruits. They will endure the air of almost any room, and do not require high temperature.

After these, my choice among house plants just now turns toward fuchsias and pelargoniums. However, the real joy of growing plants is the chance of changing our tastes. "Bless the Lord," says Aunt Cynthia, "I ain't forgotten to change, and I spects to change; and when I ain't changing no more, I spects to be daid." With the pelargonium and fuchsia I need a pot of heliotrope, and I like a plenty of nasturtiums, and am then content. The pelargoniums, known as Lady Washingtons, are no longer confined to that variety, but exist in superb sorts — some of them double and others semi-double. They should be started from cuttings of ripe wood, then slowly shifted to give their first

blossoms in six or seven inch pots. In midsummer lay them flat on their sides, out of doors, under a tree. Let them sleep for two or three months, then wake them up, and shift, until they stand in twelve inch pots. They must stand in full sunshine while growing, and must be abundantly watered, if you wish to see them in their glory. I bring them into the house in September. When well grown, they should stand from three to five feet in height, and two feet in diameter. For several months you will have a gorgeous show of the richest colors — butterfly-like. I like fuchsias because they can be set a little farther back from the light, and because their blossoms are continuous — provided they are well supplied with water during growth. Another essential point is to keep the seed-pods picked off. It is absolutely necessary to bring these plants into the house in a clean condition, free from aphid and scale.

For vines in a window there are few things better than the *Hoya carnos*a, or wax-plant. This should cover a very large space, and should very rarely be shifted after it has reached a six or seven inch pot. Once in five or six years is quite often enough to change pot and

dirt. I have had them cover the whole ceiling of a small conservatory, giving two or three hundred clusters in a season. When the individual flowers drop, the flower stem must not be plucked; for out of the same stem will come the next year's flowers. The perfume is given out only at night, but then it will fill your house. It is a marvel in the way of rich, thick leafage and wax-like flowers. The morning-glories and tropæolums also are excellent vines for temporary use. They will give abundance of bloom, with little care.

A few good roses may be tried by those who have abundance of room and are careful to exterminate insects. Among the best varieties for winter bloom are Balduin, Golden Gate, La France, The Bride, Mrs. Robert Garrett, Souvenir de Wootton, Madame Hoste, Hermosa. If you care to have your geraniums blossom in the winter, you must keep them in pots, and plunge these in the ground. Cut the plants back somewhat in August, and lift them with care, keeping them for the month of October in a cool room; and in winter they must have full sunshine.

The best remedy that I know of for plant lice and most other troublesome pests, is the free use of

sulpho-tobacco soap. This is a cheap, effective, and harmless insecticide, and is as good on plants out of doors as indoors. It is a first-rate insect exterminator.

Before closing this chapter, I must not overlook a few suggestions and general hints. Arrange your annuals so as to keep up a continuance of bloom in all parts of your garden. Just at present one of my arrangements is to grow my sweet williams in rows, and far enough apart to allow rows of asters between. The asters will begin to blossom after the sweet williams are out of bloom. I assure you that we have few things finer than such a bed. Pansies will do a lot of nice work along the borders of beds, and that is the place also for mignonette and sweet alyssum. Nasturtiums I alternate with hollyhocks, besides thrusting the big seeds in almost anywhere that there is likely to be a lack of blossoms. When the hollyhocks are through blossoming, cut off the stalks, or the forming of seeds will use up vitality and kill the plants. Soon your nasturtiums will spread a carpet of glorious color and sweetness, and hide the stumps. My chief bed of nasturtiums is always on a spot that is least manured, and naturally barren. On poor soil

they run to flowers, but on good soil they run to vines. It is a proverb with me that in spring you cannot get too many daffodils, and in summer and autumn you cannot get too many nasturtiums. I occasionally indulge in stocks, and wall-flowers, and petunias, but I am writing for those who want lots of flowers without having to work too hard to get them. Snapdragons are fine for late bloom, and sweet alyssum.

Try each year one or two of the new novelties — and occasionally you will be glad that you did. You should have a dahlia craze, or canna craze, or a carnation fever about once in five years; and when you do you should do your very best with these noble plants. Begonias are even better for a cottage home. I append a list of eleven flowering begonias, which I conceive to be among the very best: *Alba picta*, *argentea guttata*, *gloire de Lorraine*, *decorus*, *dewdrop*, *vernon*, *rubra Sandersonii*, *President Carnot*, *robusta*, *hybrida multiflora*, *Bismarck*. A list of fifteen ever-blooming cannas may be of use to some of my readers. I should select as the finest that I have ever grown, *Austria*, *Alsace*, *Alphonse Bouvier*, *Charles Henderson*, *Florence Vaughn*, *Duke of*

Marlborough, Egandale, Italia, Madame Crozy, Maiden's Blush, President McKinley, Queen Charlotte, Philadelphia, Souv. de Antoine Crozy, Tarrytown. For carnations, I should certainly prefer, for a quiet home garden, to get seed of the old-fashioned clove pink — which is a carnation. You will get from this seed a thoroughly satisfactory set of plants, the flowers of which give that most delightful spicy odor, from which comes the name clove. I have nothing in my garden that I prefer to my clove carnations.

We have had a pleasant ramble together, and a chat among our flowers; there is still time for a turn in the vineyard before dinner. Grapes are delicious after smelling the lilies and enjoying friendship. We have found in reality that flowers are sown by nature everywhere over a country place. My Gladys insists upon a plot for wild asters and golden rod. These grow by themselves in a garden corner, if let alone. As your family increases, your house and your home will grow. One of the boys or girls may take to water lilies, cypripedium, cardinal flowers, fringed gentian, ferns — and so create in some shaded nook a native wild garden. Here will be a cool delight in the hot days of July

and August, under the trees, and out of publicity — a place for rustic stone seats; and we hope a brook is within hearing. Here go, of a noonday, and let the ripple of the water show you how to take your cares for better, not worse, and how to keep your work going to music.

Perhaps another one of the family will take to cross-breeding, and you will find his bed of seedling phloxes, or of seedling geraniums, or of seedlings something else, a marvel of creation; and assuredly his groups of new shrubs will be a joy forever. This is the grandest power of man — to create new things — and it ought to be a part of family life everywhere in the country.

CHAPTER ELEVEN

COME AND SEE MY CABBAGES

THE vegetable garden is not, or it need not be, less beautiful than the flower garden — certainly not less interesting. I am sure that my rows of hybrid beans, clinging to poles eight feet high, and a mass of silver-white pods, six to eight inches long, and three in circumference, have inherently the combined beauty of nature and art. A row of Savoy cabbages, with exquisitely fretted leaves and heads of solid lusciousness, is both picturesque and suggestive of winter's comfort. The old-fashioned vegetable garden included herbs and nasturtiums, and marigolds and johnny-jump-ups. Gradually these have gone, mostly over to the flower garden; and it is just as well, for there is poetry in potatoes, and lots of sentiment in Brussels sprouts and carrots. There are no sprays for your bouquets to surpass carrot leaves, and I do not recall any prettier sight than a row of blossoming

peas. As for corn, the world does not hold anything that is nobler in the way of foliage than the waving leaves and tassels of this glory of New World vegetation. Harriet Martineau, traveling through the United States in 1835, notes: "This day, I remember, we first tasted green corn, one of the most delicious of vegetables, and by some preferred to green peas. The greatest drawback is the way in which it is necessary to eat it. The cob, eight or ten inches long, is held at both ends, and, having been previously sprinkled with salt, is nibbled and sucked from end to end, till all the grains are got out. It looks awkward enough, but what is to be done? Surrendering such a vegetable from consideration of grace is not to be thought of." The Egyptians associated the onion with religious metaphysics and the hope of immortality.

The vegetable garden to be a delight must be worked with horse-power. Our fathers inherited the spade and the hoe, but there were no digging forks in those days, and the plow was made of wood. Because English gardens were spaded, New England gardens were necessarily made in the same way. Heredity is nowhere harder to overcome than in methods of land tillage. At last a



CORN, THIS GLORY OF NEW WORLD VEGETATION

fork was invented for digging, and the plow was made of steel — after which it occurred to the gardener that he could avoid most of his back-breaking work, and get better tilth, as well as more beets and turnips, by using a horse. This change of tools threw the garden open, instead of keeping it surrounded with hedges, and quite changed its character. It is now adjacent to the corn and potato fields, instead of being an adjunct of the kitchen and flower garden. The horse does the work of ten men, and does it better. The farmer does not grow stoop-shouldered, and Markham's "Man with the Hoe" becomes a slander.

In a small place of five or ten acres it will not pay you to undertake to grow all sorts of vegetables, unless you devote yourself to truck farming. There are very few gardens in New England and the Middle States, outside of the Connecticut valley and similar locations, where onions can be grown as cheaply as they can be bought. If you are crowded for room, or short of help, do not even undertake your own cabbages, while cauliflower needs special care and extra good culture. I have lately found it cheaper to buy my celery of experts. This hint is quite important, for there is a knack in

knowing what not to grow, as well as what to grow — what to drop out of culture in our gardens as well as out of our vineyards and orchards. Egg plants are much relished at my table, but I have never succeeded in growing them without so much trouble that I prefer to buy. A few peppers I would have for their beauty, even if I did not desire to use them. I do not say to an enthusiast, who has right soil and enough time, Do not undertake to grow a row of celery or a plot of onions; only this, Do not undertake it unless you have right soil and plenty of time.

The three essentials of a country garden are, in succession, sweet corn, string beans — with shell beans — and green peas. This is the trinity of table luxury. People who live in cities rarely ever taste any of these in their choicest varieties and fresh from the field. I would go to the country to live, if for nothing else, to find out what corn, peas, and beans can be at their best. They are not only the three most delicious, but the three most valuable vegetables for food. To secure them in succession, plant as early as possible in April, and then plant successively until the middle of June. Late-planted peas will almost always mildew, and corn cannot

come forward for table use if planted after the middle of June. My plan is to put in not less than four distinct strips of each of these three superb vegetables. Among the earliest corns are Cory, Metropolitan, and Minnesota — all delicious, while for later planting there is nothing to surpass Country Gentleman. However, I use my own crossbreds, secured by hybridizing black Egyptian with several of the sweetest of the white sorts.

String beans, as known in city markets, are a mussy affair, but in my judgment the very best of the varieties of our string beans constitute a vegetable very little, if any, behind sweet corn. Here also I grow only my own hybrids, of the Horticultural with the Lima. These can be had from July until November. Break down a few poles when the frost threatens, and throw over the vines straw, or hay, or matting. Occasionally lift this covering to allow a touch of the sun, and in this way you will prolong this delicious vegetable a whole month or six weeks. The Lima bean is, of course, the king of all, yet some of the crosses are very good rivals, and they are earlier, as well as later. No one in the country should remain ignorant of the great improvement that has gone on with the Lima. The

King of the Garden is far superior to the old sort, having pods twice as large, containing more and better beans. Another magnificent sort is Ford's Mammoth-Podded. It is rightly named, and yields immense crops. There are also two or three very early sorts; among these Henderson's Improved Early Leviathan is one of the best. The dwarf Limas do not suit my taste, but in many cases they ought to be grown by preference — especially where it is an object to avoid the labor of setting poles.

For a thoroughly good list of peas, for succession, select for very early, Alaska, and Gradus or Prosperity; for later, plant Hero or Heroine, with Improved Pride of the Market. The Improved Telephone is another excellent improvement, and in growth is stouter than the old Telephone. This list is simply given you as a good one, although you may make one nearly or quite as good without including any of these. As a rule, avoid both the quite dwarf and the very tall; the first because they will give very few pods, without peculiarly good culture, and the latter because they will require the expense and labor of brushing. Select those that grow about two or two and a half feet high,

and so can get on without brushing, while they will yield abundantly. The points of a prime pea are sweetness, thin skin, and prolific bearing.

Beans, peas, and corn, all alike decline to confine their service to man to their green state. Some of the best ears of your sweet corn should be trussed up for parching in winter. After parching, grind the kernels in a coffee mill, and eat with milk and sugar. It is quite equal to most of the costly cereals, and it is a very inexpensive food. Split peas should constitute a very large element in family diet, being wholesome and nutritious. As for baked beans, why speak of them to sons of New Englanders? Yet I find that very few know that dried Lima beans are, for baking, far superior to the common beans. After soaking, you may easily rub off the skins, then boil down for soup, or bake. In this state they may be eaten by invalids, the skin of the bean alone being a hindrance to digestion. A well-ordered family should make a very generous use of corn meal, of boiled or baked beans, and of boiled or baked peas. All of them can be made into puddings and pies.

If you have good, loose soil, in a limestone district, be sure to grow your own early potatoes, however

small your homestead. It is not once in five times that I can buy potatoes without they bring the flavor that comes from having been left too long in the sun, or the flavor of rancid soil. Potatoes even slightly sun-burned are bitter and poisonous. You will find it one of your country luxuries to be able to dig a pailful every morning, fresh from the soil; nor will you be long in discovering that, as with peas and beans, so with potatoes there is a vast dissimilarity in the value of different varieties. You will soon become a vegetable connoisseur. You will taste and compare potatoes as you do pears and plums, and after that you will learn also that some varieties are much more digestible than others. From this you will learn how to cook them correctly — always in their jackets. Potatoes, like apples, soon absorb bad odors, and you will learn that your potato cellar must be clean and sweet as your dining-room. There are many such things to be found out about a country home. I will not undertake a list of potatoes for you to experiment with, because new ones are sent out each year and we are liable to have at any time an improvement. I confess to a liking for a strong-flavored potato, and I do not choose them for

being like flour. Yet there is so much in the cooking of a potato that we are liable to reject the best varieties for lack of what our mothers called "drying off"—that is, steaming after cooking.

Some of us remember when tomatoes were "Love Apples," and not supposed to be eatable. The older sorts were, in fact, hardly fit for the table. The smell was very rank, and the core was hard, while the skin and seeds constituted the bulk of the fruit. But when our mothers made them into savory pies they stole a march on prejudice. "Father" said the little mother, "do you like the pie?" "To be sure," said the father, "but what is it made of?" "Apples, my dear—love apples." So we have come down the years, conquering and being conquered. We have not so many vegetable prejudices as we had one hundred years ago. A tomato trellis, half Golden Queen and half Trophy or Perfection, is a beautiful sight. The beauty goes hand in hand with comfort and pleasure when these are sliced with granulated sugar in Jersey cream.

Muskmelons can be grown successfully all through our Northern States. There are also one or two varieties of watermelon that perfect as far

north as New Hampshire and Vermont. One of these goes by several different names, such as the Italian, or the Sicilian, according to the dealer's fancy. It is yellow-fleshed, with yellow seeds, and it is a long keeper. I have eaten very good ones on Christmas day. Cole's Early is one of the varieties that will mature in nearly every state. It is a first-class melon, with flesh of a deep red color, and a thin rind, very sweet in flavor and very prolific. The melons are not large, are nearly round in shape, and dark green, with lighter stripes. The muskmelon needs rich soil, and the hills should be slightly elevated — to prevent protracted rains rotting off the vines. Whatever you may say of Little Gem, Jenny Lind, and Paul Rose, bought at a grocery store or fruit stand, they are never so fine as the home-made article. A few thoroughly good sorts for general culture are Rocky Ford, Paul Rose, Columbus, Princess, Osage, and Little Gem, with Early Hackensack and Jenny Lind for very early sorts. If you wish but three sorts, take Netted Gem, Princess, and Osage. Miller's Cream is a cross between two of the best older sorts, and if it would mature a little earlier, might be taken in place of all the rest. The flesh is of a rich salmon

color, very sweet, and melting in quality, while the meat is so thick that there is hardly room for the seeds. With me it has been only moderately productive, and rather late. A shrewd boy taught me to have my melon patch in the middle of a corn field. Here he had the attractive fruits lying all over the ground and undisturbed. It is possible that, in any other location, a moonlight night might note their departure. I do not quite understand why it has become an excusable, if not justifiable, act, to steal two things, melons and grapes.

I have deferred noting my squashes, although I hold a good squash to be nearly as fine a thing as a melon or a dish of succotash. I brought you out into this garden of mine to make your mouth water, and I think I shall succeed in doing it. But before I tell you how to raise good squashes, I must give you the key that unlocks the whole question, and will keep your place increasing in fertility, rather than running down to barrenness. Just as soon as you buy your property, I want you to begin one or more compost piles. If it is an old farm, you will find no end of decaying matter and manure lying around here and there — old

sod, old barn manure, lime or plaster, old heaps of weeds, and old everything. If you have ten acres, you will select, at convenient points, at least three places, where you will have compost piles. These should take in all I have named, and all the wood ashes and the anthracite coal ashes you can get possession of, with barn manure.

In the fall add loads of fallen leaves. Such a heap should be left undisturbed until late October or November; then comminute it thoroughly with a fork, and apply to the gardens just before the winter sets in, or in the spring, very early. A good gardener never uses raw or half-fermented manures, for the waste runs from fifty to ninety per cent.—in fact, manures applied in mid-summer, broadcast, are sometimes absolutely thrown away, with the exception of a very little humus. Compost piles, if judiciously arranged, need not mar the beauty and good taste of your property. In spring prepare around the edges beds for lettuce, radishes, spinach, and parsley. Then plant on the top, and around the sides, hills of squashes. You will, with a little care, secure magnificent growth. Pumpkins will do just as well, only they should be grown on piles separate from

the squashes. As soon as a joint is formed in the growth of the vine, cover it with dirt, so that the roots will be sent down into the pile. Bury again a little later, two, or three, or four successive joints, and then when the borer attacks the vine at the roots he can work out his own will without doing serious damage. In this way I secure most luxuriant vines, entirely covering the compost piles, and yielding a couple of barrow-loads of Hubbards and Faxons of delicious quality. Just before a heavy freeze is probable, cut squashes from the vines — never breaking the stems — handle them like eggs, and then store in a dry cellar, or, better yet, in an up-stairs room. Pumpkins which are stored in this way will be in good keeping until January, while the squashes can be had until March or April. The best varieties include the grand old Hubbard, the Faxon, the Essex, and a new sort sent out recently by J. H. Gregory Sons, of Marblehead, Mass., called the Delicious. This squash may well be described by the name. It is not large, but it is very solid and very sweet.

Cucumbers need treatment quite similar to other vines, but grow with less care than melons. My own private rule is to twist the roots a little, just

under the soil, and so save the digestion of myself and family.

Without a good asparagus bed a country home is hopelessly deficient. From experience I have come to believe that the very best sort is the *Argenteuil*, a French variety of extraordinary tenderness and great size of stalk. I have often cut it eight and ten inches in length, and tender clear to the bottom. Yet the *Palmetto* and *Conover's Colossal* and *Moore's Crossbred*, and *Columbian Mammoth White* are all of exceedingly good quality. The best method of securing good plants is to sow seed late in the fall, or early in the spring, in boxes, or in a spent hotbed, or in the open ground, in drills about one foot apart; cover the seed about one inch, and leave the plants growing about three inches apart in the row; transplant when two or three years old. I am not certain from personal experience, although I strongly suspect, that we shall do much better with this delicious vegetable if we sow where the plants are to remain, thinning out to about one foot apart. In this case I would sow the seed a little deeper, and in somewhat hollowed drills. Then, as the plants grow, I would fill up the hollowed drill, and even mound slightly.

then fill the intermediate space with the richest manure. The soil for asparagus should be very rich and very deep, but on no account should there be applied any raw manure. Apply liquid manure frequently, and salt brine very freely, then be sure the ground is kept clean and friable. It is not a bad plan to burn over an asparagus bed, with straw and rubbish, late in the fall or early in the spring.

For greens and salads we shall stand in need of a plenty of dandelions. But as these now grow almost everywhere on our farms, and appear in such quantities that we can cut all we choose, and very early in the spring, there is no need of my saying anything about their culture. An enthusiastic doctor has said that, notwithstanding the number of dandelions in the world, considering their value to human health, "God never made a dandelion too many." Among other good greens are Swiss chard, spinach, early beets, and beet tops. All these can be had in the simplest garden. A little later we can utilize pigweed, milkweed, and poke stems, all of them excellent food. In the fall we should learn to utilize and appreciate purslane. This weed is growing in favor as a succulent and delicious food. Swiss chard is seldom grown, but

I recommend it as one of the most easily cultivated and most prolific of the vegetables, to be used for salads or greens. It lives through the winter without covering, and its stalks are very much like those of rhubarb or pieplant. Most country homes may also have endive, and where there is water or a brook, watercress.

The improvement in lettuces has been remarkable for the last twenty-five years. The introduction of the curled and the black-seeded Simpson marked a long stride ahead. Then came the Hanson, which is still exceedingly popular. I do not, however, know of a single variety that is better, for those who are not professional gardeners, than the Mignonette. It is a quick grower, generally coming up of itself the second season and forming little heads about as big as your fist. It is delicious in quality. The Denver Market, and the large Boston, and the White Tennis Ball, and the Grand Rapids, are all superb sorts. One of the best for forcing is the Stonehead Golden Yellow. I grow most of my lettuces around the compost piles, where the soil becomes exceedingly rich.

Salsify, or vegetable oyster, like the onion, may perhaps be better bought than grown, yet I always

sow a little of the Sandwich Island variety, because it is so delicious for making soups in the winter. The roots should be cooked with a few pinches of codfish, and thus given very much the flavor of oysters.

No one who wishes to enjoy the country should be without a supply of that delicious vegetable, the rhubarb or pieplant. The best variety is the Linnæus, and the largest is the Mammoth. The best place to grow pieplant is in a thoroughly worked-up soil that will catch the barn drainage; in fact, it is utterly useless to undertake to do anything with this deep-rooting plant unless it has the very richest soil. I caught my cue from a German who was growing it in a corner of his barnyard. It was fenced off from the cows, and what tremendous stalks and a plenty of them! Parsley and spinach I grow by the side of my rhubarb, because these also demand rich ground and quick growth. They are of decided importance in a kitchen laboratory.

Nasturtiums constitute no mean candidate for the vegetable garden. The green seeds are fine for pickles, where these are desired. The blossoms glorify the borders for four months. I remember

that my father planted nasturtiums as borders for his onion bed, and he flanked his corn fields with hollyhocks. It was his delight to see people point at their crimson glory with their long driving whips, as they went by to market or to church. It was one of his poems — the poem of a beautiful character.

Along one side of the vegetable garden may properly be placed a strip of sage, summer savory, mints, fennel, rosemary, etc. They all like rich and mellow soil. The old-fashioned herb garden, which constituted such a feature of our mother's horticulture, is no longer needed, since we buy our ground sage and other condiments, yet a few of these old-time friends will take up little room, and will frequently serve a good purpose. Summer savory is especially fine for soups, and can be grown in any good garden soil.

I append a list of such seeds as you will find most desirable, classified according to the month for sowing. In February and March we should have a few cabbage, lettuce, parsley, pepper, radish, and tomato seeds starting in a hotbed, or in boxes. It is a good way to use up some of the tin cans that are a puzzle and a pest to get rid of. Perhaps the best

method of all is to sow in cigar boxes, which can be placed in your kitchen windows. If you intend to plant cauliflower, or celery, or eggplant, these also must be added at this time.

In March or April, just as soon as the ground is workable, sow beets, carrots, peas, early potatoes, spinach, radish, and early turnips. Put your peas in five inches deep, and see that your ground is not only well underdrained, but has good surface drainage. When dashing showers come, they should be caught at once in prepared runways, and carried off without washing the garden soil. This is especially necessary if you are cultivating a hillside. One half the compost, or fertilizer, is often carried away by a single dashing shower. Besides this, early seeds are washed out, or hopelessly buried under several inches of dirt. If you will grow your own onions, they must be sown in April. A second planting must come about two weeks after the first. A very little later I add corn and beans — that is, about the end of April — with the understanding that they may get nipped by late frosts. If they do, we must plant over again; if they don't, we gain a month in these delicious vegetables.

About the middle of May we put in our second

planting of corn, and of beans, and our third planting of peas — sowing also a few more beets and carrots, and adding the herbs. About the 25th, or when warm weather has been established, we plant our hills of melons. Around these we set boxes, eighteen inches across, and four or five inches high. Press these carefully into the soil, so that the bugs cannot crawl under, and have mosquito netting ready to spread over before the striped beetle appears. In June we are still planting our late peas and corn.

Remember that when there has been a failure in growth of seed, you can fill up the vacancies at almost any time with beets, turnips, and carrots, or you can plant potatoes as late as the last of June. Turnips and carrots may be sown in July. Young carrots are always delicious if cooked in Jersey cream, and they are among the most wholesome of our vegetables. Rutabagas must be sown as early as July. Buy your seeds and plants direct from growers. Most of the reputable seedsmen are growers of their own stock. Get into connection with a half dozen; study their catalogues, and heed carefully what they have to say. Avoid dealers that offer too many sorts, and

especially those who advertise a large number of wonderful novelties.

You must determine the size of your garden plot by experience. Some families require twice as large gardens as others. My own custom is to scatter my vegetables largely among my small fruits and orchards. Vegetables should be grown, however, not too far from the house, and should be convenient to the housewife. An excellent place is, if possible, on a slope below your barn, where the drainage from the barnyard can be retained as fertilizer, and where the liquid manure may be conveniently distributed. A site opening to the southeast is always preferable, where the plants can take the full strength of the sun, while the wind is cut off by orchard or barn or other protection. It must have rich soil and abundance of water, together with perfect drainage. The best fertilizer for most gardens is thoroughly rotted barnyard manure, after it has been composted. If stable manure is used directly from the yard, it should be hauled onto the ground just before plowing. Limestone soil will generally furnish enough phosphoric acid, and wood ashes will furnish potash, while beans and peas will increase rather than decrease the nitro-

gen. The application of compost containing a good deal of coal ashes will improve the mechanical condition of the soil.

The hotbed is a simple device which sooner or later you must have after making a home in the country. The essentials are nothing more than a long and rather narrow box, in which you secure bottom heat, and over which you place a sash of glass. Nowadays these are generally built directly upon the ground. Some of them are half in the ground, and half out. It is thought by the best horticulturists that the pit should be quite shallow, to prevent the heat being drawn from the manure into the cold earth. The heat is supplied by the fermentation of horse manure. This manure should be used when fresh, with about half the quantity of straw or litter. Pile it four or five feet high, with the top level. To hasten fermentation you may sprinkle it with hot water. Turn the heap occasionally, to secure a more uniform ferment. When this is secured build your bed for seed. The wall around this bed may be either plank or brick. It must be placed on a slope where the drainage will be perfect. Spread in the bottom a little coarse stuff, and upon this a couple of feet of manure.

Over this place a layer of leaf mold, and on top about five inches of the finest garden soil. The manure, as you place it in the pit, should be trodden in layers about six inches thick. A hotbed made with two feet of manure will soon show heat enough for seed. Care must be taken not to overheat — especially when the sun comes out suddenly. The starting plants must not be forced so as to draw them. Thoroughly sprinkle the frame at night. The top sash must, of course, slant so as to shed rain, and it should be easily raised to furnish ventilation. Close it invariably at night, to avoid chilling the plants. The size of your hotbed you can learn to adjust to your growing needs. I make quite as much use of a cold frame, which is only a hotbed without bottom heat. It is useful for starting plants in the spring, and it comes very handy for protecting roses or other tender plants in the winter.

The census tells us that there is nothing that pays better for the country than the vegetable garden. The average value of garden stuff, to the acre, in the United States, is about \$147.00, while for wheat the average is only about \$12.00 per acre, and the average for wheat, corn, oats, and hay, combined,

is less than \$8.00 per acre. Market gardening is, therefore, one of the most profitable means of earning a living from the land. However, I am writing more specifically for those who are desirous of surrounding themselves with home luxuries. A good garden for this class is absolutely a necessity. It will furnish half the food used, while the orchard and fruit garden will go far toward furnishing the other half. City dwellers can hardly comprehend the assertion that our best country vegetables, fresh from the ground, constitute the most delicious food ever placed on the table.

Most of the romance of old-time homes in the country was associated with the vegetable and herb garden. Lucky beans are still seen on watch charms, and potatoes are carried in pockets to cure rheumatism. They possibly do it quite as well as drugs in the stomach. In leap-year it is said that all the peas and beans grow the wrong way in the pod — it being women's year, and "Women do contrarious." To sleep in a bean field was thought to induce insanity. Bean soup removed freckles. The Romans thought parsley good to stifle fumes of wine. I remember an old woman who argued that a beet flowering the first year from seed im-



THE GARDEN IS THE OUT-OF-DOOR FAMILY ROOM

plied a death in the family, inside the year. Lettuce was formerly given to hot-tempered people, to help them keep cool; it probably soothed their nerves. Saffron, being yellow in its flowers, cured jaundice, and cucumbers cured hydrophobia.

Garden work is suitable for the whole family; for the old folk and the women folk, as well as for the boys and girls. It is the natural out-of-doors family room. It has something to interest every one of the household. It is full of beauty and of sweet odors; for peas, beans, and even the onions have exquisitely beautiful and delicate flowers. The symbol of the garden is the hoe — one of the tools by which we have climbed to higher things and to higher life.

CHAPTER TWELVE
OUR RIVALS—THE INSECTS

IT will not do to get a too roseate view of country life as a sort of escape from worldly anxieties and cares. There is no such thing as successful land-tillage without brains. Instead of the elbowing of city life you will get a keen competition with insects, and with a low order of vegetables — both insignificant in size, but the only real rivals that man has. The battle begins early in the spring, and continues until autumn has placed our crops in storage. Even after that we are not quite at rest, for all winter long you and I, and the birds, will be doing a good deal to destroy the homes of worms and insects.

I have seen more than one man whipped by quack, and not a few driven off their farms by potato beetles and codlin moths. In the concrete, these antagonists spoil for the farmers of the United States \$300,000,000 worth every year — that is, one-tenth of all our production. Most of this waste is

preventable. It is not impossible, by scientific methods, to double the produce of our fields and orchards. We are just waking up to the fact that ten acres, brought to their best use, are as good as one hundred acres under ordinary tillage and care. The largest leakage is from the rivalry of creatures whose lines of bread-winning cross ours. Mark you, I do not call these insects our enemies; they have no constitutional desire to injure us, they are only doing just what we are trying to do, win a living and propagate their species — multiply and possess the land. If we enter the struggle with them it will give us healthy competition, and develop character as well as secure food.

I shall not undertake a treatise on moths, cut-worms, and saw-flies, but will try to give you a helpful chapter that will carry you through the ordinary fight in garden and orchard. The snow will not have melted in the woods before we shall find need for spraying pumps and poisons. A barrel of Bordeaux Mixture is the first necessity. Give your orchard, your lawn trees, and your garden — everything but your evergreen trees and hedges — a thorough application at once. The currant worm is a product of the saw-fly, and its first eggs

will have been laid on the half-grown leaves before you will be through with the Bordeaux spraying. The larvæ must be met at once with a thorough syringing of Paris green and white hellebore. If this be applied thoroughly it will probably prevent a second brood, which would naturally occur about June first. I have used a keg, mounted on low wheels, carrying a short hose, with nozzle adapted to cast a very fine spray. This method of working will necessitate two persons, but the work can be gone over very rapidly. Those who grow only a few currant bushes can spray them with an ordinary sprinkling pail. Be sure if you do not spray, and that very promptly, your currants will be worthless. After the leaves are devoured the fruit will sour on the stems, and be unfit for any domestic purpose. Still worse will be the effect of defoliation in destroying the vitality of the bushes. They will drag out a poor life for a few years, and then die altogether.

We are not through with the saw-fly and its progeny before we must again spray our fruit trees. This should be done just before they blossom, and now with Bordeaux and arsenites. We are close upon the first appearance of the codlin moth. No

danger can occur to an apple or pear from a strong solution, but I should prefer a much weaker solution for the plum and cherry, and for peaches I should be still more cautious. For large orchards the simplest way is to drive a cart about, on which is placed a large barrel rigged with pump and hose and nozzle. For my own grounds, which do not everywhere admit a cart, I use a barrel rigged between two wheels, and having shafts for a horse. Cover your horse and harness with a large sheet or blanket, to keep them from being stained. Spraying should not be repeated after this until the petals have fallen from the apple. Just before the apples turn over on their stems another spraying may be given, and, if the work has been well done, this is sufficient; even two good applications are better than four poor ones. Most of the spraying that is done by hired professionals is worthless. No good is accomplished unless the tree is absolutely covered with fine spray. In all cases, after the first spraying, both Bordeaux and arsenites should be applied together.

Meanwhile, just after the plum blossoms fall, we have a sharp battle with the curculio — a curious beetle that we have not been able to reach ade-

quately with poison. The only successful way of dealing with him is to spread a very large sheet under the trees, and then strike the trees with a rammer, which causes the beetles to drop on the sheet. They must then be quickly seized and destroyed. They roll up their legs and pretend to be dead, but begin motion again within a few seconds. The rammer should be a stout pole, about eight feet long, with the large end very thickly padded. Holding the smaller end, ram the tree sharply, instead of striking it. What you need is a sudden jar, and not a shake. Care must, of course, be taken not to bruise the bark of the tree. It will expedite matters if your sheet is tacked at the sides to light strips of wood, and is cut up the middle half way, so as to admit the tree to the center of the cloth. This contest must be kept up for about three weeks, after which the plum crop is not only safe from the *curculio*, but from nearly all other depredations. I have found it quite easy to save a large number of stung plums by going over a tree and snipping out with the point of a pocket-knife blade the crescent that contains the egg. This must be done before the larvæ start for the center of the plum. Their progress after hatching is very

rapid, and when the stone is touched the plum falls. After this the larvæ very soon leave the plum and enter the ground. After you have finished your fight with the curculio, it therefore remains necessary to look out that the dropping plums are gathered, to prevent the larvæ from escaping.

The curculio not only attacks plums and cherries, but pears, quinces, and occasionally, when the stone fruits are scarce, it does a great deal of damage to apples. The codlin moth covers much the same field, omitting the plums. It damages fruit annually to the extent of \$30,000,000. But it must be remembered that, if this moth did not destroy a portion of the stock, we should still have trouble from over-bearing, and from glutted markets. Our rivals, in other words, do a good deal of thinning, which could, however, be better done by ourselves, if we would. No one can have observed the apple trees during a very prolific year, without being satisfied that proper thinning will not be attended to by growers.

Borers are to be fought at all seasons — especially in the apple and the quince and the peach trees. First cut around the hole smoothly with a sharp

knife, then with a flexible wire hunt out the larva and kill it; then cover the wound with wax. When all this is done, and you are sure that the tree is for the present rid of the pest, pile coal ashes around the trunk, leaving them mounded over the wound. A well-grown peach or plum tree will need half a bushel of ashes, while a bushel will not be too much for a large apple or pear tree. For quite young trees wrap each one with tarred paper, or waxed paper, six inches wide, and press it well down into the soil. The pear-tree borer works higher up, as a rule, and will be found somewhere about the limb joints. Bore him out with a flexible wire, and wax over the hole. Still another borer works occasionally in grape vines. Burn your prunings, in which the larvæ invariably develop.

Tent caterpillars and forest worms lay their eggs in belts, on young twigs, where they are glued tight and remain through the winter — to develop with the first warm suns of spring. These must be hunted out when the foliage has fallen, and all winter they can be sought for and destroyed. Whatever eggs escape your vision and hatch out worms will be quickly detected in the spring by the webs they will at once spin, and these should be burned

as fast as they appear. Fortunately for us, the forest worm very soon finds its parasitic enemies, or it would absolutely overwhelm us with its multitude. The tent caterpillar also has its insect enemies, so that it is very migratory in its appearance. Neither of these pests are generally found more than two years in succession in the same locality, at least in force. There must be no dallying with them, however, for if allowed to get well entrenched they will devour our orchards and even our lawn trees inside of two weeks. Not only is our fruit crop destroyed, but the trees are so devitalized by two years of feeding that many of them will die outright. I have seen large belts of forest trees killed by forest worms as if by fire.

Canker worms, or, as they are generally called, "measuring worms," are of two kinds, the spring-feeders and the autumn-feeders. The early sort must be shaken from the trees, and bands of tarred cotton put about the trunks to prevent their climbing up again. As a rule, our winter birds will take care of the late brood, if they are encouraged. Cut worms are not often on hand in serious numbers, but when they are wind your trees with cotton bat-

ting, after ridding them of the worms. It is also advisable for both canker worms and cut worms that we spray them with Paris green. This work must be done very promptly and very thoroughly; throwing a scattered spray that reaches half of the tree does little good.

This paragraph must deal with a trouble which I confess is most difficult to manage; I refer to the different varieties of aphides or lice that infest our fruit trees, and sometimes our lawn trees. No one has yet devised any method whereby we can completely master these insignificant creatures. The hop louse appears first on plum trees and on buckthorn hedges, early in the spring. After breeding several generations, to the great annoyance of tree growers, it turns a generation loose into the hop yards. The destruction wrought is often so great as to make picking hops not worth the while. Our remedy, so far as we have any remedy, is spraying with kerosene emulsion, or with whale oil soap, or both combined. As the leaves curl up very quickly under the influence of these parasites, it is very difficult to hit them all with spray. You must go over and over again, day after day, until you find that you are making some impression. Take a

turn with Paris green, and apply in the same way. When my buckthorn hedges are infested, I take the shears and cut off the young shoots and burn them up. The damage is worst of all on sweet cherries. Here it is sometimes so great that I go over young trees and pick off infested leaves and burn them, trusting nature to slowly overcome the damage done by the removal of the foliage. It frequently happens that new growth will soon take place, and that will not be infected. It needs a whole volume to discuss these little, but most destructive, creatures. The woolly aphid is a curious insect, and is often mistaken for a bit of cotton or vegetable floss floating in the air. It is a blistering pest when it makes its home on the bark of a tree, while another sort that works underground is one of the worst enemies of our berries, and still another of our grapes. The variety that works on raspberry roots creates galls, which soon destroy the vitality of the cane. Our only remedy is to dig up the plants and burn them.

There is one compensation which comes from some of the aphidæ; they deposit a honey dew, from which our bees make a large amount of honey. Nor is this honey an inferior product.

While the bees are at work collecting this deposit, you will find the white-faced hornet all over the infested trees, killing and eating the lice. Do not destroy one of their paper nests, because you have not a better friend in the insect kingdom. The lady-beetles, or, as the children call them, carriage bugs, are also of immense importance as aphid killers. The chief trouble in combating lice is the immense rapidity with which they multiply. Prof. Forbes estimates that a single mother can produce, in a season, nine and a half quadrillions of young.

I have sometimes thought that lice on house plants do not generally do more harm than good. Among these indoor plants they eat up and clear out of the way a lot of wretched, diseased, poison-breeding pests.

There are many sorts of scale bugs that infest our orchards and gardens. They are all exceedingly destructive, if allowed to have their way. Young trees when infested should be thoroughly swabbed with kerosene emulsion and whale oil soap. The remedy must be applied several times before the scales will be entirely eradicated. All other varieties are comparatively harmless beside the San José scale. This variety came from China

into California, where it wrought astonishing havoc. The young crawl for a while, and then settle down in vast numbers, sucking the life out of a tree. An orchard will be destroyed in a single season, and the most beautiful neighborhood will in a short time become a desert. It breeds on such trees as walnuts and willows, and on your berry plants, your lilacs, and most other shrubs, as well as on all fruit trees. All scales poison the wood, as well as suck the sap, which to some degree is true also of aphides. Besides the remedies named, we must bear in mind that a healthy tree is very much less likely to be assailed than a sickly tree, therefore keep up steady growth.

Besides these almost domesticated enemies of our peace, each year is pretty sure to develop some special insect or worm, like the pear psylla, which gave us so much trouble in 1903. Forest worms are found to come in periods of about thirty years. Different sorts of borers move across the country, sometimes westward and sometimes eastward. The remedies which I have named are, as a rule, what we need for these special visitors, only attack them promptly before they get good lodgment. Prof. Roberts, of Cornell University, says the worm

which is really at the root of our fruit industry and spoiling our country homes has not been poisoned, and cannot be punched out of existence. We have not even discussed him and found out where he hibernates; neither do we know his life history. "We could send scores of specimens from any county to the experiment stations to illustrate their blighting effects. All others combined cannot begin to do the damage that is done by ignorance. The untaught engineer lands his passenger in the morgue, but the ignorant farmer lands himself in the tenement-house or the poor-house. Ignorance is the worst worm that breeds in the country."

In the flower garden we have pests enough to vex the patience of any lover of the beautiful, yet they are mostly managed with patience and petroleum. Kerosene emulsion must be always on hand for the grower of roses. The white fly and the slug, which are sure to appear in May and early June, should be promptly met by a thorough sprinkling of weak emulsion and hellebore. If the first application proves to be too weak, try it a little stronger, but go very slow or you will blister the foliage. I am happy to say that I have no personal experience with the rose chaffer or beetle on my roses.

When they do develop they come with such rapidity and in such hordes that it is very difficult to control them. Poison will partly do the work, but hand picking must follow. Catbirds, wrens, woodpeckers, bluebirds, brown thrashers, and other birds will destroy a large percentage, and the toad helps us emphatically. Prof. Hodge, of Clark University, recommends planting spireas around our rose gardens, because the beetles will gather in this bush and can be collected readily. There are many other insects that attack our flowers, and sometimes they will create havoc. As a rule, they can be kept in control by the remedies I have named.

I append a list of formulæ for the most important fungicides and insecticides.

Bordeaux Mixture.

Copper Sulphate.....	6 lbs.
Quick or Stone Lime.....	4 lbs.
Water	45-50 gals.

Dissolve the copper sulphate in an earthen or wooden vessel with three gallons of hot water, or put in a coarse sack and suspend in a barrel partly full of water; when dissolved, slack the lime in a

separate vessel, dilute to ten or fifteen gallons, and add to the copper solution in the barrel; then fill up with water to make the 45-50 gallons. Stir frequently. For spraying peaches use two pounds of the copper sulphate, and add an excess of lime. After mixing the lime and copper sulphate the mixture must be used at once, but if you wish to be always prepared keep the solutions separate until about to use them.

Paris Green Mixture.

Paris Green.....	1 lb.
Quicklime.....	2 to 3 lbs.
Water.....	150-300 gals.

Lime must be added to a Paris green mixture, to avoid burning the foliage. Remember always to weaken the mixture when applying to peaches and plums. A common method is to apply Paris green with the Bordeaux. By doing this the Paris green will lose its caustic properties, but will be equally valuable as an insecticide.

Arsenate of Lime.

This insecticide is growing in favor, and is quite as efficient as Paris green, while it costs only one-

half as much. It will not burn the tenderest foliage when made according to the following prescription. Boil together for fifteen minutes

Water	2 gals.
Sal Soda	8 lbs.
White Arsenic	2 lbs.

When the arsenic is entirely dissolved the mixture is ready for use. Place one pint, together with two pounds of slaked lime, in a barrel of water. The value is equal to one-quarter of a pound of Paris green, and costs much less.

White hellebore and pyrethrum are generally applied in water, one ounce to three gallons of water, or they are used dry, mixed with one-fourth part of flour, to make them adhere. These poisons are used chiefly on ripening fruit, such as currants, because they lose their poisonous properties very soon after being exposed to the air.

Kerosene emulsion should always be kept on hand. It may be made by dissolving one-half pound hard soap in one gallon of boiling water; add two gallons of kerosene, and churn the mixture with a pump until it is so thoroughly mixed as to constitute a soap—that is, for about five or ten min-

utes. This emulsion is valuable at all seasons; in winter for scale insects, in summer for plant lice, thrips, etc. For use, dilute according to what you intend to spray. Two or three tablespoonfuls in a pail of water will be quite strong enough for a first application on roses, but a dilution four times this size will be none too strong when you intend to swab your scale-infested trees.

In all cases be sure to begin your work as soon as your enemy does, instead of waiting until the mischief is half done and your enemy well entrenched.

In spite of all preventives the San José scale has invaded nearly all the states of the Union. It will be advisable, therefore, to give you a formula for contending with this formidable pest. At present we have no better method of treatment than that which is called the lime, sulphur and soda mixture. While different strengths of this formula have been used, the following seems to be most satisfactory:

Sulphur	17 lbs.
Caustic Soda	3 lbs.
Lime	33 lbs.
Water	One barrel

This mixture does not need boiling. The lime and soda cause it to come to great heat—if the chemicals are pure and in good condition. The application is as simple as that of other formulæ, but care must be exercised because of its caustic nature. It is always preferable with such mixtures to repeat applications rather than make them too intense at first.

The following calendar will be found useful in every department of your country home-making:

Apple.—For fungus, apply Bordeaux when the buds are swelling, again just after the buds open, and a third time after the blossoms have fallen. Repeat later, if you have time, and consider the work is needed. For canker worm, spray with arsenites as soon as the worm shows itself, and again after ten days. For codlin moth, use arsenites, with Bordeaux Mixture, after the first application of Bordeaux.

Currant.—Use Bordeaux when the leaf is about half grown. Use arsenites or kerosene emulsion with hellebore as soon as the worms begin their work; repeat every two or three days, until they are out of sight. If a second brood occurs later, use hellebore and no Paris green.

Grape.—Treat with iron sulphate before the buds start in the spring. Use Bordeaux to prevent black rot just before blooming; repeat just after the fruit is set, and again a few weeks later. For beetles and bugs apply Paris green as soon as they appear.

Pear.—Treat as you do the apple. For blight cut off the limbs some inches below the affected part, and burn. For psylla and slug apply kerosene emulsion, quite strong, and repeatedly, or whale-oil soap, one pound to ten gallons of water. If the scab appears on the pear or apple apply Bordeaux repeatedly.

Plum.—Use Bordeaux before the buds open, and again after the fruit is set, repeating occasionally. If leaf blight occurs, Bordeaux again. Cut away black knot, and apply Bordeaux.

Cherry.—Cut away black knot and burn it. Apply arsenites for slugs, and treat aphids with hellebore; try also kerosene emulsion. Repeat the application every ten days, or oftener.

Potato.—For blight use Bordeaux when the vines are six inches high; repeat every two or three weeks. To prevent potato scab do not plant any scabby seed, and soak uncut seed potatoes one hour

and a half in a solution of corrosive sublimate — one ounce to eight gallons of water. For potato beetle apply arsenites as soon as the beetles or the slugs appear. Bordeaux and arsenites can be applied together.

In the Berry Garden.—Spray everything with Bordeaux very early in the season; repeat once or twice through the early part of the season. For orange rust dig up and burn the plants. For root gall dig up and burn.

Beans.—As soon as the first leaves expand apply Bordeaux to prevent the development of rust; repeat after blossoming, and afterward at intervals.

Remember that Bordeaux is your remedy against all forms of mildew, rust, and blight. It can be used quite freely in your vegetable garden as well as in your fruit garden.

House Plants.—For insects on house plants I have suggested a spray of suds from sulpho-tobacco soap. Tobacco water is also useful, made by boiling tobacco stems and straining the liquid. Add water to make two gallons of liquid for every pound of stems used. The mixture will be made more

efficient by stirring in one pound of whale-oil soap to every fifty gallons.

These formulæ will be very helpful, and absolutely essential to beginners, but there will be, I assure you, room enough for the application of individual judgment and experimentation. Every orchard offers conditions that modify treatment; so does each year—1902 held through the whole summer an excess of moisture, and, as a result, lime was absorbed by the atmosphere, and the ordinary mixtures for spraying that are generally safe burned the trees. Immense damage was done throughout the whole apple belt, but especially in New York State. Under similar conditions more lime must be added to your formulæ. It has been found by our best horticulturists that not one of the remedies or preventives suggested will work with precisely the same results in all orchards. The age and the vigor of trees must be considered. In a young orchard scales and aphidæ have so much nourishment that not one young one fails to thrive. In this case spraying will have to be repeated more frequently than in an old orchard, where a large proportion of the insects fail at birth.

I have not given space to a discussion of the oil remedy, because there is so much danger of serious damage being done by amateur workmen. If, however, you care to experiment with crude petroleum to destroy scale insects or aphides, I advise you not to use a stronger than twenty-five per cent. mixture. In peach orchards I should use it with still greater caution. Pure crude petroleum was for a while recommended to be used in very fine spray, but a vast amount of damage was done.

I shall not pass away from this discussion of insecticides, involving a free use of arsenical mixtures, without warning you that these poisons cannot be used without more or less danger. Some of us cannot handle or come in contact at all with these spraying materials without serious injury. A great deal too much arsenic is used in potato fields, and elsewhere. The storing of it is often very careless. Arsenic, even when used in the form of spray, and blown about by the wind, is not inhaled by the lungs with impunity. I give you, therefore, a word of sharp caution in the handling of this poison and its application.

A large number of insects are very migratory in their habits. They are always coming and they

are always going. The May beetle comes in large numbers only once in three years. His approach is heralded by the very large increase of moles that feed on the larvæ. Those that emerge feed, for a few days, on our trees that are late in leafing out — such as the butternut and the scarlet oak and the ash. It is nearly impossible to successfully contend with this rapid feeder.

Since the discovery that mosquitoes carry some of the most dangerous bacteria, and are the medium whereby many destructive fevers are spread, it becomes essential to enter seriously into a campaign against this insect. The most available material for combating the mosquito is crude or refined petroleum, sprayed over those pools and puddles where mosquitoes breed. This should cover those road pools and marshy spots which lie at quite a distance from our houses. The application must be made sufficiently often to make sure that we have destroyed the larvæ in the water. Be sure that your cesspools are treated, and if you are careless enough to have slop holes near your kitchen door let them be thoroughly disinfected. In this way malaria can be absolutely abolished from a neighborhood, while we shall go very far to prevent

typhoid fever. The fly nuisance can be greatly reduced by spraying barn walls and even house walls. The house fly is the more common agent in spreading typhoid fever. It breeds in manure piles, and these should be disinfected, if allowed to remain at all about the house or the barn.

Science is placing our relation to the pests of life in a new light. It seems now to be certain that we shall be able to master all those ills which we used to class under the head of Providences. It becomes a social and moral duty to do our full share in suppressing the foes of health. Any animal that breeds disease, or carries it, fails to have any claim on our good will. Science has no nobler end than this practical one of destroying the sources of contagion and infection. A country home that, by defective sewerage, or by slop holes, or by sloughs, or puddles of standing water, affords breeding places for social plagues, is a nuisance. We can, with so little difficulty, prevent the mosquito from propagating on our property, that if we do not we justly deserve the punishment that nature metes out, in the way of fevers and lingering misery. Fill up your mud holes, clean out your stagnant pools, drain your swampy acres, empty

out your old cistern water, and freely spray everything with kerosene until it is uninhabitable by insects. Coöperative destruction of dangerous pests will be our final resort. In Denmark a National Commission stands in charge of such work. Besides the use of a national appropriation, the larger cities also raise subscriptions to aid the work. The destruction of mosquitoes must become, in this way, a neighborhood and a national affair.

CHAPTER THIRTEEN

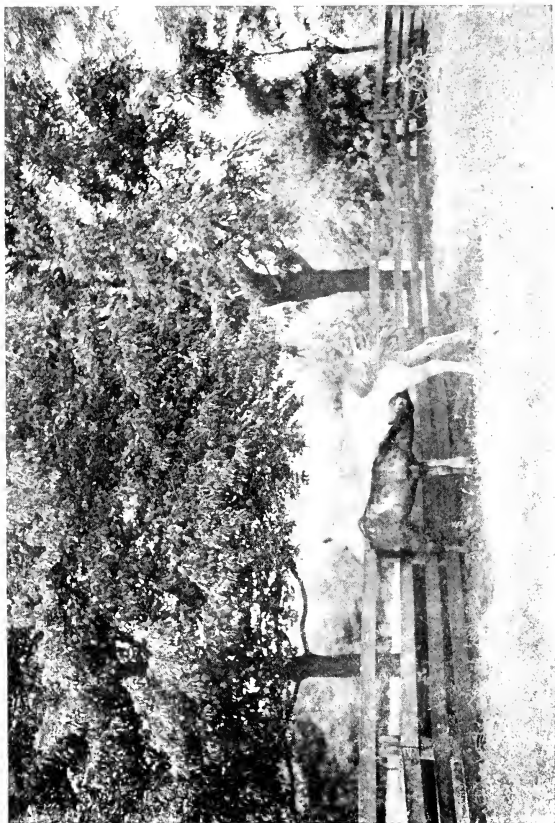
SECURING OUR ALLIES

NOTHING is more certain than that man could not exist in the country alone; perhaps he can in the city. We began our civilization by securing the aid of the camel, the ox, the reindeer, and the dog; and by and by the horse became our noblest servant and companion. Our food, our safety, our poetry, are largely dependent on association with these humble friends. Only a degenerate supposes that he can live with his gun, in defiance of all other creatures. Earlier races were ready to recognize their dependence upon animal friends. The Aino, who represents the age of the cave-dweller, apologizes to a dead bear that he has killed —“only from necessity, and not from love of killing.” “Oh, bear! forgive me! and believe me not to be a man of evil mind! I send you ahead to spirit hunting ground! I pray you to be my friend there, as you have been here!” This touch of sympathy with

animal life is a saving charm of barbarism. Every race has manifested affection for something, horses, or dogs, or, it may be, domesticated birds. Our complex civilization is possible only as we apprehend the unity of all life and the interdependence of all living things.

Animal sympathy not only ministers to our successful management of a country home, but to the management of ourselves. It broadens our work to a larger number of individualities. Man with his gun and a brute-force soul creates only discord; and woman, wearing the wings of her allies, compels the birds to hide in the woods. With such people the cow will grow shy, and the horse will degenerate into an unwilling slave. On the other hand, what can be more wonderful than a country folkhold where the horse draws the load of him who feeds him; where the cow gives milk and adds to his bank account; where the dog guards his property and the birds devour his enemies.

The interdependence in country life was not originated by man, although he has readjusted the relations of creatures in every direction. When a hawk has harried a robin's nest, I have seen birds of half a dozen species join to chase the marauder



OUR NOBLEST SERVANT AND COMPANION

through the skies. It is not uncommon to find strong friendships growing up among our domestic animals. A Morgan mare in my stables became so deeply interested in a Leicester sheep that she would share her hay and provender with evident pleasure. Billy would jump into an adjacent manger, and with common sense take no more than his half. Each one would pull a mouthful from the hay, and then draw back to give the other a chance. It is altogether misleading to talk of the struggle for existence as a principle covering all that is going on throughout animate nature. The spirit of mutual aid is quite as general as the struggle for existence.

Our highest moral life is reached in that altruism which makes our responsibility broad enough to secure the happiness of inferior animals. This duty widens into religion, when we recognize the fact that we are children of God only as we are divinely good and coöperators with the Creator. This cooperation gets to be a very important part of human evolution. We have to learn, above all, to distinguish those creatures that can be made compeers, assistants, or collateral workers. The whole of human history contains no fact more re-

markable than the domestication of animals — animals plucked out of wildness, and in most cases ferocity, and made members of our households.

The collie dog is perhaps the nearest to a reasoning being that we have developed, yet he comes directly from the wolf. My collie talks to me, and, while it is not English, it is a cosmopolitan speech that embraces the better part of English. She knows my needs, comprehends the boundaries of my property, can distinguish our animals from others, and is possessed of a sense of responsibility for their welfare. More than this, she comprehends many things that I do not. At seven o'clock exactly, without waiting for the clock to strike the hour, she starts to see if our workmen are all on time. If all is right she wags her tail, and turns away to other dog-duties. Her observing faculties have reached the highest development, apparently under Pestalozzian influence somewhere. She observes not only with the nicest accuracy, but she draws conclusions with a certainty that is human, or more than human. She has brought along the sharp-witted outlook of her wolf progenitors, but education has biased all this into lines of protective good-will. It is a case of conversion from malevo-

lence — giving the collie a conscience and a dog religion. With her quick, discerning wit, she is also absolutely fearless — when right. Unless beaten into cowardice, a collie will never hesitate to defend home and friends, or whatever is placed in her charge. The last thing at night is to make sure that Lilah is indoors, where, with full range of the house, she constitutes the best possible burglar-alarm and defense. Every motion of the beautiful creature is a word. Those who claim to own animals should at least understand animal speech, most of which is not yet differentiated from the tail to the tongue.

In Brussels the dog does a very large part of manual labor, together with the women. A recent writer says: "We saw a young girl of eighteen harnessed to a cart between two great dogs. They all seemed happy, and the woman was apparently a free agent, for when together they had pulled the cart into a favorable position, she got out of the harness, bade the dogs lie down, and began to cry her vegetables. We also saw men harnessed to carts with dogs, but there were more women. We saw dogs harnessed between shafts like horses, others in traces underneath the carts, and others

tandem. They pulled great loads, and I did not see a single balky dog; in fact, they evidently enjoyed their work as much as those who pulled and worked with them. One big dog barked all the time, and beat the ground with his paw while he was being loaded, so anxious was he to be off. These dogs are probably far happier than the useless or the pampered dogs of our own country."

You say, "But we are going into the country, as much as anything else, so that we can keep our own cow. I long once more to taste real milk, and to have all the golden cream that we can have — free of cost — placed on the table." To be sure; and if you really knew what passes for milk in the city, after it has become charged with bacteria, you would never know how to get on without your own cow. Yet, after all, the possession of a cow does not imply, for a certainty, that you will know what to do with such a creature. Returning to country life, I found that I must either get a new sort of man to do my milking, or must do the milking myself — and I accepted the latter alternative. Why not milk your own cow? Why not spend half an hour in the morning in the stables, to see that everything is cleanly and that justice rules. In Hol-

land and in England, where the women care for the kine, very little is known of the monstrous filth that constitutes the stable and the barnyard of many American cows. In Michigan I came upon Quaker homesteads where the law of love governed the barn as well as the house. The cows apprehended this, and showed their appreciation. The milk that reached the pantry from such a barnyard was untainted. It is no disgrace for a woman to milk and care for a cow, or to harness, drive, or ride a horse. A Yankee thoroughbred race will some day be developed in our country that can do all this, and will have very little capacity for that frivolous education which passes for "accomplishments."

The best breed of cow you will have to determine for yourself. For a good-sized family, in need of a large amount of milk, the Holstein is unsurpassed. If you are a retired couple, out of whose nest the birds have flown, a creamy Jersey will delight you. In my judgment there is no cow that combines so many good qualities as the Ayrshire, but I have never been able to find an Ayrshire that was not frisky and generally mischievous. From Scotch ancestry, they have inherited the capacity to climb steep places, and I have seen them walking

up-stairs into a haymow. They are, however, so intelligent that if you have about them just the right sort of human friends, you will convince them that common sense and common honesty are good policy. The last Ayrshire that I owned enjoyed nothing so well as to scrape a whole row of hens off the roost with her horns, and then whirl around to me with, "Say, wasn't that well done?" It is a breed that can almost talk, and, for that matter, laugh. But, whatever the breed, I wish for a cow that I can sit down on when she is quietly chewing her cud in the yard; can pat and play with — a cow that is appreciative and responsive to kindness.

As for a horse, it is part of a well-organized family, even yet — in spite of the trolley, the bicycle, and the automobile. There is in most human beings a natural horse sympathy that I cannot quite account for. The cow is despised as a "board-faced animal," while the horse is reckoned upon as the very model of animal allies. Part of this sentiment is to be accounted for on the basis of our own approach toward horse sentiment, rather than an education of the horse to human sentiment. But if you find it possible to be the owner

of a Morgan mare, it will excuse you for going at least half the way in friendship. My Morgan was so near human that she saved for me life and limb more than once. Going up a very steep hill in the country, the shaft broke off sharp, and the buggy, containing myself, my wife, and babe, would have been easily precipitated into a gulch thirty feet below. But my noble horse immediately braced herself, turning her head about full of interrogation, and held everything with the intelligence of a human being. Indeed, no person could have more fully coöperated in getting that broken buggy to the top of the hill, where we could temporarily repair it. On another occasion, while driving in a crowded city street, the whiffletree broke loose. Instead of running or kicking, my inarticulate friend instantly stopped and exercised her reason in assisting me to prevent serious damage. However, most of you will not be able to own a Morgan. You will have to get along with a plain, everyday sort of horse. But mark you, to a certainty, every time kindness will pay. Talk with your horse as if she understood, and she will understand. Talk with all your animals, and you will be astounded to find how very much better you will be able to coöper-

ate than when you swear, scream, kick, and act generally like a fool.

A rural free delivery carrier, while making his rounds, got stuck in a huge drift. Alighting from his carriage to examine the situation, his horse gave a great leap, broke the harness, and dashed into the open road. He soon disappeared, leaving the carrier and the broken vehicle. Taking his mail bag on his shoulder, the carrier started to find the next house. He had gone but a little way, when he saw his horse coming back again, with two men. He had dashed up to their door, calling loudly, and then started back up the road. He did this until they would follow, and then he led them to the drift where the carrier was floundering and exhausted. Treat a horse as human, always and everywhere, and you will be surprised to find how fully he will enter into intelligent partnership. Bishop Whipple tells us that he was obliged, during his Sioux Mission, to make a drive of thirty miles with the mercury thirty-six below zero, and in the teeth of a severe storm. He found the trail completely obliterated, while a blizzard raged through a starless night. He finally curled himself under the buffalo robes, leaving all to his horses. One of

these, a cousin of the celebrated Patchin, suddenly stopped. The Bishop jumped from the sleigh and could distinguish a short strip of Indian trail. Bashaw followed it, and when his mate was inclined to turn out, he put his teeth into his neck and forced him to obey. "When at last we reached the Agency," says the Bishop, "Bashaw turned his great eyes upon me, and said with a whinny as plainly as with words, we are all right now, master. He was my friend and companion for over fifty thousand miles, always full of spirit, and gentle as a girl. He saved my life many times when lost on the prairies. In summer's heat and winter's storm he was always patient, hopeful, cheerful, and loved by every one that knew him."

I can hardly refuse myself the pleasure of copious illustrations of the capacity of an honorably treated horse to coöperate in many of the occupations and purposes of a country home. I have known of more than one horse allowed to go on errands which involved rational understanding. One, a devotedly trusty animal, took its master's children two miles to a school-house each morning, and then returned to his home without accident or loss of time. Being harnessed again at night, he

started alone for the children, and brought his charges safely home.

But say what we may of high-bred dogs and horses, of Jersey and Ayrshire cows, incontrovertibly most important to our prosperity are the birds. I cannot understand why country folk are so generally dull on this subject. In a general way they do like birds, and for some unexplainable reason they especially like the robin, but they know very little of the work of the various families, and the nature of the various birds that inhabit, with them, their homesteads, and they appreciate very imperfectly their service. We could afford to pay the birds high toll for their music alone, but such music is of a scale far too refined for the boor. Nor can such a man see that the helpers, who make the world habitable for us, must have compensative protection and food. The first duty of one who goes countryward for a home is to form an alliance with just as many tribes of useful birds as possible. You will not be able to understand them until you have made a careful study of the laws which govern their communities and their individual lives. They come back to us in the spring in great flocks, and from one town center they divide into groups or

tribes, and then into families. These families then resort to the same places where their lives were spent during previous years — unless there is a general agreement that there is good reason for a change. Most of these birds are very methodical, both in coming and going. Swifts get to Central New York on or about the 24th of April; catbirds about the fifth of May. Their times for departure are just as accurate, showing that their social life, in tribes and peoples, is as coöperative as with us. With their arrival in the spring begin work and music, love and family coöperation. Bird home life is a model life. If you have obligations, responsibilities, duties, especially of a home sort, do not worry, but sing. And what a tremendous amount of work these birds of ours accomplish during their three or four months' stay with us! The rearing of a bird family requires incessant labor and incessant watchfulness.

A recent writer says, "We are learning that success in horticulture and agriculture depends on a good understanding of the birds." The robin, the catbird, the song sparrow, the grosbeaks, and most of the thrushes destroy vast quantities of insects, while the goldfinches and other seed-eaters

are of great use in destroying the seeds of noxious weeds, and the swift and the nighthawks sweep the air of insect pests. Bird culture should mean a systematic effort to encourage the approach of wild birds, and the domestication of all useful birds — involving the supply of shelter and abundance of food. This, after all, is not so difficult a matter. They take our berries and cherries because they have nothing else to eat. When we have learned to count them into our families, and to provide for their sustenance, as we do for our cows and hens, we shall find that the birds do little harm to our gardens.

I treasure the memory of a father who used to graft choice cherries into the wild choke cherries, “to give the birds better food, and what they like.” I have a Tartarian honeysuckle hedge, and just as my raspberries ripen this hedge is covered with bushels of berries that the birds pronounce very fine. They prefer these to the raspberries that perch among the thorns. So I find that I am cultivating birds and honeysuckles at the same time. Gradually they have come to consider the hedge their own, and I am soundly scolded if I approach their feasts with any appearance

of meddling. The high-bush cranberry delights the pine grosbeaks and cedar birds in winter. It is delightful to see this winter robin — the superb red-necked grosbeak — a whole flock at a time, like fire on the snow. They sing like Jenny Lind, and they talk like the Autocrat of the Breakfast Table. Mr. Forbush, of Massachusetts, says, “Note that the mulberry trees, which ripen their berries in June, are a protection to the cultivated cherries, because they ripen somewhat earlier.” Prof. Beal, of Michigan Agricultural College, names as protective of strawberries and cherries the Russian mulberry and the shadberry; and to protect raspberries and blackberries he would add the elderberry and the choke cherry. In September and October, birds that would meddle with the peaches and grapes can be fed on the wild black cherry and the Virginia creeper. As winter food for the birds, besides the viburnums, which I have named, we can supply bittersweet, pokeberry, bayberry, hackberry, dogwoods, and mountain-ash berries. For these will come together warblers, vireos, and cuckoos.

I have an idea that we can not only draw a great many more birds in summer to nest about us, but

can absolutely revolutionize bird life during the winter. Many of these little friends can easily enough endure the cold; and, in fact, no winter passes without a few robins and some others of our common birds are left behind by the flocks that go southward. Other sorts change their color, and stay with us as snow birds. I find no difficulty during the winter in gathering about my house a large number of nuthatches, chickadees, purple finches, and woodpeckers, by tying bones to the trees with a plenty of meat, and pieces of suet. Mrs. Davenport, of Vermont, adds to this list of birds, juncos, linnets, song sparrows, robins, blue jays and even orioles. All of these she feeds with hemp seed, cracked corn, sunflower seed, bread crumbs, and especially with bread made of one-third wheat and two-thirds Indian meal. She puts up a window shelf, protected by an awning, on which she places the food, and so has the advantage of being able to enjoy the birds while they enjoy her gifts. This problem is not one of sentiment only, but of practical domestic economy. Not only all summer are the birds destroying our worst enemies — the only ones that we cannot alone compete with — but all winter they are hunt-

ing everywhere for the eggs that are hidden away under the bark, and for borers that are in the trees. The poetry of life always has a practical side to it, and most practical affairs, rightly worked out, are full of poetry.

Mr. Henry Oldys, biologist of the Geological Survey, speaks of birds as national property. He says, "Let the farmer remember that every bird destroyed, and particularly every nest robbed, is equivalent to a definite increase in insects with which he already has to struggle, and he will soon appreciate the fact that he has a personal interest, and a strong one, in the preservation of the birds. Robert Kennicott, a most careful and reliable observer, ascertained that a single pair of house wrens carried to their young about one thousand insects in a day. At this rate a young brood of wrens destroys, before leaving the nest, as many as ten thousand insects. According to the usual proportion, in the food of these birds, about six thousand of these insects are such as devastate crops.

A home where robins, bluebirds, humming birds, wrens, chipping sparrows, catbirds, and orioles form an animated and friendly throng on bush and tree and sunny lawn, or pour their notes

from familiar points, and where roses, honey-suckle, violets, jasmine, spirea, and morning-glories abound, and fill the scene with beauty, while fragrance floats in at the open windows, is far more attractive, and at the same time of greater commercial value, than one that is bare of flowers and silent of birds. "Birds will return year after year to the same spot, to build their nests and rear their young, and when some spring fails to bring the bluebird to the apple tree or the oriole to the elm, it is perhaps because lax laws and untrained characters somewhere to the southward have destroyed the life that was a part of our farmstead. Strengthening the law and developing a love for nature will prevent such losses."

When I cover my cherry trees with mosquito netting, I always leave a few uncovered for the birds. We have had a talk about it, and they say — which is reasonable — that when folk live by the Golden Rule they will set cherries all along the lines of old fences, and in the pasture lots, so that there will be enough for everybody everywhere, and what the birds take will not be noticed. I believe that they are right; for when my berry gardens grew away from a small beginning to fields

that yielded hundreds of bushels, the birds also greatly increased, but what they took was no longer missed. I presume they do not get less than five per cent. of the crop. That is about half what I owe them for music alone. I shall always remain a debtor to my catbirds more particularly, and to all other bird visitors. I believe I will leave two more cherry trees uncovered hereafter.

The bee is another factor of importance in country life. I do not say that every family should, or must have, half a dozen hives of bees, but I believe the number of swarms should average half a dozen to all the households of the community. This is partly for the sake of food — one of the most delicious and concentrated of all foods — but still more to secure the aid of our little friends in pollenizing fruit. There are many apples, pears, and other fruits, as we have already seen, that cannot pollenize themselves sufficiently, and some of them not at all. This is a provision of nature to prevent uniformity and to secure evolution. Different varieties must be brought together in marriage, in order to unite their good qualities in children.

The common brown honey bee is from Germany. The Italian bees have yellow abdominal bands, and

are said by some to be gentler to handle. They are at least better housekeepers in the way of debarring moths, while they cap their combs more perfectly. The Carnoleans, and Cyprians or Syrians complete the list of our domestic bees, and they have the best honey record. They are harmless when not molested, but act like hornets when disturbed at their homes. What we still need is a longer-tongued bee, able to extract honey from red clover and from flowers that the ordinary bee cannot probe.

Besides the honey bee we have five thousand varieties of bees, including bumble bees, carpenter bees, burrowing bees, cuckoo bees, and potter bees — all of them useful, although some of them do more or less mischief as well. The bumble bee does us no harm, and is especially valuable for cross-fertilizing clover. Among all of the bees not one is more interesting than the hornet. I have elsewhere spoken of his service in destroying the aphidæ. The queen alone lives through the winter, by crawling into some warm corner, possibly into your garret. In the spring she begins to make paper, and starts a house. The first eggs produce a brood of small workers that aid in house building; the next brood is of larger workers, and in the

early autumn a generation of males and females is produced. A good observer says, "I would rather have a colony of hornets in my orchard when it is infested with slugs, than to have the same number of barrels of London purple sprayed on my trees." They work hard all day, picking lice or slugs from the trees, which they devour or carry to their young.

If all bees visited, indiscriminately, every sort of flower, it would happen that the pollen from one species would be carried to a wholly different species, where it would be useless. It is desirable that each kind of bee visit one particular kind of plant, or at least a few kinds. This proves to be the case, for there are many bees that never visit more than one sort of flowers. As the number of species of flowers is very great, it is not surprising that there are many kinds of bees. In many instances the mouth part of the bee is nicely suited to the flowers they select. Certain kinds, with very long tongues, suck nectar from long, tubular flowers, such as the yellow-flowered currant, while others, with short tongues, make use of shallow flowers. There are already reported nearly two thousand different species of wild bees in North

America, and it is thought that the discovery and description has hardly begun.

With modern appliances the management of our honey bees is not difficult. The head is covered with a broad shield, and the hands with gloves that are tied about the wrist. A little smoke of punky wood is puffed into the hive, and the supers that are filled with honey are easily removed. Swarms are gathered and hived with the same protection. In all cases promptness and decision are necessary, without nervous movements. The Falconer hive is one of the best, as it allows of the easy removal of the filled supers. When these are removed, others should be placed in their stead at once. My impression is that, with ordinary care, the amount of honey taken from twenty swarms in a single year will hardly exceed five hundred pounds — it should certainly reach that point. A portion of this will be brown or yellow honey, and not marketable. Very little of it will be unsuitable for home consumption. As freezing weather approaches, cushions of dry leaves or chopped straw are placed in the tops of the hives, and the bees winter on their out-of-door stands quite safely. In the spring it is often necessary to feed the weaker hives. This

can be done with the waste or inferior honey, or with sugar.

There is hardly a single hopeless pest among the animals that you are likely to meet with in your new country home. One of the few is the English sparrow, a bird that has no redeeming qualities to make his mischief endurable. He feeds almost altogether on grain or fruit, destroying insects only when he must. He should be driven from every reputable homestead, as he can be by persistent antagonism and by making it comfortable for other sorts of birds. The crow kills a few mice without doubt, but he eats young robins. I allowed a tame crow to hop around my house for a few days. He stole everything that he could carry off, and one morning there were bird feathers outside the door. He had raided one of my catbird nests early in the morning. This led to a prompt remedy. Black-birds are such inveterate corn-pullers, and so much disliked by pet birds, that they also are left out of my commune.

I am sorry that to this list of hopeless outcasts I must add the red squirrel. If one appears during nesting time in my trees, the whole lawn is in a flutter of excitement. They eat young birds

and eggs, besides boring holes in our roofs, to nest in our attics.

I am puzzled whether to exclude the cat as the most malign and mischievous of all creatures, or to admit her to our country family as the most benign, helpful, and lovable of all animals, really fit to be a household deity, as she was in Egypt. Boxer is surely a very useful fellow, clearing the house of mice and the barn of rats. There is a certain poise and dignity about this animal, and a masterly bearing, if we can only keep him within his appropriate limits. He guards my oat bin and my storage rooms admirably. I could sing his praises cheerfully, for he really has also an affection for me — nearly all animals take to me, and the rest take after me. But in bird season Boxer invariably goes into a huge warren, ten feet square, which he is compelled to use for his palace during the summer — that is, through the whole of the bird-nesting period. In September he has once more his freedom to range the property. In no other possible way can I prevent the demolition of my catbird and robin nests and the slaughter of the innocents. He does not like confinement; but, then, he has room and shelter, with plenty of food, and comes out

fat as a winter woodchuck. In another huge cage is shut all summer another large, yellow cat — Li Hung Chang; but I believe the birds call him The Foreign Devil. You should hear the catbirds jaw him; and once in a while they take advantage of his captivity to perch over the cage and jeer at him. I have seven or eight nests of this favorite bird, and when they concentrate vituperation on any creature it is awful; it is probably profane. On the whole, we cannot get along very well in the country without pussy, although it is very difficult in bird time to get on with him. For intelligence, inside certain limits, the cat is certainly a very marvelous creature, but he is always a relative of the tiger. There are noble cats — almost honest cats, and there are cats that deserve all the execration of man and bird. Prof. Hodge insists that these pets of ours are destroying at least nine-tenths of the most beneficial birds that undertake to nest about our homes.

If I were writing for city readers, I should say, try to get along without cats altogether. It will never be possible to create a bird paradise into which this animal may be admitted. Within a few years, however, by adopting the plan I have sug-

gested, that is, of shutting up my cats during the whole of the bird-nesting season, I am not only multiplying the more common birds, but am winning to me the grosbeaks, indigo birds, scarlet tanagers, wood thrushes, song sparrows, and others that rarely draw near our houses; and all these, domesticating themselves about my house, my berry fields and my barns, are making of them a sort of Garden of Eden. At the same time I am reaping a benefit in all ways quite equal to that given to the birds. Joining our forces, we are able to absolutely exclude the English sparrow. He has given up all attempts to cross our boundary line.

In some of the French villages boards are set up with the following inscriptions:

“*Hedgehog*: Lives upon mice, snails, and wire-worms — animals injurious to vegetation. Don't kill a hedgehog.

“*Toad*: Helps agriculture; destroys twenty to thirty insects hourly. Don't kill a toad.

“*Cockchafer and its Larvæ*: Deadly enemies to the farmers; lays seventy to one hundred eggs. Kill the cockchafer.

“*Birds*: Each Department of France loses yearly

many millions of francs through the injury done by insects. Don't kill the birds."

There is a good lesson in these bulletins, and it was not a bad idea for the government to undertake this sort of instruction. Some one has recently discovered that there is no watch dog equal to a peacock as a guardian against thieves and marauders. Perched on the roof of an outbuilding or an arbor, this bird will announce in shrill notes, that can be heard half a mile away, the presence of suspicious-looking strangers. Their eyes are always open, and they have the ability to see at almost any angle. I am glad that we can find a good excuse for allowing these beautiful creatures to strut about our lawns — an excuse beyond that of mere ornament.

This book invites you out of the city, not to a mere home among the trees and flowers, but to a new and higher social order — a coöperation more complete than was ever before possible between men, creatures, and things. The drift toward concentered life was needful to accumulate capital. The new swing of population is carrying this capital outward, to a more equable distribution.

Electrical energy at the same time meets the modern sciences, to enable us to apply them to land culture. We are enabled, as never before, to study living nature about us. We must bear in mind that as we have not reached the end of evolution, neither have our companions. If we do not have all the birds we want, it is because we do not know enough about rearing them or protecting them. No one has yet produced the most beautiful rose, or the most delicious peach, or the most useful bird, or the noblest man, or anything else that the world is capable of yielding. "By proper care we can have a world full, not only of such birds as we have now, but of birds with sweeter song and more beautiful plumage. In presence of these infinite possibilities for good or for ill, we must above all remember that every human action tends to make the world a garden or a desert — a paradise of joy and beauty or a vale of tears." John Burroughs says that to produce and multiply endlessly, without ever reaching the last possibility of excellence, is the law of nature.



A HOME AMONG TREES AND FLOWERS

*Farewell, farewell! but this I tell
To thee, thou Wedding Guest —
He prayeth well who loveth well
Both man and bird and beast.
He prayeth best who loveth best
All things both great and small;
For the dear God who loveth us,
He made and loveth all.*

CHAPTER FOURTEEN

CULTIVATING THE BEAUTIFUL

SOME one says that cleanliness is next to Godliness; we may go farther, and say it is Godliness. There is no possible excuse for unsightly or unseemly conditions in the country. We have come out of the city to command our conditions, and can command them. But we cannot do this if we ourselves are untrained and uncouth. A man cannot make his garden anything more beautiful than his own soul. And that is just what you want to consider, that nasty slop holes and old brush piles and stinking cellars and unshapely yards are just *yourself*. What you *are* you will *do*. So you will first have to think finely, and to will finely. Then the effort to create a noble place will react to ennoble yourself. Your handsome lawn means that you can think handsomely; your clean orchards and gardens mean that you can feel purely. John Ruskin says that the same laws underlie spiritual beauty

that are associated with physical beauty. He names them as purity — a type of divine energy; as unity — a type of divine comprehensiveness; repose — a type of divine law. These principles are found in all beauty, from that of the lily to the character of Jesus. A notable preacher says, “It is not mere luxury which seeks for the beautiful. The man who scorns this side of life is like one who has lost an ear or an eye, and ridicules people who have the full use of all their senses. The attention which the people give to the development of the beautiful is one of the tests of civilization. The hunger of the eye may be as real as that of the mouth. The poet sees an ideal world, and he sees it from the standpoint of the beautiful. The greatest artist that this country has ever produced was a landscape architect, Frederick Law Olmsted. The man who can aid nature in doing her best, who can take the forms of the trees and the shrubs, the delicate shading of colors, the texture of the leaves, the outline of the landscape, and blend all into a harmonious and beautiful picture, is a master.” Every town and village should have such a man at its command, if possible.

This love of the beautiful and the effort to create

the beautiful is, or should be, associated invariably with country work and country home-making. Here are a couple of letters. One of them has laid in my drawer for a good while, and has led to some exchange of plans.

“DEAR SIR:—I am somewhere between twenty and thirty — no matter about exact dates; but I am at home with father and mother. The latter loves flowers, and so do I. She has hungered for them all her married life, but what she gets she gets herself, and plants with my help. Now I want to induce father to see that he is living a too narrow life. He thinks, and says, that he has no time for the ornamental. He is not rich, but he is well-to-do, and he can afford to spend on refinements. Don't think our place is slovenly, for it is not. We have a decent orchard, and some good trees along the roadside, and mother and I have a few fine flowering plants. What I mean is that the whole place shows, at a glance, that it is run for the stomach, and not for the brain or character. I do not believe this is necessary. I have a notion that a right sort of country place ought to show that those who own it are thinking of something besides crops to

eat and sell. I would like to hear less about golden streets by and by, and more about green, clean lawns right off — now. Brush heaps and slop holes do not belong here any more than in Heaven. That's my religion. I am going to apologize to you, a stranger, by sending you some seeds of a thornless gleditschia."

And that is how I first got one of the handsomest trees on my lawns — the seed came from a Kansas girl who was hungry for the beautiful, and who wrote about it. Blessed are they that, having eyes, *see*.

Here is another letter that explains itself:

"DEAR SIR:—You cannot conceive what pleasure I get by reading about the beautiful country. I had lived in a big city all my life, and had few chances at green fields. At last it was our fortune to go to the country to live. My husband had an opening as a mill-hand, and it took us close by a good-sized village. We had seven acres of garden and orchard. At first everything looked beautiful — everything. I could have kissed pigweeds, and I did make bouquets of Canada thistles. I got out of sight of folk, and just sat down in the grass and

said Howd'y do to the dandelions. I hugged a big mullen stalk, and just thanked it for coming up near the door. Husband smiled, and bought me hollyhock seed; and he let me help him plant corn. It was a full year before I could settle down to making much difference between weeds and useful things. I think still that some of the weeds are the handsomest things in the world, and they must be useful somehow, only we don't yet know how. I had to make a difference, because I found that the beets and carrots could not be grown without being 'weeded.' Now I have some pinks and roses, and a big clump of tiger lilies, and I have some lilacs and syringas. But I still think the big thing is not to go gallivanting all over creation to find rare things and make your place stylish, but to be able to see the sweet things right at home. So I have been collecting out of our woods and swamps, and have, oh, such a lot of fine things — ferns and leatherwood, and witch hazel, and gentian and lobelia, two beautiful orchids, seven kinds of mint, and I thought you would understand me, so I have written to you. I have no one who quite understands me here, but my husband looks on with sympathy and good nature."

✓ The every-day world, with a human soul in it, is a garden, and a weed patch is beautiful; but the glory of the world is that it can be improved, and we are here to think it out, and feel it out, and work it out.

Intensive farming, which is the only farming that we are now considering, has the advantage that it involves the removal of all ugly waste spots. It cannot afford sloughs, brush piles, and old heaps of refuse — these are the very spots where the best crops can be raised. “There,” said a young farmer, “that nasty puddle is worth thirty dollars a year.” Then, going farther, he said, “That horrible barnyard should be reduced one half in size, and the rest of it drained. A row of twenty plum trees would grow in the cut-off part, each worth five dollars a year. Then over those barns vines should be growing and bearing Wordens and Niagaras and Lindleys, worth thirty or forty dollars a year more.” Down a ravine, full of stones and broken crockery, he tramped with indignant steps. “A splendid place here,” he cried, “for strawberries or for gooseberries, or, if you prefer, it could be a valuable vineyard. Grow lilies in the rows with the grapes, and set down this plot for fifty dollars a

year more.” Striding along beside the fences, he said, “Here should be a windbreak of evergreens, and there should be one of Tartarian honeysuckle or high-bush cranberry, giving bushels of food for useful birds. The windbreaks and birds would be worth another large sum.” In this way he walked over a farm of forty acres. It was one of those places that “don’t pay.” The reason was plainly because the best part of the land was going to waste, and that no attention was being paid to that domestic economy which makes everything at the same time useful and beautiful. To follow out the suggestions of the new owner would transform the whole place into a garden. This is what must come about in relation to all home-making in the country. Small homesteads will be the rule, and these will cultivate the beautiful as well as the useful.

√ It is so easy to make the beautiful and the useful work together, that I wonder that they are ever divorced. A handsome lawn, fine hedges, a clean and shaded highway, a shrubbery giving glimpses of continuous bloom, raise the market value of the property. I knew a man who shot a breachy cow, and then smilingly paid a fifty dollar fine, saying:

“It was a thousand dollars in my pocket. The animal, breaking loose in the night, would soon have torn my hedges and undone thirty years of work, care, and cost.” The money value of the ornamental is not easily overestimated. My own hedges, if extended in one line, would be a mile long. With about four acres planted to trees and shrubs, and five to berries, orchards and vineyards, I am able to sell \$1,000 to \$1,200 worth of fruit, honey, and vegetables annually. If the flowers went to market the cash income would be considerably increased. My drives are in length not less than half a mile, yet they are positive economy. Reaching about the house, and around the barn, and into the hearts of the gardens, they are too convenient at every point to be spared.

The street-side should be particularly devoted to the beautiful. Here we may plant many of the fruit trees for shade, or we may select such superb blossoming trees as the catalpa or the linden. The grouping of evergreens down a roadway is often agreeable. In some New England towns, and a few New York towns, I have seen the choicer shrubs in full bloom within reach of the hands of pedestrians, yet have been surprised that they were

rarely plucked. The lilac reaches to you its perfume, and the cherry tree its fruit in the suburbs and main streets of Ithaca, N. Y., Cleveland, Ohio, and Louisville, Ky. Why not? This is vastly more human than cultivating your fine things behind board fences, or stone walls, or even hedges. Flower beds in the street are better than cows and swine. We shall probably see, by and by, all of our ugly, weed-bedraggled highways turned into a great, continuous public garden, reaching everywhere among the rich and the poor, and binding all homes together with bands of beauty and good-will. In one sense we are all one family, and while we should develop well-defined individuality, we must remember what Emerson says, that we can "make society out of nothing but individuals" — all other people constitute masses. In the country we must never get lost in individual tastes and turn our independence into idiosyncrasy. There is a social exclusiveness, but there is an equally offensive unsocial seclusiveness.

The sense of remoteness from others is to many intolerable; to others it is the controlling sentiment. I have a neighbor who owns, but cannot occupy, seventy acres, and he is constantly bewailing his

lack of elbow room. A very lively sort of person can occupy the whole of twenty acres. I mean he can just about fill twenty acres plumb-full of himself — his whims, his notions, his experiments. But most people cannot fill out more than five or ten acres. Farms of one hundred acres are, for the most part, either left for nature to fill up, or are occupied by the fringed-out edges of the owner's purposing — his unfinished work, his untrimmed orchards, his half-cultivated corn fields.

When I began laying out my present home, a member of the Hayseed family, driving by, asked me if I was staking out a railroad. I told him the stakes meant lines of curving hedges. "How long will it take you to get all that work done?" "I will get the trees set within two years. These spruces will not all live; I must fill the vacancies next year." "How much will it all cost?" "Several hundred dollars, and in the long run thousands." "When will you get your money back?" "The doing of it is worth all that it will cost, because it will grow up a crop of thoughts in my soul. But in five years I will get some cash returns — not much of it, however, inside of eight or ten years." "Aren't you a fool?" "Very likely, if judged

by the common standard. But, my friend, did you ever read that ‘man cannot live by bread alone’? Now, hark you, I have thirteen acres. I will so raise the price of these thirteen acres that in fifteen years they will be worth more in money than your ninety-five acres, and while I will have one-third of them to ornament, I will get more income from the rest than you will get from your whole farm.” He called on me last fall, and walked about through my hedges, shrubbery, gardens, orchards. “Wal!” he said, “I didn’t conceit you could do it, but you did. You’ve the handsomest place in Central New York — made out of an old pasture and orchard — and it was pretty shallow soil at that — some of it was. You’ve got it drained; the soil is strong and rich. You are making more cash off it than we fellows can with big farms. You’ve got all the handsomest flowers, and all the new fruits. Your railroad track is just the completest lot of roadway I ever see. It goes to every part of your place with solid bottom. The hedges are splendid. You’ve cultivated the beautiful, and, by gosh! you’ve made money at it. How much is yer place worth — not less than \$25,000, hey? You sold off four acres for \$5,000 besides. You’ve got

nine acres — as pretty a thing as I ever saw or expect to see. How much have you sold from it this year?” I showed him my accounts, which netted me over eleven hundred dollars for sales inside of twelve months. “Man alive!” he said. “Here’s no big sale of anything except apples, but there’s honey, and cherries, and currants, and berries, and plums, and trees, and vinegar, and cider, and chickens, and eggs, and every dollar’s worth sold to private customers. You don’t mean to say you sold all these summer apples at eighty cents to one dollar a bushel? Why, mine rotted on the ground — except a few that a pedler paid me twenty cents a bushel for. And your own cider mill has ground up over forty barrels of drops, and of unsalable stock, so far — and it is only September 20th? Got an engine of your own, eh? and a cider press? and a shop for repair? How much was there saved on those forty barrels? Vinegar twenty cents a gallon, at least two gallons to a bushel from early apples, and three from later fruit. That would be from a dollar to two dollars a barrel from what I’ve let rot. Cider at twenty-five cents a gallon! Lordy, man! Why, your drops average two dollars a barrel, and you have sold your other apples at three

dollars! Well, that is because you have got your own customers.”

I let him look over the day-book as long as he liked, and then asked him if he thought that, all in all, it did not pay to cultivate the beautiful. “Yaas,” he said, “if you have sense to do it. But, then, you have done more than that. You’ve been and got your customers, and you’ve suited them with the very finest stuff, and you’ve put yer weight down, where the rest of us are weak. We grow a big lot of stuff, and then lack a market. There is one more thing you’ve got — the very best storage cellars I ever saw. Don’t think they cost much more than our cellars, either. Here are proper bins, clean as waxed, no bad odors, a brook running through, solid walls, ceiled over, dark when you choose, easy to keep tight, and just as easy to ventilate.

“Well, here it is again, croquet ground and lily beds, and roses blossoming in September! Can’t all of us go into that. But we might have more fine trees, and grapevines on the barns, and hollyhocks, and we can have windbreaks and some hedges. We could clean up rubbish, get rid of old waste, broken trees, and useless fences, and make money

at it. I guess, Powell, you are right; there is money in the beautiful. How is a fellow to get at it?" I told him I thought that people in the country did not have the right sort of reading, and in the second place they did not hear or see what was about them. "Write us a book," he said; "make it plain, practical, straightforward, and helpful. I'll read it."

✓ I have kept this idea of the beautiful in view in all my chapters. It must never be lost sight of in making a true country home. In selecting location, in building, in planting, and in all other ways, we seek the trinity of Plato — "The Beautiful, the True, and the Good." One thing about this work is that it is very catching. One man, working out an ideal, sets his neighbors at it. The influence spreads, and the example will constantly be improved upon. A recent writer says, "I know a city that was called by Sir Edwin Arnold the Venice of America because of its beauty. There is one street in that city more beautiful than any other; there is one block on that street the most beautiful of all. In that block stands the residence of a United States Senator, and in front of his residence the walks turn about two or three maple trees, that

they may be saved; and there is not a street in that city in which the attempt is made to bring the sidewalk down to the grade of the street, if valuable trees must be destroyed." It is said of Judge Conger, that when a man hitched his horse to a valuable tree, he was well scored; and when he offered to pay for the tree, the Judge said, "You poor fool! it took God Almighty one hundred years to make that tree, and you won't live long enough to pay your debt." Man who spoils is the same man who can create and improve. We have a century behind of us of mutilation; we must have a century ahead of sympathy and coöperation with nature. This must involve not only work on the part of our government, but on the part of individuals. We must learn the great truth that man can cultivate the beautiful and make money at it. The economics of the country home take in the flowers and the trees, as well as the beets and the turnips.

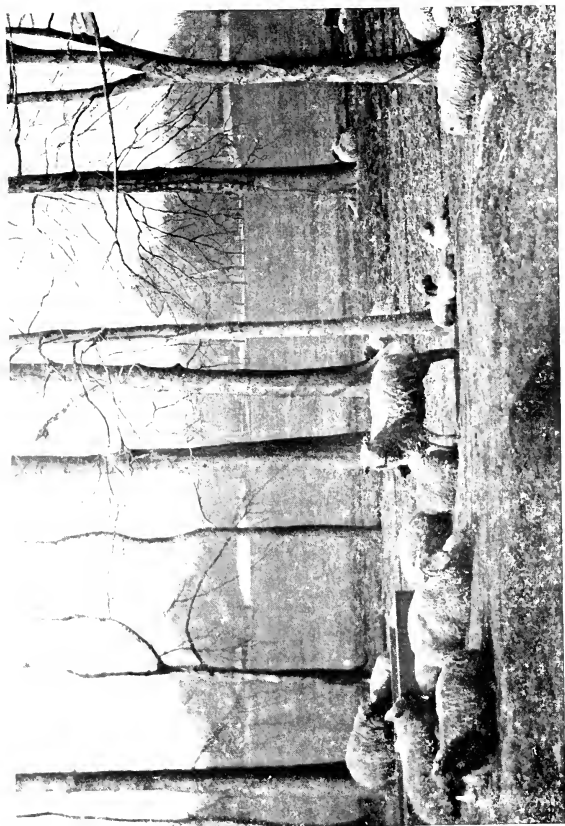
CHAPTER FIFTEEN

HAPPY ANIMALS

PERHAPS I have said enough already about making our animals happy, but I can afford a short chapter to my hobby. I remember with sweet tenderness a little mother who, when a sudden storm came up, fixed open umbrellas over her hens, that were hitched by their legs to keep them from setting. The less merciful wind lifted the umbrellas into the tops of neighboring apple trees. All the same, the little mother had done her best, and shown that she had a heart. The hens clucked on in the teeth of the storm, and oiled themselves from nature's oil can.

A neighbor, who had collected the water from the hills into his stable yard, where he had a splendid fountain bubbling fresh for his horses, built over it a great well-house. I asked him why he did it, and he said it was purely to save time. "Perhaps, sir," he said, "you never noticed that

when you lead out horses to drink, they spend a great deal of time looking around. A few swallows, and then a long look over the landscape — they like it right well. They hear everything going on, and see as much as we do, in my opinion. Horses, sir, are not stupid creatures; they are very observing, and enjoy landscapes and pleasant surroundings as much as they do the green grass; that, sir, is as I look at it. Now if you have nine horses to lead out to water, and each one takes up twenty minutes, it uses up about three hours time — half of an afternoon. I can't afford it, so I built this house over the water, and the animals drink right along, and get through with it. It takes about half an hour to satisfy the whole of them. Merely a question of farm economy, sir. Sentiment is a good thing, if it doesn't cost too much. I presume that as you keep only one horse, you get on very well with a tank uncovered." I had noticed the same habit with my Morgan mare, but had attributed it to the rare intelligence and the really poetic instinct of that breed of horses; they are almost human. But I am inclined to think that all animals love the beautiful. Following an opposite track from my neighbor, I would provide for this



HAPPY ANIMALS

animal sentiment, and cultivate their taste for the beautiful.

Try an experiment in your barnyard. Open it well to the south and east; make it clean and keep it sweet; slope the ground to keep it always dry and comfortable — underdrain if necessary. Then let your animals sleep there. Go out about nine or ten of a moonlight night, and see what you may see — as happy a sight, I will warrant, as you will find inside your own household. The cows will be lying down to face the moon and landscape. They will be chewing cud, and at the same time evidently meditating. That they are figuring out Euclid propositions I don't suppose; but they are studying nature in their realm — it may be as wide a realm as our own. Cows treated in this way make morally better behaved cows, as a rule.

I see no reason why our cows should not have box stalls, with running water, as well as our horses. We have so far done very little to humanize the cow — probably as little as for any creature associated with us. It is only for milk, and for butter, and for beef, that we have cared for her. Some day there will be a breed of cows as intelligent as horses and dogs, and cleanly in their habits. Going to my

vacation home, while preaching in St. Louis, I was told, "You will have to kill that pet Ayrshire cow of yours; she tried to kill her own calf, and it will take a regiment to milk her." Going to the barnyard, I found her tied up in a tight frame, with long pegs in front and behind her fore legs, and similar pegs confining her hind legs. Then one man, with a long fly-brush, dusted the flies from her, while another gingerly undertook to draw her milk. In spite of ropes and pegs and bars, she made it lively for them. I put a rope around her horns, and led her out to some delicious grass. I did this two or three times, without making any remarks to her. Then one morning I went to the gate, and holding up the rope, said, "Juno, hold your horns, and let me put this on quietly, and you shall have your grass." It was a good half hour's argument, but at last she brought her head to the bars, and actually helped to get the rope around the horns. Inside a single week she would stand quietly anywhere in the open meadow, while a decent man could milk her without a battle.

Mr. Cornish, in an admirable volume concerning animals, compares them with children. He says: "No one can have failed to notice how par-

ticular children are about their beds — how much they object to having them altered; how they insist on their being made in their own way, and carry their newest and most valued possessions up to bed with them, and poke them away under blankets and pillows. Animals do exactly the same. And a pet dog, who is on the friendliest terms with master and servant, often makes the most ridiculous fuss if any one moves the box in which he sleeps. Dogs nearly always have a hoard hidden away in their bed, or near it. Cats choose the cleanest and freshest places for their beds. An Angora refused to sleep anywhere except upon a lady's hat — if it could find one. The cat is very much affected by odors that are not perceptible to us. They dislike contact with certain people as much as they like to be near others. A little watchfulness will discover these attractions and repulsions among all animals. To humor costs us little, as a rule, but to refuse very much depresses the comfort of the animal.”

This is especially true of dogs. In Kansas City I heard of a black-and-tan who followed his mistress to the grave, and remained there, with casual visits for food, until he died. This dog came when

called, looked up into your face with intelligent inquiry, and immediately lapsed into a picture of sorrow and wretchedness, creeping back to his resting place by the grave. In my own family one of my large cats formed a strong attachment for a young man who spent a few months at my house. After his departure the cat sought him, restlessly, all over the place. Finally, discovering one of his cast-off garments, she made a bed of it, and seemed somewhat comforted.

Not many months ago I was driving along a valley road, when I met a boy astride a Holstein bull, which he was riding to a neighboring brook. This animal seemed to have lost his natural propensities, and was entirely devoted to the will of his master. A story comes to me from a Massachusetts paper of a boy who has a power over nearly every animal that he approaches. Every stray dog or cat in the neighborhood knows him and loves his company. A vicious horse, which the stable men cannot handle, will stand like a lamb while he harnesses and unharnesses him. The doves fly all around him, and in the woods the wild birds apparently regard him as a friend and ally.

Jane Layng tells us of a fine lad, in Southern

Ohio, who had this sense of kinship for everything about him. "He had only to throw himself down upon the lawn in front of his home, and the little creatures of the air and the shy squirrels would forget their timidity and come near to him. Little birds would gradually close in upon him, until they stood on his hands. He had a caressing tone which proved irresistible to them, and if they were speeding after a bug in another direction, they would turn at his call and go to him." He had a pet hen which was entirely given up to this sentiment of affection. He would say, "Come here, Topsy," and the fluffy hen would leave her companions and go to him. "Now sing for us, Topsy!" he would say, and the foolish-looking creature would stand, and make her unmusical laying song, till he told her to stop. "Come into the house with me, Topsy! and sing to my friends in there." Thereupon she allowed herself to be set upon a stool, where she sang her guttural song to the delight of the household. The same authority tells us that she knew another lad, in California, with much the same power. One day his mother saw, with consternation, fourteen strange cats at his heels who had never before seen him, but were

thus drawn by his call, to follow where he led. Is there not, after all, some truth in the Pied Piper of Hamelin?

Certain I am that the exercise of manly sympathy throughout the whole homestead will work a marvelous change in animals, birds, and even in insects. I shall never forget how my father carried a swarm of bees to a neighbor's, living one-eighth of a mile from his home. He cut the limb, on which the bees were hanging, and started up the street, the bees crawling all over his hand until they reached his shoulder, where a large part of them rested. He was entirely unprotected against them, except with his common clothing. Reaching the house of the friend who had purchased the bees, they were astounded at his appearance, and exclaimed in terror. My father simply laughed a quiet laugh, and brushed the bees with a gentle touch into a hive.

Prof. Mason S. Stone, for some time Superintendent of Education in Vermont, says that, "Next to the discipline that comes from hand work, the best discipline that comes to a boy is the reflex training that comes to himself from training animals. That which brings out the confidence of

self-control, of self-mastery, comes through training something else. Every boy on a farm ought each year to have a dog or a colt to train, or a pair of steers to break. One day last summer my attention was attracted to a boy and a pair of steers in a city street. They were Holsteins, with great patches of white on shoulder and flank, beautiful with their even-turned horns, straight backs, heads shapely, legs shapely, and eyes as gentle as doves. It was necessary for him to exercise self-control. He could not have broken those steers to go with him through a crowded city street unless he had also broken himself. He was cleanly dressed, had guileless eyes, a wholesome face, and was a manly match for his own steers."

At Alton, Ill., resided, until recently, a man named James Chesson, who trained all the animals on his farm until they became almost human in their behavior. He talked to them as he would to human beings, and they seemed to have a full understanding of his conversation. Horses would follow him like dogs, and become apparently assimilated to his opinions on matters quite foreign to horse life. He owned one of the celebrated Wilkes stock of race horses, that seemed to posi-

tively converse with his master. One dog was trained to run between the horses' hind legs, to prevent interference. In this way everything about the farm was coöperative in its intelligence.

Can we ever reach the ideal life of peace on earth, when the lion and the lamb will lie down together? I believe this depends, not upon the animals so much, as upon the one who claims to be their master. Pictures that point in that direction seem to me so beautiful that I am inclined to quote from the *New York Sun* its story of a gypsy, living at Northwood, N. Y.: "Breek, that being his name, found no difficulty in surrounding himself with bluejays, mink, and rabbits, who came freely to his door to be fed and to listen to his voice." It used to be said of Thoreau that foxes would go to him with confidence. They certainly would flee from hunters, and betake themselves to this Northwood hermit. "It is believed that Breek's eyes have something to do with his power over animals. They are dark, full of luster, and direct in their gaze. A dog, angry at a child for having stepped on its tail, on the porch of a store, started to snap at it. Breek said something quickly, and the dog, at a single glance, slunk away promptly."

One of the poets tells us our reign should be extended not only over the earth, but over the skies:

*“Not even the birds should forgotten be,
At Christmas time”—little Love says he—
“So I will deck them a Christmas tree.”
And the birds came flocking around to see,
Over the slippery, upstanding rock,
And the frozen snow in cold, icy blocks—
On each berryless bough that sadly mocks
Their hungry souls, birds appeared in flocks.
Love stood on the tips of his small, bare toes,
Hanging strings of red hips and haws in rows—
For the little birds love such gifts he knows.
And over the white, surrounding snows,
Are prints of tiny, eager feet—
Of the birds who all come, in hopes to eat.
With bursts of song, little Love they greet.
Says he, “Merry Christmas”; they say, “Sweet.”*

Making animals thoroughly happy not only develops a sort of affection for ourselves, but a marked courtesy for each other. *Our Dumb Animals* tells a story of what it calls “A Gentlemanly Dog.” While on a stage trip through Kentucky, the writer of the story saw a small kitten just ahead in the roadway. It was too young to know its danger, when suddenly a large dog, which was with a gang

of workmen, leaped into the middle of the road by the kitten. He was about to seize it with his teeth, which he instantly realized would possibly hurt it; instead, he placed himself behind the kitten, and with his nose boosted it out of danger. The *New York Tribune* tells of a St. Bernard dog, belonging to a farmer near Boston. "A widow lady lives near-by, and Jack has constituted himself her protector. If a tramp appears on the street, he immediately trots to this neighbor's house and stays on guard until he is sure of her safety. He is gallant enough, when she visits his master's house, of an evening, to wait upon her home to the door of her house." The *St. Louis Republic* tells of a couple of horses, each one attached to a buggy, in front of the Merchants' Exchange. They were hitched several feet apart, but the straps allowed them to get their heads together. One of them had been given a feed of oats, in a bag, and was contentedly munching them. The other horse was evidently hungry, and neighed in an insinuating manner. His neighbor pricked up his ears politely, and replied in horse language — evidently asking the other to help himself. The strap was not long enough, and his hungry mouth fell short of the bag.

The possessor of the oats thereupon pushed his bag with his nose, until the other could reach it. Then, after a friendly nose-rub of salutation, the two horses finished the oats together.

It pays to treat any animal with kindness, but especially a horse. A well-treated and properly fed horse will last thirty years, and be of good service most of the time. It is a sad comment on our country economy that most horses are killed off within fifteen years. I have in mind a minister of the Gospel, a man in a position to make his example tell, who drives his horse up hill and down hill on a jump, and manages to ruin a noble animal within three years. Prof. Mingo says, "It is foolish, brutal, and inhuman to think that you can whip an idea into a horse; it cannot be done. Colts should be educated, not broken." There is a big volume in this. I have seen enough of both of these undertakings to know that he is correct. If you will be gentle and rational with a horse, he will learn rapidly to respond with reason. A young horse should never know that a whip exists. Educate him to do his best, and then help him while he is trying to do it. Help with words, and with the lines. Pounding never did a bit of good. A balky horse is sim-

ply a horse that has been so badly educated that he gives it up; you can make anything balk — children as well as animals. You cannot cure it except by common sense and gentleness. Rarey says, “Horses never balk until forced into it by bad management. Kindness cures all trouble with horses.” H. C. Merwin says, “A kind word for a horse is as good as a feed of oats. The horse is far more intelligent than many suppose. Talking to him, caressing him, praising him — with little gifts of sugar, apples, and candy, render him safer and more obedient.” “We ought to have a school, or a department of the public school, to teach the art of driving. Jerking bits in an animal’s mouth, yelling, and slashing a weary team, mark an incompetent driver.” The best drivers are quiet, patient, and kind. They know that when they handle the reins it is mainly to assist the horse with slight touches and suggestions.

Not having a tail to wag, and too large to be played with, cat-fashion, the horse’s range of emotional expression is somewhat limited, yet he has a capacity in his voice that is quite beyond the range of nearly all other animals. He has learned to

whinny in such a way as to express his desires, his tastes, his affection, and his hatred. "It is an easy matter for an observant owner to learn whether his hired attendant treats his horse rightly; he has only to watch the creature's demeanor toward the groom." Some horses will evince decided pleasure when the attendant comes about them; others will only tell their story by being quiet and docile. "One animal that I owned, while a model of gentleness when well treated, would kick and bite the man who used her roughly." The same writer tells us, "Leaving a favorite pony for a year, to the care of other persons, she grew gaunt, and constantly ran down in spirits as well as flesh; but when I returned she exhibited the highest degree of pleasure, and at once began to fatten." It is said of Goldsmith Maid that she cared only for Budd Doble; and when retired from the track, her attendants could approach her only with the utmost care. When Doble visited her, he was warned to beware of approaching very near; but, to the surprise of all, on hearing his voice, the glorious mare trotted across the field, and showed every manifestation of delight. She marshaled up her baby for his inspection, permitted him to handle it, and when he

left she stood at the bars, gazing after him until he was out of sight.

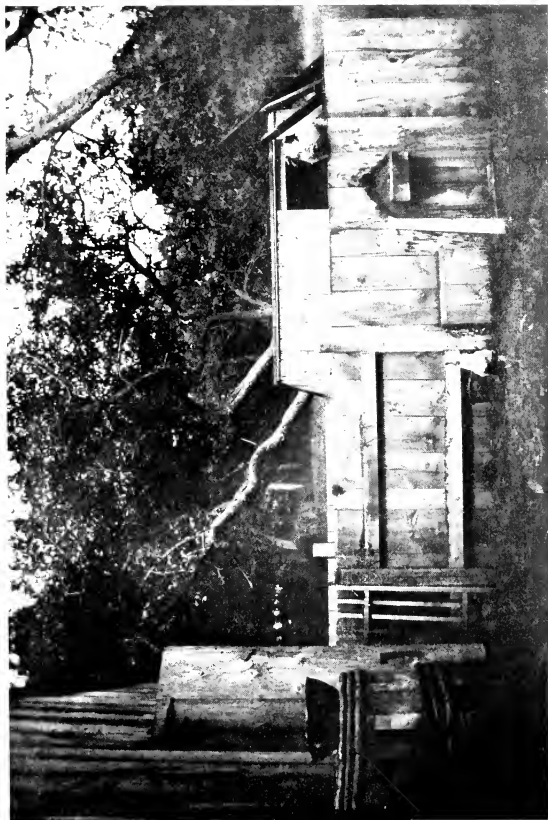
It is from the economic standpoint that I like to approach this question. It does not pay to make anything unhappy; it pays to make everything about us as comfortable as possible. I have no liking for swine, yet in a small country homestead they can often be kept as profitably as hens. The object is to have some way of disposing of the house waste and garden surplus. Some of this can go to the cow, and often a horse likes nothing better than a pail of nicely prepared stuff from the kitchen. A laborer's family, without a horse, will probably keep a pig—and wisely. As generally treated, these are vile companions, housed in filth. Allowed the run of the orchard, they are far from offensive, and are at the same time valuable in the way of destroying grubs in the soil and in wormy apples. Such pigs make healthy meat, while those bred in filth do not. Prof. Shaler, of Harvard University, says, "It is commonly supposed that our pigs are among the least intelligent of the creatures which man has turned to his use. This is due to the fact that the condition in which these animals are kept insures their degradation, by cutting them off from

all the natural mental training which wild animals receive. In the state of nature pigs are among the most sagacious of all creatures, and trainers have found them more apt in receiving instruction than any other of our animals. Given a decent chance, the pig is more cleanly in his habits than the cow. He will always use a corner of his pen as a closet, and never soil his bedding. There is no feature of our civilization more horrible than the herding of hogs in close quarters, without proper exercise, and feeding them on garbage, until they become huge bulks of poisonous meat, to be sold for human food."

Frances E. Willard used to say that she considered teaching kindness to animals a sacred mission of Christianity, next to that of teaching kindness to human beings. We have altogether too much of positive cruelty on our farms, but what I desire this chapter to accomplish is to teach the value of kindness. It is curious to note in how many ways an affectionate animal will manage to coöperate with us in making a happy home. The collie dog is not satisfied unless he can be doing something in the way of helping us about the barn and with the animals. I pity a collie that has never had a

chance to express his helping instinct. His home may be very delightful, but if he has never been able to show what is in him, he will not be completely happy. I do not wonder that occasionally such dogs slip into bad company and bad ways.

If we will take the trouble to get rid of bad breeds of cats, and cultivate only the best results of animal evolution, I think we shall find that we have something better than a mere mouser. A friend of mine tells me of his cat, that enjoys nothing better than fishing, often landing a perch or pickerel or bass weighing three or four pounds. This cat has learned to associate his fishing propensities with the family larder, for he never attempts to eat the fish that he catches, but carries it home and lays it at his mistress's feet. He generally hunts alone, but sometimes starts out with the family dog, and they will occasionally return with about an equal share of game — not unfrequently partridges. I had myself a beautiful maltese, who would ride on my shoulder to a pond where frogs abounded, and would leap from my shoulder and catch a victim much more quickly than I could get it in any other way. A reliable story reaches me of a cat at Stockton, California, whose mistress has



PIGS ARE AMONG THE MOST SAGACIOUS OF CREATURES

a fine almond grove. In summer, when the nuts begin to ripen and fall to the ground, the cat and its mistress work side by side, every fine morning, gathering the nuts. "Richelieu darts back and forth, busily picking up the almonds, one at a time, with his teeth, and dropping them into the basket. This he continues to do until he has made a much more sure cleaning of the ground than his mistress could do. When she feels a gentle tug at her dress, and a loud purring as he rubs against her skirt, she understands that the nuts are all in the basket." This same cat is reported to be quite as expert at a small churn as a Newfoundland dog. What is more curious is, that he knows just when the butter has come and should be taken from the churn. I think the secret is very much as it is with children; train an animal to find its fun in work, and work becomes its passion.

We need to comprehend the fact that we are not so far removed from other living creatures. There is a possible communication between us much more wide and much more deep than we are fond of confessing. We must not wait for animals to learn our language, but must have the courtesy

to undertake to comprehend their methods of expression. An acute observer tells us that she watched her cat feeding two kittens. Each kitten could understand the call of its mother, when she brought a mouse, and never responded when the other one was summoned. Youatt asserted that two hounds which he possessed understood French; it is more likely that he thoroughly understood dog language. Prof. Evans thinks that an animal language could be constructed, by using which we could communicate with quite a range of the higher mammals.

Animal language is, at its base, precisely the same as our own; it is only in its evolution that it has differentiated into unlike channels. Bayard Taylor tells us that the Hindoos and Arabs always talk to their elephants and camels as if they were human. Taylor himself found that, by talking to his dromedary, the animal after a few months certainly did understand much that he said. Going to Barnum's Museum, Taylor saw the hippopotamus looking very dejected; when he spoke to him in Arabic, saying, "I know you; come here to me," the huge animal at once turned his head; and when the words were repeated, it came up to Taylor and

pressed its head against the bars while its muzzle was stroked. Taylor thought that among caged lions he had also found some that recognized Arabic. Darwin says, "Man uses, in common with the lower animals, inarticulate cries to express his meaning, aided by gestures and movements of the muscles of the face. These gestures and movements are more expressive than any words. They flow out in the music of the birds, and into the articulation of man."

No vision of the future will be reasonably complete that does not anticipate a greatly increased power of understanding our animal friends and bird friends, and consequent intercourse between them and ourselves.

Rev. Jenkin Lloyd Jones tells me that, "Last Sunday Tessie, a Scotch collie dog, stood on a pulpit platform and was the attraction at the St. James' Methodist Sunday-school. She told the children the number of the Apostles, the number of verses in their Sunday-school lesson, and the number of days in the year. She added, subtracted, and divided; and she told the children the name of the figure on the blackboard, which was written and erased during her absence. Of course she had

to do it by barking. Tessie is no humbug, as Mr. Classon, her intelligent and loving companion, is neither a fraud nor an adventurer. He says the only explanation is that of telepathic influence. When the brain of a dog becomes so sensitive to its human companionship, so responsive, that it catches the movements of the human mind and transforms them into volitional impulses of dog consciousness, we have a revelation of the power of education, the contagious character of thought, the rewards of companionship and of social psychology that is profoundly suggestive."

You have, plainly, something more to do in coming out of the herded city life than simply to build a home and enjoy what you can of the world as it is. You have something far higher to do — that is, to make the world better, and everything in it wiser and happier. I think people are beginning to understand this, so far as improvement of fruits, vegetables, and flowers is concerned, but it is not so clearly understood that we have also to raise up the whole animal kingdom. It may be that in the highest sense the end of creative purpose is the evolution of man, but sure it is that we cannot go up alone. All life is one life, and you must come out

here to sympathize and to help. This chapter does not leave out the economics of the question, but it goes one step farther, and undertakes to illustrate our alliance with all living creatures — for their sake, as well as our own. It believes in cooperation to establish a happy world as firmly as it believes in cooperation to secure better crops. This is one chief opportunity in going back to country life — that we may go with beneficence, and not with selfishness. Already, coincident with the exodus, there has been a great increase of Audubon Societies. We are at last able to stop the wearing of birds and birds' plumage by women — a reform impossible so long as the city gauged our relation to life and living things.

CHAPTER SIXTEEN

NOOKS AND CORNERS

NOOKS and corners may be so multiplied that a home in the country shall utilize all those places that ordinarily are given to weeds and thickets. These should be distributed all over the property. The evergreen arbors constitute delightful retreats. A turn of the hedge on one side follows your drive, but on the other makes a quiet, half-shaded semicircle, for a rustic seat or possibly a hammock. Of these you cannot have too many. Your whole homestead should speak the word play, as well as the word work — rest as well as toil. It will not hurt you, or any of your helpers, to sit in the shade a few moments during what we call the working hours. If you have a sneak, who cannot be trusted near a rustic seat, he cannot be trusted anywhere. Cure him, or discharge him. Walking with a neighbor, I said, “What a splendid spot that for a natural arbor. You could see from

there over the whole valley, and could read miles of landscape." "Pshaw!" he said, "I have no time for fooling. I have to get up and get, from four o'clock in the morning until seven at night; I've no time to look at pictures and read landscapes." He has a good bank account, and there is no decent reason why he should be in the shafts all day. As it is, his nook is a thicket of thorns, bordered with sticktight. I carried some of those weed seeds home with me, on my clothes, and my collie carried more, to sow in decent fields.

There are two classes of men and women everywhere; those who know nothing but work, and those who will not work. The former are as far as the latter from creating a true adjustment of life. One cannot start, and the other cannot stop. The home in both cases is sure to be deprived of natural growth. Money piled up does not assure even comfort. A country home must suggest something far beyond mere hand toil; unfortunately, most country homes do not. There must be considerable play for the imagination to work out ideals. This will probably not lower the bank account at all, but it will take into account also the sand-bank, or cliffs and glens and gorges, will listen to

brooks that run where the plow cannot run, and teach us to understand thickets that only need brains to transform them into nooks and corners.

One of my friends has built a storm arbor of fossiliferous rock. It stands in a corner of his orchard, overlooking a magnificent bit of scenery, while it constitutes a cosy retreat from house work and field work. Not far away is a sun-dial, carved on a round boulder. And so you will find that his whole orchard is a quaint and nooky place where one may not only pick apples, but may saunter and rest. "Why not?" he says. "Money is not the only thing a man wants. It's about the meanest stuff we get. It smells of old pockets; I don't like to handle it, and it sort of makes me feel cheap to measure myself by a roll of bills. But, you see, here you can feel that you are as large as nature." Then he has done another thing which people ought to do more often; he has collected all the water of his meadows and pastures, and run the pipes and drains to a hollow, where they make him a pond full of white and yellow lilies; and farther down the swale the water again throws a fountain jet, a spray that flies away with the wind and waters a lot of wild asters, cyripediums, and golden

rod. Around the pond are scattered native shrubs and other beautiful wildings. The whole thing is characteristic of the man — odd and not exactly to be imitated, but very suggestive to those who are conventionalized. A country home is a place where each one may work out himself — that is, his best self, the best things that he can think and feel.

One of the most sterling men that I have ever known was Oren Root, a close friend of Asa Gray, and like him a keen sympathizer with nature. "Root's Garden" was at one time the most delightful and well-known spot in Central New York. It was a glen full of nooks and corners. He owned one of those gorgeous cuts, made ages ago by glaciers, with all the windings and long slopes, and high precipitous banks down to the beautiful brook; and these were given a chance to say something fine to you. The glen was not spoiled by sheared evergreens, by shaved lawns, by iron dogs; only there was freedom, and rest, and harmony, and unity introduced. You could sit on an old mossy log, or you could find a rustic stone seat hid under overhanging hemlocks. There are thousands of opportunities in New England and New

York, and in the Southern States, for these individualities to express themselves through nature.

If you have not a glen, or a gorge, or wild forest edge, you will find that you have something, or can create something, that will be characteristic of yourself, and expressive of rest. Nature is all the time trying to help you. In New England the rocks give grottoes, or the overhanging grapevines create arbors. In the West I have seen along the roadsides gypsy encampments of wild thorn — apples and wild grapes. Underneath these the cows would hide to enjoy the dense shade. One such thorn tree alone is beautiful, but a corner of your pasture, arbored over in this way, is as good for your animals as sweet grass and fresh water.

✓ Nothing is more important about a country home than provision for sports and games. This should not be left to the ingenuity of the children to provide, but tennis and croquet grounds and athletic fields should constitute a provision in laying out your property. Lawn tennis is easily introduced, a game that creates litheness of body, with an easy coöperation of mind and eye. It is a peculiarly instructive game, while croquet goes directly to teach accuracy of judgment. I have

seen young collegians show at first the most astounding untrained perception of the relation of things, and of spaces, and of the effect of a blow, yet after a while develop peculiar skill and aptness of judgment. They get a certain practical education from play which they are not getting from mathematics, or from psychology and physics.

Dr. Woods Hutchinson takes the position that play is a provision of nature, intended to bring out not only physical, but moral and intellectual strength. "Exercise," he says, "is literally the mother of the brain. Every play, worth the name, develops not merely strength, endurance, and sweetness, but also alertness, quickness of response, coolness, balance, wariness, and judgment that is both sure and swift." The individuality of children must be taken into account. Some get play by working in their garden plots, while others are prompted by instinct to some sort of construction, and still others to caring for pets. While my shop is open I cannot induce one of my boys to join us at croquet. Some children are naturally marine biologists, preferring the frog-pond to an athletic field. While these are paddling in the water, others are naïvely devoted to trapezes and jumping bars.

The ball players must always be counted upon as constituting a large fraction of any group of boys, while many of the girls do not object to games of prisoner's base, or even hockey and basketball. In this country we shall always find a percentage of young folks who have not lost the instinct expressed in "Robinson Crusoe" and "Swiss Family Robinson." Their happiness will not be complete while playing with the crowd. They must have something in the way of retirement, and a chance to climb trees and dig caves, where their imaginations can revel.

Dr. Hutchinson tells us that those children who are not allowed to enter school until eight or ten years of age, going with more physical vigor, soon overtake those who enter school earlier by two or three years. Give a child normal surroundings, and he is pretty sure to learn to use his brain wisely—very much as he learns to use his legs and arms wisely. If this idea is carried out as it ought to be, in every country homestead, the school and the home become nearly supplements of each other. I asked an old man why he kept his youth, and he answered, "Because I like all I do. I try to find the spirit of it. Bringing my boyhood along with

me, it is hard to kill me. Still, I am opposed to stopping with mere play. As I see it, there is too much mere play going. The girls are ashamed of the kitchen laboratory, and the boys are mortified by soiled hands. I hate the sight of a tennis-rigged lad whose father is over there in the field at work in the sunshine, and his mother bent over a washtub." When we organize a new home we should never plan to separate the family. All the members should work together, all should play together, and all should rest together. That society is a rank falsehood which divides father and son in the functions of every-day life and joy. That home is a humbug that gives sport over to the young, and toil to the old, or does not make rhythm of every day's occupation. Your nooks, your corners, and your playgrounds should bring together mother and daughter, father and son, re-creating them into a daily better image of God. In this way associate all the functions of true living — play and work, rest and recuperation, creation and re-creation.

This seems to me one of the finest things about country life — that the children can grow up more natural, with broader sympathies, and, if wisely directed, a higher morale of character. In this

home school of ours it is not a crime for a child to whisper, nor is it a sin to smile during eight hours of the twenty-four. Modern psychology teaches — what every common-sense father knows — that activity is a necessity for the young child, physically, mentally, and morally; that the three lines of growth are tied up together, and in the normal child go hand-in-hand, reacting upon one another; that “the young child is continually reaching out through his senses to lay hold upon everything about him, to test it, to know about it, to see what its relations to himself may be, to see if he can use it and make something for himself out of it.” The influence of the country upon our schools, to broaden out their schedule of work, must be supplemented by a broad home life. We are not very far from the days of school-gardens, when the country school will be in nothing unlike the country home, developing the child along the same lines of thought and industry.

But I am taking too much thought of the children. The country must reform in another direction, to take care of its mothers. We have a class of people to whom the house is practically a prison. Women are not supposed to have equal rights

with men *out of doors*. This is not a natural subdivision of life and labor. Woman's duty, and health, and fitness for motherhood, depend upon fresh air and out-of-door exercise. Charles Kingsley once said to me, "Your women, sir, seem to me the weak part of American development. They cannot walk as English women walk, nor can they ride, except tucked up in a carriage, with a driver to care for them. Such women will deteriorate, and with such mothers American character will degenerate. I like the energy of your people, but why have they shut up their wives and daughters? An English woman makes nothing of a five-mile walk before breakfast, and can easily take in ten or fifteen. She is stout in limb and robust in frame, sound in digestion, and a good bearer of healthy children. Your women are blanched and pretty, but they are also delicate — and there seems to be a national pride in that direction. It will tell more and more in future generations." During the conversation his daughter burst into the room, full of enthusiasm over a twelve-mile walk into the country. She was preparing for a horseback ride later in the day. The tide countryward is to be welcomed, because sensible women will learn to get

the best of the results. There is really no more reason why a woman should not ride a reaper than why she should be debarred from running a lawn-mower. Every country woman should know how to harness a horse, to drive skilfully, and then to care for her pet when he brings her home to the stable.

Fortunately, there is a collateral drift toward an interchange of employments. Men are taking up house work quite as rapidly as women are going into professions and into business occupations. It is not only the woman's right to engage more generally in out-door work, but her rights include a part in the recreations and the games. A woman's sewing balcony is possible with many country homes. It is healthful, restful, and stimulating. My wife's balcony opens from the chamber by double doors, and is furnished with a hammock as well as table and chairs. One of my live arbors also is the private room of the mother of the fold, where she can do her private writing as well as reading, and where, perhaps, she may instruct her children. You suggest that the children are all at school? In a wisely-ordered country home a large share of right education must be supervised by the mother and father. These acres of ours are

packed with object lessons and truths that make up character.

A plenty of nooks and corners, making good use of nature's quiet places, indicate the great truth that the most of one's living processes must be carried on out of doors, and that a house, at the best, is only a place of retreat — possibly a confinement. A healthy person longs for fresh air and sunshine, and companionship with all the things that whisper and sing. The old Saxon word for dwelling is stopping-place, and that for house is hiding-place. Neither of these words originally implied that a house was intended for anything more than a shelter. We make too much of indoors altogether. We have got into habits of conforming to house regulations which entirely dominate. Health is not possible in the shade of fashion. We have too many curtains to shut out the sunlight, and our fate is tied up with infinite bric-a-brac. House dust is the worst of poisons. Try a bit of it in a spectroscope, and you will get lines that will astound you. House air, with a hot-air furnace, is charged with carbon dioxides. The heat in winter is irrational and debilitating; in summer our only hope is to let in as much as possible of out of doors. If your lot

is nine acres, we ought to be able to find you all over those acres. It should all of it be your residence. The gardens should suggest your idiosyncrasies, and the hedges and the hiding-places should be your features.

Dr. Edward Everett used to say, when he took his hat, "I am going in for a walk." When he stepped back indoors, he called it going out of his house — for he reckoned his real house to be his garden, his orchard, and the whole world at large. Really the most foreign place to our living processes is indoors. President Hall has it that "health is wholeness, or holiness, in its highest aspect." He holds that every room of ours should have, first of all, the maximum of light and sunshine, and that we should live the larger part of our lives entirely apart from the house. Get out of bed early in the morning, and bathe in the rising sun's rays. One morning hour is worth two at midday and four at night. The air is fuller of ozone, and the system is in a better condition to receive and absorb it. He tells us that the conditions for good health are these: "Pure air, sunshine, good companionship, proper nutrition, regular habits, suitable subjects of thought, and good tools."

Living arbors are, in my opinion, of great importance on a country place, and they are easily constructed. They can be grown in just about the time we are getting good-sized trees, from stock that we first transplanted. They should at first consist of a circle — preferably of arbor-vitæ — say twenty feet across. Trim the young trees as they grow, so that the outside of the circle shall rise gradually with a conical outline, while the inner limbs are allowed by degrees to reach together overhead. These will, in due time, interlace and make a solid roof. This ought to be well accomplished inside of ten years, but it will be twenty years before the arbor is complete, and it will grow in strength for fifty or seventy-five years. After the trees are fifteen feet high, and the limbs well interlaced, no further trimming is necessary. A living arbor of this kind is a living house, open to the purest air, yet cutting off the heat of midday. It will furnish a delightful retreat for those who need to be left entirely alone. They need not be, however, entirely unsocial. Such an arbor constitutes a capital place for rustic seats — the Old Hickory chairs are just in place, five or six of them, and in the center an Old Hickory table, or one that you have

made yourself. A home-made table is one of the easiest things to prepare. Get an old, rejected millstone, and set it on boulders. In the hole through the middle fix a large vase, to hold flowers; or, if you will, saw a section of a big tree that is three feet in diameter, and make the section three feet high. Let the bark cling to such a table, and lest it cleave off, drive in a few nails. I am using sections of smaller trees for seats, and similar sections serve admirably for seats elsewhere, as, for instance, about your croquet ground, or in sheltered nooks behind the edges. I have three living arbors, and consider them delightful features of my homestead because they are so entirely natural looking, like large, solid trees. I find that the birds approve of these dense evergreen growths as much as I do, and they nest overhead, and sing, without being disturbed by their neighbors in the hammocks below.

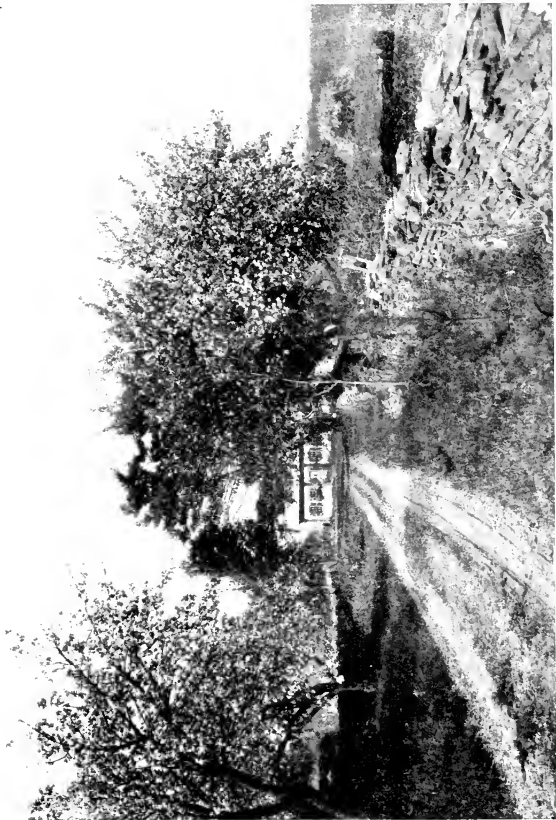
Concerning arbors of wood I say little; and about all those other structures put up by carpenters, the less that is said the better. They are out of place, and out of taste, unless it be to hold up vines. I have seen rustic work carried clear out of natural proportions, and made fantastic. The most artificial and disagreeable country place I ever saw

was made up of arbors, rockeries, grottoes, evergreens sheared into hens, fountains where spouting geese vied with negroes grinning in the pools, and stone dogs in the grass. Such things are abhorrent to nature, and they do not constitute a home. I think the people catch the spirit of this sort of work from some of our public parks. If a trellis of wood or wire is needed, let it be strong and simple, and demonstrate its fitness by its utility. I have seen a great many wooden arbors about the country, as I have seen many observatories on the tops of houses, but I rarely ever saw anybody inside one of them. They are artificial and superfluous as a rule — not always.

There are, however, some people who cannot live out of doors. So far as I can see, they have nothing out there to live for, or to live with. Indoors they have a lot of furniture that they sympathize with, and they make up the rest with other conventionalisms. Half our country houses might as well be in Sahara, so far as trees, flowers, birds, brooks, hedges, nooks and common sense are concerned. Birds rarely go near such houses. A few trees are set out for a show — a row of something on exhibition; birds never nest in such things.

Then an agent comes along, and sells four white, cut-leaved, weeping birches, and these are set out in another exhibition row; but birds never nest in them. Then the folks bethink themselves of a row of evergreens, which they keep trimmed into solid cones, such as a good mechanic might turn out of wood and paint green and set in rows across the lawn. Finally, two weeping willows are set in front of the house, expressive of nature's grief over such ludicrous notions of the beautiful. The only salvation of such a place is that, by and by, neglect will kill out four-fifths of the trees, and the rest, being left out of line, make a tolerable lawn. Learn, first of all, that nature abhors conventionalism; never repeats herself; does not inquire what folks will say; gets in love with beauty and truth, and then plants her nooks and corners for no other reason in the world than that she loves the beautiful and the true. Those who have not been born again to see the world about them, who really have no acquaintances among the trees, no friends among the birds, constitute a class by themselves. I will not say that they are degenerate, but they certainly are incapacitated for comprehending Out of Doors.

YOUR HOUSE SHOULD BE A PART OF THE PROPERTY



I have spoken plainly, but none too strongly, about the average house. It is the ugliest thing in a country landscape. It has rarely a line of beauty or of peace, or a suggestion of rest, inside or outside of it. It is just a barn for human folk. It is not quite as healthy as the animal barn, and not generally as pretty. Your house should be a part of the property — that is, of all the acres that you occupy. Your residence should be the whole of your property. This sort of home we shall have by and by. What I mean to say is that we must learn to get out of doors, and stay out most of the time — to work outside, play outside, eat outside, sleep outside. Form your sympathies with nature; talk garden, think flower and fruit; study bugs and butterflies; then lie down on the sweet sod, under your blossoming apple trees, and let your soul sing: “Our Father, Who art in the Heavens! and in the apple blossoms! and in the roses, too! Thy name be hallowed!”

CHAPTER SEVENTEEN

CONCLUSION

WELL, here we are in the country! Our house is built, our garden is planted, our orchard is already bearing — Sweet Boughs and Northern Spys. We are milking our own cow, and thinking of raising another — a beautiful, soft-eyed Jersey that was born last April. We have carried out a lot of notions in the way of cesspools, compost piles, and drainage. There is a driven well, 60 feet deep into the solid rock, and it cost only eighty-eight dollars, pump and all. The fun of it is that there is always something to do. We mean to make each year notable, not only for crops, but for some specific advance. We are trying to work play and play work, although the hot sun or pounding rain sometimes upsets us. The bugs have been here, and we have not always won the fight. The birds and the bees have been counted into the family, and the toads as well; we are all coöperating.

CONCLUSION

The amount of joy to be gotten out of a few acres, run in the name of mutual aid and good-will, is amazing. Birds sing in concert, and the cows have ways of expressing joyous good-will. Bossy rubs her head against your arm, and asks you to scratch her neck. The fowls jump on your shoulders and eat from your hand. Fear is banished. The struggle for existence passes largely into a generous coöperation for the common good. Chirping birds hop about your door, and catbirds perch near your balcony to talk noble things in bird language. Guns are banished. The spirit of killing becomes abhorrent. Life grows sacred.

The catching power of pure horticulture is immense. One well-designed home sets the fashion, until the town becomes notable for beauty. Unfortunately, one gaudy architectural display is liable to be mistaken for a true home, and copied as a model, until a whole community is artificialized. This book has expressed no sympathy with costly houses. A home, in any of its evolutions, should never express more of expense than of character. The thought of money value should be entirely absent when you observe a human residence as when you observe a well-dressed man or woman. A

complete country home is never obtrusive, but, like the trees and the lawns and the hedges, is a part of the place.

This home of ours is associated with privileges that even the city could not indulge fifty years ago. It has advantages peculiar to the country, but also those that have been peculiar to the city. Half a century ago the conditions of life were such that pneumonia, typhoid fever, and a whole gamut of similar ills were looked upon as inevitable accessories of life — if not orderings of Providence. As late as 1850 machinery was just beginning to lift the farmer from his knees — where he had worked with hook to reap his grain — to ride upon harvesters, and do in a single day the work of twenty men. He was old at forty, and worn out at fifty; to-day he is erect and stalwart at eighty. A strike in the coal field would not then have affected him, for he knew nothing about coal as fuel.

In our gardens and orchards we are forming a collection of the best achievements of the whole temperate zone, vegetables and fruits that mark the progress of science all along down through the centuries. What is it that makes the farmer's everyday meal? It is coffee from Arabia, sugar from

Cuba, flour from Dakota — in fact, the whole world is contributing to his table. On his lawns we find alfalfa from Turkestan; in his gardens are melons from Syria — but better than all are the achievements of cross-pollenization. Science is showing us the value also of the most despised weeds and neglected products of field and forest. The corn stalk and cotton seed have become nearly as important as corn and cotton themselves. A noted chemist says, “I believe there is not a by-product, or a residuum, or a weed in our fields that will not be found to be of value to human beings.” The Russian thistle, which at first so alarmed our Western farmers, is now sown on their ranches as a superior food for cattle and horses. Even marsh mud promises to become an excellent fuel. Among our farmers are such wizards as Burbank, Wilder, and Munson — creators and coöperators with nature in producing flowers and fruits and vegetables far superior to those which we inherited.

The reaction to country life is natural and necessary. There is little danger of a turn of the tide. A lawyer and his wife have become my neighbors. She is the refined daughter of a notable minister, all of whose youth had been spent in the city. I

asked her if she would be willing to go back to her former method of life. "Not on any account whatever! Why, just think of it! Not one dollar for rent! We own our house — built it ourselves — put our own notions into it. We are no longer eating and sleeping in other folks' houses. Then we have our own eggs, chickens, and fruit. Why, down in that cellar are twenty-four barrels of our own apples — Northern Spys, Greenings, Gilliflowers, Spitzenburgs, and we never paid a cent for them. And there are splendid fresh vegetables all summer long — peas, potatoes, and beans and cabbages, and bushels of them for winter. Dear me! the idea of ever again going around the corner to buy a half-peck of peas! Miserable, half-dried things! But we didn't know any better then; we do now. Then there are little Joe and Ned! It would be just positive cruelty to shut them up in city life — houses and streets! But here they go it all the day long, playing, helping, romping, happy and healthy, and out of bad influences. See there; just look in there!" I saw a snug little room, dark but for a narrow window. "Do you shut them in there when they are bad?" I said. "What a question! No, sir. Just look again!"

Sure enough; the wall on one side held shelves literally full of tumblers of jellies and jars of preserved fruits. "All my own putting up, out of our own garden! Do you hear that? Nobody else's stuff — except the pineapple and orange." The opposite shelves were filled with Hubbard squashes and golden pumpkins. At one end hung bunches of herbs. It was clear that my friend was in love with the country. "Oh, yes," she said, "the snow and cold weather can't be kept out of the country, nor out of the city, either; but a country house can be made so comfortable that we rather enjoy a storm. There is just one drawback, that of cleaning roads; but that is managed by the pathmaster mostly."

The reaction to country life affects Europe nearly as much as the United States. Denmark is conspicuous for having created a reverse current of population. She has within a few years reclaimed two thousand square miles of previously waste land, and with this movement she is increasing her exports with great rapidity. Danish farmers and other land-owners have formed coöperative societies, in order the more perfectly to handle produce and control foreign markets. The country folk have four hundred banks for the deposit of small

savings. The Danish University and its students have instituted free lectures, with evening lectures, all over the country — besides promoting popular amusements, distributing cheap literature, and opening offices for free legal advice. Clubs are formed in music, gymnastics, and cycling, and there are debates conducted for the advantage of the rural population. In all ways country life has become exceedingly attractive. Very much remains for our own government to learn from Denmark, especially in the way of establishing Postal Savings Banks in our villages.

By going to the country we are not only helping ourselves, but are aiding the solution of the great social problem, how to make man out of the mass, and something better than masses out of men. Nearly one million a year from Europe's herded population comes to our shores for citizenship. All but four per cent. drop into tenements. The social salvation of America rests with the country. There is land enough for a population of five hundred millions. The unimproved lands of the Northwest constitute about fifty per cent. of the area. Maine has eighty-eight per cent. of her land still unimproved, Pennsylvania, fifty-five per cent., while

even the State of New York has under tillage less than one-half of its acres.

It was the fashion of forty years ago for progressive economists to discuss a reform village, built in squares, one house on each corner, and a community boarding-hall and kitchen in the center of each square. Some experiments were made along such lines, but they fell to pieces over the table question. It is not easy for four families to agree on a menu three times a day, and on the qualities of the cooking. As a rule, every woman must be mistress of her own kitchen.

A more satisfactory coöperation lays out a few acres in garden form, with houses occupying advantageous points. This park home should have a single tidy barn, where the few families interested may have a cow, a horse, and hens, owned in common. In charge of such a place, a man, or possibly a family, can be hired by the commune. In this case each family owns and controls its own house, orchard, and garden, while the drives and the park and the driven well and the barn are kept by common funds. By such a system the cost of hired help may be greatly reduced, and the servant-girl question almost, if not entirely, solved.

I see no reason why adjacent farms shall not build their houses within calling distance of one another. This is all the more easy now that ten to twenty acres is held to be enough for good tillage. What can be done with two farmhouses can be done with three or four forming a group of houses near adjacent corners. This intimacy would require good neighbors, but it would tend to develop neighborliness. It would cultivate a rivalry in the way of well-kept lawns and orchards, and create a comparison of methods and results. A letter, describing something of this kind, says, "When sudden illness occurs, somebody is near by to help. Of course we can quarrel more easily, but the quarrel is not likely to be as lasting as if we lived farther apart." This whole question of coöperation in country life is still an unfinished problem. Coöperation in the way of building, harvesting, and domestic industries is taking a new and broader sweep. Coöperative marketing will follow coöperative production. This will require a more accurate system of grading our products, and will develop a higher degree of economic education. Individualism cannot be satisfied to end with itself. Emerson says, "Your millennium is in your

furrows, and you are sowing the seed which to-morrow will give your social harvest.”

I said at the outset that this book was not for colonists, yet I cannot overlook the fact that the movement countryward is taking on some features that look toward getting out of the city in a lump. There are not a few persons who lack the initiative and can only move in platoons. The Salvation Army deals with this class of people, and does it successfully. Their farm colonies, moving whole families together, are working well. The National Government is discussing the question of assisting this movement by adequate appropriations.

Mechanics of small means, and clerks with meager salaries, apprentices whose income only permits them to live in dreadful boarding-houses—these will do well to club together and buy country places near trolley lines. This is sometimes feasible by giving to a married man the management of the house and the land. Here can be had wholesome food, fresh air, rational exercise, and delightful lodgment. I imagine that we shall see a great increase of this sort of club life in the country.

Coöperation is not a new idea; for our fathers

raised their house frames, husked their corn, and reaped their harvests by united effort, while the women knitted and spun and wove the family clothing and carpets. The state was called the Commonwealth, and the town meeting still remains as a recognition of our necessary common weal — and our possible common woe. As we look ahead we shall understand that individualism must increase its efforts for united work. The new country life will teach us to link our energies as never before. The middleman will become of less importance. Postal Savings Banks will gather the earnings of the poorer classes, and make them small capitalists. By going into the country we are not to be scattered and alienated, but to be brought into an alliance that is impossible in the herded city.

By these steps we are coming into an era of coöperation in country schools — a coöperation that is being worked out by events as much as by logic. Small district schools by the wayside are giving way to town schools, with splendid sanitation and better teachers — these in turn becoming centers of moral and intellectual life. It is not at all unlikely that the restoration of the town church will be in

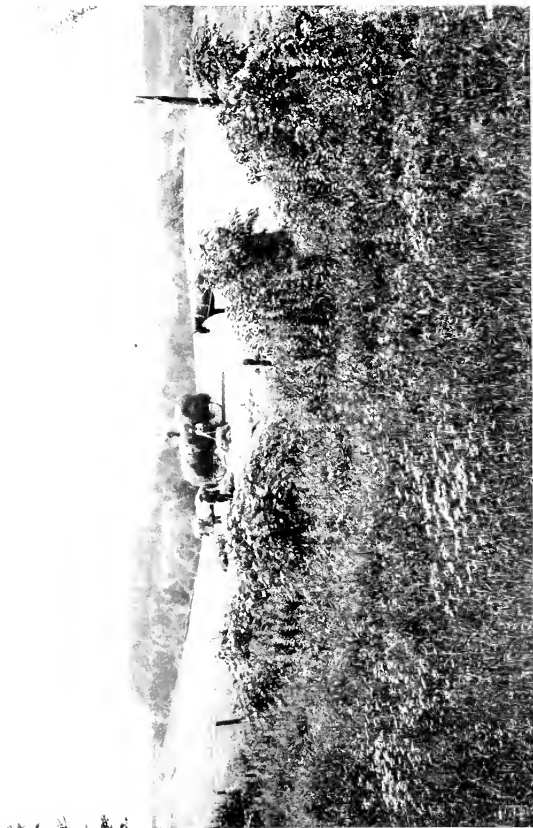
connection with the school building. The time is coming when all these town schools will be set in the middle of one or more acres, and education will be half a day with books indoors, and half a day with things out of doors. The ideal school acquires knowledge in the morning, and applies it in the afternoon. In this way children leave school with a taste for the land and land culture. They will not conceive the end of education to be memorizing the contents of books. The garden school of the future will abolish the prison houses, where children are shut up for eight or nine hours each day, during their most ebullient years, forbidden to stir or communicate.

The country is the children's natural home. The winds rock their cradles, and in these days, if there be stuff at all in the boy, he can get his living chance — in the country. We must discard those books that tell the stories of lads who, by extra shrewdness, escape the narrowness and pinchedness of the farm to become merchants, and so get away from growing apples and wheat to measuring calico. No life in the world is broader, freer, or fuller than life on the land. Farming has had its bad day, but that is over with, and let us hear no

more about it. Children take naturally to country life, and not to street life, unless driven to it.

The glory of country life is that every leaf and each twig, and the pebbles in the brook, are all object lessons. United States Commissioner of Education W. T. Harris says, "The school should be only a supplement of the home." But now you find that your whole property — not the house only, but the garden and the orchard and the corn field, are all parts of an educational plant; and your children are born into it, to find out what they can of its wonders. Some years ago a French author wrote a book called "The Population of a Pear Tree." It is wonderful how many tribes and nations occupy your acres. A study of these turns labor into pleasure, and makes country life nothing less than going to a great university. Home studies are all in English, and it needs no Oxford gown for graduation day. In this school no one takes a degree until he dies; for this sort of education never ends.

Professor Search, in his "Ideal School," says, "Every child is a born naturalist." His eyes are, by nature, open to the glories of the stars, the beauty of the flowers, and the mystery of life. William



NO LIFE IS BROADER, FREER, OR FULLER THAN LIFE ON THE LAND

J. Long says, "The only book to read out of is the book of nature herself." Nature, after all, is our great educator; books are only translations of what is written on the leaves of the big book.

Professor Whitman, so well known as Director of the Marine Biological School, at Woods Holl, says that the laboratory has gone as far as it can in its research into the problems of life; that we must now reach out farther and create "biological farms." His proposed farm would consist of fields and woods and ponds and gardens and orchards and brooks — where he could investigate what nature has done and is doing at the present moment. There is no reason why every country home in the land should not be a biological farm — a school for the study of life. A country home that does not widen the horizon of thought and power is a failure. Asa Gray used to speak of the trees that filled the Oriskany valley, before his residence in boyhood, as his "professors." The college that he attended was the great amphitheater, circled with orchard-covered hills, and everywhere man and nature in harmony.

The best teacher in the country is the one who studies with the child; not one who imparts from a

cold-storage of facts. In this way a parent is often the very best possible teacher — because companion. I would not have lost the lessons learned from my father, as together we went about the fields, for all that I gathered at academies and colleges. Froebel says, “Let parents become children with children, and all together go to school to Mother Nature.” Give every boy and girl such books as “Hodge’s Nature Study and Life,” and “Comstock’s Insect Life,” and keep them well supplied with the Bulletins from experiment stations. Be sure that your laboratory is furnished with a good microscope and other appliances for accurate investigation. With your boys and girls not only grow crops, but test, examine, investigate, and compare. Above all, let every child be educated to understand that there is no glory superior to that of creating a better cereal or fruit, and in general terms carrying creation forward toward perfection. This glorifies a country home as nothing else can — to make it, and all about it, face the future, to hold it in trust for those coming generations which shall inherit, not only its present worth, but that increment of betterment which we have been able to bring about.



THE FIELD ROAD

I have come to the last words of my book, and I am very sorry that I must say to you Good-by. It is not as an author, but as a friend. It is with real regret — there is so much to learn and to talk about in these new homes of ours that one never gets to an end. But that is the glory of it. The seasons are not a dead round of reiterated buying and selling, but each year unfolds a marvelous display of new ideas. All hail the hillsides, with their breezes! All hail the valleys, with their brooks! They open their arms to new homes, better thoughts, nobler aspirations, with wiser culture of both the land and the land-holder.

THE END

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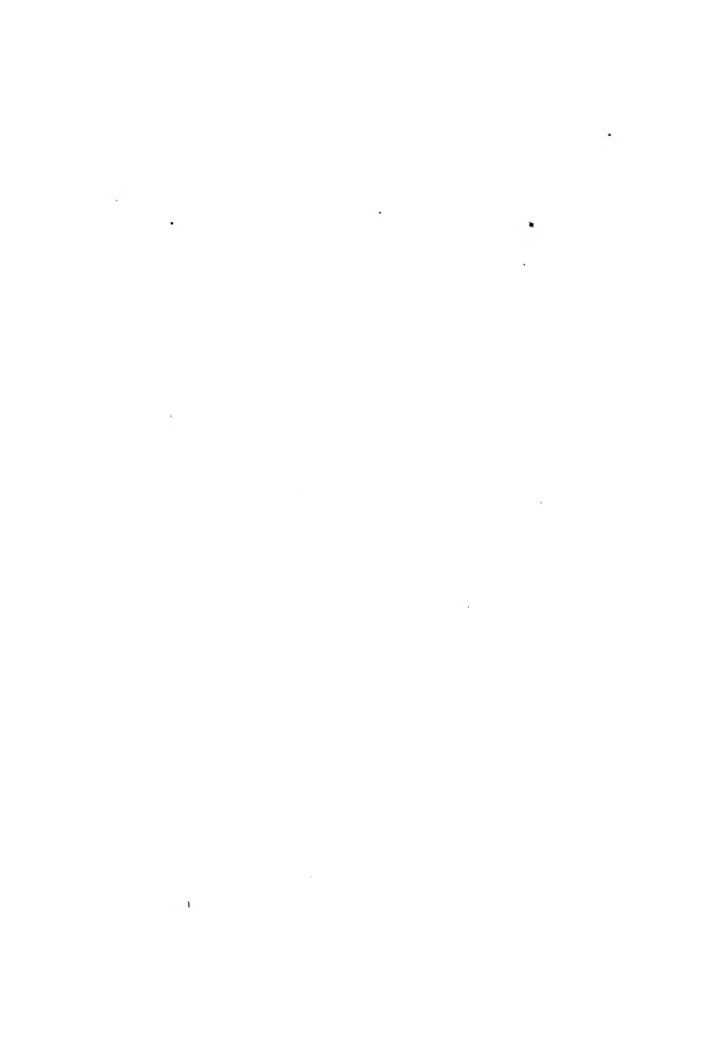
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