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If a house is planned along Southern Colonial lines, an effective treatment for the pillared end is to adapt it to the uses shown here: a sleeping porch above and an outdoor living-room below. The outside fireplace is always a pleasing and useful adjunct to these porch living-rooms. Aymar Embury II, architect

## 周6ueceanden



From the rear of the house are two parallel pergolas covering brick walks and framing an exquisite garden vista. The columns are of concrele, with a double wood railing at the top, bearing traceries of clinging vines, ivy, wild fig and barren grape

THE DOUBLE PERGOLA IN THE GARDEN OF MRS. J. N. BURNS AT PASADENA, CALIFORNIA-ADAPTING ITALIAN SETTINGS TO AN AMERICAN ATMOSPHERE-SUGGESTIUNS FOR THE TREATMENT OF CITY YARDS

Charles Alma Byers
Plotographs by Lenwood Abbott

IT seems hardly fair that all of us cannot walk occasionally in Paradise-or a beautiful garden, which perhaps is the nearest thing thereto that earth affords. I first was impressed seriously with this thought several years ago-one summer evening. It was while I was strolling in my own garden. My garden is not large nor elegant, but I often find it a great solace, especially after laboring all day in the noisy, bustling city. In fact, it is extremely simple, quite commonplace, but nevertheless it gives me great joy to stroll along its graveled paths and admire the
fragrant flowers in it. My own flowers-my own garden! Not far away rumbles the elevated, bearing to and fro its loads of human freight, and not much farther lie the tenements, with their somber fronts and loathsome alleys. I remember once, when my morbid curiosity caused me to wander into the district, I saw a lone geranium struggling for existence in an old rusty can sitting on a fire-escape. That was probably somebody's garden.

But I have somewhat dioressed. I had started to say that I was strolling in my garden one evening, admiring the humble


The house stands back from the street behind a hedge of roses and across a close-cropped lawn. Its walls are of white stucco over metal lath and the roofing is of shingles stained soft green
"Betty, thath muth be Par'dise.'
"'Spect 'tis, Billy. Wish we could get in."
I have since seen many gardens that reminded me of the remarks of those two tenement children-that impressed me in very much the same way as mine did them. Although used to my own little garden, these more elaborate creations have seemed like a picture of Pa radise. Here is one of them -the three-acre grounds of Mrs. J. N. Burns at Pasadena, California.
But if one has studied gardens from a constructive point of view, he instead will probably be reminded by the accompanying pictures of some grand old garden of Italy-sorne romantic giardino. True, it seems more modern and better kept, for the elegant gardens of Italy are all old-many, even, all but forsaken. There, too, will be a suggestion of the gardens of Spain's Andalusia, with their classic col-
result of my efforts and longing for something grander, when, chancing to glance toward the street, I beheld two small dirty faces pressed closely against the openings in the iron fence. Though dirty and plainly belonging to tenement urchins, the faces were all aglow with wonderment and admiration. Long and eagerly their bright eyes scanned the interior, and finally the smaller of my garden's admirers, the boy, whispered to his companion, as if audible words might erase the picture:
umns and semi-tropical flowers and vines. But still there is much that belongs to neither Italy nor Spain-an influence that is still more modern. Therefore, let us describe the whole as just Californian.

America, and especially California, is particularly favored in climate and in many other ways for the creation of beautiful gardens, and it is indeed regretable that the opportunities are not more often made use of. The benefits to mind and body


The fireplace side of the dining-room is paneled in dark wood, the remaining walls being covered with a neutral-toned paper that makes an excellent background for the mahogany furniture


The Italian motif has been carried out in the interior architectural details, as shown here in the high carved mantel and its decorations
derived from living as much as possible in the pure, fresh air of the great outdoors are quite generally recognized, but still we seem extremely slow to avail ourselves of those benefits. In the Beginning of Things, a certain garden - Eden - was considered quite sufficient for the abode of man, but Sin drove him forth. Since then he has dwelt in caves, hovels, tenements, cottages, palaces, but little in gardens-far too little. Truly, he is long in getting back-even back to a commendable medium. The indoors, while quite necessary in its way, has cast a spell that seems difficult to overcome. Sometimes, of course-sad thought!-it is all that is possible, but often it has produced just a habit. Too often the garden is not appreciated until it is impossible, or is longed-for only by those to whom it has never been possible.

When one sees a garden, however, like the one here shown he must surely be awakened to an appreciation of garden beauty and attractiveness. A realization that the outdoors is the more healthful seems not sufficient in itself to draw us forth into the open as much as we should be. There must be something-and certainly nothing is more potent than a beautiful garden--to lure, invite, or subtly coax us hence.

Covering a plot of quite ample extent, this California garden is endowed with many retreats that are indeed alluring. There


There are queer transitions in this garden: you pass from jungle to lawn plot, beyond the pergolas are masses of trees and shrubbery, sinuous gravel paths and now and then a bordered pool


The vista from the balcony down the avenue of pergolas includes the old oak trees that have been preserved in this new arrangement


There is spaciousness in the living-room, its high ceilings and many French doors, bringing into the house some of the openness of out-of-doors and creating a charming atmosphere

The house embowered in this charming setting is large, stately, dignified. Its walls are of white stucco over metal lath, and its roofing is of shingles, stained a soft green. It has spacious verandas and balconies, often festooned with vines, and below many of its windows are charming flower boxes. Inside it contains large, comfortabie rooms, beautifully decorated and elegantly furnished. The interior possesses all the conveniences and all the charm and richness that can be desired, and to create a garden that might prove a successful rival to this comfort and splendor therefore became no trivial problem.

The house stands well back from the street, and even in front the grounds are a veritable garden. The sidewalk is bordered by a hedge of rosebushes, and beyond this blossom-covered hedge lies an extensive expanse of lawn, dotted with trees and shrubbery. Near the street are also two small garden pavilions, which, with their white pillars and shingled roof, correspond admirably with the architecture of the house.

It is in the rear, however, that one finds the real gardenthe garden of enchanting retreats and floral profusion. From the rear of the house two parallel pergolas, covering brick walks, extend back for a distance of nearly two hundred feet, creating a most charming garden vista. Their classic concrete columns, with the double wood railing on top, all in pure white, present a striking contrast to the embowering foliage, and many of them bear graceful traceries of clinging vines-ivy, wild fig, barren grape, and several other varieties. And to add just a touch of rusticity to this somewhat formal scheme, a gnarled and straggly
old oak stands between the pergolas, near the house, its irregular branches spreading a sun-flecked mantle of shade over a considerable portion of the surrounding piazza.

There is much of this piazza space-all with a flooring of blue brick, but for the most part with no covering save that provided by the foliage of trees and vines. It is terraced here and there with low concrete walls and broad brick steps, creating little more than mere imaginary divisions, and yet producing nooks that seem quite secluded and cozy. By temporarily furnishing them with a table and chairs, preferably of wicker or something similar, these places become excellent for serving afternoon tea; and under a balcony in the rear of the house, adjoining this piazza, is a small roofed retreat that may be used even while rain outside patters on the brick pavement and trickles from the foliage. All in all, this portion of the grounds is most ideal for either a garden party, or merely as a place for quiet outdoor lounging.

The old oak is surrounded by a small plot of ground planted to ferns and springarei, and around the base of the pergola pillars are grown vines and delicate flowers. The marble-like pillars afford a charming background for the variegated decorations, and the paths which they enclose, almost losing themselves in the farther end or the garden, are indeed enticing.

The pergolas are linked together at their garden terminus by a sort of resting place, also floored with brick, and containing a small concrete bench. This retreat is walled in on three sides by vines, and before the remaining side, which the seat faces,
(Continued on page 364)


The garden floor is terraced here and there with low concrete walls and broad brick steps, creating little more than mere imaginary divisions and yet producing mooks that seem quite secluded and cony. By temporarily furnishing them with wicker, they are excellent places for tea or an afternoon's reading


The beds should be narrow enough to make every rose bush in the bed accessible from a path-four feet is a good width for a double row of plants, or twenty inches for
a single row. Rectangular beds are probably the most convenient to work in

## The Culture of Roses

THE PROPER PLACE FOR THE ROSE BED AND HOW TO PREPARE IT-FIGHTING PESTS GRAFTING FOR AMATEURS-QUALITY VERSUS QUANTITY IN BLOSSOMS-BEST VARIETIES

## H. W. Dunham



OTHING is more beautiful than a rose, and no garden is complete without at least a few of them. This seemed to me especially true, when one glorious morning last June I discovered that a particular bud I had been carefully watching had burst into bloom over night. And I think most garden lovers feel the same way about roses.
There seems to be a feeling, however, among amateurs that only professionals can grow roses with any degree of success. And while, of course, experience counts a great deal in rose-growing, as in all other gardening, by carefully following a few general rules anyone should meet with at least a fair degree of success.
The first essential is situation. Choose an airy, yet sheltered, spot where the bushes will get plenty of sun-preferably on a southern slope, as it is imperative that the rose garden be protected from north winds. However, if this is not possible-and a great many of us will not be able to find ideal spots-either a house or a garden wall makes an excellent protection. Do not use trees as a shelter, for the root system of the tree near which the bush is would rob it of its food supply. Having found a suitable location, the other essentials-drainage and good soil-are more easily obtainable.

It is well to avoid choosing low ground for the roses, as this is not so well drained. Late spring frosts present an added danger, since they are felt more keenly in low situations.

There is only a word to say in regard to the size and shape the beds shall be. It is advisable to have them narrow enough to make every rosebush in the bed accessible from a path-four feet is a good width for a double row of plants, or twenty inches for a single row. Rectangular beds are probably the most convenient to work in.

Next comes the preparation of the bed itself. As stated above, good, rich soil is most desirable. After marking out the space the bed is to occupy, dig the soil out to a depth of about two feet. Keep the sod, top soil and sub-soil in separate piles as they are taken out. Loosen the floor of the bed with a pick, and if the ground needs draining, put a layer of stones or cinders on this. After thoroughly mixing the best of the sub-soil with a generous dressing of well-rotted manure, place it on the cinders or stones. The sod comes next, well broken up and mixed with the top soil, which has just enough manure to enrich it slightly. Finally, fill in the bed with the best of the top soil, unmanured, to bring it about three inches above the level of the ground. When the surface of the bed has settled properly it should be about an inch below that of the adjoining sod, as it will thus retain the moisture from rain better. This preparation of beds should take place about three weeks before planting time.

When making your bed, compose the soil to suit the kind of rose you are planning to grow. Hybrid Perpetuals require a heavy soil containing some clay. Teas and Hybrid Teas do better


Mary Lovell, one of the new varieties of white climbing roses, is a sturdy plant, with a profusion of bloom
in a light, warm soil. An excellent soil for Hybrid Perpetuals may be obtained by taking the top soil from an old pasture and chopping the grass roots very fine. This same soil, mixed with about onequarter of its bulk of sand and leaf mould, will make it sufficiently light for Teas and Hybrid Teas. Be sure that the upper third of the bed does not contain any recently added manure, as it is apt to burn the roots of new
surface. After a hard rain loosen the soil as soon as it is dry enough to work, or the sun will draw up the moisture very rapidly.

Almost equally important with the preparation of the soil and the planting of the bushes is the care and cultivation of them. At the time of planting all roses should be cut back-unless you buy stock that has been pruned before it left the nursery. In this case your dealer will so in form you. If the bushes are already established they should be pruned during the first spring month. Cut out weak and decayed parts and such growth as crowds the plant and prevents light and air from having free access. A safe rule is to prune weak-growing, delicate plants severely, and to shorten the branches of strong plants but little, but thin them out well. Prune for shapeliness of plant and promotion of bloom buds.

If one is pruning Hybrid Perpetual roses in spring, cut the canes back to fresh wood, leaving perhaps four or five good buds on each cane. From these buds the flowering canes of the year are to come. If fewer and larger flowers are desired, fewer canes may be left and only two or three new shoots be allowed to spring from each one the next spring.

Always prune a cane about a quarter of an inch above an outside bud, unless the cane is very far from vertical, when an inside one should be left for the terminal shoot. It is quite important to have sharp pruning shears for the operation, to prevent the tearing and bruising of the wood.

Immediately after the June bloom of Hybrid


The budding point, as indicated above, should be set exactly two inches below the surface
plants and make all your work valueless. In selecting stock beware of alluring offers of two dozen first-class roses for the usual price charged by reliable dealers for one. Good roses are worth paying for; poor ones are not worth the time spent in caring for them. The importance of first-class stock cannot be overestimated.

There is a great deal of discussion as to whether roses are best grown on their own roots or when grown on sturdier stock, such as Manetti for Hybrid Perpetuals and brier for Hybrid Teas. While there is much to be said on both sides, as a general thing roses on their own roots will prove more satisfactory for the general run of planters than budded stock. On own-rooted stock the suckers or shoots from below the surface of the soil will be of the same kind, whereas with budded roses there is danger of the stock starting into growth and, not being discovered, outgrowing the bud, taking possession and finally killing out the weaker growth. Still, if the plants are set deep enough to prevent adventitious buds of the stock from starting and the growth is alert, this difficulty is reduced to a minimum. There is no question but that finer roses may be grown from plants on their own roots, withstanding the heat of the American summer, if the grower takes the proper precautions.

Before setting out the plants examine each carefully and cut off the broken roots with a sharp knife, as well as all eyes that may appear on the root stock, in order to forestall suckers. It is not possible to set the plants permanently as soon as they are received from the nurseryman; heel them in to prevent drying out. If they seem dry, it may be well to puddle the roots in thin, rich mud just before setting. Make the hole large enough to accommodate all of the plant's roots without crowding, when setting out your roses, remembering-if budded stock is used-to put the buddling point not less or more than two inches below the surface. Spread the roots out nearly horizontally, but see that they incline downward towards their ends without crossing one another. See that the plants are firmly set in, using the balls of the feet to accomplish this. Then loosen the soil by raking over the whote
not plant annuals among them. To do their best, the plants should have all the nourishment the soil can furnish. Avoid an excessive blooming during the first year of the plant; rather let them take strength into the root and stem for the second season, when results will be much more satisfactory. During the summer make an application of a light straw manure. This will prevent the soil from drying out too rapidly, and at the same time the rains will wash its nutriment to the roots of the plants.

All roses, whenever planted, will have grown greatly by fall. When the leaves have finally gone and Perpetuals is past, cut back all very vigorous canes perhaps one-half their length, in order to produce new, strong shoots for fall flowering, and also to make good bottoms for the next year's bloom. Too severe summer pruning, however, is likely to produce too much leafy growth.

The pruning of Hybrid Teas and Teas had better be postponed until the first signs of life appear. The bark becomes greener and the dormant buds begin to swell. Dead or dying wood will then readily be noticeable and, it may be, removed. These two latter classes do not need such severe pruning as do the Hybrid Perpetuals. Some pruning during the summer is also useful in encouraging growth and flowers. The stronger branches that have flowered may be cut back onehalf or more.

Stir the soil about the roots of the roses frequently, and do


A cluster of buds will result in a cluster of small flowers
the plant is unquestionably dormant and asleep for the winter, cut back this growth to about three feet. Then draw the earth up around each plant in hills, and fill all the space between these hills with manure. Bend the plants down and cover the entire bed, plants and all, with straw or loose leaves, covering last of all with some branches to anchor these. It is an excellent plan to put the straw on somewhat in the form of a thatch to shed water. Do not apply any of this protective material, however, until actually cold, freezing weather has arrived.

The old saying, that an ounce of prevention is worth a pound of cure, is quite true in the case of roses. And if they are kept in a healthy, growing condition, they are not likely to be attacked by insects, or if attacked, not easily injured. If insects appear, apply the proper remedies promptly and vigorously and keep the ground stirred about the bushes. As a rule, a strong stream of water from a hose applied morning and evening will keep the roses free from insects. But if this is not effective insecticides must be resorted to.

The rose bug is at times very troublesome as well as destructive to the buds. It can be effectively disposed of by a kerosene emulsion made and applied as follows: Shave up one-quarter pound of hard laundry soap and dissolve in two quarts of boiling water: add one pint of kerosene oil and stir briskly for four or five minutes until thoroughly mixed. Dilute to twice its bulk with water and sprinkle it on the bushes with a spraying syringe or a whisk broom. Repeat as often as required to keep the plants clear of the bugs.

About the time the leaves are fairly well developed there usually appears the rose caterpillar. It glues the leaves together to form a shelter and its presence cannot be mistaken. The only effective remedy is to go over the bushes and remove and destroy the leaves inhabited, thereby destroying the pests.

Saw-fly larvæ and other insects appear at a later season than do caterpillars, unless prevented by an occasional spraying. If they should, however, make their appearance, destroy and dispose of them by sprinkling the plants lavishly with powdered white hellebore. It is well to moisten the bushes before ap-


If all but one are pinched off, that one will grow to appreciable size


The shoot at the side springs from root stock and should be re- plying the hellemoved bore, as the moisture will cause it to stick to the foliage.

Mildew on the plants is best cured by an application of sulphur, or by spraying with a solution of potassium sulphide, I ounce to 3 gallons water. Spray or dust with the sulphur two or three times at intervals of a week or ten days. As with the application of hellebore, the bushes should be first sprinkled with water if sulphur is used.

There are three classes of garden roses-Hybrid Perpetuals, Hybrid Teas and Teas. This does not, of course, include miscellaneous and climbing roses, of which I will speak later.

Hybrid Perpetuals are very strong of growth, flowering freely in June. Hybrid Teas bloom
all summer; although not so hardy as Hybrid Perpetuals. Teas are much more delicate than the two former classes, but also more exquisite, both as to fragrance, color and form, and should certainly not be omitted from the garden.

The most interesting part of planning a rose garden is the selection of varieties. And since roses are such a


The White Shawyer is a free bloomer, much clearer and better than the White Killarney
matter of personal taste, the best way is to make your selection from a reliable rose grower's cata'logue. I am giving here, under their different classifications, a few favorites-tried and trueas well as some of the newer varieties you will want to include.

Hybrid Perpetuals: Maman Cochet in crimson, red, pink, white and yellow; Frau Karl Druschki -probably the best-known white rose we have: General Jacqueminot, dark, velvety rose-an old favorite; Margaret Dickson, a lovely, waxy white; Paul Neyron, a bright, shining pink.

Hybrid Teas: Kaiserin Augusta Victoriawhite, very fragrant and continuous flowerershould not be omitted; Etoile de France, velvety crimson; Lady Ashtown, very much like Madame Caroline Testout, salmon pink, but blooming more freely.
Teas: Marie Van Houtte, exquisite yellow, shading to rose ; Wm. R. Smith, ivory white, with a trace of pink; Papa Gontier, dark crimson; Lady Hillingdon, delicate apricot yellow.
While climbing roses do not properly belong in the classification of garden roses, still there are so many ways in which they help to beautify the grounds that it is hardly fair to leave them out. The great beauty about them is that they are very freeflowering, hardy, and will grow in any kind of soil and with no care.

In considering rambler roses, it is important to note that they demand very little in the way of care and pruning. The reason for this is that this class of roses flower on old wood, most freely on wood one season old. Therefore spring pruning should be confined to cutting back branches that may be broken or in the way. The regular pruning should be given just after the flowering season, and at this time the oldest wood should be cut out to clear the ground. The other canes need only be headed back and trained into position.

Among the best climbing roses are: Tausendschön, all colors; Dorothy Perkins, pink; Philadelphia Crimson Rambler; and the climbing varieties of some of the best garden sorts, such as Kaiserin Augusta Victoria and White Maman Cochet.

The hybrid sweet briers, a semi-climbing rose-belong to another class. They are especially useful as a tall, informal (Continued on page 365)


THE BULL TERRIER-BORN IN THE SWAGGERING DAYS OF THE REGENCY

NINE good people out of ten consider the bull terrier a very bad dog. The mere mention of his name raises before their mind's eye a great, hulking brute of a dog tugging at the end of a heavy chain. They associate him with thugs and corner loafers. They think of him only as a menace to mankind and a threat against all other dogs-in fact, they regard him as a sort of embodied canine curse. The Fates seem to have conspired together wickedly to paint this unfaithful portrait in lurid colors.
In the first place, the poor bull terrier was unlucky enough to have been born too late, nor was he altogether fortunate in the selection of his parents. He made his first appearance somewhere between 1800 and 1810 , and he was literally just what his name implies, a cross-bred bull and terrier dog. In itself there is no fatal horoscope to be cast for a dog whose natal day happened to fall within the first decade of the past century, and we, of course, know very well what a good-looking, attractive dog results from the bull and terrier cross. But the two, his birthday and his parentage, proved to be an unhappy combination. They joined in giving the bull terrier, even in his puppyhood, a bad name that has stuck to him all these years.

Ever since the days of Caradoc, King of the Britons, bull baiting had been a favorite pastime in England. The English bulldog, the bull terrier's daddy, won his welldeserved reputation for pluck and perseverance as a very active participant in this socalled sport. His mother, the black and tan Manchester terrier, had also made a name for herself. It was pretty generally acknowledged that she could go into a rat pit, which she was then often called upon to do, and kill more rats in fewer seconds than any other dog. A son of such parents would quite naturally be expected to "do things," and the bull terrier did. Pierce Egan, a sporting authority of those days, expressed neatly the special recommendations of the bull terrier's first friends when he wrote in The Annals of


The Bull Terrier that wins at the bench shows to-day must be a bright, active dog, moving, as has been aptly said, "smoothly"

## -WHY HE HAS BEEN CONSIDERED A BAD DOG-HOW TO KNOW HIS POINTS

Sporting (1822): "He is a more sprightly and showy animal than either of the individuals from which he was bred, and equally apt for, and much more active in any kind of mischief, as has been well expressed. The true bullterrier is but a dull companion, and the terrier does not flash much size, nor is he sufficiently smart and cocking. The modern mixed dog includes all these qualities and is of an airy temper, without losing any of the fierceness, when needed, of his ancestors. His colors, too, are gay and sightly. We have been, however, performing a work of supererogation, not at all necessary to our sporting salvation or flash repute, in varnishing this new dog, which has become so truly the go, that no rum kiddy or man of cash, from Tothill street in the West to Northeastern Holloway, far less any swell rising sixteen, with black, purple or green Indiaman round his squeeze, the corner of his variegated dab hanging from his pocket, and his pantaloons well creased and puckered, but must have a tyke of the new cut at the heels of himself or prad."
The hard-drinking, high-betting, swaggering days of the Regency were spluttering out when the bull terrier appeared. In the moral reaction that followed, bull-baiting and rat-killing contests were viewed with just horror. There clung to the dog, however, the memory of his association with these barbarous sports. To-day no one feels called upon to prove that he is a man by betting a thousand golden guineas I'is Royal Highness' entry will win the Derby, nor to show he is a gentleman by drinking so much old port he must be carried to bed. Nevertheless, we are not less man$1 y$ and gentle than our forefathers. The bull terrier no longer gives practical demonstrations of his 羊等meness in the bull pen, nor his quickness in the rat pit, though he has still courage and agility. We do not castslurs at a man and consider him a ruffian and a blackguard merely because his great-great - grandfather was a swaggering elegant of the duys of King George. Does it seem quite fair to be
less lenient with a dog? But, give a dog a bad name and hang him!

Unfortunately, the bull terrier's bad name, which he so little deserves, has been kept alive. The daily papers delight to tell stories about dogs, very good dogs and very bad dogs. The very good dogs-they mourn themselves into a decline over Master's grave, or fish the


He is the product of a century's careful breeding-wedge-nose, blunt, black snout, with dark and bright, almond-shaped eyes children out of the mill pond-are always, in the newspapers, a collie or a St. Bernard. The very bad dogsthese go mad or bite the children on the way to and from school-invariably appear in the daily press as a bulldog or a bull terrier. Obviously, all canine vices and all canine virtues cannot be concentrated in these four varieties. This strange peculiarity of all newspaper dog stories has, however, done not a little to create the impression that any dog with bull in his name is a vicious, faithless wretch.

This erroneous idea has also been propagated by the alleged sport of dog fighting. The dogs fought in the pit are, however, a very different animal from the true bull terrier, though, unfortunately, they often steal his own fair name and go masquerading. In truth they are a nondescript lot, produced without regard for purity of breeding or uniformity of type, the sole object being to get a four-footed fighting machine. Of course, they are game, and of course they are natural born scrappers. In details they differ greatly, and in weight also, but, generally speaking, they are thick-headed, heavy-shouldered animals, marked with spots of black, brown, brindle or yellow, very unlike the wedgeheaded, clean-cut, snow-white bull terrier. They are, moreover, quite as different in breeding and disposition as in looks. Dog fighting is a fly-by-night sport, but for this very reason the confusion between the thoroughbred and the pit dog has been fostered.

At the time Pierce Egan penned his vivid eulogy the "new bull and terrier dog" was, in looks, much like the pit dog of to-day. As he now stands, the bull terrier is the product of a century's careful breeding. With the Boston terrier, since both were made out of the same materials, the old bull and terrier cross, he is a striking demonstration of what man can accomplish by continued, conscious selection in breeding. Much, I came near to saying most, of the bull terrier's physical improvement was due to the Hicks family-father and son. In their famous kennels in Birmingham, England, were developed the wedged-shaped head, the distinctive sting tail and the pure white jacket. Madman, Old Dutch, and Gully the Great were probably the greatest of the great Hicks' dogs. Madman was the first dog of really classic type the breed saw. He made his début in 1864, and proved not only a great winner, but also a great sire. Old Dutch, on the other hand, was no show dog, being very faulty in front, but he possessed a truly wonderful head, and I have had it from "old timers" that to him the present-day bull terrier owes, in a great measure, his clean skull and strong foreface. Gully the Great,
who was eventually imported to this country in 1893 by Mr. Frank F. Dole, of New Haven, was, like Madman, both show dog and sire. Other breeders than the Hickses and other great dogs than these three have been factors in the making of the bull terrier, but even a mere catalogue of their names would fill pages of House and Garden, and there is no room for them in an article like this.

The bull terrier that wins at the bench shows to-day must be a bright, active dog, moving, as has been aptly said, "smoothly." He must stand well up on his toes, with an air of dreamy alertness that is quite typical. His skull must be flat on top, without any stop, or dent, between the eyes. His foreface must be well filled in below the eyes, terminating in a big, black, blunt nose. In these points lie the secret of the wedge head and the famous down face, so distinctive of the variety. His eyes must be dark and bright, almond shaped, and set in at quite an acute angle with the top line of his head. These Chinese eyes of his give him that peculiar, dreamy-wicked expression so greatly desired by all judges. His front, though it is wider than in the other terriers, must be straight, with heavily boned legs and clean, sloping shoulders. Strong, springy pasterns and compact, well-arched feet alone will carry him to the blue ribbon. His chest must be deep and his back shortish, while his hindquarters must be strong and muscular, with well-lowered hocks. A judge expects his tail to be thick at the base and gradually tapering to a fine point, like the sting of a wasp, and he will penalize him if he carries his tail any way but straight out behind on a level with the line of his back. His coat must be fine, round his lips and on his underparts one can see his pink skin through its fine covering, and the hair has a peculiar, satin-like gloss to its whiteness. Any marking, save possibly a very small spot, and that must only be of pale lemon color, will handicap him out of any chance of figuring in the higher awards, since not for nothing is he called the "white un." In one thing he has considerable latitude. He may vary from thirty-five to fifty-five pounds in weight. Our judges have of late years been inclined to a lithe, racy, upstanding bull terrier, but recently there has been raised a cry for a return to the old, more solid, though by no means cloddy, type prevailing still in England.

England, however, is no longer the headquarters of the breed. The law disqualifying from the British bench shows any dogs with cropped ears sounded the death knell of the bull terrier's long-standing and well - deserved popularity. The uncropped dogs lose their trim appearance and typical expression, and, as the older fanciers of the "white 'un" gradually drop out, no new recruits fill the ranks. It seems to be but a question of time when the breed will follow the footprints of the Manchester terrier (Cont. on page 365 )


In absolute contradiction to all popular opinion, a "white un" is a capital dog with children, kind, gentle, strong and long suffering


The main object of cultivating is not to kill the weeds-it is to keep the crop growing lustily. But, incidentally, the weeds have got to be killed or they will kill the crop, hence the work should be done in such a way that the weeds are destroyed with the least possible labor

THE SECRET OF SUCCESSFUL CULTIVATION-WEEDS AND HOW TO HANDLE THEM-THE THINGS TO PLANT THIS MONTH-SOME RULES FOR PLANTING

## D. R. Edson



Keep sll weeds away from the tomato plants

OUR work in the garden this month will lie along two lines : Planting and keeping clean the things which by now will be well started; and setting out and planting all the later or tender crops. The inexperienced gardener is apt to pay too little attention to the former and possibly go too far in the latter. Planting is so much more interesting that you must be careful not to fall into the error of planting more stuff than you can take care of in the amount of time at your
disposal. If you are so situated that you can give the garden an hour or two regularly every day, a great deal can be done. If your labors in it, however, must be intermittent or limited to Saturdays and holidays, your total result will be more satisfactory at the end of the season, if you have calculated carefully enough, so that you can cope with your work in the garden. And as the fun and recreation to be had in the garden means as much as the products which you will get out of it, you will be only defeating your own purpose in attempting too much. If the garden does get ahead of you at any time, however, do not let a few dollars stand in the way of hiring someone as soon as you possibly can to help you get "caught up." It will be the falsest kind of economy to think you are saving anything by not doing this.
Of course it is much easier to resolve to "keep the garden clean" than to succeed in doing it. But if you begin your season's work with a full understanding of the necessity of keeping right up with your work, and a firm determination to do it, the battle
will be half won. And knowing what is to be done, of course, is a different thing from knowing howe to do it. Simple as the jobs of hoeing and weeding may seem, there is a right way and a wrong way-usually one right and several wrong-of doing each of the several operations of cultivation. Perhaps the best way of explaining the various practical details is to select one particular vegetable from each of the several types grown, and to give its "life history" as far as cultivation is concerned. For this purpose the vegetable garden and crops may be considered as belonging to three groups: Those of which plants already started are set out; those sown in the drills; and those sown in rows in hills. The method of handling cabbages, for instance, well illustrates how plants in the first group-those set out-are cared for; while onions may be used as an example of drilled crops; and corn, of crops sown in rows.

At the time of setting your cabbages, if you followed the suggestions given in last month's article, you had the ground raked smooth and level; and after planting, you went over it again with the rake attachment of the wheel-hoe to make the dust mulch over again where the ground had been trampled down in planting. No doubt that part of the garden, after you did this, looked as though it would be able to take care of itself for the rest of the season. And probably, if it had remained as clean as it then was, you would not have touched it again-with the result that your crop would have amounted to very little! If Providence concerns itself with the affairs of amateur gardeners a generous supply of weed seeds are sown to compel the lazy and untrained gardener to sultivate his crops. If there were no weeds he would be likely to leave his crops until the ground was baked as hard as a brick walk and the chance for any kind of a harvest was gone forever. The prime object of cultivating is not to kill the weedsit is to keep the crops growing lustily. But, incidentally, the weeds have got to be killed or they will succeed in killing the crop or ren-


Furrows for the various vine crops should be dug out to a depth of several inches and from eighteen to twenty inches across

dering it worthless; and, therefore, the work should be done in such a way that the weeds are destroyed with the least possible labor. If two or three weeks after planting you look carefully at your cabbage rows, you will find that hundreds-you will be fortunate if there are not thousands - of little weeds have sprouted and are barely visible. They don't look as thoughthey

Crops sown by seed in a continuous drill should be thinned out at the first weeding


After a rain go over the ground with a cultivator to break up the crust before it hardens
would ever be big enough to get the best of a radish, to say nothing about the husky looking cabbage plants that you have set out. But "lay not that flattering unction to your soul." They can get the best of any crop which does not completely cover the ground, although it may be half grown before they start. Don't neglect your sprouting weeds, to see how fast they can grow-but just take my word for it! The best time to destroy them is before you can see them without getting down on your hands and knees. In the case of cabbages and other plants which have been transplanted to the garden this is very easy, provided it is attended to promptly. Go over the ground between the rows with the cultivator teeth on the wheel-hoe, loosening it up thoroughly and breaking up every square inch of soil. Go twice in a row if necessary-it will not take a great deal of time, as you can do it as fast as you can walk. Then with the iron rake or a little hoe (one that you can handle easily and cut up close to the plants is much more convenient to use than the regular size) carefully pulverize each square inch of surface right up to the stem. If your patch is large enough it may pay to use the wheel-hoe across the rows between the plants as well as along them.

This is all that will be necessary for another ten days or so, unless you want to hasten the growth of the crops by a very light application of nitrate of soda sprinkled about the plants and worked into the soil. One handful of this material, which is very powerful, will be sufficient for several plants-so that, although it costs a good deal per bag, it costs very little per plant. I would not think of trying to grow early vegetables without it. And I don't think I have ever met a gardener who used it with reasonable care who did not get good results. If you put on (Continued on page $3^{81}$ )


The pool before the plants about it had attained a full growth looked a bit barren, but by the end of summer its crudities were covered

# ONE WOMAN'S EXPERIENCE IN CREATING OUTDOOR LIFE IN THE HEART OF A CITY-A SMALL GARDEN OF NATURALISTIC EFFECTS-THE CARE OF GOLD FISH 

Marte L. Marsh

THOUGH my back-yard is a garden enclosed with a high vinecovered fence and contains fine trees and pretty shrubs and a splendidly shaded arbor, there was one spot which, until three years ago, I could not make attractive. This was a sandy strip, about $17 \times 40$ feet, so shaded by the garage that nothing would grow there,

The idea came to me one day that I could turn this barren spot into a fish pond! Being absolutely unhampered by any practical knowledge, I rushed in where angels might have feared to tread-and the results are surprisingly satisfactory.

The pond was not reinforced, nor was it constructed upon scientific principles. My man had never used cement before, and we simply guessed at everything. The outcome goes to show that technical knowledge and skill are not absolutely necessary to do quite effective work.

I began by working with a sharp stick upon the ground an oval $12 \times 6$ feet; this my man dug out, sloping gradually to adepth of two feet. Our soil is almost pure sand, fine on top and coarse and pebbly underneath. This coarse sand the workmen call torpedo sand, but 1 do not know whether this is a correct term.
By the time the hole had been made into a fairly symmetrical shape, we had ready a load of cinders and three bags of cement, which quantity proved just sufficient for our work.


The construction was easy enough, and, as explained here, any amateur can make such a pool at very little outlay or labor

The sand which had been turned up by digging was fortunately clean and coarse, so we utilized that in making our concrete mixture.

The hole was first lined with cinders, which were tamped down solid. I think that this layer of cinders was about four inches deep. The cement and sand were then mixed with water to a thin paste, experiment showing the best consistency. We were told that the thinner and sloppier the mixture, the better the final result, and we worked on this basis. I have since learned that the proper proportion is one part of cement to four parts of coarse sand, but I am sure that we used less sand and more cement.

This thin paste was spread as evenly as possible over the cinders. My man had only an old coal shovel and a broken trowel for his tools, but he managed it somehow.

After this was done there was really nothing to do but to wait for the concrete to ripen. In five days it was quite hard, and in less than a week we filled the pond with water and put in the gold fish.

Our soil being sandy, it absorbs water like a sponge, so that all that was needed to drain the pond was a two-inch hole at the bottom, fitted with a wooden plug.

Of course, under different conditions, a small drain pipe could be put in, connecting with the sewers. But it is quite.possible to make such a pond without any drain at all, as I can
show, and such a one will be found to work very satisfactorily.
The first summer I was very careful frequently to take out the fish and to empty the pond. I caught the fish in a net and kept them in a tub of water while the pond was drained, scrubbed and refilled. One day the plug was swollen and stuck so tightly that we were unable to remove it, so my man got a tin pump from the hardware store and pumped the water out by hand. It was slow, but it worked; so I know that it can be done.

At first, draining the pond was good sport, but it soon lost its novelty. Then the net got torn and the fish would get out of it, and the whole performance had begun to pall and lose interest. Fortunately, about this time a breeder of gold fish told me that fish do far better when the dirt and sediment are allowed to collect upon the bottom and sides of a pond and the water is occasionally flushed off from the top, leaving such matter as is not carried off in this way to settle and form a deposit.

Experiment taught me that this is true. The fish have done better since I have followed his method. We now leave the water in the pond all summer - only draining and scrubbing it after the fish have been taken out for the winter.

At first the knowing ones predicted that, having but a thin shell of concrete, my pond could not possibly last through a winter. Althoug slight, this shell easily bears my weight and that of heavy stones as well.

For two winters the water was left in the pond until it froze about three inches, so that we had to break through this thick ice to catch the fish. After this we waited for a melting day, removed the plug and drained the pond. Both times spring found the concrete intact without any crack or shrinkage: this, too, after below-zero weather had lasted for weeks.

Last winter I forgot to see to the drainage after the fish were taken out, and in consequence the water froze solid to the bottom. The result was a few tiny cracks near the top; these my man brushed over with cement and water, and the pond


Children like this sort of outdoor life, and a pool, small or large, makes a safe playground for them. Make a wilderness of flowers around its border and stock with gold fish and you have an ideal substitute for the country
s now quite as good as it was when it was newly finished. By a fortunate chance our pond came out a bit uneven. A part of the north edge is a trifle lower than the rest. When we fill the pond from the hydrant we


Behind the pool was grown a background of elephant ears, iris and honeysuckle put the hose at the very bottom and the overflow which flushes the pond runs out at this depression into a system of small irrigation ditches leading to all parts of the yard. In this way even in the dry weather everything is kept fresh and green.

In constructing a pond, I would suggest that one spot be made purposely a little lower than the rest. It might be an unnoticeably slight depression or it might be featured a bit, as a little concrete channel; in either case it could carry the water overflowed into a little ditch. This channel could be edged with rushes or flags and be made quite effective.

After I had finished my pond and put in the fish I turned my attention to an environment for the bit of water. My idea was to have it look like a lot of greenery run wild.

There were already wild grape vines and woodbine over the trees and fences, and these made a dense background as well as a screen.

I wanted something which would grow quickly and yet have the effect of having been there for a long time. I did not wish anything formal or merely snug or neat in appearance.

I had one of the best greenhouse men up and told him my plan. The design he submitted looked like a birthday cake. I ended by having him send up the plants, which I selected, and some men to set them out, and I directed them. The result is a wildly, unconventional and incongruous mass, which would be a nightmare to a florist, but is a perfect delight to my lawless eyes.
In front of a great thatch of woodbine covering the garage is a Sumac like a fern in delicacy, and under this are Castor beans and Elephant's Ears; while rushes and Iris straggle carelessly up to the water's edge. A long rope of wild grape vine droops from a Butternut tree and waves lazilyover the pond or lies lightly on the water.
(Cont. on page 366 )

A
LTHOUGH the fence is generally an afterthought, and is often planned or provided for only when the building or remodeling of the house has been completed, it bears a distinct architectural relation to the house, and only by considering them together can a successful combination be made. A second relationship ex ists between the character of the grounds whether they are formal or infor-mal-and the character of the fence which encloses them. The problems and uses of walls and hedges will not be considered. since here we are


The Southern Colonial gateway has a distinct architectural relation to the architecture of the house


A natural effect has been gained here by placing the fence above a stone course set dry, and fitting the size of the fence to the increasing height of that course. Ramblers grown on the fence add a touch of color

THE RELATION OF THE FENCE TO THE HOUSE AND GROUNDSGATE POSTS AND THE PLANTING ON THEM-PERGOLA ENTRANCESTHE ESSENTIALS OF FENCE CONSTRUCTION

## Stephen Edsale

of the house or style of hedge may not be so pronounced. Fences, on the other hand, are compromises with the public. They make no avowed assurances of privacy: you can look through them - see the garden, see the house. Hence the necessity for establishing by the style of fence the proper relations between it and the architecture of the house and the character of the garden.

The fence is a product of the American democratic spirit and can be said to have reached its highest point of development in this country. Naturally they are to be seen to the best advanconcerned only with fences, those constructed of wood or iron or with a base of brick or stone. For the purpose of walls and hedges, it might be noted en passant, is to close the grounds in such a manner as to insure privacy within, make a background for garden effects and offer opportunity for outdoor living. In that instance the relation between the architecture of tage on suburban or country places, although in both New England and the South are excellent examples of Colonial city fences that have served as models for later country development and adaptation. And a salient point about the classical types of fences in both these sections is not that they are a byproduct of local car-pentry-as many of our modern wooden fences are-but were a sincere endeavor on the part of the architect to tie both the house and its enclosure into a congruous whole. So there follows this rule, which the architect may fortunately be able to impress upon his client-that when the house is designed the fence also should be designed, and not left to the vagaries of the local carpenter. The type of gate, which will be considered later on, depends upon the type of fence and should not be taken as a problem by itself, as is often done with lamentable results.

The first thing to establish before the fence is set up is your right to.place it. Make sure of the legal boundaries of your property; the laws differ in different States, and an inch one way or the other may mean an encroachment upon your neighbor's property. We have now and again newspaper accounts of community squabbles which result in the erection of "spite fences"a regrettable commentary on American neighborhoud spirit but generally founded on some encroachment of boundary lines.

Having established your legal rights and chosen the type of


To remove the cut-and-dried appearance of an iron or wire fence plant with vines
fence, the matters of construction are next of importance. Whether it be board and picket or any of the variety of wood, picket or iron, the main necessity for permanent construction is the upright, the other parts being readily replaced. Use the woods least affected by contact with the earth, preferably locust or chestnut. Insist that it be seasoned wood and that

ings. As a general rule, it is best to see that the posts are never heavier than the general line of the fence-if the fence is made throughout of wood. In the instance of using brick posts, iron is the best medium for pickets and rails. The combination of brick posts and wooden rails and pickets is rarely successful.

A post over 5 inches square should not be of one piece: the core should be some dampresisting wood, cy-
the ends which will be sunk in the earth are treated for several inches above grade to prevent wet-rot above ground. The posts can be charred over a fire, which, by the bye, is the Japanese treatment for all the woods they use in fence construction; or they can be painted with whitewash, petroleum, or tar creosote. The last is more effective when applied hot and put on in two or more coats. See that the tops are also treated. Wet-rot above ground, which can often be seen decaying these posts, will be further prevented by grading away the earth so that a pool cannot form at the base of the posts. Moreover, the tops of the posts should be beveled, to assist water in running off, as the wet-rot can readily start at the top once a water pocket has been made. The posts should be set three feet in the ground and eight or ten feet apart. For permanence, the rails should be let into the posts either at the sides or through the center, and bolted. Galvanized nails and bolts should be insisted upon. For a cheap fence use $4^{\prime \prime} \times 4^{\prime \prime}$ posts, $2^{\prime \prime} \times 4^{\prime \prime}$ rails, and pickets $7 / 8^{\prime \prime}$ square


When the top of the gate is concave the terminal weight of the gates is lessened and the need for bracing eliminated. Aymar Embury, II, architect


The combination of wall and fence depends largely upon the view from the house or garden, and the point from which privacy is most desired. Thus a front wall and side fence to insure privacy, or a front fence and a wall at the rear of the property to make a background for the garden
press, cedar or redwood, with panels and moulding tongued and grooved into one another, the joints being set in white lead. Fences that can sustain architecturally posts of such proportions are generally of appreciable height and should be well braced, especially near gate posts. The construction law of the gate to be remembered, is that it exerts a strain on its supports proportionate to its weight. If the pickets of the gate are cut so as to make the top of the gate concave in shape, the terminal weight at the end of each gate will be lessened and the necessuy for bracing the posts eliminated.

The iron fence has often been looked upon as inartistic. The charge. however, cannot be sustained, certainly not today, when manufacturers are cataloguing such excellent and varied types for all sorts of situations and places. It is a more expensive proposition than wood but more durable. For an effective use, combine brick piers with iron, or provide a brick of concrete course at the base on which the pickets can rest. Care must be taken that the architectural form of the piers coincide with the form of the fence.

The treatment and design of the gateway, as has been shown, depend largely upon the nature of the fence or enclosure, whether it be stone, brick, concrete wall, a wooden rustic fence, an iron fence or one of the various forms of hedges. Should the enclosure be a combination of rustic or iron fencing, backed by a thick hedge just within the fence, the gate and gate posts should be in harmony with the fencing, thus eliminating the introduction of a third type of construction.

For a cottage home an arched and trellised gateway, with a


This is the case of a remodeled house, where attention was given to the relationship between fence and house with obviously successful results
simple form of iron or picket gates and vine-covered fencing of íron wire, forms a picturesque entrance. It may be a narrow arbor or pergola, formed either of two or more arches set close together, or it may be of rustic woodwork, the roughness of bark and twisted limb being preserved to aid the effect. It should always be covered with vines, for bare pergolas of any form are not successfully decorative. Gateways of stone, either set in mortar or set "dry," should likewise always be covered with vines. If the stones of the gate posts are set dry, the crevices can be filled with some rock-loving plants that flower in the soil pockets of the crevices.

The question of planting, both on and behind the fence, depends largely upon the height of the fence and its durability. Thus one of the ivies is a good selection for the stone posts, although barren grape, honeysuckle, rambler roses or clematis will be more decorative if a pergola is to be covered or an arch spanned. It is generally well to back up a low iron fence with a hedge-privet and laurel are perhaps the easiest grown. There can also be used one of the more colorful shrubs-Japanese barberry or Spirea van Houttei. Such a hedge will remove any of the hard cut-and-dried appearance of the iron, which is the main claim against this type of fence.

In arranging for the planting behind a fence for any high shrubbery near it, it is well to consider the location of the best view from the house and not to obstruct it. Often, when the owner desires more privacy from the street, high shrubbery massed around the gate will be most effective. In using evergreens for this purpose, however, see that the masses are not made of a conglomeration of species, such as used to be the fashion.


## SYSTEMATIZING THE WORK FOR A BUSY MAN -THE LABOR-SAVING

IT is difficult for a busy man to have time for the upkeep of even a small garden. A whole day given once a week to the work, or an hour's work early each morning or in the cool of the evening, may least interfere with one's daily routine ; but the work must be so regular that the weeds do not get ahead. That is as discouraging as it is disastrous. Pulling up large-rooted weeds is as severe a strain upon the garden maker as it is disturbing to the roots of nearby vegetables
The germination and growth of weed seed are most rapid in warm, humid weather. Under such conditions a clean garden will develop a cover of tiny weeds within a few days after hoeing. Thus it is clear that garden work must be so apportioned that the whole garden's surface is stirred once each week. Weed growth and a crusty surface both become established in a longer inter val.

Economy of time depends upon one's skill with his tools and labor-saving devices. A large amount of effectual work can be done with an ordinary hand hoe in a short time, but no one ought to work without a definite notion of the extent and importance of the invisible part of the garden's growth-the root system.

The wheel-hoe is really safer than an ordinary hand hoe, as it is adjusted to the work and leaves little to the invention of the operator.

I once saw a man clear a garden of weeds by scraping the soil from between the rows. At the end of each row he accumulated a pile of dirt, which he carted away. A good top dressing had been applied in the spring, and before the summer was half over it was all removed.

When using the hand hoe about vegetables, the soil is drawn lightly from between the rows toward the plants, smothering all the young weeds in the row. This saves hand weeding and gives support to the stems. (One should not cut into the soil closer than six inches to pea vines when they are half-grown, but merely work the soil over the crusty surface.)

The work of removing weeds between the rows can be rapidly done by sliding the blade of the hoe beneath the surface, cutting every weed from its root. Passing down each row with a steel rake leaves the surface level and fine.

The task of thinning vegetables, such as yellow and white turnips, carrots, beets, etc., may be shortened by the use of a sort of hoe, a piece of metal is cut in the shape of a triangle with edges $3^{1 / 2}, 4^{1 / 2}$ and $5^{1 / 2}$ inches in length. The handle is fastened to the middle of this triangle. To use it for thinning vegetables, place the proper edge downward in the row and with one draw of the hoe remove the superfluous plants. Even though two or three plants are left where one is to stand, they can be removed quickly with the fingers.

Planting so that cultivation may be quickly and easily done is an object. Radishes in little rows four or five inches apart are easier cleared of weeds than when sown broadcast over a bed.

TOOLS-ECONOMY IN PLANTING-THE WORK MONTH BY MONTH

A narrow tool will easily do the work.

For plant-setting a marker is convenient. Use a strip five feet long with the feet and half-feet indicater. At each end, at right angles to this strip, affix strips that are the measure of the distance between the garden rows. To rapidly define the proposed row, lay the rule with the cross-strips extending to the nearest planted row. The spaces for the plants can be quickly opened with a trowel or dibble.

One or more boxes or baskets, durable enough to stand the weather, and kept for gathering vegetables in the garden, are of considerable value as time-savers,

Weeding done early in the morning is not arduous, and uprooted weeds will succumb by noon. Any watering of the garden, however, should be done in the evening.

Working one hour each day, one can keep in order a small $40 \times 40$-foot garden of the ordinary class of vegetables, weeding it with a common hoe and gathering and replanting vegetables. Of course, with a wheel-hoe one would accomplish the work of cultivation in about one-half the time. (Its blades, when set to kill weeds, earth up, or cultivate to a desired depth, do very effectual work.)

Beginning April 1 , after the manuring, plowing, harrowing and final raking has been done, and all preliminary work, such as preparing stakes, tools, plans, etc., have been accomplished, the garden work for a small garden, as mentioned above, may be achieved in hour-periods each morning, as defined in the following schedule:

## April

First Week.-Mark off rows for early vegetables ; drill in with seed drill peas, beets, carrots, turnips, radishes, lettuce, salsify, spinach; plant round or Irish potatoes; set onions and cabbage plants.

Second Week.-Set out cauliflower plants; plant seed for late cabbage ; prepare hills for crookneck squash, sweet corn, melons, cucumbers, tomato plants, peppers, egg plants; set poles for lima beans and brush for pea vines.

Third Week.-Plant sweet corn, crooknecked squash, hardy beans, and stir the soil lightly between the rows of vegetables; replant any vegetables that have not come up.

Fourth Week.-During the last week in April the garden's surface should be deeply hoed between the rows of vegetables, to break up any hard condition. All hardy vegetables have been planted and most of them are up, if the weather has been favorable. A second planting of peas, radishes, etc., should be made.

MAy
First Week.-Plant cucumbers, following three days later with (Continued on page 368)

# Landscape Gardening on a Small Place 

A GARDEN ON LONG ISLAND SOUND DEVELOPED TO GIVE THE BEST SETTING FOR A VIEW-THE POSITION OF THE HOUSE IN 'RELATION TO THE GARDEN-WHAT TO DO WITH A WINDING PATHHAROLD A. CAPARN, LANDSCAPE ARCHITECT

Elsa Rehmann

THIS oblong piece of land-less than an acre in all-lies between the street and a picturesque inlet of Long Island Sound. An outcrop of rock formed the highest part of the ground, which sloped first gently, then with an abrupt dip toward the water. A few time-worn, but vigorous, apple trees were dotted along the outlines of the land; old, overgrown and intergrown native thorn trees were scattered about in big groups. Such were the existing conditions.
The first consideration was given to the location of the house ; later attention was paid to the development of the ground around it. It is always advisable, wherever possible, to consider house and grounds as closely interrelated parts of one problem. Here the unusually well situated house fitted in quite perfectly with the design of the grounds.

The house is located on a rocky ledge. The stone of the cellar excavation was used for the building of the first story. The ledge as an integral part of the house, together with the thorn trees, which are by the merest chance so picturesquely grouped around it, suggested the name of "Thornledge."

The house stands very near the street boundary. It was desirable to build on the highest and dryest part of the ground, thus also allowing for the most expansive and intensive use of the grounds. On a small property, this fact is particularly worthy of note. There would have been no advantage in setting the house back from the village street, which has no traffic, while it was very desirable to get a big expanse of lawn as a foreground for the inlet view.
This seems the most logical development, the most natural solution; the only one, in fact: yet you will find that very few people take such important matters into consideration in house building. Even when there is no view, there are many advantages in developing the back of the house as the garden front, as the English and Germans have shown us for many years.


Over the entrance gate arch grow Carmine Pillar roses and Clematis paniculata flanked by privet hedges giving it a touch characteristic of European doorway gardens


The house was set on a rocky ledge at the highest point of the property. From it extends a curving pergola of interesting construction that divides the rose garden from the lawn

Convention has taught us to build our houses parallel to the street, and general expediency has found this the best solution for the average house. Breaking from the rule, this house may seem on the plan, at least, to have a most unusual tilt. In reality, it fits so naturally into that position that it appears perfectly at home. It is put on that slant for good reason; there is a fine feeling, harmonious with the natural setting, that indicated a desire of placing the house parallel to the main part of the stream.
This position offered an opportunity for a most interesting solution of the entrance and walk to the front door. It is odd that these problems of entrances and entrance walks are not developed in more individualistic ways, and that they are not better adapted to the character of the house to which they belong.
Here the inset of the gate on the diagonal, the hedge and high shrubbery hide the entrance gate until you are almost
abreast with it. Once inside, more shrubbery, the curve of the brick walk and the tangle of thorn trees which arch over it to hide the front door. Carmine Pillar roses and Clematis paniculata on the gate arch, the rhododendrons along the house wall, the laurel around the front porch, the thorns along the walk and the apple tree near the hedge, the Forsythia, the old-fashioned mock orange, the golden chain which has such wonderful wistaria-like pendants of yellow flowers, the Aralia and sumac, grouped in a heavy mass along the side, all these combine in giving continuous interest and color to the entrance walk and emphasizing the informal character of the house.


Inside the gate is revealed the hominess of the entrance with the vines climbing up the stone chimney and the laurels blooming at either side
expanse of lawn. It is an unwritten law in Landscape Architecture to put no disturbing element in the line with the vista, to exclude and screen away anything undesirable in the view, and to create a heavy frame for the view. The same trees and shrubbery that here bound the lawn space hide barn buildings on neighboring properties and make a frame for the view.
For the surroundings of most lawns the boundaries should be as high and heavy and impregnable as tall trees and shrubbery can make them. Here the enclosure on the sides is high, but on the lower end of the lawn along the water the bounding shrubbery is purposely low, in order to keep open the view.
Tree and shrub enclosures are absolute essentials to develop greensward into lawns. What they add to the lawn space, to the privacy of the grounds and to the play of light and shade on the grass is not generally appreciated or understood by owners of small properties.

This property is only 150 by 200 feet in area. For a complete and intensive use of a piece of ground-even of this size-more than the creation of a lawn is necessary. That it is worthy and capable of great variety in effects is shown in the development of this property.

A terrace is the means of transition between the house and lawn. The slope was quite steep, the terrace making a comfortable means of approach from the porch steps to the lawn.

Terraces are capable of many forms, shapes and characters. They can be made spacious, dignified, ornate and formal to harmonize with the most elaborate house ; they can be as small, simple and informal as any suburban house may require. The small, oblong grass plot is surrounded by narrow brick paths, which in their turn are bounded by unclipped barberry hedging. This is the simplest form a terrace can take.

It is particularly fortunate in winter to have such a sunny spot close to the house. The brick paths make it dry to walk on, and the red barberry berries lend a cheerfulness.

In the first plan for the terrace the grass plot was divided into three panels, a pool in the center with flowers on either side. This idea illustrates how even such a small space can throb with interest, be full of color and be enlivened by reflections.
Steps from the terrace lead down to narrow strips of ground on the east and west side of the lawn.

The eastern side of the property was originally thought out as the service side of the garden, but it is so full of color and flowers that it hardly gives any suggestion of the original intention.

Service paths on small properties are especially difficult problems to deal with. The monotony felt in many suburban streets where two straight paths cut up each lot front and form tiresome ribbons of paving along the whole street is appalling. Any ingenuity and originality expressed in the solving of this problem is always welcome. Here it seems most naturally done. The little branch path curving off the main path is very simple. Almost hidden by the outstretching branches of the shrubbery borders, it turns off the main path at just the point where it is least noticeable and, with its own curve in the direction of the kitchen entrance and drying yard, it soon fades entirely from view. It has the essential demand of the service paths, as well as all service parts of the grounds: that they be screened and hidden away from all the other parts.

Once inside the house, the hall leads directly to the living porch. From there is the best view of the inlet and the whole


This is the view of the Sound from the house shown opposite. A deliberate attempt has been made to obscure or remove the objectionable and give the view a fitting frame

A path runs along the whole length to a tool house. It is shut off from the lawn by a hedge and for part of the way it is under the curving pergola. This pergola offers support for grape vines. It is very simply built, its curve is interesting, and its pointed roof construction gives a rather quaint impression. It is built very low and is set so far below the terrace that in a very few years it has become almost hidden by the growing trees and shrubbery. It has that quality now of fitting into its place, which is an essential of pergolas which many never seem to acquire.

On the side of the pergola is an oddiy-shaped little piece of ground given to roses and small fruits. Many kinds of native and bush roses are planted in a thick mass along the terrace wall. Rosa blanda, spinossissima, Persian yellow, rubrifolia, rubiginosa (the sweetbriar), nitida, lucida, Madam Pantier and carolina, to give them in their succession of bloom, make a bright tangle of color for the terrace throughout the rose season.

Every garden shoubd have roses for cutting, and yet Hybrid Tea and Hybrid Perpetual roses can never be associated with shrubbery. It is difficult to find an appropriate place for them in a garden which is developed in such a naturalistic way as this. Here they have been planted with the gooseberries and currants, for both roses and small fruits to develop good flowers and fruit need to be arranged as specimens. If roses cannot have the dignity of a separate rose garden, which is hardly possible in a small place of this kind, and where intensive use ought to be made of every bit of ground, this combination of roses and small fruits is a very good one.

To the north of the roses is the drying yard tucked away behind hedges. Iris and chrysanthemums are planted along the side of the hedge. To the south of the roses is an oblong plot originally planned for the vegetable garden. In a logical development of a piece of ground around a house all the service part of the ground is kept together. It can then be easily screened away from the other parts and can be easily taken care of. As here, it is best always near the kitchen side of the house.

If the lot had not been capable of expansion the oblong would
have been the only possible place for the vegetable garden. As it is, the vegetable garden was transfered to a strip of giound along the southern side of the property, some six feet below the level of the lawn. For all intents and purposes, as far as the view and the garden are connected, the vegetable plot does not exist, still it yields its full quota of vegetables in a good, sunny, southern location.

This change from the original vegetable plot is quite an advantage. Vegetable gardens are not especially attractive and should be put as far away from the house as possible. This change gave an opportunity to transform this oblong into a secluded little nook, which has a certain distinction despite its diminutive size.

The great old apple tree makes it a nice, shady little spot. The roots of the tree made any planting on the oblong a difficult matter, but, as in the solution of many problems, its very limitations created the best development. The ribbon border of flowers with the simple lawn space between gives a charming effect. Yellow iris grow on one side, white and pink peonies along the other. When in bloom they give a brilliant color effect, at other times the decorative peony foliage and iris sheathes make a good border effect for the little lawn.

While the east side of the property is allotted to utilitarian purposes, and shows in its development how pretty such a useful little strip of ground can be made, the west side was developed purely in a decorative way.

The outcropping ledges immediately to the west of the house are overgrown with wichuriana roses and in among them such rock plants as the yellow-flowered Sedum, pink and white Phlox subulata, and Helianthus making bold and striking groups of autumn bloom.
A west path, starting at the terrace and making a big, generous curve to the extreme western side of the grounds, balances the path along the east side. Each path has a distinct character and is quite different from the other.
(Cont. on p. 369 )


The west path is informal, passing through masses of shrubbery that stretch their branches over it. Low-creeping flowers grow over the rough stone edging, and here and there the shrub mass is broken to give views of the lawn through the gaps


The first thing to plant in a seashore garden is a wind-break of privet and native trees, for without it the sea wind can be counted on to shrivel off leaves from the most promising plants

PLANTING A WIND-BREAK-NATIVE GROWTHS FOR NATURAL EFFECTS-LILIES AND GRASSES

## V. F. Pencose

DO you want a garden in the sand where east winds rage? First plant privet as a hedge. By the hundred or thousand rates it will not be very expensive, and you must have protection. Of course, the native bay is more according to nature, but it does not grow so quickly. When you have a dense growth of privet there is something to break the sea wind, which baffles most gardeners, and can be counted on to shrivel off leaves from the most promising vines and trees if unprotected.

Top-soil is necessary if you are in a hurry and cannot allow a lot of manure to ripen and lie fallow on your sand, to be dug in after a full winter. Fall planting gives the best results for most things, and top-soil, plus manure, will hasten matters. I save all cuttings from shrubs and flowers to mulch with in the late fall or during the hot, dry season. Tamarisk makes a wind-break in Bermuda, but it seems to need first a good wind-break itself in New Jersey, then grows dense with much clipping, forming an attractive background for shrubs and flowers.

As stone houses are not always to be found, foundation planting around a frame house, especially with evergreens, means much damage to it in the necessary every three-years' painting of all your woodwork. And are you not a little weary of the same style of planting wherever you may go? By our ugly lattice-
work around the high-set porches, deciduous, tall things like bocconia and boltonia, which grow up from the roots, have proved most attractive and suitable. The painters do not hurt them. They grow, when such work is done in the fall, or early spring, in fine style. Mallow marvels could be used in the same way if desired. Remember, however, that they must be cultivated during their growing season-June.

Ailanthus glandulosa, the female form, helps make high walls, if you want protection from neighboring eyes, as we did. It hides ugly garages, etc. For it is often the "etc." that must be considered. Red cedars transplant easily, and are usually to be had for the digging, along inland roadsides. Many native growths may be had, but often you will find better results with nursery stock. Elders will grow twelve feet tall. You must be content to wait three years for real transformation unless you can afford to buy large stock, and even then it may die down. My native gardener advised me to "buy small things." His advice has proved its own worth.

Catalpas are most attractive in the native growth. The clipped and formal planting, Catalpa Bungei, may do for some large places where "style," more than beauty, is "the thing," but the (Continued on page 370)


An arbor can be made from cedar posts covered with wire netting, over which vines -clematis and honeysuckle-can grow


It is best to follow native growths-let the privet be untrimmed, forming a background for lilies and border plants

# The Uses of Whoodwork in |nterior Decoration 

THIS that we have called the Italian Style in room decoration is not an historicstyle in the same sense as the Adam or the Jacobean. It was developed here in New York and is perhaps as distinctly American as any manner of room decoration; we call it Italian because in spirit and in ornamental detail it follows the work of the early Renaissance of Italy or the Roman work of the classic Imperial Age whence came the inspiration of the Renaissance.

Its origin is interesting. Twentyfive years ago or more, wealthy Americans traveling in Italy began to buy and bring back with them old furniture and carved marbles, chimney-pieces, candelabra, tapestries, hangings, bronzes or woodcarvings, and these exquisite objects required a suitable background in the new house of their purchaser. This the architect set himself to find; they must, of course, dominate the room that was to hold them; the wall should serve as background merely, but must avoid a museum-like bareness. If the objects were of light stone, gilt wood or rich in color, what could be finer than dark wainscoting with the great veneered wood panels our carpenters were just then learning to construct? Complicated mouldings in the new work were eliminated, and, of course, all unnecessary carving, for the grain of the wood was of sufficient richness ; the more beautiful its convolutions and the rarer the wood, the better. Our own White Oak was excellent, but better still the darker knotted English Oak or the Betula or Circassian Walnut.

So the veneered or built-up panel was developed, or, more properly, revived; for something similar had been used before in the mahogany cabinet work of the early Eighteen-Hundreds. Sometimes the precious wood was cut in thin slices by a rotary saw,


This type of room is called Italian, because in spirit and in ornamental detail it follows the work of the Early Renaissance of Italy or the Roman work of the classical Imperial Age whence came the inspiration of the Remaissance
thin as a sheet of cardboard; sometimes the $\log$ was steamed or boiled in water until spongy and then sliced with a huge knife, a cheaper but inferior process, as a warped and twisted veneer resulted that was more difficult to handle and not so enduring, though far more so than a panel would have been if cut from a single piece.

Veneering is much maligned and misunderstood; "Veneer" seems, in the average mind, to imply something ignoble: the furniture salesman of the department store takes pains to explain that this piece is "solid" mahogany or oak, not veneered; but every carpenter knows that a veneered and built-up piece
THE ITALIAN STYLE AS DEVELOPED IN AMERICA TO HOUSE FOREIGN is stronger; more ANTIQUES-BEAMED CEILINGS AND THEIR MODERN CONSTRUCTION- expensive, too, un-VENEERING-CHEAPER SUBSTITUTES TO CREATE ITALIAN ATMOSPHERE less the finishing

## Alfred Morton Githens

curls in one direction, across the grain, wood shrinks and direction of its length; a wood panel three feet wide, if not veneered, would curl and split to pieces.

A wide panel is built up of five layers, the inner three in the best work of White Pine or Chestnut, for these two are the least given to warping or twisting. The center layer is about as thick as one's finger, the grain running lengthwise of the panel, and is itself glued up of several strips laid edge to edge. Next it on each side is glued a layer about as thick as a book cover, the grain running crosswise of the panel. This makes a firm core, for any tendency of one layer to twist in one direction is counteracted by the tendency of the next to twist in the opposite way. On one side of this built-up core is glued the thin sheet of finishing wood, with a strip of commoner wood of equal strength on the other.

The carpenter receives the finishing wood from the mill already cut in sheets, but they are kept together in their proper order:
he separates them, keeping the sheets in their sequence, spreads them out and trims and glues them on the core, carefully matching the patterns in the grain, for the panel is often larger than the sheets of finishing wood. The system is quite evident when one examines any wide, hardwood panel. What appears a single piece is made up of two, or four, or six, or eight pieces of veneer, as the case may be, and counting the inner layers, of perhaps twenty separate pieces. This is, of course, expensive. For our Jacobean room last January we quoted a price for good, solidpanel wainscoting, of about \$I a square foot, set in the wall and finished; the veneered work would cost \$1.50.

In the room we have illustrated the dominant is the chimneypiece. The first that were used in modern rooms were taken bodily from the old palaces, but ours might well be a cast concrete reproduction. A large fireplace is characteristic of the style. We mean "large fireplace" literally, not a large chimney-piece fastened against a small fireplace. It is never successful to set up one of these great hoods with its supporting pilasters and projecting corbels and then fill underneath it with brick or stone until the usual $30^{\prime \prime} \times 30^{\prime \prime}$ opening is left. Better have the large fireplace or give up the type altogether !

A large fireplace means a deep fireplace as well, and a big flue. The flue should be $1 / 10$ or $1 / 12$ the area of the fireplace opening. $30^{\prime \prime} \times 30^{\prime \prime}$
The $30^{\prime \prime} \times 30^{\prime \prime}$ fireplace requires $\qquad$ flue area, or an 12
$8 \times 12$ flue lining, which, actually installed, means a $7 \times 11$ flue, since the standard flue lining is somewhat smaller inside than its list dimension would indicate. Our fireplace is $58^{\prime \prime}$ high by $62^{\prime \prime}$ wide, so it requires a $24^{\prime \prime}$ diameter flue; we give the diameter, for the larger linings are round in cross-section. Eighteen or 20" in depth is sufficient for the small fireplace, but ours must be $30^{\prime \prime}$ at the very least, measured from the back of the hearth to the floor immediately under the front of the lintel. The Intel should not be flat underneath for more than $4^{\prime \prime}$; beyond, should slope upward and back, so the ascending smoke cannot strike a flat
surface and roll out into the room. Back of the lintel is a tentshaped space, called the smoke chamber, narrowing at the ridge to a slot the full width of the fireplace and equal in area to the flue; above and back of the slot a ledge forms the base of the "throat," a pyramidal space gathering at the top to the flue, and so up, without unnecessary bends and without change in crosssectional area, to the top of the chimney, slightly higher than any nearby roofs. Such a fireplace is certain to draw well.

Another way, but not quite so sure, is to combine smoker chamber and throat in one pyramidal space gathering directly into the flue, without slot or ledge. A standard iron damper might be set above the smoke chamber, which, closed in winter when the fire is not lighted, prevents loss of heated air and a chilling of the room; but a damper is not necessary. The important things seem, first, to have the flue large enough for the opening and, second, to have the fireplace deep enough. The flue, we said, must be at least $1 / 12$ the area of the opening; the depth must be at least $1 / 2$ the height of the opening; better rather more.

A mantel, such as we have shown, cast in concrete stone from an old Italian model, if it be one of the types kept in stock by the larger mantel manufacturers, would cost between $\$ 80$ and $\$ 160$, depending on the elaboration of its ornament. A brick hearth and brick back and jambs would be satisfactory; an ornamental cast iron fireback set in the brick is interesting but not necessary.

In an earlier article we referred to the remarkably good replicas of old mantels in the stocks of certain dealers; in buying such a mantel one has the yery best work of a good period perfectly reproduced, at a cost far below what one would have to pay for a mantel specially designed; for, of course, if an article can be found in stock it is inexpensive for value received; if the manufacturers can make many from the same model they can afford to sell for less. Doors are an instance. We have said that veneered work in large panels was more expensive than solid work in small; yet there are excellent single-panel hardwood veneered doors made in the Middle West that are as cheap as th most commonplace
(Continued on page 384)


In the Italian room the dominant note is the chimney-piece. At first those used were taken bodily from old palaces, but to-day cast concrete reproductions are to be had at a reasonable price. The fireplace itself must also be large, not merely a large chimney-piece fastened against a small fireplace


BEGINNING A GARDEN HALF-WAY-THE POSSIBILITIES AND PLACE OF BEDDING PLANTS-PRACTICAL SUGGESTIONS FOR CHOOSING THEM -bUYING BY PARCELS POST-A LIST OF THOSE MOST EFFICIENT

F. F. Rockwell.

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Photographs by Nathan R. Graves

Begonias propagate readily, and from a single plant can be had all the plants one needs the next year

T- HE term "bedding plants," as ordinarily used, applies to those plants which are ustually bought in bloom or in bud in pots at the florist's in early spring for setting out when danger of frost is past. Formerly, when design and carpet bedding was still in vogue, many of these plants were put to such atrocious uses by the soi-disant landscape "artist" that their reputation is still bad, despite the beautiful effects which may be had with


Geraniums are the most satisfactory bedding plants, and many of the newer sorts are excellent for cutting them in combination with other flowers, if good judgment and taste are exercised.

The commercial list of budding plants include many biennials and tender perennials ; a number of annuals, too, are grown and handled in the same way, such as asters and sweet alyssums; in fact, there are available flowers which are adapted to almost any condition one is likely to meet.

Planning a garden with bedding plants is in one way very much easier than with any other flower materials. In the first place, they bloom, for the most part, pretty much throughout the whole season, and, as they are quite well grown when you get them, they can be readily fitted into the garden scheme because you can see actually before you colors, sizes and shapes. Moreover, results are immediate. The garden may be forsaken looking on Friday night, with here and there an old stub of a last year's plant; on Sunday morning it may turn to the world a whole range of fair flower faces in various lues, or in one brilliant mass effect of color that entirely transforms the landscape. They are particularly desirable for use where for any reason the garden has to be fixed at the last minute ; as when, for instance, one has a country place that is not opened up until the first of June, or when one rents a cottage for the summer and wants to brighten
it up quickly without waiting to grow anything from seed. Like every other class of flowers, however, bedding plants have their disadvantages as well as their unquestionable advantages. In the first place, they are more expensive than plants raised from seeds, as far as the actual cash outlay is concerned-and even when you are trying to be efficient in your flower garden, you will hardly go so far as to charge up to each plant the time you have spent in sowing, transplanting and repotting until you get it to the blooming size. The florist, of course, has got to charge these little items up or else he would be soon swelling the grand army of the unemployed. Then, of course, these plants, or at least practically all of them, must be had new every spring. If you have the means of doing it, you can take cuttings and grow your own supply of plants, which not only makes them cost little, but will


Besides adding a touch of color, the faint perfume of mignonette is apprecialed in the sweet-scented garden


The secret of success with a garden made of bedding plants is to choose the right plants in the beginning-getting healthy plants in bud rather than in bloom-and then giving them the same judicious care that one would give to any other garden


Ageratum makes an excellent border where blue and white is desired. It is more sturdy than alyssum
or may not be a disadvantage, according to circum-stances-a bed that is well cared for and has good soil requires very little work in the spring.

The improvements which have been made in recent years in the various kinds of bedding plants are fully as wonderful, although not nearly so well known, as those among roses and carnations. The humble geranium, for instance, has been improved, until now there are several hundreds of new varieties, among which dozens of fine kinds are hardly known at all. There are several new sorts of bedding begonias with flowers fully twice the
size of any of the older sorts; a violet-colored sweet alyssum; asters that are as beautiful and as large as chrysanthemums ; and so on through the list. The large part of the pleasure of gardening is to keep oneself familiar with the new developments. The new things, of course, cost more, but as most of them are easily propagated, a plant or two bought this spring will furnish you with a goodly supply by another season.

Despite the fact that bedding plants are more commonly misused than any other class, the fact (Continued on page 387)


Asters are the poor man's chrysanthemums. For both bedding and cutting they are favorites

# My Suburban Garden 

HOW A PRACTICAL GREENHOUSE WAS BUILT AT MODERATE COST-ADDING A BARN AND CHICKEN HOUSE TO THE GARDEN EQUIPMENT-THE BEAN ARCH SYSTEM-A RECEIPT FOR MAKING HENS LAY

Warren H. Mileer

$W^{1}$were so much encouraged by the performance of our hot frame, with its crop of lettuce in mid-January, that we decided to "shake the same tree again" on a larger scale. I had no intention of letting myself be drawn into a regular greenhouse scheme, with a hot-water heating plant that would have to be fed day and night. I am a busy commuter and have quite enough


A corner of the garden on May 20: beans for six, four 30 -foot rows. The lettuce in the hotframe is ready to set out
to do to keep the furnace from going out unawares (which it is always seeking a favorable opportunity to do), and all we wanted was something to grow the more hardy vegetables in winter, something that would start all sorts of early seedlings for the garden in February-tomatoes, egg plants, lettuce, radishes, celery, peppers, cabbages and flowers. If a hotbed could do this on a small scale, why could not a glorified hotbed, in which one could stand up and work, do it still better? So I built the little $9 \times 12$-foot greenhouse, at a cost of $\$ 24$ for eight $6 \times 3$-foot glass sashes, $\$ 4$ for boards and $\$ 4$ for timber and paint.

I first sawed out eight 12 -foot trunks from my forest trees and four 9 -foot ones. These I sawed bevel, to match the corner posts, and piled them in pairs, one above the other, spiking them to $3^{\prime \prime} \times 3^{\prime \prime}$ posts at the corners and to rough $3^{\prime \prime}$ stakes on the inside. Parallel to these, and 3 feet inside of them, went two second pairs of logs. This gave me a rectangle $9 \times 12$ feet with two $3 \times 12$-foot beds in it, which were forthwith filled with fresh fermenting manure destined to furnish the heat for the little greenhouse. Next went on the $78^{\prime \prime} \times 12^{\prime \prime}$ top trim boards, nailed to the four corner posts, bringing the total height of the greenhouse wall up to three feet; and earth was then banked up outside of the logs to the bottom of these trim boards and sodded, the slopes being planted in Cuthbert raspberries. Two $3^{\prime \prime} \times 3^{\prime \prime}$ central upright posts now went in at each end and on them the main ridge pole, a $4^{\prime \prime} \times 4^{\prime \prime}$ smooth-dressed timber, set in a notch in the upright with
its corners up and down. To this was hinged the eight sash frames, four on a side, with their lower sashes resting on bevel moulding nailed to the top of the trim boards. Plain vertical planking, with weather strips nailed on the joints, closed in the ends. The whole was given a coat of white paint and the greenhouse stood finished. I could have had triangular glass sashes made at the mill for the ends, but the cornicing of No. 2 crown moulding had to agree with the house architecture, so 1 did not bother with any special sash work.
The $3 \times 12$-foot beds inside were given a top dressing of rich soil and planted in February to all the standard early vegetables. On very cold nights I have a lantern in the house to help out with the heat; otherwise it requires no attention. I also got rid of the outside nuisance by putting in a set of window shade-rollers under the roof sashes. The rollers are on the usual iron roller brackets, secured inside the trim plank at the eaves, and the shade pulls upward to the ridge by a cord through a small galvanized pulley stapled to the ridge. This greenhouse is no trouble at all and we can grow almost anything in it except the really tender hothouse exotics. Its central walk is 3 feet wide, floored with concrete with a basin aquarium 6 feet long by $18^{\prime \prime}$ wide, and the inner logs are left in natural bark.
Between the north pergola and the space allotted to barn and chicken house is about $40 \times 25$ feet of room. Along the privet hedge side of this I put in a border of raspberries and blackberries 4 feet wide, with a Baldwin apple treę at each end, corresponding to the two Kieffer pears still standing where the old west border was. A Satsuma Japanese plum went in the border midway between the Baldwins as a filler, and on the north side I put in another Champion quince, to help the first one set fruit. This plot was now surrounded by a rectangle of young fruit trees, leaving a bed 20 feet $\times 40$ feet, which at once received the title "West Garden." What should we plant there? If I were starting from the beginning, I should certainly set it in asparagus, as here is a large bed, apart from


Here are the same beans in July-a solid wall, all you can eat and preserve. The young peach tree was planted in April
the main garden, ideal for a permanent planting like asparagus. As it was, the north border of the garden held our asparagus, with roots now five years old and impossible to transplant, so the West Garden was planted for the first years in six rows of corn on the west side and three rows of lima beans on the east, using the bean arch scheme so successful the year before.

During February I was very busy building the barn and chicken house. As I did every stick of it myself, from the post foundations to the outside trim, it goes to prove that any commuter can amuse himself successfully that way, provided he will buy himself a real saw, not a tool-box one, and a real hammer, not a five-and-ten-cent store specimen! The former cuts like an angel, with no particular muscular outlay involved, and the latter never pounds your thumb nor glances off the nail-head and maims your left forefinger, as the cast iron variety is sure to do. The barn is 12 feet $\times 18$ feet, with a $6 \times 8$-foot concrete porch, and a concrete floor, the whole in keeping with the architectural treatment of the main house. It will accommodate one horse and carriage, and four dogs. The second story is a Retreat, used by a certain writer when the main house gets too noisy for invoking the Muse. It is my "dope" den, photographic studio and literary workshop in one; by "dope" being meant filed archives of reference pamphlets, facts, figures and philosophy. None of these are tolerated in the main library, and they used to occupy a dark closet, where chasing a fact to its lair involved a day's work with a dark lantern.

The door of the barn is 8 feet wide $x 7$ feet 6 inches high, and it will accommodate a small "car," in lieu of horse and carriage (which God forbid!). There is room also for garden tools, wheel-hoe, lawn mower, hose reel, wheelbarrow and such accessories before the fact which used to clutter up cellars and rear halls in the main house. It cost $\$ 148$ for materials, and a contractor would duplicate it for you for about $\$ 800$.

Let us now turn to the arrangement of the main garden. The success of everything in the rear border the year before now emboldened me to put in again the trees originally planned for this space. I accordingly set another Baldwin in the angle between the barn and rear trellis, two more Bartlett pears, spaced twenty feet between it and the Early Harvest Apple tree at the end of the main garden path, and another Black Tartarian cherry in the border back of the East Garden, between


The west garden on June 1, showing pole beans and corn. Later the ends of the poles were lashed together to make arches
the two Early Harvest apples. This is practically the same planting as went in there two years ago, all of which died; but this time the earth was a foot higher, the soil mellow and sweet and well manured, and everything planted in it "went along like a house afire."

In the new plan you will note fewer sorts of vegetables and more rows of each kind. The problem for a commuter's garden is to raise only the sorts which do not require mach nursing and tending; broad-leaved vegetables, which keep weeds out of their own row and only require the wheel-hoe to be run down between the rows once a week to keep the weed population under. For this reason I omitted all the narrow-leaved vege-tables-onions, leeks, salsify, carrots (except in a dense bed for


This is the same garden in August, showing the thirty-seven hills of limas hiding the 8 feet of corn. A corner of the farm is also visible
little ones) -and devoted a good many more rows to the standard vegetables, sowing seeds an inch or more apart in the rows and thinning to four inches for "greens." Our strawberry bed, after the fruiting season in the previous June and July, had put forth such a vast quantity of runners that it was hopeless to try to use the wheel-hoe on it, and I had no time for hand weeding. So I let it go its way, keeping down the weeds and grass with a sickle, besides one or two hand weedings, until the sets had rooted firmly and the runners had turned black, indicating that the parent plant was through furnishing sap to the young sets. Then, in mid-October, I dug up the whole bed, separated the sets and old plants from the weed and grass roots that came up with them, and I then had more than five hundred strawberry plants, including the original hundred. I cleared the whole East Garden for them, set 400 on $1^{1 / 2} \times 1^{1 / 2}$-foot spacing, and had 100 left to give away. They should be set square and not "staggered," so as to give the wheel hoe a clear run, both across the bed and up and down it.

This made it necessary to find a new place for the tomatoes, so I established a yard of thirty-two plants across the main path, taking $15 \times 25$ feet of garden space. Next to them I arranged for five rows of beets ( 125 feet), taking $9 \times 25$ feet of garden space, and, beyond the hot frame, three of turnips and three of spinach. The old bean arch ground back of this frame was now exceedingly rich soil, not only from the wellknown nitrogen-producing qualities of beans, but from the
(Continued on page 372)

# The Maintenance of Electric Cars in the Country 

THE GARAGE: AND THE GENERATING PLANT-USING DIRECT CURRENT FOR CHARGING-AUTOMATIC CONTROL OF CURRENT-NECESSITY FOR PROPER LUBRICATION-ADJUSTING THE BRAKE MECHANISM

John R. Eustis

WHEN the assertion is made that it is a very simple matter to operate and maintain an electric vehicle, either pleasure car or motor truck, it is made in a comparative sense, because the electric vehicle is a piece of mechanical apparatus, and as such requires a certain amount of skilled attention for its successful use. The degree of skill and care required, however, is less than in the case of other mechanically propelled vehicles, such as the gasoline or steam automobile.

The maintenance of an electric vehicle is much more of a problem than its operation. In cities and towns, where often the housing, and nearly always the battery charging, are done at a public garage, the matter of maintenance is attended to by the skilled mechanics and electricians employed there. The same holds true in the private garages, where a fleet of electric motor trucks is housed by its owner.

It is different, however, on the country estate or farm, where seldom more than three, and usually but one electric vehicle is used. In such cases public garages, equipped to charge and care for electric vehicles, are not usually convenient, and the owner or driver must have the requisite knowledge and ability to attend to them.

When an electric vehicle is to be used in the country the first matter that comes up for consideration is that of its housing. It can be kept in any barn, stable or other building where it is protected from the weather. Its presence does not constitute a fire hazard and consequently does not affect the insurance; neither is there any danger in cold weather from freezing, as there is nothing to frecze except the solution in the batteries, and this is immme when the battery is partly or wholly charged.

The amount of money inivested in an electric vehicle, however, and the importance of securing a maximum efficiency out of its use, fully warrant the construction of a special building or garage for its housing. The same building will contain the apparatus for charging the battery, a small work bench, storage room for extra parts, and, perhaps, the plant for generating the current for charging the batteries. Such a plant is, of course, not needed where current is already available for lighting and power purposes, as is generally the case nowadays on the country estate and farm. Where it is necessary to install such a generating plant, in order to make possible the use of an electric vehicle, the current generated may also be used for lighting and other power purposes.

There are a number of satisfactory types and styles of small garage buildings where one or several electric vehicles can be housed. Stone, brick or concrete construction is preferable for the same reasons as would apply to any other buildings. Frame construction is, however, entirely suitable. For the sake of cleanliness a concrete floor is desirable, and this feature means much to the life of the rubber tires of the vehicle. The garage should not be so small that there is not ample room to work all around the vehicle or vehicles stored in it.
The matter of the charging of the battery comes next in order. Only direct current may be used for this purpose. Where such current is available of a voltage near to the maximum required for the charge, the only apparatus necessary is a rheostat regulating resistance, placed in series with the battery and a voltammeter. When direct current is available, but at a voltage far above or below that required for charging the battery, a motor generator
set must be employed. When alternating current only is to be had, then apparatus must be used to convert this to direct current. There are three types of such apparatus-the mercury arc rectifier, the synchronous or rotary converter, and the motor generator set. One of the more recent developments in battery charging apparatus is an automatic arrangement whereby the charging is automatically controlled and automatically cut off when the batttery is fully charged. With this device it is only necessary to run the vehicle into its garage at the end of the day's work, connect the battery to the charging board, turn on the current, and forget about it until the following day or later. Then it will be found with the battery fully charged and the current cut off.

The necessary information for charging and caring for batteries is contained in the instruction books furnished by the manufacturers. The important points are that the battery should never be completely discharged, or charged at too high a rate. The solution should not be allowed to get lower than the top of the plates in the battery or the sediment which collects in the bottom of the jars get higher than the bottom of the plates. Cells, plates and all connections should be kept clean.

In the maintenance of the general mechanism of an electric vehicle, lubrication and adjustment, with the replacement of worn or broken parts, are the important requirements. Lubrication requires the most attention, and it is better to err on the side of too much than too little, and to give in small amounts often, rather than in large quantities at infrequent intervals. Vehicles of all types are provided with means of lubrication, depending upon the character of the contact surfaces. Among these may be mentioned oil cups, grease cups, grease boots, oiled bearings, and grease-packed bearings. Wheel bearings are packed with grease, while the treatment for the controller consists of wiping the copper contact points with a clean rag and a small quantity of vaseline. The oils and grease used should be of good quality and free from acid and grit. If dirt works into any of the bearings it should be washed out thoroughly with gasoline or kerosene, and repacked with good grease.
Adjustments are required from time to time, such as tightening muts, screws, chains, brakes, etc., and may readily be made after an inspection of the mechanism, and with the aid of the instruction book supplied by the manufacturer. In normal service these minor adjustments are generally sufficient, except for the yearly overhauling, which should be done by a competent mechanic. The object of the yearly overhauling is for the renewal of such parts as may be necessary, such as chains, sprockets, gears, bearings, etc., and for the rigid inspection of parts which may be badly worn, the replacement of which will reduce the possibility of a breakdown, while working, to a minimum.

Oil cups and grease cups are provided at such points in the springs as are necesary to reduce friction, and a small quantity of oil should be applied, or the grease cups given a turn daily. This wil! prevent bolts and bushings from grinding and wearing out rapidly. The spring clips should also be tightened, so that the spring rests firmly upon its seat without play. Squeaking or grinding sounds are caused by friction between the leaves of the springs and may be eliminated by lubricating such surfaces. In prying the leaves apart for this purpose care should be taken not to damage the leaf-points.
(Continued on page 371)


The kneeling basket will prove useful, especially to women gardeners; it saves both knees and skirts, and being practically waterproof prevents dampness from slipping into the bones

The flower basket is indispensable for the woman gardener or a flower tray on which to lay the more tender blossoms


A breakfast room off the diningroom at the rear of the house is one of the attractive features of the first floor

THE HOME OF

## LEE BURNS

INDIANAPOLIS, IND.



An adapted Colonial style of archilecture was followed, and both the house and grounds were fully planned before work commenced

Herbert Foltz, architect porch

IN the early part of $19{ }^{1} 3$ the site of this house was a level piece of meadow land, unrelieved in any way. The problem presented was to build on it not only a house, but a home, comfortable, inviting and one that would grow more attractive with age.

A form of the Colonial style was chosen, and not ouly the house, but the landscape gardening was carefully planned before a sod was turned. The result has been most successful. While it is too soon for the planting to have reached its greatest effectiveness, even now it forms an attractive setting for the house itself.

The ground has been graded so as to slope in all directions from the house, giving it the effect of being on a low hill. Back of the house the ground slopes across the gardens to the tennis court, beyond which, as a background for the view, is a most in-
teresting fence, suggested by a quaint drawing of Kate Greenway's. In front of this is a border of hollyhocks, larkspur, columbines and other hardy flowers.
Care was taken to keep the scheme of planting simple and harmonious, preference being given in a large measure to the native Indiana trees, such as sugar maple, elm and hawthorne, while evergreens were massed in the corners of the yard. The lines of the house are softened by shrubbery, honeysuckle and ivy, and thought has been given to securing a good view from every room. Flowers were chosen for a succession of bloom and masses of shrubbery were placed with a view to their beauty in winter, as well as summer.

The house itself is of simple composition, old motives being used with a certain freedom that, while preserving the essential balance of design, permits a picturesque note that is most


Fumed oak has been used in the library woodwork, the furniture designed to match. The arrangement of shelves makes it an eminently usable room
attractive. The exterior is covered with wide, hand - rived cypress shingles, stained a soft white, while the roof and window shutters, each of which is decorated with a little pine tree cut in the upper panel, are moss green, tying the house in color to the shrubbery at its base. The shadows of the porches and of the heavy cornice, contrasted with the delicate tracery of the lattice-work, are interesting.

In the interior the finish of the main rooms on the first floor is the soft brown of the Adam period mahogany, except in the library, which is in fumed oak, the library furniture having been designed and finished to match the woodwork. In the oak of the library mantle is carved the line by Robert Burns: "It's gude to be merry and wise."

The floors are dark oak, the doors are of an old-time design with brass thumb latches, while the fireplaces, the graceful corner china closets in the dining-room and the wide stair, with its dark hand-rail and white spindles, are details that make a pleasing picture from every viewpoint.

Instead of using different wall coverings in different rooms, the walls of the entire house are covered with a paper, a warm putty gray in tone that makes an affective background for pictures, furniture and hangings, and gives an unbroken color scheme when seen from any direction. The draperies are of figured linen in neutral shades of gray, blue and rose color.

On the second floor the woodwork throughout is ivory enamel, except the doors, which are dark mahogany. An interesting feature of the house is the built-in closets and cupboards, each specially designed for its particular use. In the sewing. room is built a folding work-table and a cabinet with drawers and clothes-rods, while in the bed-room


The exterior is covered with hand-rived cypress shingles stained a soft white. The shutters are moss green
closets are drawers, hat boxes, shoe shelves, etc.

This house is of moderate size, requiring but few servants, yet care has been given to insure their comfort. In the basement is a shower bath for their use and a large livingroom with a cheerful fireplace.

Although built along old-time lines, using motives and ideas that have survived for generations because of their beauty and serviceability, the house is in many ways very modern. Filtered rainwater, automatically heated by gas, is piped to every bathroom; the heating plant is controlled by thermostats that keep a uniform temperature; vacuumcleaner pipes are installed and telephones are at convenient locations on each floor. A built-in refrigerator, iced from the outside, a room at grade where the lawn mower and other garden tools can be conveniently stored, and a water spray for the ashes in the furnace room, are some of the features that make the house more livable.

Although Colonial architecture makes little or no provision for porches, the style has been adopted in this house in such a manner that the generous veranda accommodations in the front, back and sides do not destroy the general architectural lines. The front veranda is an elaboration of the old-fashioned settle-lined stoop. Roofed in, and with lattices on the sides, eventually to be covered with vines, it makes an inviting entrance and a place where the family can gather with a certain degree of privacy. The floor is Colonial brick laid with a wide bonding, which adds perceptibly to its decorative value. The side porch looks over the east lawn toward the tennis court. A service porch is in the rear; above it being another porch which may be used for open-air sleeping.

## INSIDE THE HOUSE

Timely Suggestions and Answers to Correspondents

## This is for the Kitchen

TRe, have been a thousand and one accessories for the preparation of the varions kinds of fruit-cherrystoning machines, raisin seeders, apple corers, pineapple shredders, strawberry hullers, etc--but the difficult problem of serving apples au naturel is satisfactorily solved for all time by a knife which, with one motion, cuts the apple into quarters and at the same time removes the core. The skin has to be peeled off, and the fruit is ready to be caten in its most delicious form. A circular cttting board of hardwood accompanies the cutter, which is of good quality of steel and very durable.

Small Decorative Objects

IN obscure cottages of the Old World are to be found articles of furniture that the peasants themselves may have decorated. The best of these are simple and have great charm because they are a part of the life that created them. In the quiet of their daily life the peasants' artistic feeling frequently expressed itself in household decoration. Many of such designs or parts of them are the inspiration leading to a charming modern scheme of decoration.
The studio of one woman decorator of New York is full of ordinary household objects made of wood or tin which are abloom with common garden flowers, such as flourish nowhere so well as in the fer-
tile soil of the artist's imagining. From tea trays to flower boxes and lamps her art changes the merely useful thing into an object of beauty as well as utility. Most of the old-time flowers blooming in this modern art shop are of the peasant character, though on some places are the


This new apple knife cuts the fruit into sections, at the same time removing the core
daintier garlands and some fair ladies who show traces of French high life.
The tea screen, which is of the latter type, guards the teapot from the too caressing summer wind when the refreshing cutp is served on the porch or under the trees on the lawn. The graceful, courtly dames, with which the screen is decorated, reflect that world which children suppose to be peopled by beings who
live on cake and do nothing more laborious than play with wreaths of flowers. Birdegg blue is the soft background for the painting, which cleverly conceals the fact that the screen itself is merely tin, for the decoration and background deftly suggest that it might be enameled.
Similar wreaths on a black lacquered surface decorate the oblong tray. Yes, similar in a general way but not alike, for individuality characterizes these studio pieces quite as much as originality. Herein lies a valuable asset. No two pieces are exactly alike unless one wishes them so. Often it is desired to have a certain motive of the chintz or cretonne hangings reappear in the tea tray, the screen, or perhaps the cookie box, which will be within call, if not actually lurking somewhere about the tea table. Black lacquer is such an ideal background for either the peasant or the modernist style of decoration that it is employed a great deal, though there is no rule except to make the useful thing beautiful. Needless to add that it is sure to have a personality of its own.
The trays come in many kinds, shapes and sizes. They are small and large; with black lacquer, blue or green; with tiny, stiff posies or with bold, realistic flowers of the present sort. One tray with the latter decoration is of Japanese grass painted yellow, from which the green leaves, flowers and gay birds stand out with impressive definition. It is round and is


The decorated tinware io made up in a variety of shapes-candy boxes, cake and cookie boses and boses for trinkels, each with a dainty design painted over black lacquer
-Made of decorated black lacquered wood are twin boxes, as well as a holder for crochet cotton, a flower pot box and a little bonbon box shaped like an Easter egg
about fifteen or sixteen inches in diameter.

Shown with the oblong tray is a square waste-paper basket, flaring at the top like the petals of a flower. The decorations are in yellow and green with a touch of blue. In another group is a flower box for window or porch, painted green with vivid contrast only in the oval on the sides. The artistic feeling and thought which are given to this work are evidenced in the flower-box development, where the colors are subdued because of the nearness to Nature's own paint brush. The long, slender spout of the watering pot will insure against splashing surrounding objects, as it will nose deftly among the shoots and branches and send the water only where it should go. It has yellow cowslips on a background. There are large watering pots for the garden and small ones for the little child's special flower bed.

As if they might have stepped out of an 1860 daguerreotype are the hair-powdered, hoop-skirted, painted wooden ladies whose name is Door Stop. A lacetrimmed breakfast cap adorns the chignon of one, another stands demurely still, although her frock is flower-bedecked as if for a ball, and a third wears dignified stripes garlanded with posies. They are like human women, inasmuch as they are after one pattern, and like woman again, in that they are all different.

Here is an instance where a bit of the design of painted furniture, of window hangings or of wallpaper may be repeated in the door stop's dress. Such a little thing that it is, but it does give so large a feeling of unity as if there were a mind that planned and a current of sympathy through all the things of the home.

The simplest electric light stand and the plainest shade, say one of paper, becomes a thing of exquisite beauty thoroughly at home with its surroundings when its color and style are related to its associates. In this studio was a noteworthy lamp striped with pale blue and white, with pink roses scattered over the shade and the lamp. This was a bedroom lamp to be used
where the hangings were of blue and white striped linen dotted with pink roses.

Where is the telephone book? Most everybody has sometimes found it out of place and put it away to have ready for next time. To help obviate this trouble there is the lacquered telephone box, which may be screwed to the side of the desk near


This decorated box for the telephone book can be fastened to the side of the desk. It is large enough to contain two books
the telephone. It has a roomy space for the thick city directory and a thinner division for the suburban directory. Flying white cranes and a group of marsh flowers decorate the front of the box.

The group of small boxes are for various purposes; some are for candy for special occasions, such as Christmas, birthdays and anniversaries. There are twine boxes so pretty that one will always be kept in sight, so the hide-and-seek ball of twine will have no chance to go free. Trinket boxes there are, such as the lovely one with the white cameo-like head on the top. The inveterate wielder of the crochet needle will find an ally in the little holder for the ball of crochet cotton which will keep it from roving into far away corners.

The same originality of ornamentation may be seen in the decoration of every object, and with due regard for its purpose.

Quaint and unusual are the two figures of the man and woman, done in black and white cross-stitch and framed in a narrow black oval. Those are very interesting in a room with black and white wallpaper or hangings.

## Novel Use for Garden Hose

AGARDEN hose used to rinse heavy articles is very trseful. Blankets rinsed in this way are saved from wringing and dry without wrinkles. The nap is uncrushed, too, as no ironing is required. Rugs, scrubbed with a stiff brush moistened in diluted ammonia, when rinsed in this way, look like new.

## The Back of the House

THERE is no place where a housekeeper has a better opportunity to show her good housekeeping than in the appearance of the rear of the house. An unsightly collection of pails and baskets, and, above all, an untidy garbage receptacle, will spoil the appearance of any back-yard, no matter how attractive it may be otherwise.

A good plan is to have a box made large enough to hold the garbage can and any other pails or receptacles it has been found necessary to keep about. The box should have a good hinged cover, but needs no bottom, and should stand directly on the ground. Have some holes bored in each side for ventilation, and over these on the inside tack some wire fly netting. Paint the box the color of the house, and it will be quite unnoticeable and serve to keep the rear of the house neat. If the garbage receptacle is kept clean and covered there can be no odor, and there will be no opportunity for the breeding of the muchdetested fly.


They might have stepped out of an 1860 daguerreotype, these hair-powdered, hoopskirted, painted wooden ladies, whose purpose is to serve as door stops

Quaint and unusual are the pictures done in black and white cross stitch. They are especially fitting for a room with black and white paper or hangings

## Guarding Against Frost

ONE of the first things to keep in mind in fighting frost is that if you can win out against the spring attacks, to a large extent you forestall the losses which might otherwise be caused by an early frost in the fall. Crops started early and successfully protected will have matured and be pretty well cleared up before the danger of the autumn invasion. It pays, therefore, to take every precaution against the loss of tender and half-hardy vegetablesand flowers, too, for that matter-planted in the spring.

The way in which frost acts is not generally understood. The damage is done, not by freezing, but by thazeing! In freezing the plant cells, which are composed very largely of water, are distended. If thawed out gradually, they are elastic enough to resume their normal size and condition without being ruptured: whereas, if they thaw out suddenly, they collapse; in much the same way that you can expel the air from a blown-up paper bag

## GARDEN SUGGESTIONS and

 QUERIES
## CONDUCTED BY F. F. ROCKWELL


slowly without breaking it, while a sudden blow will explode it.
Plants vary greatly in their capacity for withstanding the effects of frost, and consequently are classified as hardy, halfhardy, and tender. The last are those to which even a light "touch" usually proves fatal. But in many cases even the tenderer things, such as tomatoes and beans, will withstand a freezing temperature without being lost.
One of the most important things about frost protection is that the actual temperature, or degree of freezing measured thermally, is only one factor in determining the injury that may be done. Other things influencing the effect a frost may have are: (1) Condition of growth or "hardiness" of the plant; (2) location and growing conditions; (3) the variety and strain; (4) the amount of moisture in the air, and wind and clouds; (5) and the moisture in the soil and in the plant.
It is truly remarkable how a plant may be inured to low temperature, if it is done


Under a blanket of ice the planto will be subjected to a bare freezing temperature, and if thawed gradually should suffer no harm
gradually. Hence the importance of the "hardening off" process in the frames, before setting plants out in the garden. This is one of the methods of frost protection which should always be used, and should be considered as the most important. Location also makes a great difference. Shelter from north and west winds and a slope to the south or southeast are always desirable for extra early stuff. Even a slight variation in altitude may mean the difference between the loss and the safety of a crop. Last fall, after a frost which we had on the 14th of September, the "frost line" was plainly discernible in my field of melons, which was planted on a fairly steep slope. The upper third of the patch was untouched, and the rest was limp and black as soon as the sun touched it. I have often seen the same thing in fields of squash and with corn.

Every gardener of any experience knows that some varieties of peas, beans and sweet corn will stand more cold than others. In planting extra early sorts always plan to select considerable variety.
In deciding whether there is likely to be a frost during the night, which will injure vegetables or flowers, there are several conditions to be taken into consideration. On cloudy and windy nights there is less likelihood of injury from frost because the soil is kept warm by both these conditions. The degree of moisture also is an important factor. As soon as the dew begins to form, a certain amount of dew is "released," and this serves to check any further fall in the temperature. If dew begins to form when the temperature is $4^{2}$ degrees or higher, there is little danger of a killing frost. A very wet soil, on the other hand, means that frost is more likely, because under such conditions the radiation of heat from the soil is checked.

The available means of protection from frost are several-and a number of them might be used much more widely than they are. One of the least-known I mention first, because it is used comparatively little. although it is very effective and costs nothing where it can be used. I refer to protection by covering with soil. With the hilling attachment or of the wheelhoe or with the horse cultivator for field operations, one can quickly cover such things as peas, dwarf beans and potatoes that are
a few days above ground. It often happens that a warm spell will bring things up quickly and cause them to grow rapidly, and then the weather changes and a frost may be expected. Get busy with the wheelhoe! After all danger is over the soil can be worked down around the plants with the fingered or with the pronged hoe, and they will come through nicely. For individual plants and hills of plants, newspapers and empty flower pots can be applied very quickly. In the former case they should be used in several thicknessesthree or four double sheets about each plant. On very windy nights, of course, the newspapers will not do. Inverted flower pots, a handful of moist soil or a small stone put over the holes can be quickly placed and will stay put.

Plant frames and forcers of various kinds may be bought or may be homemade. These are not merely frost protectors, as they serve the additional purpose of furnishing congenial conditions and causing much more rapid growth. Practically all these devices are very effective and with care will last a long time. The only drawback to their universal use is their initial cost. Good home-made protectors may be fashioned from soap or cracker boxes and waterproof muslin or plant cloth, which can be bought for some fifteen cents a yard. In using glass-covered protectors, of course, attention must be paid to the ventilation. In this respect the cloth has the advantage, as ventilation will, to a large extent, take care of itself. Unless you are already well supplied with "forcers" of one kind or another, try to add a few to your garden outfit each year. You will soon find that you have an equipment that will put your garden ahead by weeks, even though you may have been using frames before.

Still another method of frost protection available where an overhead system of frost protection is installed, is by the use of an ice blanket This may seem paradoxical at first; but in reality it is not. The temperature inside of the ice-blanket remains at practically 32 degrees. Such tender things as beans and cucumbers have been saved by this system. The water is started before the temperature gets down to freezing, and should be kept running until the temperature rises above freezing the following morning. The spray must be kept in constant movement, so that it falls on every part of the surface at intervals of a few minutes. The result is that sheet after sheet of ice is formed, each on top of the preceding one, and the field by morning is a solid blanket of ice. There is no weight on the plants, as they are inside a solid casing of ice which supports its own weight.

The ability of plants to recover from a light freezing will depend largely upon how they are brought out of it. The thawing should be as gradual as possible, as already explained. I remember seeing a tomato field a few years ago about half
of which was shaded by a wooded knoll until late in the morning. Otherwise the two parts of the field were alike. After a frosty night the plants on the former part of the field came through all right, and the others were killed back. Watering with cold water will help to take the frost out gradually. If you have any plants touched by frost which you do not feel are hardy enough to take care of themselves, go over them the first thing in the morning with a hose and watering can. The colder the water, the better. Even if it forms a little film of ice over the plants, no harm is done. Then shade them with a cloth frame or a newspaper until the temperature in the shade has got above freezing.

## Spray on Time

Another vitally important job that has to be added to the list of the gardener's operations this month is spraying. Full directions for orchard spraying are given elsewhere in this number, but it is just as important for such vegetables and flowers as are likely to be injured by the attacks of insects or disease of types which must be controlled by spraying, if at all.

Gooseberries and currants are attacked, usually, on the lower leaves first, by the small green currant worm. Use Arsenate of Lead or Paris Green the moment they put in appearance. Use Lime-sulphur for mildew. After the fruit is partly grown, Hellebore should be used, as it washes off readily, before the fruit ripens.

On raspberries, dewberries and blackberries use Lime and Sulphur when the buds swell, and again after picking, if there is any sign of rust.

The surest way of making certain a full potato crop is to spray thoroughly with Bordeaux Mixture once in eight or ten days, until about the middle of August. Where you have a stock solution of the materials this is not a difficult task, as the plants can be gone over with a small compressed air sprayer very quickly. For field operations, of course, a power sprayer is used. During the first few sprayings, when potato bugs may be expected, mix Arsenate of Lead with Bordeaux at the rate of 3 pounds to 50 gallons.

To keep your roses thrifty and healthy, spray them about every ten days with some good combined insecticide and fungicide, such as Bordeaux and Arsenate of Lead. For the rose avis and any other sucking insects, Nicotine and Kerosene Emulsion preparations must be used.

For hollyhocks, where the rust is troublesome, use Bordeaux Mixture during the early part of the season, and Ammonia Copper Carbonate Solution when the buds begin to form, as this leaves no sediment on the foliage.

## Setting Out Nursery Plants

Most of the spring's planting of such things as are bought in growing condition from the nursery should be done this month. For the cane fruits, raspberries, blackberries and so forth, no particular preparation is required provided the ground is in good condition. Raspberries should be given about eight to ten feet each, and put in rows 4 feet apart, 2 feet apart in the row, or $3 \times 3$ feet each way. Strong-growing varieties may require a (Continued on page 379)


It is extremely important to do your spraying at the right time; wait until your trees are in blossom before beginning the second spraying

THE DISTAFF SIDE OF THE FARM

T-HERE have recently been issued by the Department of Agriculture three bulletins touching on the economic, educational and domestic needs of farm women. They are listed as reports Nos. 104, 105 and 106. Those who are interested in the nation's welfare and the welfare of American womanhood cannot afford to miss reading them. The reports are not made by the Government, but by women themselves, and the three small volumes are filled with letters from all sorts and conditions of farm women, constituting perhaps the most vital attack on certain national and domestic evils that has ever been compiled. They are cries more desperate, appeals more moving than have ever come out of war-stricken Belgium or Poland. The Government asked the women to tell their wants. They have told, and the replies are such that the problems they present cannot be shelved along with issues that another generation may or may not solve.
Excerpts from some of the letters are perhaps more telling than would be editorial comment.
"The condition of the farm woman of the South is most deplorable. Her liege lord is availing himself of labor-saving appliances, such as reaper, binder, thresher, riding plow, gas engines, etc: ; while the woman's labor-saving help consists of her sewing and her washing machines. The routine work of the Southern farm woman is about as follows: At this time of the year she is up at $5 \mathrm{~A} . \mathrm{M}$. preparing the breakfast, often building her own fire; milks the cows, cares for the milk-churns the cream by hand. Puts the house in order, gets the dinner, eats with the family at noon; leaves the house in disorder, goes to the cotton field and picks cotton all the afternoon, often dragging a weight of sixty pounds along the ground. At about sundown she gets to the farmhouse, puts the house in order, washes the dishes left over from the noon meal, prepares the supper-most of the time too tired to eat; gets the children to bed, and falls asleep herself-and so it goes on from day to day. Somehow she finds the time to do the washing and ironing, mending, knitting and darning between times. If she is under forty-five years of age, while all this is going on she is either enceinte or she is nursing a baby. The result is she is weak and frail, as a rule. There are a few well-to-do farmers in whose homes we find better conditions, but the above description of conditions applies to negroes, to white tenants, and to the young farmers who are trying to build their homes. Get statistics of the sale of farm implements and the sales of nostrums for the cure of the ills of women and you will ascertain the relative condition of the farmers and their wives in the South. I call your attention to another deplorable fact; the young girls on the farm do outdoor work and are exposed to changes of the weather at times when they ought to be at rest, and carefully guarded as to their health. Often around the age of puberty their health is everlastingly ruined. I have in mind a case: a girl eighteen years old married a farm tenant. She did all the things I have described and was the mother of seven children during the eleven years of her married life. Four of these children are dead. The three living are frail of body and weak of mind. The mother is at this writing crazy as a loon. Do you wonder! In neither branch of her family is there any insanity. Simply killed by work and worry. That's her story."


This is only one sample of like criticism received from every part of the country. The women are overworked. They are allowed little or no money, and are given no opportunities for
making money. The evil is one that can be remedied in three ways: educating the farmers, which is a sentimental and ineffectual method; and giving women the vote. The New York State grange has endorsed woman suffrage and so have the granges in many other States. The New York farmers will have an opportunity to vote on the Woman Suffrage amendment on November 2 of this year. Or, again, you can educate the women as would an excellent society, "The Woman's National Agricultural and Horticultural Association," which meets in New York on May 7, and at which this problem will be discussed.

There are a multitude of subjects considered in these pamphlets, and next in importance to that of the personal needs of the women is the need for cheap money, which would help the farmer's wife help the farmer. Interest on farm loans range from 8 to 12 per cent; the bulk of them being 10 per cent. When the farmer puts his hard-earned savings in the bank he draws 4 per cent interest. When the bank loans him the same money, he must pay from 10 to 12 per cent.
"What I am mostly interested in," writes one farmer, "is for the Government to loan money to farmers on mortgages at 2 per cent, so as to relieve them of the high rate of interest farmers have to pay. To make myself perfectly plain, will use myself as an example, which is similar to thousands of same sort. Was raised on farm and loved farm life above all others. When grown, had nothing to start with. Worked for wages till 31; saved $\$ 1,000$. Married, and borrowed $\$ 1,500$ from local bank at 12 per cent and bought 42 acres- 30 suitable to cultivatefor $\$ 1,500$. Spent the $\$ 1,000$ for building, fencing, stocking, etc. Hoped, of course, to pay off loan soon, but interest, 12 per cent; State and county tax, $1^{1 / 2}$ per cent (on whole value); local school tax, $1 / 2$ per cent every year, must come out before any living for family or principal of debt-over 14 per cent, you see. Can a man support a family and pay for a home for a wife on capital costing 14 per cent? And the women on the farm suffer the hardships of it most. Can't the Government arrange some way for these hard-working young farm home-seekers to get their money at cheaper interest, when they have such good collateral as good farms to make it secure? That much would help the farmer's wives some."
It is a striking comment on economic conditions in America, that Russia, supposedly the most backward country in the world, maintains a system of rural credits and general aid for farmers, etc., that would pale into insignificance the present endeavors of the United States Government. The parcel post has helped the women, better roads have helped them, but they want, and want rightly, Government telephones and Government monies at a low rate of interest. The suff rage vote is growing. The socialist vote is growing. And also is discontent growing. Each year sees a lessening of the farm population of the United States. And the question is whether the Government shall right the evils, or the farm women with the vote force the Government to right them.
Such small space is inadequate to discuss the question of the educational and social needs of farm women-those little delicacies of life that every woman desires both for herself and her children. We can only counsel the reader to get these Government reports, read them carefully and see what conditions really do exist. When one considers that the farm population is the backbone of our nation, it seems paradoxical that so little has been done for the distaff side of the farm, whereas so much has been done for the men and their work. The women have spoken! Will the men speak now?

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A House for Outdoor Living
(Continued from page 330)
is spread a plot of lawn, into which is set a small concrete pool of water, with a view of the house beyond. This nook is particularly ideal in many ways-its charming combination of colors, the semi-seclusion it affords, the view it commands, and, lastly, its pure, fragrant-scented breezes.
Pergolas are always delightful garden features, from both a utilitarian and a picturesque standpoint, and no Western garden seems quite complete without one. The ones here shown constitute not only a handsome decorative accessory, as well as serving to lure one to interesting garden spots, but also form, with their classic white pillars, a charming architectural link between the house and the grounds. And that, structurally considered, should invariably be the aim.

Beyond the reach of the pergolas lie wilder plots of garden-veritable jungles, in miniature, of trees and shrubbery, wherein the formal scheme plays no part. Here one finds clumps of bamboo, "ele-phant-ear" plants, and other strange vegetation, and now and then a boulder-bordered pool. Everywhere, in this portion of the grounds, wind sinuous paths of gravel, edged with cobblestones, passing from jungle plots to plots of open lawn. This idea of combining the wild and picturesque with the more stately and digni-fied-not really formal, however-is especially commendable; and when one considers the wide variety of scenery and garden features it scarcely seems possible that no more than three acres of ground is utilized in the creation of this wonderful little Paradise.

While all of us cannot possess a garden so extensive and beautiful as the one here described-which, by the way, was designed, like the house, by the firm of Myron Hunt \& Elmer Grey, architects of Pasadena-we should at least be induced to make the very most of our individual opportunities. Even a tiny plot, perchance located even in the heart of a large city, if converted by oneself into a shrine wherein one may worship Nature a little and enjoy and be benefited by the pure, invigorating air of the outdoors, can become a little Paradise, if one's heart be in the undertaking. At least, I find it soand I am sure the owner of that stunted geranium on the fire-escape would find it doubly so. His or her case is more or less pathetic, but then it shows an appreciation of Nature's beauty. And it is that which eventually leads one into the openeven "back to the soil" sometimes. Then, too, when the garden is planned it should be designed so as to invite one into it, not merely a spot to be admired through the window pane.

The Culture of Roses (Continued from page 333) hedge and require practically no pruning further than to keep them trimmed into shape. These roses are suitable for training to heavy lateral wires, eight feet or so high. However, roses so trained are often quite bare at the lower part of the canes. This may be corrected by giving each cane, as it grows up, a right angle bend about a foot above the ground before permitting it to grow straight up.

Still another class under the head of miscellaneous and climbing roses is the "Baby" Rambler. This is a comparatively new class and not nearly so well known as it should be. They are remarkable and very desirable for their perpetual flowering ability. They, too, require no pruning beyond cutting out old wood and old flower stems. This variety is excellent for low borders and hedges, growing about two feet high.

The following are good hardy varieties to choose: Baby crimson rambler, free from insects; white baby rambler; baby Tausendschön and baby Dorothy Perkins.
The Rugosa or Ramanas roses grow from three to six feet high, have beautiful folia and, being extremely hardy, fill a place that no other type of roses can. They require no pruning, although the canes may be trimmed back into any desired shape for a more formal hedge. There are light rose and pure white, single forms -Rugosa and R. Alba, respectively. They bloom throughout the season, though not so profusely as the garden sorts. The flowers are followed by large seed pips which turn brilliant red. There are several double varieties which are still more beautiful. Sir Thomas Lipton, pure white and fragrant; Blanc de Coubert, large, pure white: Conrad F. Meyer, silvery rose; Nova Zembla is a hybrid Rugosa, growing taller, and especially desirable for the shrubbery border.

A Good Dog With a Bad Name (Continued from page 335) along that dismal road that leads to practical extinction. The bull terrier, therefore, though born and bred in England, has been exiled from his native land and become an American citizen. Canadian dog fanciers have long favored him, and to-day, although there are many in the United States who swear by the "white 'un"; probably they lead us in numbers. Pacific Coast dog lovers, however, are displaying a very lively interest in the bull terrier, and since the days of Edgecote Peer their dogs have been a factor in show awards and breeding operations. The Far West may become the variety's new center.
So much for the bull terrier's past, present and future. Now for the dog himself. He is a very keen terrier, alive to everything, bright and intelligent. He is, moreover, a very sensitive dog, affectionate and faithful, and, when taken in hand young,


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very docile. He needs, however, careful training, for he has an exuberance of spirits that must be reasonably controlled. On no account can he be convicted of being a vicious or treacherous dog. It is, however, wisest to start one's bull terrier early in the way that you would have him follow. Do not lead him into temptation in the form of a stray cat or a yapping alley mongrel. Be sure that as a youngster he thoroughly learns obedience, but use physical punishment as sparingly as possible. Under the whip he may get stubborn, but a sound scolding, or confinement in a box, or tying up on a short lead will work wonders. The best way is to strive to develop his higher nature, if I may be allowed to use this phrase. He will respond quickly and permanently to such treatment.
In absolute contradiction to all popular opinion, a "white 'un" is a capital dog with children. He is kind and gentle, strong and long-suffering. Moreover, he is the best protector in the world. In this his unsavory reputation is quite an asset, increasing considerably his efficiency as a guard. He is a very faithful dog and jealous of those he loves, fitting him admirably to serve as convoy to the children or escort of their mother. As a night watchman he also shines, and for similar reasons. In the suburbs or the country, then, he comes close to being an ideal family dog. Nobody can deny his attractive personality. His snowy jacket, his trim, clean-cut figure, his aristocratic mien, all stamp him indelibly as the thoroughbred. His smooth coat, too, is a point in his favor, since few Americans fancy a wire-haired dog, and a long coat, despite its beauty, is something of a care, if it is to be kept looking at its best. No one could ever mistake a bull terrier for "just a dog," and every one who knows him well loves him. He is a much more universally popular dog than he gets credit for being, and while he does not make the splurge at the bench shows or in the circles of the out-and-out dog fanciers that some more recently introduced novelties do, still he has a host of true friends all over the country, ever ready to testify that he is a very good dog, in spite of his bad name.

\section*{Making a Pool for Fishes and Birds}

\section*{(Continued from page 339)}

I have purposely left flowers out of this garden. Colors would dwarf the scheme; with the exception of the pale Irislavender and opalescent-I depend for my effect entirely upon the shades of green, relieved only by the gleaming gold fish in the pond.

The plants which I buy half-grown from the greenhouse are those which quickly make a showing, so I lose little time in getting my effects. The irrigation helps wonderfully in this. Some of the Elephant's Ears in the photograph measured as much as 31 inches by 18 inches, and
the other things do as well in proportion.
I have had but little success in water lilies; not that they do not thrive, but my fish eat them. The beautiful browns and greens of the leaves are lovely, but I have never had any blossoms.

But plant life is not the only thing of interest in my garden. The fish have proved most fascinating. Some of my gold fish are nearly nine inches long, while the smallest are not more than two or three inches.

From experience I have learned that while fish kept indoors are unable to stand sudden changes of temperature in the water, those living in the pond can endure almost any extremes of heat or cold. In summer the water in the pond sometimes is so hot as to be almost unbearable to the hand, and again, in the winter, the ice forms several inches thick over them, yet they thrive and increase in size wonderfully. Indeed, it is hard to realize how fast fish grow when kept out of doors. Fish that have changed in size almost imperceptibly in two years in the house will in one summer out of doors almost double their measurements. One fantail from a lead-colored mite two inches long has in two summers in my pond developed into a red-gold beauty nearly five inches long and so fat that she is almost round. The scales become coarsened and less beautiful than the indoor fish, however, but the colors are brilliant.

There is as much difference between individual fish in intelligence and disposition as between different dogs or cats. Some are responsive, coming to feed from my hand, while others are stupid and indifferent, and some remain shy and timid even after years of association.

However, they all seem perfectly fearless of the dogs. They swim in between their feet when the dogs go into the water to drink, and often I have seen them nibble at a dog's nose as the dog stood in the water, the dog merely brushing them away with its paw.

During the winter the fish are kept separate ; the big ones are in an old tin bathtub in a cool attic room, while the little ones are scattered about the house. In fact, there is scarcely a room in the house without a globe or an aquarium, where the gold fish give a bit of life and color to the room.

But while they are not much care, I believe that I am quite as glad as they are when the time comes for them to go out in the pond in the spring.
And now, although done in a haphazard fashion, my pond truly is very charming; and please bear in mind that all this is within a short distance of "the loop" in a large city, and that it really took little beside planning to transform a very ugly yard into an adorable spot to loaf away a summer's day.


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\section*{Gardening on Schedule \\ (Continuted from page 343)}
a second planting at the side of the hill, to replace the earlier planting if killed by cold. Plant beans, more lettuce. Plant muskmelon, to be followed by a second planting in a few days. Thin turnips, beets, carrots to 4 or 5 inches, \(4^{1 / 2}\) inches and \(3^{1 / 2}\) inches, respectively.
Venture a few early tomato plants in the open ground. If frost does not kill them they will bear late in June.

Cultivate garden.
Second Week.-Plant muskmelon, set tomato plants, plant lima beans. Toward the end of the week plant pumpkins, watermelons and set egg plants and pepper plants. Cultivate garden.

Third Week.-The cultivation of the soil is now going on regularly. The garden soil is each week stirred to quite a depth. Three hours a week will accomplish this. Some time will be required to fight such insect pests as may now appear, as the squash beetle, which will destroy the young squash, cucumber and melon vines. Dusting the plants with land plaster will check them. Some time will be needed for gathering vegetables.

Fourth Week.-From the 2Ist of May until June I, okra; vine squash for fall use may be planted, late cabbage plants may be set, also sweet potato plants.

Early white turnips, early peas, lettuce, spinach are now ready to be gathered.

By allowing a half hour each morning for cultivation and the remaining time for gathering vegetables, the cook can be better accommodated and the products fresher than if either kind of work is done to a finish before the other is begun.

\section*{June}

Potato bugs arrive at this time. The plants should be dusted with plaster containing Paris Green or sprayed with a liquid spray containing Paris Green once in ten days.
Cultivate the garden regularly each week.
Peas, crookneck squash, turnips, carrots, beets, lettuce, radishes, young onions and cabbage are now ready for use.
Crab grass begins its growth and cultivation must be thorough, but of medium depth between rows and more shallow close to the plants throughout this month.
The round potatoes should not be deeply hoed after the blossoms open.

By the last of June do not cut into the soil about the tomatoes and cucumbers.
Peas. radishes, beans, sweet corn and lettuce may be again planted this month, and late tomato plants should be set about the 15 th of the month.

\section*{July}

Tomatoes, cucumbers, beans, cauliflower, sweet corn are added to the list of garden products this month.

Replant all spaces left from vegetables used.

Cultivate regularly to hold a soil mulch.

\section*{August}

Melons, egg plant, lima beans, sweet potatoes and marrow squash require to be gathered this month. Lettuce, peas, beans, winter turnips are planted about the 12th or 1 Ith of the month for fall use.

The one hour a day gives time for gathering and planting of these vegetables and clearing away of vegetable remains and seeding with clover or rye any vacant spaces.

\section*{September}

The only cultivation now necessary is about the vegetables for fall use. In addition to this the work of removing vegetable debris continues, and the hour each morning gives ample time for this and replanting with rye.

\section*{Landscape Gardening on a \\ Small Place}
(Continued from page 346)
The west path is informal, passing through massings of shrubbery which stretch their branches over it. Interspersed with the shrubs, to brighten them with color spots and fill in bare spaces, are patches of low and creeping flowers which grow over the rough stone edging of the patch. Occasionally the shrub mass is broken, not enough to break its continuity but enough to give views of the lawn through the gaps. Such paths, full of interest in growing and blooming things, are ways of making the grounds seem larger. There is no attempt at deception or optical delusion. The result is gained simply by engrossing one's interest in every step of the patch, so that one lingers longer upon it. A curved path has a special interest of gradually unfolding its varied pictures to the beholder as he passes along. It is for this reason that a curved path can have bordering it a great diversity of plant material, since it is impossible to take a sweeping glance along the whole path. In such a path border one plant in bloom counts for a great deal more than if it bloomed as an isolated specimen. It has the foliage of surrounding plants as a foil.

In order to keep such a path continually interesting, the shrubs must be so distribated that there is always something in bloom, not merely in one part of the path, but along its entire length. These blooming effects are gained by planting in each group-for a border in plan is divided into arbitrary groups not visible in the plant-ing-two or three kinds of shrubs which bloom at different times. For instance, there are grouped together Berberis thunbergii and Clethra alnifolia with early spring and late summer bloom: Spiræa Anthony Waterer and Hypericum aureum with two different summer periods of bloom; Kerria and Symphoricarpus racemosus, the snowberry, with two blooming periods and the effectiveness of the white snowberry in autumn and the brilliance of green Kerria stems in winter time. In the

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same way Cornus alba and Berberis vulgaris are planted together. The barberry has its greenish-yellow flower in April, the cornus small, flat clusters of white flowers in June. In autumn the white cornus berries make a contrast with the red fruit of the barberry and in winter the Cornus alba stems are brilliant with color. Again, Stephanandra and Regel's privet are planted together, and bloom in May and July. They have an interesting winter effectiveness, for the Stephanandra stems are orange-colored and the privet has persistent black fruit. Philadelphus microphyllus and Spirea Anthony Waterer are grouped together. The foliage delicacy and the small white May and June flowers of the Philadelphus microphyllus are quite choice in effect in comparison with the July bloom of the Spirea Anthony Waterer, which is strong in color. This change gives two distinctly different effects to the same spot.
In such careful shrub massing the shrubs are always used in small groups, sometimes only one plant of a kind, sometimes five or six plants are used together.
Through this kind of grouping there is always something new and interesting, always something different on the path to attract attention, through the whole cycle of seasons, which makes this home walk a new little garden adventure every time we pass along it.

While the attention given to seasonal effects makes this path of continual interest, it is the consideration given to the foliage effect and to shrub habit which binds the shrubs together into a unified and harmonious border.
This same effect is created in the enclosure of the lawn, of which the borders of the west path form a part.
Big and striking effects desired in the planting of large areas are thus avoided. The informal and intimate character of this planting is especially suited to a small suburban place.

\section*{The Seashore Garden \\ (Continued from page 347)}
average home does not look in accord, and if "weeds are plants out of place," what sort of misfit should such misjudgment be termed as the use of pincushion planting of privet, oddities of all sorts dotted promiscuously? Study native growths and see how Nature gets her charming effects when unhindered by man.

The native pitch pines are almost delightful and should be cherished wherever possible, but to transplant is indeed, and alas! another matter. Even nurserygrown trees only survived for me six out of twenty in one instance, and less in another! Scotch pines may help you, but if white pine is desired, you must be sure you protect it from every direction-if you are close to the shore and open to wind.
Seashore grass seed with its different kind of roots, and white clover, with
manure as a winter covering and bonemeal in the spring, have redeemed our desert; also watering during the dry season when hot winds devastate.
Japan lilies, auratuma, speciosum album, roseum, Melpomene, tiger lilies, funkias have bloomed most delightfully. For all Japan kinds only wood ashes are used, or manure, with leaf covering. Flowers are not cut till about to seed, or bloom may be retarded until the second year.
Our first bit of color was coral phlox, so for harmony other flowers along that side and at the back were shades of pink with some white. Perennials have been our choice, with mignonette as sole exception.
Our first year, desiring a cheap arbor, we planted six cedar posts, with wire netting over the top and sides, with the top projecting two or three feet, in front. Clematis paniculata at the sides with honeysuckle at back gave good results the third season. From a long box that brought the ailanthus was made a seat with a six-foot back. A neighbor was clearing her garden and sent us five tall privet bushes. These gave privacy quite soon, though an awning was necessary in the heat and glare.
A screen of cedar posts, five uprights with top of single posts, near the front, awaits its drapery of vines. Actinidia argutas promised well (in the Catalogue), but has given no results. Too much sea breeze. Japanese barberry also refused to grow till given a dense background of spruce and pitch pine and yucca.

This rule given for transplanting may help you: Dig a deep hole, put grass, privet, or other cuttings in the bottom, fill with water, then set your bush, even in hot weather. Some trimming will not be amiss.

\section*{Maintenance of Electric Cars in the Country \\ (Continued from page 354)}

One of the important matters in the maintenance of an electric vehicle is that of paying special attention to the braking mechanism, so that danger of brakes failing at a critical moment may be avoided. The care is simple and consists in seeing that a moderate pressure on the brake pedal produces a firm and sufficient retarding action on the vehicle. This simple test should be made daily before the vehicle starts from the garage. Taking up on the turnbuckle or cam springs will effect the necessary pressure. Sometimes, when the pressure is all right, there is still a slip between the shoe and the brake drum. This is generally caused by oil or grease working its way between the surfaces, and these should be washed out thoroughly with gasoline.

On the other hand, it is equally important that the brakes do not bind or drag. They should take hold gradually and bring the vehicle to an easy stop, as sudden
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locking of the brakes may cause stripped tires, skidding, or other damage. The pressure upon the brake drums should be as nearly uniform as possible, so that the tendency to skid will be reduced to a minimum. Dragging brakes cause unnecessary wear on the brake lining, and use up power or battery capacity, thus reducing the mileage. The shoes should ride about one-eighth inch free of the drums when the pedal is entirely released.
The motor of an electric vehicle requires but little attention. The brushes must always have the proper contact with the commutator, and be renewed as they wear down. The bearings require regular lubrication and the wire terminals and other parts must be kept dry and clean. The controller is not as complicated a device as it seems to be. It is nothing more than a switching arrangement for connecting the battery to the motor in various ways, so that the speed or direction of the motor may be changed. It should be lubricated frequently and moderately. When the vehicle is in daily service the controller should be carefully examined once a week, the fingers adjusted to an even, moderate tension, run parallel with the drum and faced with sandpaper, to afford a good contact. Badly burned fingers should be replaced and fitted into position. The drum segments are to be cleaned and wiped with a linen rag and a small quantity of vaseline. If blistered or pitted, they must be sandpapered.

\section*{My Suburban Garden}

\section*{(Continued from page 353)}
shovelful of manure in each hill having been thoroughly incorporated into the soil. I therefore decided to plant this in rhubarb, as the six plants in front of the hot frame had not yielded enough to keep us in pies and preserves. Ten big, flourishing plants are none too much for a husky family of five; I put in twelve.

One the other side of the hot frame also went four rows of stringless beans in two plantings and five rows of potatoes, taking altogether \(22 \times 25\) feet of garden, which ended the strictly wheel hoe part of the layout. Here the carriage drive curved in to the little plaza in front of the barn. making long runs with the hoe impossible, and the soil was all "made," being built up from old compost piles, ashes, manure heaps, weed piles, corn stalks and general garden refuse. Three wagonloads of field soil were worked into this and the drain extended across it and under the barn, as shown. This soil, after a winter's weathering, was very rich and humid, and it was laid out in beds for the sown plants, two for Early Round Top radish (the French Breakfast doesn't seem to do well with us), two for mignonette head lettuce from hot-frame plants, one for egg plants and one for small soup and stew carrots. All these require a rich soil and depend
upon quick growing for their tenderness. They get all the morning sun, besides a lot of heat reflected from the barn wall, and, by four o'clock, the forest shade tempers the sun for the rest of the day

Remained lima beans and corn to provide for. The bean arch system was such a success the year before that I decided to enlarge it and provide for a succession from August to November, as limas continue to grow until a hard frost hits them. Beans and corn in the West Garden looked like the best disposition to make of that \(20 \times 40\) feet. Three rows of bean hills, on two-foot spacing 2 feet in the row, worked out well, giving four sets of arches, the center hill having a straight pole bracing the center of the arch. This would give 36 bean hills, enough for four plantings of nine hills. The first set should not go in earlier than May 15, or still fater with a cold, wet spring. The other plantings succeed at two-week intervals to July 1 .

Allowing four feet for the west border and path, I had \(14 \times 40\) feet for corn, enough for 6 rows on 30 -inch centers, or 180 feet altogether. It seems unnecessary to warn amateur gardeners not to plant their corn in hills and not more than three kernels to the hill, but, sometimes, in an excess of zeal, as many as ten kernels get started in a single hill (probably because the seedmen sell you such a lot), with the result that ten spindly little stalks struggle for a livelihood and none of them produce a single ear. Corn should be rather planted in a straight groove made with the wheel hoe cultivator tooth, and three kernels are to be dropped at intervals of \(21 / 2\) feet. As the little stalks grow tall you hoe up your hill around them, and they will be quick enough to send out more roots above the original ones. This method of planting insures that your stalks will not be wind-thrown when they get seven feet tall. I put in Golden Bantam, Early Metropolitan and Country Gentleman, from east to west, two rows of each, planted two weeks apart. The first two are large-grained, sweet table corns and the last a small-kerneled, fine table variety. First planting not earlier than May 7 in mild springs.

This ended the layout of the third-year garden, except for some red bell peppers and parsley set in the border between the Kiefer pears in front of the beans.

How much seed? We all buy too much seed. Two packets of each sort will seed that whole garden, and, with fine, mellow soil, there will be few non-germinating seeds. In fact, your thinnings should take care of the ultimate spacing of the vegetables.

You will observe that this last plan is notable for omitting the greater part of all the catalogued vegetables offered to the unwary amateur. There is no use in planting anything that you cannot raise, that weeds will surely choke if not babied, manicured and hand-massaged. I have


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my business affairs to run, and therefore plant nothing in my garden that cannot be weeded wholesale with a wheel hoe. The selection is exclusively broad-leaved, hardy vegetables, good weed-fighters in themselves, and, at that, the heap of husky weeds that you will pull up and pile in the compost heap during your morning and evening walks in the garden will more than fill a wagon load.

Celery, potatoes, onions, oyster plant, brussels sprouts, cabbages, cauliflower and even peas (unless you have a wire net for them) are a nuisance, and to succeed require the exclusive attention of a gardener. All of them have to be monkeyed with in one way or another a great deal too much for the business man to bother about, and the grocer charges so little for them in season that they do not repay for your labor.

And, for the land's sake, do not let any squashes or pumpkins or melons get loose in your garden, or they will own it in a month, and you will get one pumpkin in return for smothering fifty dishes of beets or beans, to say nothing of the pernicious habit of these vines of sprawling all over the place, making it impossible to run the wheel hoe and inviting an epidemic of weeds.
This plan suited me pretty well, and in mid-January the seeds were ordered and meanwhile the barn was finished. As fresh eggs had climbed to 72 cents a dozen, I saw no reason why a wing should not be added to the west side of the barn, making a \(6 \times 6\)-foot chicken house 8 feet high, and having a \(6 \times 36\)-foot runway along the west privet hedge as far as the blackberries. So I set about it, building it on the same architectural treatment as the barn, and by mid-February it became the abode of ten laying hens and a rooster. These were farm-yard Orpington stock, costing me a \(\$ 10\) bill for the outfit. For I have always had a horror of fancy poultry stock, at \$1 an egg. They are grand chickens, I'll admit; and lay a marvelous egg; granted-when they lay. Ten barnyard chicks begin to return an investment on your \(\$\) ro at once; they are not nervous about people, dogs and horses being about, for they always have been accustomed to being handled (and sometimes booted) around, and they always require no particular inducement beyond table scraps and a little whole corn to begin laying six eggs a day right off. And six eggs a day is exactly the consumption of our enterprising family. There is no money in poultry-verily; but there is in just plain chickens; in our case 36 cents a day.

There are a variety of nuisances which follow in the train of the festive hen, but a little planning ahead will circumvent most of them. One is Biddy's tendency to fly over the moon. Cut wings are all right, but they grow out again far too soon for the busy commuter to keep up with, wherefore the long, narrow chicken run, 6 feet \(\times 36\) feet, with a wire roof over-
head, the sides being not less than four feet high. Another is the problem of getting table scraps and water inside the yard without part of your colony taking French leave through the open door. The remedy is a double trough, with a lip outside for your scrap can and a lip inside for the hens, the footboard of the cage forming a central barrier down the length of the trough.

Then there is that cute habit the fruitful hen has of laying an egg almost anywhere but beside that glass egg, which you have so artfully placed in a wooden box in the chicken house. This is a symptom that Biddy H. does not appreciate your location of that box. It is too public; too much in the glare and limelight; and the cure is to locate your row of nests in the most secluded spot in the chicken house, in a dim, religious atmosphere, with a slanting board overhead to keep other fowls (or fools) from roosting in or on the nests.

The best recipe for making hens lay is to leave them alone, and make them scratch gravel for a living. They are just a bit nervous when there are humans about, and would rather not lay that egg, thank you, until you have gone about your business. And if they get their corn for the picking, or from one of those sprinklars that shower down a-plenty every time the hen pecks it, life becomes too easy a problem altogether to bother about laying any eggs. So I put down plenty of straw on the chicken yard floor, fed them whole corn, and they have to go down into the sand after the elusive kernel, thus introducing the healthful element of work into an otherwise sedentary existence.
Sanitation is another puzzler for the busy commuter and his hen house. You can use a dropping tray under the roosts and clean it at periodic intervals, or else have a cement floor, sanded, and the sand changed ever so often. I prefer the latter, as they dirty the chicken-house floor anyway, and you have both it and the tray to clean with the former scheme. In modern chickenhouses the tray is placed about three inches under the roosts-another reason why they do not lay-for if the hen had any say about it that roost would be the highest thing she could fly to. That primal instinct of preserving her own precious skin governs everything the hen thinks and does, and sleeping directly over a platform. presumably not rat-proof, is nervous business; wherefore, for laying hens, put your roosts well up under the roof, with a footboard leading up near, but not to the first rung.

All of which doctrine was faithfully carried out in building my chicken wing of the barn, with results that fully justified the time and labor involved in bringing it about.

I had always rejoiced in pigeons on my boyhood place. They are a nuisance (and so are dogs, for that matter), but I love them and I meant to have them, in spite of the shrieks of protest from my better


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half. No country place, even a little one, is complete without some pigeons flapping down into the driveway and making an ornament of themselves about the barn (once we even tried a white rabbit, but he ate up all the pansies and was such a general nuisance that we gave him away to save the garden), and there is always room for them up in the gable ends of the barn, so I omitted the cornice on the west gable and brought out the shingling to meet the eave moulding, pierced five pigeon holes through the shingles with a couple of shelves under them, and there you were! The sheathing on this end went behind the studding, leaving a space of some 16 inches between it and the shingles ; ample for a pigeon loft, as it only needed some roosts and some nest boxes close under the slant of the roof to make an entirely practical abode for a dozen pigeons. Less than that, many will seldom stay with you, and they need at first a temporary wire cage in front, built out over the chicken-house roof.
All these operations sent the winter whizzing by like a bobsled, so that we hardly had time to do any skating, and by the time the chickens were in it was the middle of February and time to plant the new lettuce and radishes in the greenhouse. The last of the old lettuce was cleaned out of the hotbed and eaten (making an unbroken record of lettuce for the whole year), and we went into our third spring with a rush. By the middle of March the first peas went in outside, the leaves were cleared off the strawberries and a good sprinkling of manure added to them, and then in regular suc cession the spinach, beets, outside radishes and lettuce were planted, all the fruits and berries began to bud, and by the 1 Ith of April we had a pretty little floral display of first blossoms. A day in March devoted to pruning and spraying the fruit trees was all the attention they asked. In big orchards the pruning is done in December, January or February, as there is too much to do in March to wait that long, but I wait until the winter is through and then prune out all the winter-killed shoots, cutting off about an inch beyond the green wood, which is all the pruning they need during the first few years. The spraying is essential, to discourage a certain lively spring fly, who stings the young blossom, making it set wormy fruit.

About the middle of Aprii our horse arrived. I had sworn by the nine oclock commuter's train that the onlv "car" that ever got into our "garage" would be a four-legged one; a silky-haired, black "car." with a white blaze on his nose, 14 hands high, with fuzzy ears and wonderful brown eyes! He was a Western cayuse, one of a carload of Montana stock, broken to saddle and "democrat," which in our case was a light, four-seated phaeton. He is busy paying dividends on his bale of hay all day long, for he gets hitched up to take me to the train, the


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madam to market, and the kids to school every morning; besides being ridden by all of us, particularly the children, every day of his life. And if the man with a "car" gets more fun out of it (or, rather, if his family does when he is not there), I'm sitting here to be shown!

I moved the three dogs out into their kennel on the barn porch in March. They are apt to get mangy with too much lying before open fires in the house, and, except in the severest weather, do better out of doors. Our little pack comprises one Airedale, one English setter and one Walker strain Southern foxhound, a bunch of dogs that can track and tackle anything in the game line that runs or flies, besides being great family pets. The pigeons were bought in May, six pairs of them, slates and buffs, ordinary stock, and given into the care of my little nine-year-old daughter; which brings us up pretty close to the present day, with the garden in full swing, the corn and beans in, and the tomatoes set out.

Taking census, we have found growing room, without crowding, for 26 fruit trees, 70 berries and currants, an asparagus bed, a strawberry bed, a full vegetable garden producing enough for the summer and a part of the winter (and omitting the bulk staples, such as potatoes, onions, sweet potatoes, etc.) ; also a horse, dogs, chickens and pigeons. The place sells nothing outside, and is in no sense a farm-more than half of it is devoted to lawns, shrubbery and the main house-yet the rear half keeps the grocer at bay for a family of six. We have a staple grocery store in our own cellars, and so have dispensed with the gentleman entirely-with his little bill of fifty dollars a month!
What will I do next? Well, I intend
ave that tennis court the next strip clear, with a potato patch in behind its rear backstop. I have quite enough lawn to mow now, thank you, without keeping a man on the place, so it will be a dirt court.

The remaining one-third acre I propose to leave in woodland and do a little forestry on it ; but let me tell you "in our next" how we made our lawns, drives and put in our evergreens, flowering shrubs, roses and vines. For thereby hangs a tale of much experience.

Have you ever stooped to drink at a brook and noticed what seemed to be animated stones creeping along the bottom? Then you're acquainted with the queer summer-house dwellers that S. H. Chubb describes in his article on "Master Masons and Builders," in the June House and Garden. Their methods are marvelous and their houses and architecture will arouse your interest.


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Garden Accessories
(Continued from page 355)
green sticks are so natural that one instinctively stops to listen for the song or chirp. The birds are life-size and handpainted in exact representation of our feathered friends-a delight to the eye in any garden. The little pottery birds are more expensive, though less natural, but are very durable

Another bright touch to the garden, whether or not the blossoms are out, is the old-time "wishing ball." The wishing ball is grandfather to those delightful, big. red Christmas tree balls-a great, shining, red glass globe ten inches in diameter, mounted on a pedestal. Its mission is to reflect the glow of the skies, the fleeciness of the clouds and the myriad delights of the garden. A most effective pedestal is formed of a solid column of ivy growing in an urn.
If you have a practical vegetable garden, the new vegetable basket will fill you with longing-until some kind friend sees that you have one. They are large and flatbottomed, reminding one somewhat of a flat-bottomed rowboat with two sterns, the ends curving up a little and sides high enough to keep the cuttings and pickings where they are placed. These baskets are for sale separate, or they come fitted with a kneeling cushion, which is impervious to moisture ; a large apron of hopsacking with bib and immense pockets; a set of long-handled implements-weed grubber, trowel, fork and marking line with iron winder and a dozen wooden markers with indelible pencil. With this outfit the amateur gardener can make the output of the garden decidedly professional.

The latest in flower baskets is scoopshaped with crossed handle, and is fitted out with a bright flowered cretonne apron of capacious pockets; notebook and pencil: flower markers in glass cases; wire: garden tape; kneeling cushion; pruning shears and rose scissors. When the flowers are picked and ready to arrange, the new wooden flower tray is almost indispensable. It is large enough to protect the table from wet vases, and provides plenty of room for sorting and arranging. Rose baskets come fitted out with gay flowered apron, soft straw garden hat, cissors and wire.
For any garden or flower work where a special protection is required for a woman's gown, the large rubber apron is most desirable-especially useful in arranging the vases, for water will spatter "in the best regulated families." For artistic effect, however, the dainty smocked linen apron with great pockets, and sunbonnet and sleeve protectors to match, are first choice.

For the porch or indoor use the sculptured flower-holder appeals to the artistic eye, and various bronze and pewter figures suited to the use to which they are to be put are combined with handsome pot-

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tery bowls, to hold fine, long-stemmed garden beauties.

Speaking now of real birds and not garden markers, no garden is complete in its hospitality without a drinking fountain for the songsters. Two unusual designs may be had in green and brown pottery; one with many open lips upon which the bird may perch and dip to get his drink without stepping in to take a bath-unless he is a very unwise little songster courting capture. Another, a replica of an ancient Egyptian bowl, the original of which is in the Metropolitan Museum of Art. This large, flat bowl will entice to bathe as well as to drink, and is large enough and shallow enough to accommodate quite a flock of thirsty and bath-desiring visitors.

For garden and porch use the old, painted wooden settle and chairs are now in great demand, the older the better. The indescribable green of some of these old specimens, decorated with gay flowers, harmonizes well with nature colorings. This furniture is a welcome change from the concrete and rustic pieces that have been much used of late years.

\section*{Garden Suggestions and Queries}
(Continued from page 361 )
little more in congenial soil. Blackberries are stronger growers and need from 4 to \(5 \times 5\) to 7 feet apart, according to the amount of space, variety and method of training to be used. The dewberries are natural trainers, but in garden culture should be given support. They can be placed about as close as the blackberries. At the time of planting they should be cut back quite severely, unless one wants to let a few canes grow to bear fruit the same season. This is not a good plan for plants that are wanted for a permanent crop. A few extra ones may be had for use in this way and then cut out.

The larger fruit trees are set farther apart, and should each have a place spaded up and well enriched where they are to be set. They should be planted only where the drainage is good. In planting trees and shrubs and any other tough, fibrousrooted plants, great care should be taken to get the soil in firmly about them. This cannot be done satisfactorily by filling the hole in with all the soil at once and by then trying to make it tight by stamping around on the surface. Do it several times while the hole is being filled up, using the foot or a blunt stick to do the "stamping" with. If water is needed, pour in a generous supply when the hole is about half filled and go on with the rest of the planting, leaving each tree the same way, and then go over it, and as soon as the water has become soaked up, finish the job.

Roses, hardy perennials and smaller things should be carefully guarded from wind and sun after they are received and until you are ready to get at the actual planting. Even then expose them as little as possible.



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Beautifying the Clothes-Line Posts VINE-COVERED clothes-line posts \(V\) are a unique novelty owned by a suburban resident of Cincinnati. This owner of a small suburban home, tired of secing the plain wooden posts in his back yard, as well as in those of his neighbors, in order to do away with this unsightly object decided to try the experiment of covering them with vines. With this end in view, he planted sprouts of honeysuckle around the posts, which had previously been encased in chicken-wire netting.

In a few weeks the honeysuckle had taken root and begun a rapid growth which


Instead of the glaring white monstrosity, which makes the average American "back yard" hideous, one sees a pleasant profusion of green leaves
in a short time completely covered the unsightly posts, as shown in the accompany ing illustration.
To make the old posts doubly attractive he nailed little bird homes to the tops of them, hoping to attract some of those native song birds he had been reading so much about. He was successful, for early last April along came a pair of blue-birds, the most desirable of all the song birds, and they took possession of the hutlet on the post here illustrated. They built a nest in the little home provided for them and reared a brood of four husky little


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youngsters. Will they return next spring? If they do they will not only find their little home waiting for them on the honey-suckle-clad post, but they will find many other such posts in neighboring yards, for the idea has caught on, and the neighbors are now starting honeysuckle sprouts all around their clothes-line posts.
Which posts would you rather have in your yard-the one in the foreground, with its pretty green dress, or those just back of it, which illustrate how the former looked before being dressed up?

Your Saturday Afternoon Garden (Continued from page 337) too much or scatter it so that it stays on the leaves in lumps, you may damage some crops with it.
If a rain comes you should go over the ground as soon as it dries, so as to break up the crust before the soil hardens. At the third or fourth cultivation, when the plants are beginning to be of good size, but when it is a little difficult to work close around them, a little earth may be thrown towards them-not enough to "hill" them, in the old-fashioned sense of the word, but enough to come an inch or two up the stalk and to cover up and smother any sprouting weeds which the hoe may have missed. If the crop is growing as it should, most of the space between the rows will be covered by the spreading leaves, so as to make much further cultivation both impossible and unnecessary. And as long as there is any ground visible the centers of the rows that can be worked should be gone over frequently enough to keep it mellow on top. In spite of the best of care, there will probably be a few weeds that will come through and grow to a luxuriant middle age. If they grow so large that you cannot pull them without injuring the plants near which they are growing, cut them off at the roots just below the soil before they go to seed.
Onions and other crops which are sown by seed in a continuous drill are not so easily cared for. Usually the seed will have been sown several times as thick as the plants should stand. If the seed is strong and conditions have been good, more plants than are wanted will appear. These should be thinned out at the first or second weeding to two inches or so apart. The methods to be followed in keeping the crops free from the weeds must be quite different from those just described. As it takes the plants from 12 to 20 days to come up, it is a good plan to rake the ground right over the rows very gently with an iron rake. Whether this is done or not, as soon as the plants have come up far enough for the rows to be seen, the wheel-hoe, with a disc attachment if you have it, should be put into operation and the rows gone over. A few days after this most of the plants will be far enough up to be seen, and then the important job of "hand-weeding" is in


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order. This means hands-and-knees and thumb-and-finger work. There are several types of hand-weeders which can be used to help out in this work, but none of them will enable one to do away with the use of thumb and finger. The all-important thing is to get every weed, and this means pulling not only every one you see, but also those that are not yet large enough to be seen, by breaking every particle of crust. The wheel-hoe should be used to keep the soil between the rows loose and mellow, no matter how often it may be necessary to go over the ground. A second hand-weeding will usually be necessary, and sometimes even a third and fourth. The crops should be kept scrupulously clean as long as it is possible to go over them.

Corn, melons, pole beans, and other things which are planted similarly are handled in much the same way as plants set out in hills, except that, as they have less of a start over the weeds, even more care is necessary in destroying the latter. Corn should be planted four stalks to a hilland the soil about the hills, which must be worked with a hoe, should be gone over frequently. With things that are planted far apart there is danger of neglecting the ground between the hills and rows during the early stages of growth. Instead of saving any trouble, however, this only makes more. Keep the whole surface well cultivated.

The things to be planted this month are just the opposite in character from those which were planted last month, and weather conditions are frequently quite as contrary. Therefore your planting methods must be changed accordingly. Little is gained by putting in the tender crops-such as tomatoes, peppers, eggplants and beans, melons, and the better varieties of sweet corn-before the ground is ready for them and the weather settled. The secret of success with these things is to have everything ready-ground, fertilizer, and the plants-where they can be started in the best possible shape; so that when the weather conditions are right they can be given every opportunity to make the greatest possible growth.

The depth at which the various tender vegetables should be planted will vary greatly from season to season. Of course, in lighter soils they should always be covered a little deeper than in heavy soils, particularly where drainage happens to be poor. Sometimes, as a result of dry weather following the opening of spring, it happens that even early in May the ground is quite dry and the weather hot. Under such conditions planting should be relatively deep. Where a long, cold, wet spring is encountered, the planting, on the other hand, should be shallow. The extremes of dryness and heat and wet and cold should both be avoided. The first will either cause the seed to fail to germinate or to die as soon as it does; the


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second, rots it before it has a chance to.
These late crops may be separated into three groups. The first group includes tomatoes, eggs, peppers and okra, all of which must be started under glass to make sure of a crop; the second, beans, sweet corn and okra from seed; the third, the various vine crops. For all of these things, except dwarf beans, it pays well to make especially prepared hills, enriched with manure or compost or fertilizer, so that an abundance of available food will be on hand for the immediate use of the plant. All these things grow naturally where the seasons are longer and warmer. And in all northern sections this loss should, to some extent, be made up by a little extra stimulation. For the first group and for all pole beans, the hills, after being marked out carefully, should be dug out with a hoe and half a handful of the same mixture of fertilizer, as advised for cabbages and other early plants, or some hen manure and ashes, mixed thoroughly with the soil at the bottom of each before planting, should be put in. For the third group and for pole beans the little hills are made much larger and require more thorough preparation. They should be dug out to a depth of several inches and from 18 to 20 inches across. Where manure is to be used, they should be made deeper than with compost or fertilizer. Two or three forkfuls of the former or handfuls of the latter should be mixed thoroughly with the soil over the whole area, and the soil that has been hoed should be replaced, covering the manure or fertilizer three inches or so deep. The hills may be raised very slightly above the surrounding surface, but they should never be "hill shaped," so that the water will run off. They should be either flat or slightly concave on top. With the vine crops the number of seeds planted varies from six to twenty-the larger the seed, the fewer are planted. The pole beans should be planted in a small circle, so that there will be room to set the pole in the middle. This should be done as soon as they are planted or shortly afterwards. Limas should always be planted with the eye down, because the bean itself must be pushed up through the soil in germinating. Do not plant them just before or after a rain, as they rot very quickly.

\section*{The Honest House}

A book for everyone who wishes to create a house expressive of the owner and at the same time consistent is "The Honest House," by Ruby Ross Goodnew and Rayne Adams, The Century Company. It presents examples of the usual problems that face the home-builder, together with an exposition of the simple architectural principles underlying them. It is arranged especially with reference to small house designs.


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The Use of Woodwork in Interior Decoration
(Continued from page 349)
four-panel pine of the old type.
The reproduction of antiques is making great headway. Replicas of the old, carved, wooden candelabra are made in a cast fibre composition, the moulds taken directly from the old examples. Beautiful chandeliers and sidelights made of this material can be bought for the price of the usual stock brass ones. They make castings, too, from old carved panels or beam ends or brackets and grain them so perfectly that one has to touch them to tell they are not the original wood. Some of the cruder carvings could be used with advantage in such a room as we illustrated in the October number, and would accord Derfectly with its rough stone chimneybreast and battened wainscoting. The candelabra we show in our Italian room each side the fireplace might well be such reproductions ; wired ready for use, they would cost from \(\$ 30\) to \(\$ 75\) each, depending on their elaboration.

Let us suppose that you were about to finish a room; that you had decided on this Italian style, but that the cost must be kept as low as possible. The mantel of concrete stone you must retain. You would buy a stock casting directly from one of the mantel manufacturers. You would tell them, of course, that you intended to use the entire opening, that your flue was big enough; they would bevel back the lintel for you, as our section shows. The back, jambs and hearth you would lay in gray-brown or yellow brick, rough or smooth, laying them flat for the hearth and on edge for the back and jambs as tiles would be laid, perhaps in a herring-bone pattern somewhat as we showed in last October issue, or perhaps in alternating bands, first a flat, then a row on end. You would omit the costly iron fireback.
The wainscoting you would leave out altogether. The walls would be plastered, of course, with perhaps a small plaster cornice next the plastered ceiling. The single-panel stock veneered door is as cheap as any, and the only other woodwork would be in the "trim" around it and at the windows and in the base around the floor, unless there were no plaster cornice and a picture rail were set close to the ceiling to crown and terminate the color treatment of the walls; but perhaps you might choose to retain the beamed ceiling.
Now a beamed ceiling is more expensive than plaster, unless the real beams are planed and exposed their whole depth, with only the double wood floor and the felt between, to deaden the sounds of walking in the room above: but modern beams are so deep in proportion to their thickness that the recesses left between seem disagreeably narrow. In former days, when beamed ceilings were well nigh universal, floor beams were hardly square,


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as wide as they were deep; floors were of heavy plank and the beams set well apart. Since then we have learned that such a proportioning was mechanically wasteful, and with less material we get much stiffer floors. The strength of a beam is directly proportional to its thickness, but proportional also to the square of its depth; therefore a beam \(2^{\prime \prime} \times 8^{\prime \prime}\) is just twice as strong as a beam \(4^{\prime \prime} \times 4^{\prime \prime}\), for \(2 \times 8^{2}=128\) and \(4 \times 4^{2}=64\), yet each contains the same amount of material and costs the same, twice the value for the same investment. Therefore we use deep, narrow beams, \(2 \times 8,2 \times 10\) or \(2 \times 12\), which are kept from bending sideways by cross-bridging of slender stick nailed diagonally between them. A line of crossbridging also acts as a truss, so that if a person stands directly over a beam his weight is passed in part to the beams each side, and from these to the next, and so on, a function once performed by the heavy plank floors.
Now such a construction exposed on our ceiling would be most disagreeably complicated, but since we find the old ceilings decorative and pleasant to look at, we try to imitate them. We plane our beams, mould them at the edges, or even, perhaps, adze-cut them by hand; we make them a little thicker than necessary and place them as wide apart as we dare. Half way up we set our lath and plaster or long wood panels so an air space several inches deep lies between this and the floor above. Sometimes the exposed lower portion of the beams is cased with thin strips of wood and mouldings, as we showed in the detail of our last October's room; sometimes, with an utter disregard of construction, the entire ceiling is plastered and then flat planks laid across it to imitate the bottom of beams!
In the style we are describing there is no conventional wall treatment. The plaster might be sanded and painted, or wallpaper might be used over the ordinary smooth plaster, paper rich in pattern and in color, or else of an even grayish or pale or golden brown, toning in with the pale gray-brown stain of the doors and trim and baseboard. Such a color-scheme silhouettes the fireplace in strong relief and is a perfect background for paintings or casts or any objects that find a place there. A white background, on the contrary, or even white woodwork, renders the concrete fireplace rough and dingy and is therefore to be avoided. A pure white ceiling, though, is not offensive and the expense of a beam treatment you might discard. Recently I saw such a room, in which the walls were covered with a brown, almost dark - wrapping - paper colored silky material, the woodwork stained to match it exactly, and where wall-hanging and woodwork joined, ran a narrow strip of black gimp, returning along the ceiling and against the baseboard, which was painted a rather glossy black. The black gave a singular individuality; the room was virile and thor-


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There is nothing in the style that demands great expense, once granting a hundred dollars or so for the mantel and something more for setting it. There is no compulsion in any other direction, as there is toward plaster ornament in the Adam, for instance. The style is formal, unquestionably, but not rigidly conventional; the flooring may be oak laid at 12 cents a foot, composition at 25 or 30 cents, tile at higher cost ; the ceilings may be either plastered or with wooden beams; walls, plastered and painted or papered, or else wainscoted; woodwork painted or stained; it seems the most elastic style there is! Though essentially dignified, yet it might range anywhere in character from the simple Spanish Mission of the Southwest to the almost palace-museum type that the last few years have seen developed here and there throughout the United States.
But-the finish of the room must suit its furnishings. The Italian chairs and tables we see nowadays in all the furniture shops are perfectly suited to it. "Mission" or "Craftsman" furniture 1 have seen in a somewhat similar room, and even the better types of wicker, without there being such a discord as one might expect; but the old English mahogany, never; for the Chippendales or Sheratons are too delicate for its strong and robust nature.

After all, where furniture is delicate, decorations must be delicate; where furniture is crude and heavy, the architecture must be likewise. Harmony is more important than period. There is nothing necessarily shocking in old chairs or tables standing against wallpaper, invented a hundred years after they were made. A heavy-beamed ceiling over a Hepplewhite chair shocks us, not because the men of his age abhorred a beamed ceiling, but because chair and ceiling are intrinsically out of key. We have tried to emphasize this in these articles, and if we seem to have lavishly followed historic accessories it was because other combinations seemed discordant, not because they were innovations. No, and more than that, for the only true advance seems in the successful combinations of elements never combined before.

\section*{Concerning Rugs}

Seated by the fireside, with your feet upon the hearth rug of silken sheen, did you ever indulge in reveries as you gazed upon its glorious vista of color harmony Could it speak, what a story of romance, adventure, deprivation, it would tell! Such stories are told in Dr. G. Griffin Lewis' "The Mystery of the Oriental Rug," from the press of J. B. Lippincott Company. The author has successfully endeavored to present in a concise form certain facts that will enable the novice to understand more fully and appreciate the characteristics of these Eastern treasures.


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\section*{Efficiency in the Flower Garden} (Continued from page 351)
nevertheless, remains that just as artistic and pleasing effects can be produced with them as with any others. In determining what you will plant in any particular bed try to visualize exactly as you would in planting a hardy border or a landscape group the general effect which you desire to obtain, and then pick out the plants accordingly. The way a great many people plan their beds is to go to the tiorist's or sit down with a catalogue, make out a list of things they think are pretty, and then try to hit them into such beds as they may have at their disposal. They think it saves trouble. As a matter of fact, it does, not. It makes a good deal more. You can arrange your various flower beds on paper in just one-tenth the time that you would give to arranging a lot of plants which have been bought without a definite place in mind for each one when it was purchased. Make a rough sketch of each bed or part of a bed in which you expect to set out bedding plants, decide just what is to go into each, and then you can make out your order intelligently, giving full attention to such things as color-schemes, covers for ugly walls, low plants for beds which would otherwise cut off part of your view, etc. That is efficiency in gardening with bedding plants.

But your efficiency should not stop there. If you order your plants by mail, you will, of course, have to buy "sight unseen," with nothing but the reputation of the firm to guarantee that they will be satisfactory. On the other hand, if you buy of a local dealer, where you can pick your plants out personally, you are likely to have a very much less complete assortment, especially so far as the new varieties are concerned. In case you do select your own plants, do not be guided solely by size.

The ideal plant for bedding purposes is a young, strong, rapidly growing one; its size is of comparatively little importance. An older plant, which may make two or three times as much show on a greenhouse bench, set out side by side with the former kind, although making a good deal more of a display for the first few weeks, or for the first few days, often will be far outstripped by the time the season is half over, and is likely to give much less satisfaction on account of lack of vigor of growth and of freedom of flowering. Of equal importance with getting vigorous, healthy plants, of course, is getting what you want-plants that are absolutely true to name. You should therefore procure them from some source upon which you can thoroughly rely. Even if bought from some local florist, where you can make a personal selection, it is not always possible to get every plant in flower. On the other hand, do not foolishly insist that every plant be loaded with bloom; no matter how carefully the


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work is done, there is some shock to the plants in transplanting, particularly if they have to be transported. Select, rather, the plants that are well supplied with buds, or flowers that are just beginning to open; these will develop quickly under favorable conditions; and while a bed of such plants will not make quite such a show the day it is set out, within a week it will probably be looking a hundred per cent better than if you had insisted upon selecting plants only with flowers in full bloom.

There is always a temptation to skip a little in the preparation of the bed where plants instead of seeds are to be used. A finely pulverized surface may not be quite so important, because you have not got to arrange to have the supply of soil moisture maintained so near the surface ; but in every other respect it is just as important for you to do your level best in the preparation of every bed in which plants are to be set. Skimp neither on the uses of manures and fertilizers nor on the thoroughness with which the soil itself is prepared. And rake the bed fine and smooth on top, both for looks and to get a good mulch.

In spading up an old bed, the newly stirred soil will occupy more room than it did before, with the result that there may seem to be too much dirt which the careless gardener will find himself heaping up in the center. The bed should always be kept level and flat on top, even if it has to be raised a few inches by making it quite steep around the edges.

When ready to plant, set the plants in their pots in the different positions in which they are to go, and shift them around as necessary, until you are satisfied that you have got the best arrangement. In beds of a single kind of plant, keep the largest towards the middle. The plants in the pots should be thoroughly watered some hours-half a day or sobefore planting; long enough so that they will have dried out sufficiently, but moist enough so that the ball of earth will hold together in good shape.

The more important of the bedding plants are briefly mentioned below :

Geraniums.-These are, on the whole, the most satisfactory of all plants for general bedding, and many of the beautiful new sorts of the Bruant type are also excellent for cutting, lasting a long time, with long, stiff stems and with individual flowers as beautiful as the favorite kinds of flowers for cutting.

Begonias.-For a long time the bedding sorts of begonias have been extremely satisfactory where light or dark pink could be used, and some of the newer sorts are dazzling red, and literally covered with bloom throughout the season. They propagate readily and from a single plant of one of the newer sorts you can easily get all the plants you could have need for next spring.


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Heliotrope.-These have been popular for a great many years, both on account of their beauty and their sweet fragrance. They should not be set out until settled weather, as they are more tender than geraniums and most of the other bedding plants. Severe check will cause them to drop their leaves. In good, rich ground they make a rank growth and should be given plenty of room. Being of shrubby growth, they may be trained to any desired shape or height.

Salvias (Scarlet Sage).-These are without a rival wherever a dazzling mass of red is wanted throughout the season. There are several good varieties which vary considerably in height. Select a sort suited to the place in which you wish to use it. These are one of the tenderest of all the bedding plants. Do not set them out while the weather is still cold.
Asters. -Where a flower is wanted both for cutting and bedding and in a wide range of colors, nothing surpasses these universal favorites. The wonderful newer sorts might well be termed "the poor man's chrysanthemums." For a continuity of bloom select early, mid-season and late varieties.
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Petunias.-These are of semi-climbing habit and are very good for masses over stones, low walls, wire fences, and so forth. The single-flowered varieties particularly are very profuse bloomers. Among the named double sorts there are some exquisite and very beautiful flowers. A healthy, rank grower, when once established. Very useful also in baskets and veranda boxes.

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Making a Garden in May

FOR some unknown reason, the gardens of this section do not show dahlias in the profusion that flowers so worthy of culture should be shown. They bloom at a time when flowers are beginning to be scarce and the glowing richness of their color harmonies might well insure them a wider cultivation. Tubers may be planted this month. They should be put in very deep, according to the size, and it is well to place them in a pocket of sand, so that no manure will come in contact with them and cause them to decay.

Select very carefully the place where your dahlias are to grow, for once planted they become a permanent feature in your garden, and do not need to be touched for several years. This fact adds much to their ease of cultivation, for in the South, dahlias, cannas and gladioli do not have to be taken up each year and protected during the winter. The tubers and corms remain in the ground from year to year, and can be left until they have multiplied so much that separation is necessary. The plants must be staked when about a foot tall, and only three or four of the strongest stalks allowed to mature. This will give not only quantity, but quality, in the blossoms. For ease of cultivation, length of time of bloom and brilliancy of coloring, there is nothing better than dahlias.

If there is some sunny spot near a vinecovered wall where the colors will stand out in rich glory in the blooming season, and yet the space will not be barren and unsightly in winter, the situation will be ideal. They might be placed in the rows between the hollyhocks, as both plantings must have sun, the habit of growth is similar, and the hollyhocks have finished blooming long before the dahlias begin.

As for varieties, there can be no question but that the Cactus and peony kinds, that show irregularities in the outline, grouping and arrangement of the petals, are more artistic than the older-fashioned sorts that lent themselves to reproduction in wax to the joy and admiration of an earlier generation. Selection of colors is a matter for individual taste, but self colors will be found to give richer effects than the variegated kinds. Every garden, where space permits, should plant dahlias in the border backgrounds this month.

Where there is not room for these flowers of larger growth there should be found a place for masses of chrysanthemums for fall bloom. The exhibition and standard varieties are all hardy in this section, and once planted continue to grow and multiply from year to year, as do most of the hardy perennials. However, these standard growths must be staked


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Did you ever furnish A Garden Living Room? Do so this year from the suggestions in the June House \& Garden.
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When you stoop to drink at a country brook have you ever noticed The Master Masons and Builders at work on their summer homes in the bed of the stream? This article tells you how they build.
If you use awnings around your country place, why not select them with a view to getting the best decorative value, as will be explained in the June House \& Garden.
Are you a lover of color in the garden? Then Planting a Purple and Gold Garden will be a treasure trove of helpful suggestions for both the small and large property
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later on, kept closely pinched back to insure bushy, rather than scraggy plants, and satisfactory bloom, and are often nipped by the frost just at the blossoming time. On the other hand, the hardy varieties, of smaller size, both as to plant and flower, need only to be planted, in colonies of worthy number, and practically left alone, for the garden to be filled for many weeks in the late summer and fall with the sunshine of the golden yellows, the rosiest of pinks, the deepest and richest of reds, and whites that rival in purity the clouds that sail overhead.

For weeks these effects charm both as cut flowers that lighten up the chilly corners of the house and wherever they spill themselves over the canvas of the garden. One of the most beautiful of these hardy varieties is that known as the Marguerite, with snowy petals ranged around a glowing center of purest yellow. This looks much like the hardy asters, Michaelmas daisies, but is of larger size as to flower and of smaller growth as to plant.
If there is a bare corner of the garden that needs filling, use both of these hardy plantings for fall blossoms. The chrysanthemums give one range of color tones, and to their effects the asters will bring the softest and clearest of blues and daintiest of lavenders, and also the whites and pinks. They require much more room than the chrysanthemums, but if space permits they are glorious-when planted in profusion-as they grow along the borders of our woodlands and sunshiny lanes and where the ruthless hand of the destroyer has passed them by and left them to flourish and add their share of glory to the autumn world.

If bloom is needed for the summer months there is nothing available in the way of bedding plants at this late day except the salvias, coleus and vincas. The two former grow equally well in sun and partial shade, and will grow often where nothing else will thrive. For this reason they are much used to lighten up the dark, north fronts of houses in close-crowded city streets. They serve this purpose admirably.

In a border where the dark leaves of oleanders or privets or other broad-leaved evergreens form the background the scarlet salvias are wonderfully effective. Against the rich green of the ivies the color is satisfying, whether in the borders or in window or porch boxes. Massed in groups where there is nothing to break the monotony of the fiery tints they are crude and tiresome. It is hardly necessary to tell the readers that a bed of salvias, coleus or vincas, in the midst of a clean-shaven lawn, has no excuse for being, and is always a blot on the landscape.

Not often seen, but all the more to be desired for this reason, are the blue salvias, the mountain sage, salvia azurea, pitcheri and uliginosa. Colonies of these are exquisitely dainty, and when planted among flowers of white and yellow tones


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the effect is very pleasing. Unlike the scarlet salvia, the blue varieties are true perennials, and come up year after year. The white panicles of the hardy phlox, the golden clusters of rudbeckia and masses of salvia azurea made a corner of one of my borders a place of loveliness for many, many weeks last summer. All three are getting ready to respond to an encore for this season. Now is an excellent time to make these plantings. If late varieties of the phlox are used, satisfaction is assured in the case of all three. The long, blue spikes that stand well above the clusters of blue-green leaves, that seem always shining and wet with dew, make beautiful arrangements for the flower bowls, either when used alone or with masses of the miniature sunflowers or coreopsis or other flowers of golden tints. Plant blue salvia for dainty color effects; plant the scarlet for bold and vivid color schemes.
When the time to grow flowers from seed has passed, where nothing else will grow on account of shade, and where stil. some summer plantings are desired, the coleus is to be recommended. The florists always have them; they are very inexDensive, and the varieties with deep, rich leaves of crimson and red give brightness and color to dark spots. The yellowleaved sorts are also effective. They fill in from earlv summer until frost. will grow in either sun or shade, and that is all that can be said for them.

The annual vincas, rosea, alba and alba pura, can be put out now to fill the borders and porch boxes in the sun and for edgings of walks and driveways. The dainty, white flowers and the rich green of the leaves will bring light and color to the summer garden from month to month. The texture of these plants is rather heavy, but the flower masses are very good, and they are most reliable.
It is too late to plant a garden from seed or to put in the early perennials, but the few plantings enumerated here will be beautiful and satisfactory this summer and fall. and will insure a start on the road to beauty for another vear. Truly it is never too late to start a garden.
Wealth from the Soll. By C. C. Bonsfield. Forbes \& Co.
Those who will recall his very excellent volume, "Making the Farm Pay," will welcome this second volume from the pen of Mr. Bonsfield. Written with the view to interesting city folk in the advantages and profits from farming, it is also a practical book for the rural community. Eminently practical, abundant with progressive suggestions, and yet sanely written with none of that self-deceiving rhapsody one often finds in the back-to-the-land propaganda, this work should find its way into many hands and make a place for itself in the farmer's working library. Space forbids quotation, but this must be said in passing, that it lacks the theorizing of many such books and gets down to "brass tacks" in an engaging fashion.

\section*{SOUTHERN. GARDEN DEPARTMENT \\ Conducted by JULIA LESTER DILLON}

Inquiries and problems for this department willreceive promp

\section*{Southern Lawns}

Omany of the estates in the South, which are used only as winter residences, June is the regular time for making over the lawns. Fertilizers are freely used, and after being spread over the surface are ploughed in. The ploughing is usually very deep and the sod is then disc-harrowed in order to cut it very fine. This done, the surface is raked as fine and smooth as it is possible to get it and then is left to mellow until October.

Deep raking and smoothing at this time is followed by thick seeding with an evergreen lawn grass seed, and, after rolling with a heavy roller and watering, the lawn is left to grow.

In a few weeks the seed will have germinated and grown sufficiently to allow cutting. Alternate rolling and cutting, weekly, from this time until December will result in a sod that is springy and firm to walk on, soft and velvety to touch, and a picture of green loveliness on which to feast the eyes.
This procedure is most expensive, and enly those with expensive purses can afford to indulge. There is no doubt but that most of us have to live in our homes twelve months of the year, rather than five, and are more interested, therefore, in the making and care of an all-the-year lawn, than we are in one that is beautiful for less than half of that time.
In this section of the South and farther there is but one grass that can be depended upon to give greenness throughout the hot, dry summer months: that is the Bermuda, Capriola (Cynodon) Dactylon. This grows anywhere, except under the trees where there is dense shade; is to be depended on for lush, rich turf in fertile soils, and for strong, good sod on even the poorest soil. The roots spread by an underground system and go down so deep that for planting on banks or where the soil is apt to wash nothing is better.

The best way to plant Bermuda is to get the roots, cut them up fine, and planit out the sprigs into furrows in the drills twelve inches apart each way. Then the ground should be rolled. They are easily grown in the spring and can be planted at any time except in extremely dry weather in midsummer and in the midwinter season. This planting will give an even turf that should be rolled regularly and cut often. This grass alone will give a beautiful, soft, blue-green summer sod that will stand the hardest wear. When September comes the Bermuda begins to turn brown, and quick and hard work is necessary to keep the lawn in trim. The sod should be cut very closely, raked as

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smooth and clean as is possible, and over it a seeding of winter grasses be made.

The Italian Rye, Lolium Italicum, and the White Clover, Trifolium repens, used in the proportions of three to two, make a delightful winter combination. The rye is an annual and must be sown again each fall, but there is not a grass known to us that makes so fresh and green a lawn. Closely cut and regularly rolled, it is impossible to describe its beauty. Clover is always lovely and does not have to be sown again each season.
Pacey's or English Rye, Lolium perenne, sar. tenue, is not quite so desirable as the Italian Rye for fresh beauty in the winter months, but it is a perennial and will last about four or five years. This is also about the length of time allowed by many good gardeners for the making over of the Bermuda fawns, so that if the Bermuda is used in the spring, the clover and ryes in the fall, the lawns should last for several years, with just enough reseeding of the bare spots to keep it even and neat.

Cottonseed meal and bone meal used in the spring are also most valuable aids to strong and even sods. They should be used in preference to the stable manure, unless the latter can be ploughed in deeply, and, even then, this must always be followed by a warfare against weeds that must be waged even more vigorously than is usual, and all of us who make lawns know that this is an endless battle.

Where it is not possible to secure the Bermuda roots for summer growth, plant the seed. Many use the Bermuda roots in spring and disc harrow in the fall and plant the Georgia Burr Clover, Medicago arabic, and declare that one planting of this makes either pasture or lawn for a iifetime. For large areas, for parks and much-used lawns, these two grasses are unequaled. For the smaller places the ryes and clover for winter and the Bermuda for the summer will give best results.
Farther South, in Charleston and Savannah, and on the warm, sandy, coast lands, St. Augustine grass, Stenotaphrum Dimitiatum, is much used. This is grown from cuttings set in summer, one foot apart, and every joint takes root and becomes a new center. It makes a dense, carpet-like growth and is almost an evergreen. It is often planted inland but seems to need the tang of the salt air for best results,

An attested mixture of evergreen lawn grass, recleaned seed, that has been used this winter with excellent results and is now making a strong spring growth that bids fair to hold out through the summer, is composed of the following six grasses: Kentucky blue, Poa pratensis, good for the higher sections of the South; Red Top, Agrostis zulgaris, good for filling in with the Blue grass; English Rye, Lolium perenne, var. tenue; Italian Rye, Lolium Italicum: Bermuda, Capriola Dactylon; and White Clover, Trifolium repens.


June Poultry Work

THOUSANDS of dollars would be saved by the poultry keepers of this country if they would get rid of their superfluous male birds. In some States what has been termed a "swat the rooster" campaign has been inaugurated. The principal object is to induce the farmers who handle eggs commercially to get rid of their cock birds, for the reason that nonfertile eggs keep better than those which are fertile. There is another side to this matter, because the very fact that fertile eggs go bad more quickly than infertile eggs is really a protection to the customer to a certain extent. Some physicians insist upon having fertile eggs on the ground that if they are stale that fact is bound to become evident. It is certainly to the advantage of the poultry keeper to get rid of his roosters as soon as the breeding season is over-and there should be none around later than June-unless, of course, they are good enough to carry over to the next season. It is a common practice to use two-year cocks with pullets at breeding time, but the judgment of the best poultry keepers seems to be that it is preferable to mate cockerels with two-year-old hens.

Hens that have stopped laying and those which are persistent in getting broody should be sold now, too. It is poor policy to carry over any pullets which have proven to be confirmed layers, for if they are used to breed from they are likely to transmit this broody tendency to their offspring. It is desirable to have setting hens sometimes, but in these days of incubators and brooders they are less popular than in the old days, and poultrymen would like to breed out the broody traits entirely. Any amateur can make a start in this direction by selecting for breeders those hens which are the least stubborn in their desire to set.

If early chickens have been raised for roasters, June and July are the months to sell those not needed for home consumption, prices being at the highest point. Many men and women with small flocks of hens belonging to the American breeds add considerable money to their regular incomes by growing roaster chickens, hatching them in January or the first week in February.

June is not too late to hatch chickens for winter laying, although they probably


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will not produce many eggs until after New Year's, and they must be kept growing rapidly. It is perhaps the best month to bring out bantams, which are hard to raise before the weather gets warm. Bantams are becoming highly popular with professional men, as well as with boys and girls, and many flocks are kept as a source of recreation. Some breeds are very handsome, all have engaging ways, and a few kinds lay eggs which are large enough to use in the kitchen.

As hot weather comes on it is important to provide shade for the growing chickens, the ducks and the young turkeys. It is needed for the hens, too, but the turkey poults and the ducklings are almost certain to succumb to the heat unless they are sheltered from the rays of the sun. One plan, when there is no natural shade, is to grow sunflowers, corn or Jerusalem artichokes. The last-named will come up year after year when started and the fowls have so little fondness for the leaves that they will let the plants grow undisturbed in the poultry yard. Many people grow fruit trees in their chicken runs, and the plan has much to commend it. The trees provide needed shade and the fertilization received by the roots of the trees induces heavy fruiting. Probably plums and apples are the best fruits to choose for such a location. The excess of fertilizer in the soil is likely to make the peach trees too soft.

Chickens often develop an unpleasant fondness for the tender bark of young fruit trees and will strip it from the trunks unless protection of some kind be given. A little tube of wire netting around the trunk of each tree looks well, but a wrapping of burlap will serve the purpose.

It is also necessary to give the growing youngsters, as well as the 'aying hens, all the water they need to drink. When possible, the water dishes should be filled at least twice a day, as warm water is not very palatable, even to a hen. It is a fact, though not often realized, that the egg production is augmented by keeping the layers supplied with fresh, cool, water. There are several reservoir fountains on the market which make it easy to keep plenty of water before the birds, even though the attendant is obliged to be away all day.

The manufacturers of poultry foods sometimes advocate substituting growing feed for laying feed at this season, and it is quite possible that the change may stimulate the egg yield, which is inclined to fall off in June. Probably the amateur with a few hens will find it much to his ddvantage to feed one of the commercial dry mashes rather than to buy the various kinds of ground grains and mix them himself. It is important, however, that green food be given, whatever feeding plan may be followed. It may take the form of vegetables from the garden or it may be simply lawn clippings. The latter are excellent and may be dried for winter.

For the Unmannerly Dog

THEORETICALLY, a well-trained dog has no bad habits. He should be a sort of four-footed angel, mints wings, of course, but otherwise quite capable of maintaining a dignified place in the company of saints. That is the theory, but we must deal with the facts.

If your dog is a confirmed fighter, do not despair. Keep him at heel when other dogs are around, and if he shows any inclination to break away and mix things, switch him soundly. A few sessions with a dog whip will teach him to restrain himself, at least when you are about.
Another too frequent habit is chasing and barking at wagons, automobiles and pretty much everything else that runs, rolls, walks or trots along the ground. The sovereign remedy, if I may be permitted a "bull," is not to let the habit take hold. Failing in that, resort to the switch in the event of the dog failing to heed your command to stop. If he is an inveterate chaser, the kind that whipping will not cure, try the following method: Get a leather "force" collar, which tightens and pinches the dog's neck when he pulls against it, or else a stout, ordinary leather one. Put it on him and attach about twenty feet of heavy cord. Get a good, firm grip on the end of the cord, gather the rest of it in coils held loosely in one hand, so that the dog will be kept as close to you as if he were on an ordinary leash, and take him out where he will be apt to see something to chase.
When he makes a break after a passing car or wagon, let the loose coils of cord go and brace your feet. Just as he reaches the end of his tether order him sharply to "Stop!" or whatever command you choose to convey your meaning. Coinciding with the word the dog will reach the limit of the cord, turn several more or less complete and totally unexpected somersaults, and learn a valuable lesson.
Many dogs, especially those which are kenneled outdoors at night, contract the habit of barking disturbingly at their own maginations. This can generally be broken up by teaching the offender the meaning of the order "Be still!" and, if he does not obey after learning it, switching him. Some dogs are very stubborn about this barking trick, and require rather harsh treatment. Not long ago I had a barker case which required my going out to the kennel, fifty yards from the house, half a dozen times in a couple of hours. After the last trip, which included a really sound thrashing, the dog decided to yield. Now, on the few occasions when he barks at all, a word from the house silences him.
Apropos of barking as a bad habit, it may be said that it is usually possible to tell from the tone of the dog's voice whether he is barking at some real disturber or just because he has nothing else to do or is thirsty or hungry.
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