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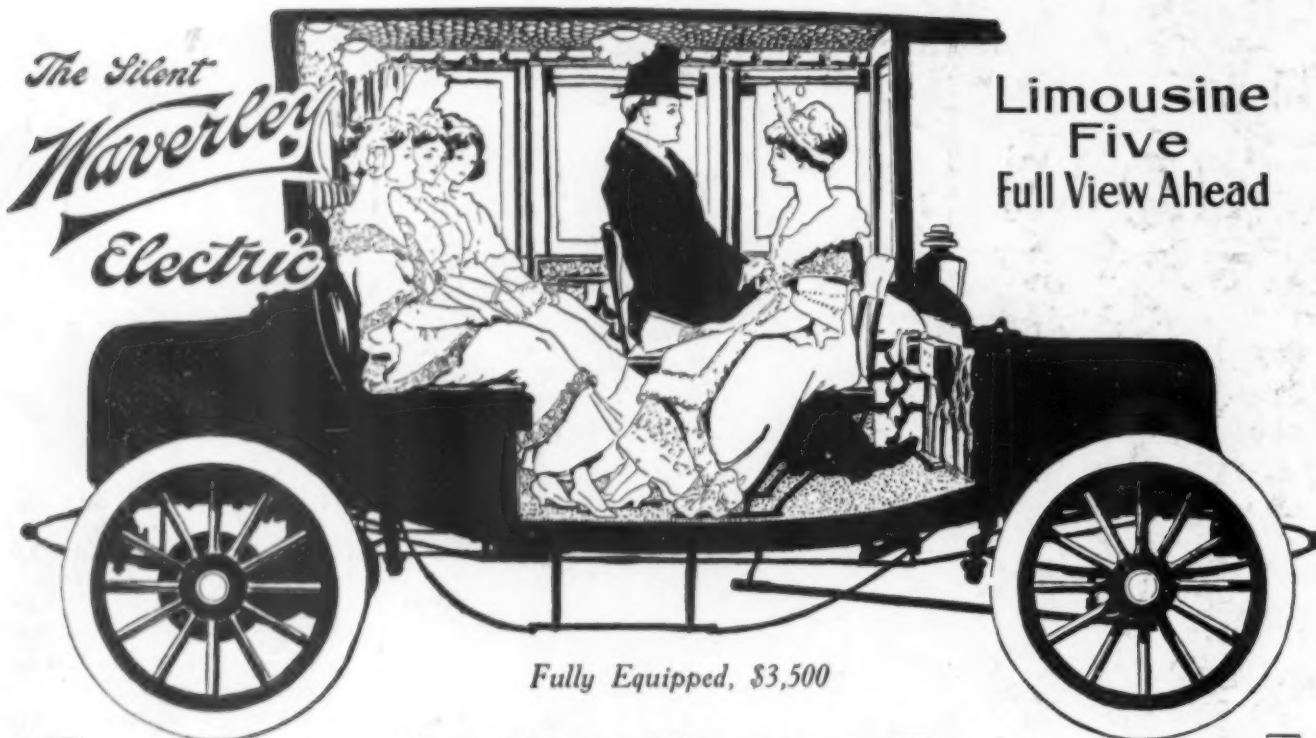
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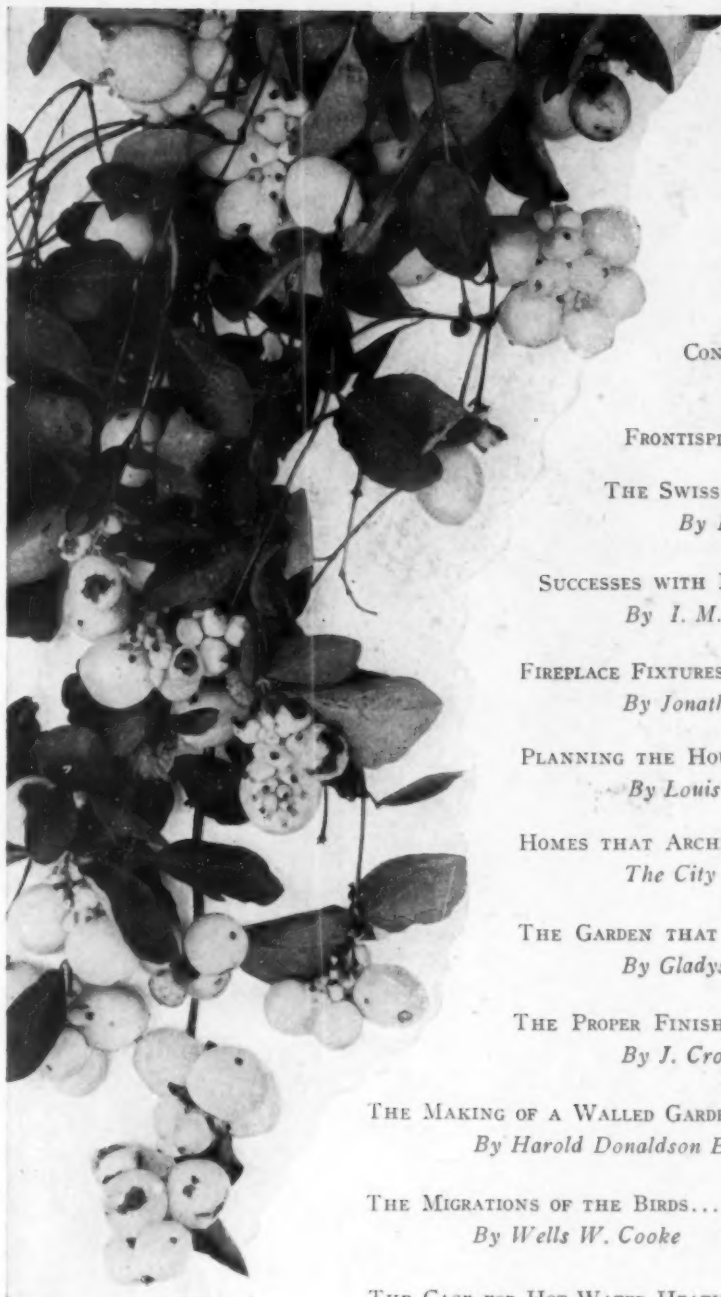
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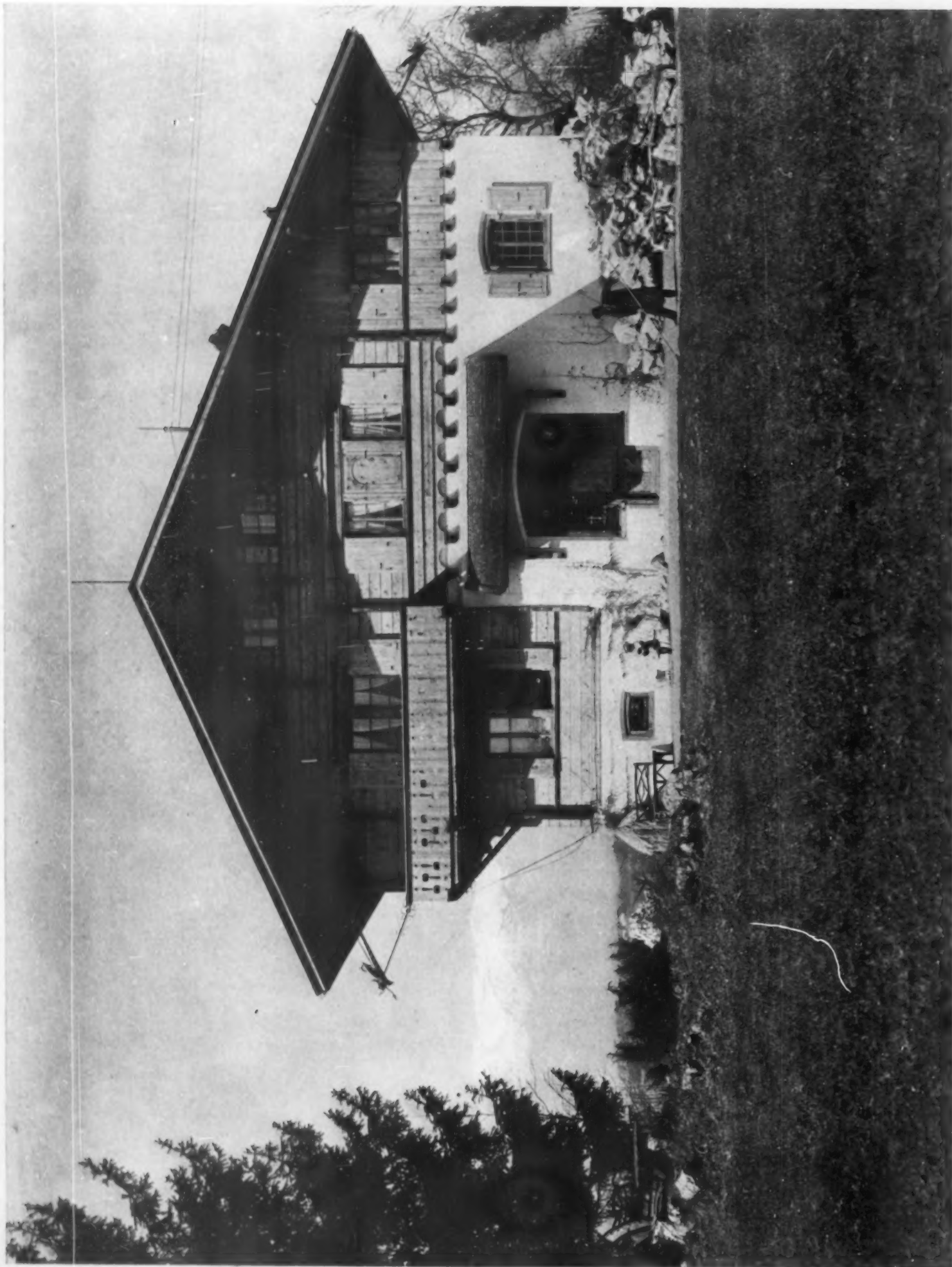
HENRY H. SAYLOR, EDITOR

McBRIDE, NAST & CO.

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A modern Swiss chalet near Grisons, which shows the recent use of stone and concrete in connection with wood. Such types as this are well adapted to our western country, and seem peculiarly fitted for the outdoor life of the dwellers along the Pacific coast. There it is another example of the house which may be built to fit the surroundings



House & Garden



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It is interesting to compare this American adaptation of the Swiss chalet with a modern Swiss prototype on the opposite page. The roof lines and the sawed-wood porch rail are almost identical. Here battens, making perpendicular lines, are used instead of the horizontal boards of Swiss construction. Myron Hunt and Elmer Grey, architects

The Swiss Chalet Type for America

BY LOUIS J. STELLMANN

Photographs by the author and others

[The problem of choosing an architectural style for the American country or suburban home is one of the most puzzling that confront the home-builder. In order to bring about a better understanding of the more common types and with the idea of clarifying, as far as possible, this whole matter, we have asked a number of prominent architects to present each the case for one particular style. In previous issues the characteristic features of the Colonial, Dutch Colonial, Half-timber, English Plaster and Chicago School of Architecture were developed and illustrated at length by prominent architects interested in each of these types. There remain two or three of the more common styles which will be taken up in future issues.—EDITOR.]

ANY type of architecture which has a genuine appeal to the public, must appeal to the heart as well as to the mind. I have heard it said that the appeal of architecture is through a combination of memory and symbolism: that is, it either reminds one of something one has seen or it stands for the traditions which the advancement of civilization has developed.

If one accepts this, architecture is removed from the sordidness of mere practicality and the commonplacery of pure expediency.

A structure must be both wholesome and attractive; it must serve our needs well and, at the same time, remind us of something pleasant. In short the ideal house must simultaneously protect the body and uplift the mind.

Perhaps this may seem unnecessarily long a prologue for an appreciation of the Swiss chalet style in American architecture, but it is because this style satisfies so peculiarly my demands in the above connection, that I have gone to some pains in order to



A Swiss mountain chalet, which has features evident in the two American adaptations below it. The dovetailing of the timbers at the corners is noteworthy

make them clear enough to serve as a working hypothesis.

There is about the Swiss chalet a rugged, honest picturesqueness, a simple, candid strength that I find in no other type of habitation. Because of this impression, I mention the sentimental consideration first. It seems to typify—as plainly as a house can ever hope to represent a man—the hardy, fearless, simple moun-



This picturesque house shows how American ideas in plaster and timber may be applied to the chalet type. The enclosed balcony is an elaboration of the little balcony in the Swiss chalet above. L. C. Mullgardt, architect

taineer—whose life is spent among the heights and broad vistas and who lives a simple frugal, happy, sincere life.

It is too much to suppose that the Swiss chalet will become extremely popular outside of its Alpine home. There is too much complexity in the vastly predominant and populous lowlands to give it great vogue, too much tendency to improve on nature instead of co-operate with it, to scatter Swiss chalets through the land. And yet, in America, especially along the Western coast, the Swiss chalet is becoming more and more observed.

Probably there is no place outside of its native land where the Swiss chalet may be more advantageously used than along the Pacific coast hills, particularly those around San Francisco Bay, where many interesting examples are to be found.

Of course there is little snow in Cal-



The Reese house, in Berkeley, Cal., was built from a model executed in Switzerland. The timber ends and balconies show a similar construction to those in the picture above. Maybeck & White, architects

ifornia except in the extreme northern portions. This brings us to a consideration of the fact that climate alone did not produce the Swiss chalet. Perhaps, indirectly, it did, after all, for the Swiss mountaineer is the product of the invigorating climate which the Alps provide. But, out of his rugged, honest, sham-hating, art-loving heart and brain has come that picturesque style of habitation which is as nearly distinctive as architecture may be. His love of out-door life produced the broad veranda, (forerunner, undoubtedly of the modern winter-and-summer-sleeping-porch), the wide eaves to protect this veranda and the court below, where he sat of an evening with his pipe. He courted the open at all times possible, this old Tyrolese, and the Californian is in agreement with him, as far as that goes.

But, more than all else, the Swiss chalet co-operates with nature. How many times does one see a house that seems a part

of its general surroundings? Usually the surroundings are fitted to the house with the inevitable result that an incongruity, more or less blatant, is produced.

Man cannot hope to compete with God as a landscape gardener or architect. The Swiss mountaineer felt this, even if he did not

phases of building development in Switzerland, characterized, respectively as the *Standerwand* or stand-wall and the *Regal-bau* or masonry construction. The latter however, is only an amplification or elaboration of the former. One, if not both, of these unquestionably inspired the steel-frame method of modern construction.

The "stand-wall" style of construction differs from the old block building and, for that matter, from most other methods of building, ancient and modern, in that the frame of the entire house is outlined by corner-posts and a skeleton roof before the walls are built. The original chalet, therefore, was built from the ground up, one timber being laid on top of another and dovetailed into a nice contact with ends that protruded beyond the intersecting unions. The second type of chalet was completed in outline and then filled in, as to walls and roof, with wood, plaster, stone or a kind of light brick as fancy or necessity might indicate.

Here it may be pertinent to remark that the foregoing refers to the characteristic *holzbau* or wood construction of Switzerland. In a country so prolific in stone, however, it is inevitable



A little chalet near Berne, which shows features adopted by builders of the type in America

know it. He made no attempt to terrace the eternal hills, to create false and artificial plateaus upon which to build a conventional dwelling. He made a partner of Nature and worked to their mutual advantage. Out of it came an architecture which, if primitive, was big, harmonious and wholesome to a wonderful degree.

The original Swiss chalet does not seem to have been built against a hillside. Apparently it was a crude log cabin, not unlike the huts of our pioneer ancestors, erected by Alpine cowherds for more or less temporary shelter. It differed from the American log cabin in the mortising or notching of the log ends and the rudimentary attempts to square and dress the timbers. Out of this, undoubtedly, developed the present elaborate system of dovetailing and fitting together the timbers and framework of Swiss houses, a practically nail-less construction scheme.

From the rough habitation of the cowherd was evolved the village house, slightly more pretentious but still of the block-house construction; and being adapted to the exigencies of hillside construction, it was so modified as to present the progenitor of what is now generally known as a chalet.

Following this came two evolutionary



Buckham chalet, designed by Frank May, shows a similarity to the Berne chalet in its tiers of balconies



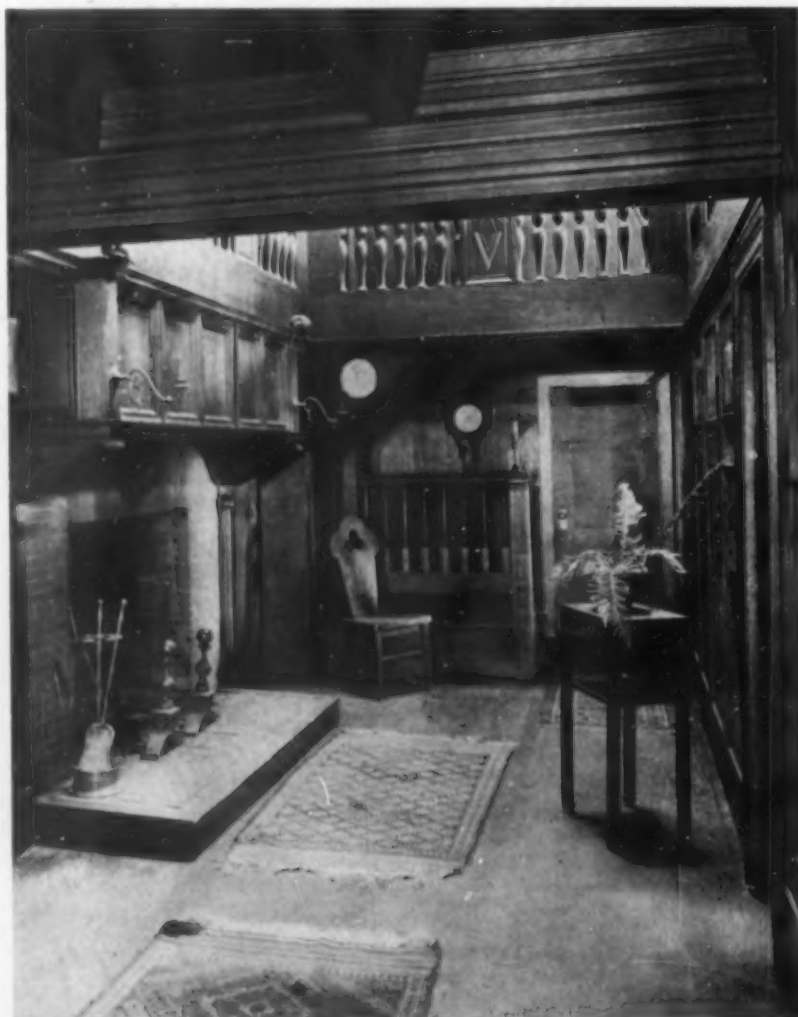
The home of R. C. Hutsinpillar. A pure type of the lowland chalet, giving a good example of the use of projecting roof supports—a common feature abroad. Maybeck & White, architects



The interior of the Boke chalet, Piedmont, shows the possibilities of interior decoration along the Swiss lines. The redwood of California seems peculiarly adapted for this treatment. Designed by Boke & Maybeck

that the latter be used to some extent as building material. Therefore the stone chalet is by no means a rare or illegitimate type, and contrary to the popular belief, a chalet is not necessarily a wooden house. But the American adaptation of Swiss Chalet architecture so closely adheres to the popular conception that we may confine ourselves largely to this very characteristic sort.

While on the subject of American adaptation, it is interesting to note that the architects of this country seem so thoroughly to have understood the motif of Swiss architecture. Simplicity, strength, economy and picturesque harmony with natural surroundings mark the chalet in American architecture even more perhaps than they do, nowadays, in Switzerland where the bizarre influence of foreign builders has added much intricate and fussy elaboration in the trimming of houses. For instance, one sees on most Swiss houses of this and several past generations, much "gingerbread" ornamentation.



An interior in the Polk house, San Francisco, which shows a clever adaptation of the Swiss sawed-wood balusters. Willis Polk, architect

Porch roofs, cornices, doors, windows, often the entire front of a chalet will be encrusted with jig-sawn fret, grill and scroll work, incorporating religious or family mottoes, intricate designs and every sort of distracting embellishment. It reminds one not a little of a wonderful wedding cake or one of the marvelous performing clocks for which Switzerland is famous. But under it all is the solid worth, the wholesome, nourishing delicious product of the baker's skill; the exact and reliable chronological instrument, the house that satisfies body and soul.

It is this underlying theme that American architects have exemplified in Swiss chalet adaptation. And, for the most part, the chalet has retained its individuality to a great extent. A number of Western houses are exact copies of existing Swiss chalets, notably the Reese house in Berkeley, California, which was designed by Maybeck & White from a small model of the Swiss prototype which Reese himself brought across the ocean. It is, as will be seen by observing the accompanying illustration, of the old *blockbau* style, with protruding timbers at the corners.

Alameda county, which includes Berkeley, Alameda, Piedmont and Oakland, and which abounds in hills, furnishes many fine examples of Swiss chalet architecture and a much larger number of less distinctive ones which are, nevertheless, of more than passing interest and display quite perceptibly their relationship to the architecture of the Tyrol. All of these follow the initial style more than the later ones, probably because the former is more original and picturesque than those which came after, and also, because the redwood of California is peculiarly adaptable to chalet building.

Especially is this true of interior furnishing. For in-

Continued on page 339)

Successes With House Plants

FIVE EXPERIENCES IN GROWING VARIOUS PLANTS INDOORS—THE WHOLE STORY OF THE CARE AND TREATMENT THAT BROUGHT THE MOST SUCCESSFUL RESULTS

Photographs by the Authors and Charles Jones

Growing the Primrose

I KNOW of no flowering plant more apt to give perfect satisfaction in the winter window garden than the primrose. In certainty of bloom it far surpasses the time-honored geranium, and in ease of culture its requirements are of the simplest. Good garden loam, well mixed with a little sharp sand and some leaf mould, together with good drainage and not too large a pot, are all the soil requirements, and as it is not a plant requiring a large amount of sunshine it may be grown successfully in windows not specially adapted to the majority of plants—a north window for instance.

However, I prefer to grow primroses in an east window when practicable, but have had excellent success with them even in the trying conditions of a west window. Especially has this been the case with that variety known as Baby primrose. One plant of this species made the remarkable record of blooming all winter in a north window. It was planted out in a north window box in the spring, and continued to bloom all summer and the following winter bloomed almost as freely in a west window, thus giving nearly eighteen months of continuous bloom.

Primroses may be grown very successfully from seed sown in the house in April in shallow flats, pricked out into larger flats as soon as large enough to handle, and when a couple of inches high potted off into thumb pots and plunged into boxes of damp sand in an east window. As often as the pots fill with roots the plants should be shifted carefully into pots a size—no more—larger, until by fall they should be well-grown plants in six inch pots, ready to give an abundance of bloom all winter.

Or if one prefers, blooming plants may be had of the florist in early winter, ready for immediate effect. The most satisfactory way to arrange the plants is to place the pots in window boxes, filling in the space between with sand kept damp but not wet, or if preferred sphagnum moss may be substituted for the sand. In potting primroses the crown of the plant should be somewhat above the level of the soil so that water may drain away from instead of toward the crown, as too much moisture is apt to cause decay



An effective use of bulbs as house plants. The history of these plants is given in table below

at this point; for this reason the plants should never be overwatered nor should water be allowed to stand in the saucers.

As to temperature, the primrose is originally an alpine or boreal plant and still seems to prefer the cool weather. If kept in a room of about 50° F. it thrives best; when it becomes warmer, the blossoms do not last nearly as long.

Where selection is made of the fern-leaved varieties of primroses it will be found an advantage to place the pots on brackets at the side of the windows; this allows the large, beautiful leaves, which are easily injured, to droop in a natural manner, and as much of the beauty of the plant depends on the perfection of its foliage, this is of much moment. A box of the strong-colored red and the white primroses on the window sill, flanked with specimen plants of the fern-leaved on either side, make a beautiful window and one which is sure to excite enthusiastic admiration from all who see it. The varieties most successful for house plants are those of

the Chinese (or *Sinensis*) order. *Obconica*, *Forbesi* and *verticillata* are other varying types equally good.

IDA D. BENNETT

Dutch Bulbs as House Plants

FOR rooms that have a cool temperature there are no better house plants than Dutch bulbs, and the fact that they succeed where it is not warm enough for more tropical plants, is by no means their only good quality. Their flowers equal or exceed in beauty those of any other house plant; they have the great advantage of being out of the

way except during the period when they are objects of special interest—and after a season of forcing indoors they do good service as garden plants, where, being hardy, they do not demand the fussing necessary to keep more tender plants in proper shape for future results. Narcissi of the polyanthus type have not the hardiness of the other sorts, but have been wintered over outdoors with extra protection.

Two or three bulbs of the same variety in a four or five inch pot give the most satisfactory results for amateur gardeners who

Table Showing a Succession of Bloom for Three Months at a Cost of Forty Cents.

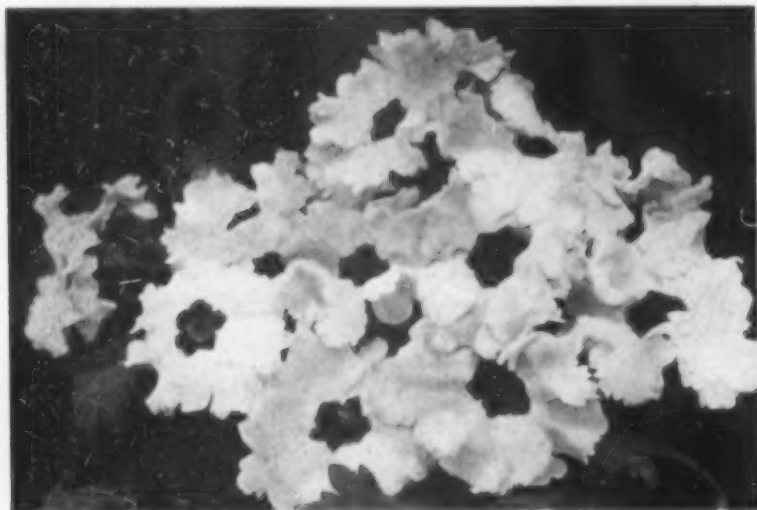
Variety.	Bulb.	Planted.		Brought to Light.		Season of Bloom.
		Month.	Week.	Month.	Week.	
Paper White	Nar.	Oct.	First	Dec.	First	Jan. 9 to Feb. 1.
Garrick	Hy.	Oct.	Third	Dec.	Third	Jan. 28 to Mar. 1.
Poeticus ornatus	Nar.	Oct.	Last	Jan.	Last	Feb. 26 to Mar. 19.
Empress	Nar.	Oct.	Last	Mar.	First	Mar. 25 to Apr. 4.

Table Showing Six Pots of Bulbs that Gave Continuous Bloom from Christmas to Easter.

Chinese lily	Nar.	Oct. Last	Nov. Second	Dec. 23 to Jan. 12.
Double Roman	Nar.	Oct. Third	Dec. Third	Jan. 13 to Jan. 25.
Grand Soleil d'Or	Nar.	Oct. First	Dec. First	Jan. 22 to Feb. 13.
Mixed	Crocus	Oct. Last	Dec. Last	Feb. 7 to Mar. 12.
Von Sion	Nar.	Oct. Last	Feb. Second	Mar. 7 to Mar. 25.
Princess Marianne	Tulip	Oct. Last	Mar. First	Mar. 23 to Apr. 12.

Table Giving History of Bulbs Shown in Accompanying Photo.

Mixed	Crocus	Oct. Third	Dec. Second	In bloom Jan. 29.
Von Sion	Nar.	Oct. Third	Dec. Last	In bloom Feb. 13.
(Raised as a water plant)				
Grape	Hy.	Oct. Third	Nov. Second	In bloom Feb. 13.
Roman	Hy.	Dec. Third	Jan. Last	In bloom Feb. 13.
Dutch Roman	Hy.	Oct. Last	Jan. Last	In bloom Mar. 9.



Primroses are certain to bloom, and require little besides drainage and good soil. They do not need a large amount of sunshine

are doing things on a small scale. Woods earth, garden loam and sand, in about equal quantities, with a small amount of very old manure, make a good soil mixture. When potted the tips of the bulbs should be just covered. They are simply watered and set aside in a cool dark cellar until they have produced root growth of sufficient vigor. This point can be settled by making the soil moist enough to come out in a ball when the pot is tapped. If the roots do not show on the surface the plant must be set back for a longer stay in the dark. Bulbs need some moisture to develop roots, but should not stand in a soil that is really wet, as some kinds will mould.

When satisfactory root growth has developed the pots are brought upstairs to the light, and it is well to increase the degree of light gradually. For this purpose we built a home-made table with three shelves, the top one on a line with the window sill where full sunlight could reach the bulbs. The pots were first placed on the lowest shelf, near the floor, for a few days; then on the second one until the foliage had attained a natural green color, which showed that they were ready for the top shelf. This space-saving device also ensured a succession of bloom.

A moist atmosphere is beneficial to the bulb family. The buds sometimes blight if they are grown in a dry hot room. The flowers of some sorts remain in condition for a month if kept in a cool place. It is well to cut all flowers off to prevent the formation of seed pods, but, for the sake of next year's flowers, the foliage should never be cut or bruised. The best grade of bulbs will more than pay for their cost.

When the blooms have lost their beauty the pots should be set in a light cellar to ripen the bulbs. They will not require much water, as the idea is to dry them off gradually. When the leaves are entirely dry the bulbs are ready to store for October planting in the garden. A place that is mouse-proof but not air-tight, away from strong light and with a temperature of about forty degrees, will just suit them during the storage period.

For Christmas bloom some of the quick developing types should be started early: Chinese lily in water—soon after the middle of October; double Roman narcissus early in October; paper white narcissus, October 1st.

I. M. ANGELL

An Ideal Plant for the House

TIME and again I have been asked what I considered the best all around plant for the house and without hesitation I have replied that nothing could equal the *Kentias* for first choice and the *Aspidistra* for second. Both of these are excellent for the house and will stand the rough usage to which all plants are subjected to a more or less degree, and look well under

it. During the past winter I have been forced to revise my list of suitable plants and instead of topping it with *Kentia* I now write *GREVILLEA ROBUSTA* with capital letters. This plant is an old one and for years I have used it for many decorative purposes with great success but never tried it under house conditions not thinking it just the thing for such purposes. The test that I gave it convinces me that it is an excellent house plant; that it is as hardy as either the *Kentia* or *Aspidistra*; that it is by far more decorative; that it is adaptable to many more uses, and that it can be grown by the dozen or hundreds with little labor and small cost. On the streets of San Diego it grows to a height of seventy-five feet adding to its decorative foliage effects great clusters of flowers, making a singularly beautiful street decoration.

To get a stock of these plants for the winter start the seed in the spring. Sow in shallow boxes or in pots and when large enough give successive shifts into larger pots as the growth demands. In transplanting from the seed boxes the plants are a little apt to be slow to start growth, but if they are not allowed to dry out they will eventually establish themselves. During the summer months they may be plunged out in the garden where they can be cared for by proper watering. In the fall pot them two or three weeks before taking into the house. To make a very attractive pot put four or five small plants together. Use rich loam with good drainage. A window box filled with small plants is to be recommended for inside use in a sunny window. Fern dishes with small plants look well on a table. It is however with the large plants that the best results are to be had.

If you have had good success with your seedlings, the plants should be about twelve to eighteen inches high by fall and these will continue to grow after being taken into the house. With the older plants the lower branches are apt to drop off but by pinching out the top of the plant a growth can be forced in the place of the lost branches; the second year should see the whole plant very much improved. Half a dozen two-year-old plants grouped in a large pot with smaller plants to hide any loss of leaves at the base will be attractive. In fact such an arrangement can be kept in good condition for season after season by judicious pinching

and watering. Two plants like this in a room will give an effect not possible with any other kind.

Unless sowing has been done in the spring the best way would be to buy a plant at a greenhouse and experiment with it the coming winter. The following spring if large plants are wanted for the fall sow early but for smaller plants make your sowing later. Many greenhouse men do not carry the *Grevillea* over the second season because of



When the masses of flowers appear upon the decorative foliage of *Grevillea robusta*, it is unsurpassed as a house plant

its tendency to drop its lower leaves, but this is nothing against it, for as I said before, pinching will remedy this so that if you can buy two year old plants do so and fill in about them with smaller ones.

L. J. DOOGUE

The Rubber Tree

NOT the best, but an excellent house plant is the rubber tree. Its recuperating powers make it a splendid plant for the woman who is apt to forget. It may be neglected for weeks whereupon with plenty of sunlight, water and warmth and a thorough rinsing of its leaves it soon flourishes again. Under this manner of treatment, however, the lower leaves drop and irregular branching is induced because of the sprouts that start readily enough during each period of tender care. Gas and dust must be present in very appreciable quantities to effect the plant seriously and ordinary room temperature is satisfactory.

With the loss of symmetry most of the indoor decorative value of a rubber plant vanishes. A rubber plant is at its best as an interior ornament when large, uniform leaves, free from blemishes, clothe a straight stem from its very base upward. The secret of perfect development is continuous growth. Careful watering, a uniform temperature and plenty of sunlight will do this. Spasmodic growth invariably produces an unsymmetrical plant. A plant set in a window should be turned, preferably one-fourth round each day, so that all sides may receive the same amount of sunlight. The tendency of plants to grow toward light is a distinct advantage to a rubber plant when it is used to decorate a sunlit corner. A plant thus placed will soon fill out the corner nor abate its vigor because of its one-sided development.

As to soil, the plants have little preference. The writer has obtained excellent results potting rubber trees in soil composed of equal parts of sand, ordinary garden loam and well rotted manure. This mixture should be perfectly dry and sifted through a screen of small mesh, a little larger than fly netting. In repotting, after removing as much of the old soil as is possible without injury to the roots or changing their relative position, this mixture is poured into place as one might pour sand. After this is firmed, the pot is then set into a basin of water which, working

upward, will completely saturate the soil. Likewise with subsequent waterings, best done twice a week if the air of the room be very dry, set the plant into the bath or wash tub with the pot half immersed. There is no need of sprinkling, wiping both sides of the leaves at least every other day with a wet sponge, affords all the cleaning necessary.

A rubber tree invariably outgrows its room, though the difficulty can be



A rubber plant near a window should be turned around one-fourth each day to develop evenly



With proper care and attention the new fronds of the Boston fern almost cover the pots and touch the floor

greatly helped by cutting off the terminal buds. This induces branching for which there is no alternative if the plant is to be held within bounds. The buds should be cut off squarely just above the leaf that grows out beneath them and the cut end seared to stop the flow of the milky juice. Where the cutting of the terminal buds is attended to soon enough, and the branches headed in when of the proper size, a very compact and well foliated tree results. With intelligent care a rubber tree remains fit for room decoration for many years.

C. L. MELLOR

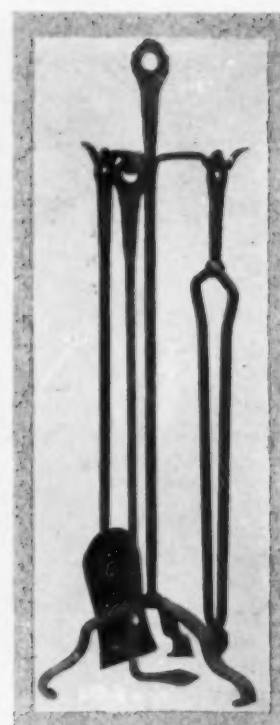
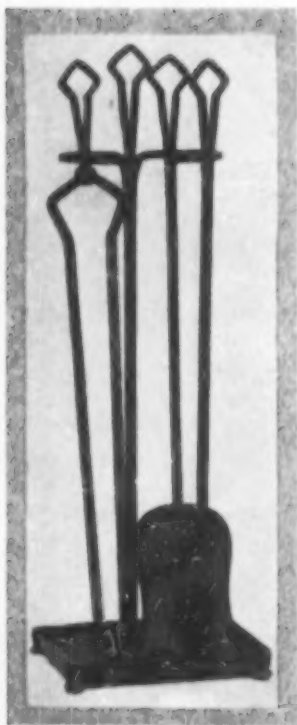
The Care of Boston Ferns

ON a spacious north veranda of an old Southern home in the famous Bluegrass region of Kentucky, one may see in August or September five of the most magnificent Boston ferns that can be grown. They are all in fourteen-inch pots, and when looking from one to the other, you cannot tell which is the most luxuriant or the finest specimen. During the months we are out-of-doors constantly, they make this veranda a most charming spot and in winter add an attractive appearance to the dining room, with its large south and west windows.

When I came home from school seven years ago, with the time to really enjoy my Southern home, I began the culture of ferns with a very healthy small Boston fern I selected from those in the greenhouse. This the florist planted in a swinging basket for that season. I did not like it in the basket, so transplanted it to a pot very soon afterward, and with my care it made splendid growth. The next spring I divided it, making two, the next spring three, and now I have five as described above, and have given away many to my neighbors and friends. All the slips are bid for a year or two ahead, with a request for directions of "how to grow them."

In the month of March, during good weather, I have the best rich soil that can be found on the place, brought into an out-building to be used for my transplanting. It is usually found in some place where leaves have collected and rotted. Then shortly afterward I have the plants carried out from the dining room to this building; taking each one in its turn out of the pot, I shake all dirt off and cut out all of the old growth, leaving just the new, unbroken fronds. I have ready the biggest old cinders from the ash pile, to make a drain in each pot three or four inches deep. Upon this a layer of dirt is put. I first cut out, with a sharp knife, one-third of the roots with fronds attached, to be used for further propagation. The remainder is pressed together to get the plant in good shape and is put into the pot, filled in with the dirt pressed very firmly, and thoroughly watered. It is soon carried back to

(Continued on page 334)



A fireplace in which the wrought-iron fixtures are eminently in keeping. Shown at either side are fire sets also in suitable style, which cost \$9 and \$11, respectively

Fireplace Fixtures

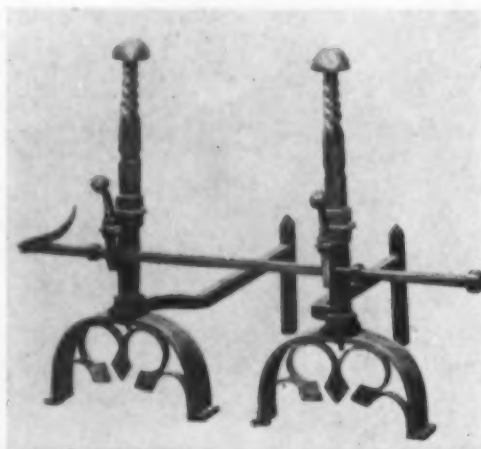
INTERESTING ARTICLES FOR USE ABOUT THE FIREPLACE WHICH ARE PRACTICAL AND AT THE SAME TIME DECORATIVE HELPS TO THE ATTRACTIVENESS OF THE HEARTH

BY JONATHAN A. RAWSON, JR.

Photographs by Mary H. Northend and others

JUST as the fireplace itself claims and receives credit for combining in the largest degree the attributes of ornamentation and utility, so in equal measure are each of its special fittings and furnishings entitled to distinction of the same sort. Itself a decorative feature of a room and an eminently useful and comfort-giving one at that, it has a distinctive group of furnishings all its own, numbering not less than seventeen. Each of these articles was first made for practical purposes and became decorative later. No fireplace requires all of them to insure its serviceability, and, in fact, any hearth with so lavish an equipment would in these days of simplicity be sadly overdressed, like the shelf or table crowded to its utmost capacity with bric-a-brac of all sorts and conditions. Of the seventeen pieces, several are designed to do the same work in different ways, like the andirons and the basket grate, but even these are often combined with pleasing effect, the basket resting upon the rear extension of the irons behind the posts.

The fireplace should not be denied its own particular equipment. It is so much easier to have all the things right at hand, and then when to their handiness are added their decorative talents and their intimate memories of the past, their case is complete and their title established to places of honor and distinction in the best



These brush steel andirons, of an English type, hold a useful poker on brackets

room in the house. The fireplace itself requires no champion or defender. Its subordination to the stove and the furnace as a heating power regardless of its mission as their occasional auxiliary, can never accomplish its banishment. On the contrary, it is nowadays often the axis on which the entire decorative system of a room or a house revolves, and we would almost as willingly plan a room without a window as an entire house without at least one fireplace. And as the fireplace is therefore bound to survive, its furnishings are bound to survive with it and retain with it the best traditions and associations of the early days. They shared the obscurity of the fireplace during its dark ages that followed the arrival of the first specimens of modern heating and cooking appliances, but

there is no longer the danger that they will ever become obsolete or that in years to come they will be found only in the exhibition halls of the historical museums.

Fireplace furnishings defy classification. They can only be enumerated and even then it is not worth while to attempt their listing in the order of their importance, except the andirons which are first and foremost by every consideration. As the fireplace is the dominating presence of the well planned room, so the andirons are the presiding geniuses of the well furnished fireplace. The mantel, its shelf, the facing, the hearth, the underfire and the



Bellows of good design in repousse brass. May be had with long handles for \$8.25

of the modern work is based on Colonial modeling, none of it is better than the original. Genuine antiques are becoming rarer all the time, but modern manufacturing methods make good the scarcity of originals by supplying the original forms with entire faithfulness, except that in the olden days the andirons were generally of solid material while now they are usually hollow, but every bit as good in service.

While brass was the correct thing for the andirons of the Colonial parlor or dining room, hand wrought iron served every purpose in the old New England kitchen fireplace, which, by the way, has given us the pattern for

lining are integral component parts of the fireplace proper and are not to be classed as furnishings, but as elements of the thing itself. After they are in place, the andirons or some other device must first be installed to serve the same primary purpose, which is to raise the fuel from the underfire or floor to obtain draft and aid combustion. But we are more than likely to develop a strong preference for the andirons over and above any substitute that may be offered for them.

Broadly speaking, all andirons made to-day are either antique or modern. There is nothing medieval, because of the years of obscurity through which the fireplace passed. Andirons have very carefully defined classifications as to periods and styles and no mistake in room decoration is more repulsive to those versed in period work than to permit the andirons to be out of keeping with the period of the room. The good old-fashioned andirons with their fine simplicity of line are yet to be excelled in beauty and although much

as some of the others, they are still most practical and suitable for many fireplaces, particularly those constructed from modern rough surfaced brick in its numerous colorings.

Next to the andirons, the fireplace's tool set is perhaps its most useful companion. When complete the set consists of the stand, shovel,



The old English seat fender with its upholstered top, is pulled out from the hearth and used as a settee



A good combination in iron of fire-screen, andirons, and wood basket; this last can be bought for \$12

tongs and poker, and a long handled brush is sometimes added. The correct place for the tool set and its stand is just at the side of the opening, but those who want the tool set without giving floor space to the stand can accomplish their desire by using the old-fashioned jamb hooks, which are set in the brick work at the side of the opening. These hooks can be had to match many of the antique outfits, but never were commonly used with the brass sets. A good stand with its outfit is always ornamental and does much to add to the old-fashioned atmosphere. Period work is also carried out in the sets, but with less variety than in the andirons. In placing fire tools the jamb hook has a distinct advantage over the stand in that it requires no floor space and cannot be tipped over.

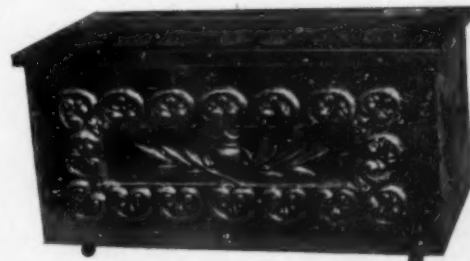


There is a limitless variety of good Colonial patterns. Such andirons cost from \$7.50 to \$20

much of our best modern fireplace arrangement. In many instances these andirons were almost devoid of ornamental characteristics, but they were always graceful, no matter how simple they were. The steel andirons have various finishes, and while not as closely defined in their period affiliations

It is of course not necessary to buy the tools in complete sets, although they are usually found in that way. Among the separate tools that have recently become popular is a trident poker, 42 inches long, and made wholly of wrought iron, for \$6, or with brass handles on iron for \$8 to \$12. Also long tongs and shovels for big fireplaces can be had as separate pieces. Since the biggest of the old-fashioned fireplaces were usually in the farm-house kitchens where iron was used for the furnishing, these larger implements are generally of that material nowadays.

It is doubtful if the fireplace has a more decorative companion than its screen, the chief usefulness of (Continued on page 327)



A characteristic repousse brass wood-box, which is worth \$23.50, can be matched with other tools

Planning the House and the Garden Together

A PLEA FOR THE DEVELOPMENT OF HOUSE AND GROUNDS FROM A DEFINITE CONCEPTION PLANNED OUT IN ADVANCE—THE GOOD RESULTS OF CO-OPERATION BETWEEN ARCHITECT AND LANDSCAPE DESIGNER

BY LOUIS BOYNTON, ARCHITECT

Photographs by the Author and others

THERE has been a great deal written about the planning of the house and about the arrangement of the grounds; and there have been endless pictures published of them—both together and separately. But while the fact that there should be an intimate relation between the house and its surroundings is more or less generally understood, some recent experiences of my own have brought it home to me that this is a point that needs emphasizing.

It does not seem to be commonly realized that the placing of the house on the ground and the arrangement of the grounds in relation to the house, should be a matter of design; in other words, that it should be the result of a perfectly definite conception arrived at in advance, and that the whole arrangement should be thought out quite fully when the house is designed. Nor is it commonly considered that the house and grounds should be designed as a unit and that neither should predominate.

Some time ago I was talking of this very thing with a friend who said: "Yes, I see. It is as if you had a stone of a certain shape and color; the setting should be designed to fit it." My answer was that was not at all my meaning. To my mind a much finer way would be to design or imagine an ideal ring, for instance, and then get the exact gem to take its place as a part of the whole and in relation to the desired setting. The stone and the setting should be of equal importance and the result of a preconceived idea. This, of course,

usual—to expect an architect to design a house which so long as it does not exceed the size of the available ground, may be located by the owner, in a more or less perfunctory way, without either asking or taking the advice of one—either architect or landscape designer—who has the peculiar kind of vain imagination necessary to visualize the effects which will result from any given arrangement. Good design in any field is only the result of a specialized and highly trained imagination.

Of course in the small suburban "lot" there is generally no choice; the location of the house is determined by the fact that there is no room to spare and by the established distance from the sidewalk at which houses are being built. However, I venture to say, that in the case of a lot of a hundred feet square or over, there are almost always several possible arrangements and that the obvious and frequently commonplace scheme is by no means the best.

Of course the first considerations in a country house are the relation to the sun and the prevailing winds, the contour of the ground and possible views. These elements affect the layout of the grounds as vitally as they do that of the house.

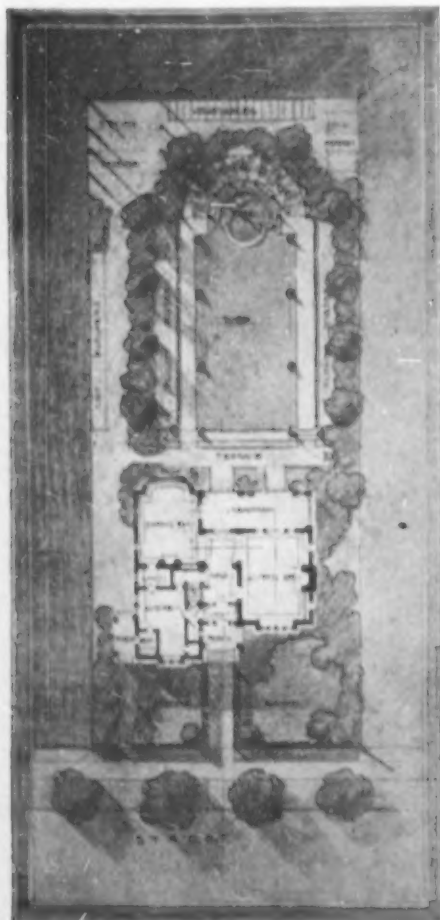
The writer had an in-

does not preclude the possibility of getting very charming effects where one or more of the elements are predetermined.

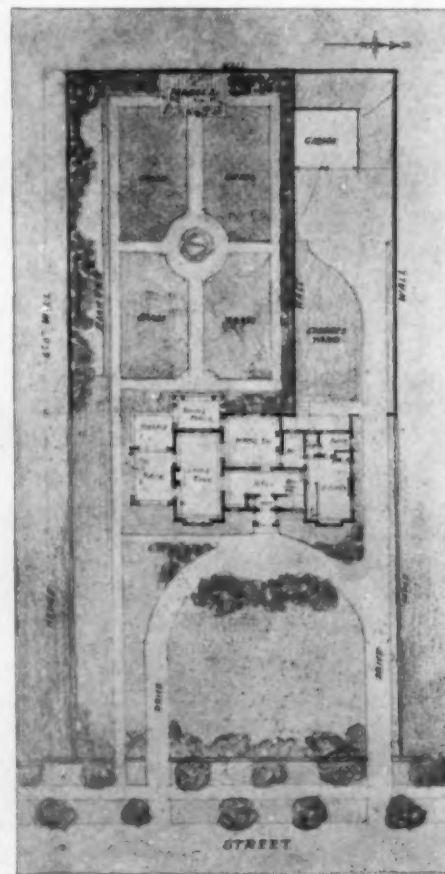
I find that far too many people fail to realize that the man who designs a house has any interest or responsibility beyond the actual walls of the structure. It is common—perhaps



If house and garden were planned independently, a uniform whole such as this would be extremely difficult to obtain



Mr. W. P. R. Pember, architect, has made the most of a lot 60 x 150 feet



On this lot, 100 x 200 feet, the desired isolation between service yard and garden has been obtained. Louis Boynton, architect

teresting problem a short time ago in a lot 100 by 200 feet which faced east with the narrow side towards the street. The house was to be designed for the conditions prevailing on the south side of Long Island where the prevailing southwest summer wind is a very important factor. Obviously, if the house were placed with the principal rooms toward the street, they would not get the benefit of the cooling winds of summer. In consequence it was so designed that the rooms faced for the most part toward the rear of the lot and gave on an enclosed formal garden 70 by 100 feet. This left a space 30 feet by 100 for clothes yard, garage, etc. As the house was about 30 feet deep this placed it 70 feet back from the street and left an ample space for lawn and carriage drive in front. Of course in planning a house which is large enough to allow of any departure from the stereotyped forms, the architect's first duty is to study the habits of the owner so as to provide the accommodation which will, if possible, exactly fit the needs of the family which is to occupy it. Exactly the same conditions should govern the planning of the grounds in relation to the house. If the house is to be used only part of the

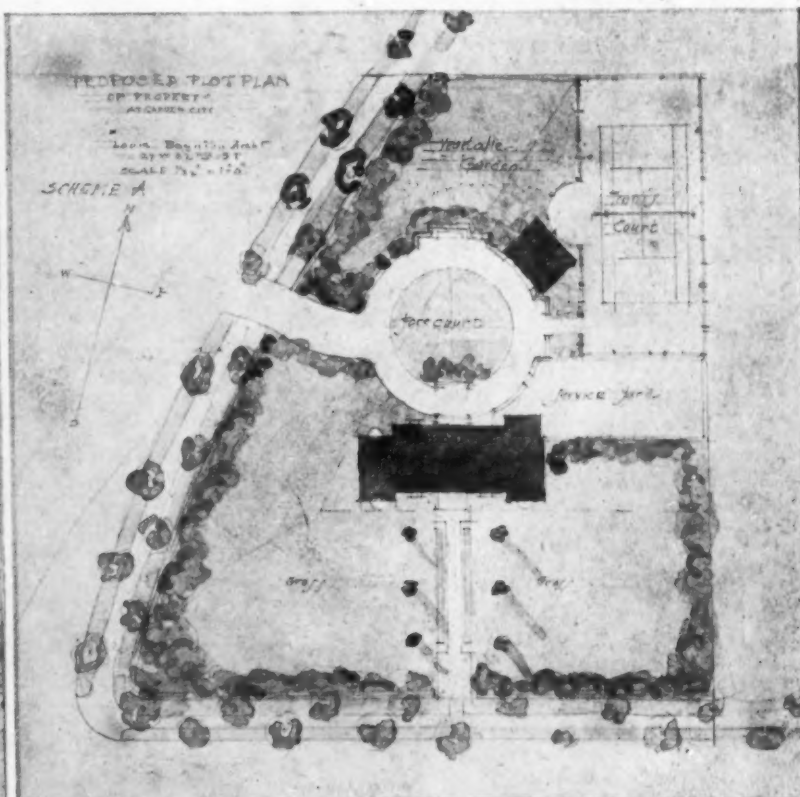
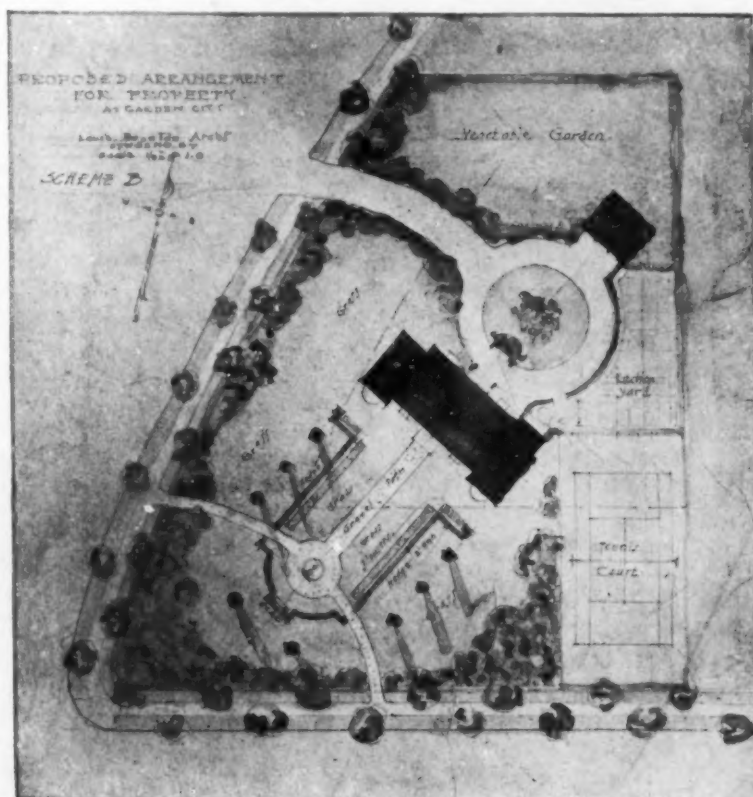


It is very helpful to a layman to have a drawing made, almost photographic in its quality, showing the relation of the proposed building and its garden setting

year, the character of the planting and the decorative treatment of the grounds must, of necessity, be vitally influenced by the season or seasons when the place is to be in use. If, as frequently happens in the suburbs, a place is to be occupied through the school year, and is to be vacant for three or four months in summer, the emphasis should be placed on the effects to be obtained in winter and the early spring and late fall. On the other hand, when the house is to be used largely in summer, the winter effects are comparatively unimportant.

The cost of upkeep is also a matter to be carefully considered. It would be absurd to plan a place that would require two or three gardeners when the owner would feel that one man for a day or two a week was all that could be managed.

The Corey place at Newton (of which Chapman and Frazer were the architects and Mr. Stephen Child was landscape architect), is an excellent example of a sensible and artistic planning. Here the owner was an automobile enthusiast and drove large and heavy cars which demanded a carriage turn of sixty feet diameter. This, by the way, is the minimum size for turning a large automobile comfortably. A smaller turn would necessitate

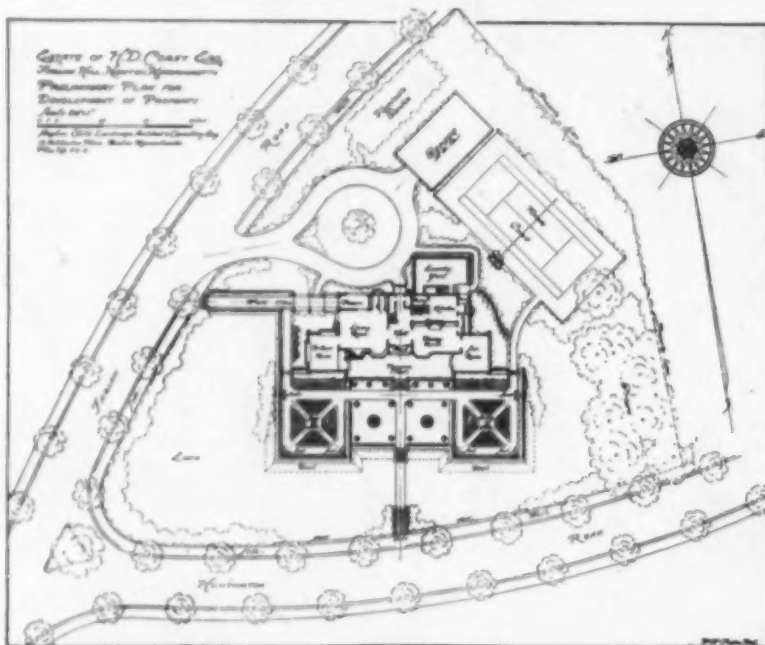


Two schemes for the development of an approximately triangular plot between two equally important streets. The scheme on the left shows the architect's method of securing individuality and a much more spacious approach. The owner, however, preferred the more stereotyped form to the right, having the house line up with the others in the block

backing, which as a constant practice is injurious to a car. This place comprises about an acre and, as the plan shows, slopes considerably toward the south. It is the result of co-operation between the architects of the house and the landscape designer who had the grounds in charge. As the owner wanted to get an effective winter planting as well as to reduce the cost of maintenance, the planting was largely done with evergreens and the evergreen or hardy shrubs—that is to say, rhododendrons, barberry, and such plants as are effective and beautiful the year around.

Another very intelligent and effective example of such planning is Mr. Ellicott's house near Baltimore. The place was designed by Ellicott and Emmart and is only about an acre in extent. As the plan shows, it is a pentagon with the street on the north side. The land slopes toward the rear giving a view across the river over the tops of a rather dense growth of forest trees. The principal rooms face on a broad terrace at the rear, beyond which is a semi-circular grass terrace with a small pool in the center. To the left of this terrace is a kitchen yard enclosed in hedges and to the right is a more formal garden from which a rose garden extends to the south. A careful study of the plan and the views of the garden will show a very skilful adjustment of the various levels. The shape and contour of the land allowed a successful use of more motives than would be generally advisable in so restricted a space. If the land had been flat it would have been necessary to try more uniform arrangements or the effect would have been crowded and fussy. To my mind the attempt to do too many things in a restricted space is almost as bad as an entire lack of imagination. The result becomes confused and nervous and lacks the effect of quiet placidity which should be the key-note of any good design.

Mr. Pember's design for a place only 60 feet wide and 150 feet deep is an ex-



The estate of Mr. H. D. Corey was developed through the co-operation of Mr. Stephen Child, landscape architect, with Chapman and Frazer, architects. The sloping site determined the main features

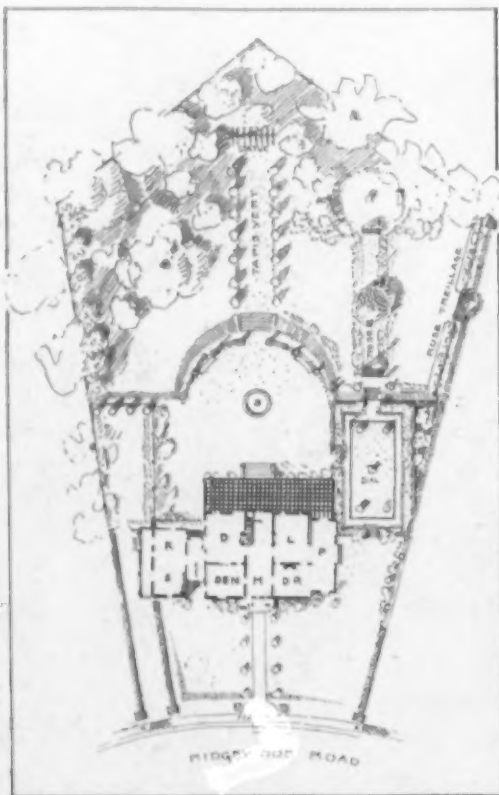
cellent example of what may be done on a small lot. In the first place the rooms are so arranged that the principal windows face with the front or the back of the house. The windows at the side are unimportant and the kitchen is placed so that it will not monopolize the rear and turn it into a mere "back yard." The veranda is placed on the rear in such a way that it may be used as a dining porch. Back of this is a garden separated from the house by a terrace. This garden is designed to appear as large as possible. The central feature is a simple panel of turf extending to a semi-circular pergola with a pool for aquatic plants. This is backed up by a mass of hardy shrubs, which forms a background to the garden and cuts off the

unpleasant features of the neighboring back yards. Beside this there is space for drying ground, coldframes and a small vegetable garden. Really this is a most successful use of a very limited space.

There can be no question that in the case of any of the examples given here the success of the place is the result of an intelligent planning, and that the relation between the house and grounds was most carefully considered as one problem at the outset. The result could not, save by the merest luck, have been achieved by building the house first and then wondering how best to arrange the grounds to fit the particular style and its position.

The placing of the house on the land; the study of the proper approaches; the consideration of the different levels and their possibilities in relation to the size and the points of the compass should all be clearly borne in mind at the time the house is being planned. The architect's drawing of a house at Garden City reproduced here shows the extent to which the consideration of the whole relation of a house to the grounds may be carried. At the time when the drawing was made there was nothing but a level lot to suggest the ultimate effect.

(Continued on page 334)



The home of Mr. Ellicott shows an ingenious development of another irregular site. Its success has been obtained by designing house and garden together



A view of one corner of the Corey house, showing the garage and tennis back-stop



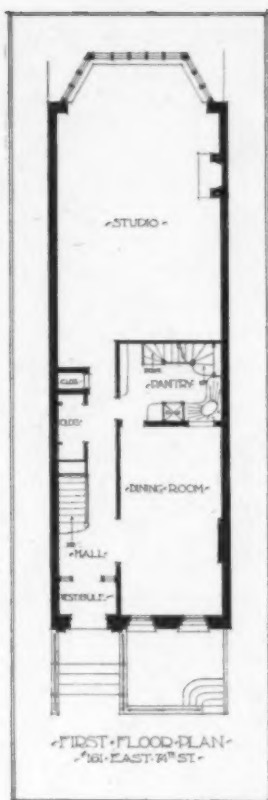
Along one side of the Corey house extends a broad terrace with the principal view

Homes That Architects Have Built for Themselves

THE CITY HOME OF MR. STOWE PHELPS IN NEW YORK—
AN EXAMPLE OF ADAPTING THE INTERIOR SCHEME TO
FIT A LONG, NARROW HOUSE TO BEST ADVANTAGE

BY STOWE PHELPS

Photographs by Henry H. Saylor



The pantry is lighted from a shaft, and from sliding panels

THE small daughter of a well known architect once asked her father if he would buy her a pony.

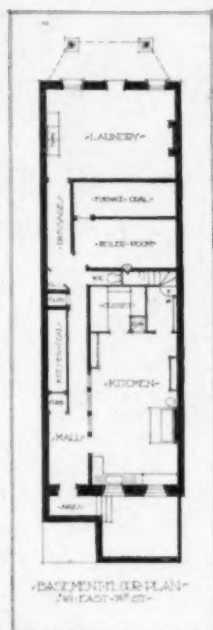
"Why, dearie," he replied, "you must remember that you are the daughter of a poor architect."

"Well, papa, if you ever got to be a good architect do you think I could have a pony?" which may intimate indirectly why an architect's own house may some times fall far short of what he himself would like to have it.

The architect has only one advantage in being his own client, in that he doesn't have his ideas frustrated by some other body's peculiar personal equation or bad (?) taste; otherwise the limitations and difficulties are about equal.

The first step is the choice of a site; or of a house, if alterations are contemplated. If choosing a house, an eye is naturally kept on the "possibilities" of the existing building, even if the alterations amount to leaving nothing but the original key-hole.

In my own case the conditions as found were promising. The house had four stories and basement, was 20 feet wide and 60 feet deep (which is 10 or 15 feet deeper than the average in New York) and it also had a low stoop, obviating the necessity of changes on this



Each branch of the domestic department has its own place

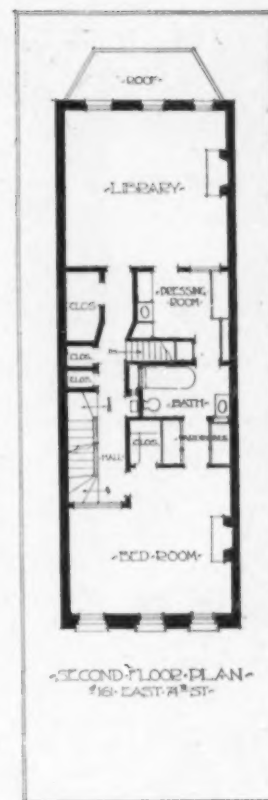
account. It was decided to have a living-room (to be used also as a studio) and a dining-room on the first floor, a library on the second floor, and the rest of the upper stories for bedrooms.

Now, the ordinary block house has a long thin drawing-room next to the entrance hall in front (with a facial expression much like a Pullman car), and a good large dining-room in the rear, usually all out of proportion to the size of the drawing-room. A butler's pantry extension usually projects out behind, taking off much light from the dining-room and much space from the back yard.

Instead of following this ancient and honorable custom, the dining-room was put in front (where the sun was), the pantry in the middle, and the living-room-studio in the back where it got the north light.

Putting the pantry in the middle is not liked by the servants, it is admitted; nor do they probably care for bedrooms on the top story. It is imaginable that they would consider an arrangement with the pantry in front and the dining-room in the middle of the house much preferable; but it seems unwise to encourage these sentiments unnecessarily.

The dining-room in front became of necessity the long narrow room



The architect has given the important rooms best lighted positions



The dining-room became the long, narrow room admirably adapted to an English style of decoration



The studio, thirty-two feet long, serves also as a living room, and from the front to the commodious fireplace is furnished for that purpose. Work is restricted to the bay window and north light in the rear

(12 feet 6 inches wide) which lent itself to an English type of decoration with a refectory table. The condemned pantry receives light and air from a shaft and from secret doors in the paneled wainscoting of the dining-room, which can be opened when that room is not being used.

The studio is 32 feet long, including the 6-foot bay window which is the full width of the room, and has a good "top" light for painting. So much for the general arrangement.

The woodwork in the first story throughout is cypress finished with one coat



A suggestion of English motive is given to the studio by the leaded casements and the wooden ceiling with its pendentives

of stain. It was only after much searching that a stain was found that would give satisfactory results with one coat.

The dining-room is paneled with an Elizabethan detail, to a height of about seven feet, with the plaster left rough above, and has leaded glass casements, glazed with a very pale amber cathedral glass, which gives a warmth of tone to the room whether the sun is shining or not. The furniture is of oak, the table being arranged with extension pieces which can be fastened onto the ends and increase the length from six to eight or ten feet, seat-



A combination of restful and quieting green has been used for the color in the library upstairs, which is furnished with a collection of objects gathered from all corners of the globe



ing twelve people. Candles are the only artificial light used in the room.

In the entrance hall the space under the main stairs is used for coat closets and telephone.

A suggestion of English motive is given to the studio by the leaded casements and the wooden ceiling with its pendentives, which, however, wander from their "period" in being colored in dull greens, reds and gold. Still farther wanders the furniture, which starts properly with an English oak chest and the carved columns of the mantel; continues with a Spanish leather screen, some Italian chairs and candlesticks, an Egyptian lamp; and then proceeds to the Orient with Russian silver icons, Indian and Burmese Buddhas, some Chinese porcelain, Korean candlesticks, and a Japanese altar table, bronzes, and temple hangings. All this on a background of black, and gold Japanese burlap, and lighted at night by four hanging lanterns and a few casual lamps and candles. Home industries are recognized in the green linoleum on the floor, which has been stained dark brown and then waxed. A very catholic collection indeed, but quite pleas-

ing in its harmonious tones of browns, tans and dull reds, with an occasional interesting spot of color.

A combination of restful and quieting greens has been used for the color in the library above, which contains another heterogeneous collection of objects acquired in various trips around the world, including a Korean chest used on its native heath for
(Continued on page 335)



Although there is a heterogeneous collection of various styled furniture, the whole is rendered harmonious by the use of kindred tones of browns, tans and dull reds



The two-foot hedge of white feverfew can hold the garden boundary against the onslaught of the weeds, even such arrogant gentry as June grass and chickweed

The Garden That Came

THE TALE OF A GARDEN AND THE SOURCES FROM WHICH EACH FLOWER CAME—
HOW THE DIFFERENT CORNERS OF IT ARE MEMORABILIA OF PLEASANT EXPERIENCES

BY GLADYS HYATT SINCLAIR

Photographs by the Author

I TRULY believe that flowers are like cats and children: they run to those who love them and hide from those who don't. Or is it that only garden lunatics have eyes that will spy and hands that will minister to those plant strangers that would gladly dwell within their gates—and are so quick to share their treasures that all are glad to share with them? Anyway, it seems that when people ask me of my dearest garden dwellers, "Where did you get that?" I have always to answer, "Oh, that came from—" and it's usually a record of some most pleasant experience.

From where? Everywhere. My garden is like our grandmother's patchwork quilts or their daughters' autograph albums; a record (a living, growing one, thanks be!) of loving friends and happy visits and pleasant incidents. It is more: a missionary garden which has literally "rescued the perishing" and fed the "worthy poor."

For instance, the very fall that I left the old garden for the new—which was a potato field—the grandmothers of all this tribe of hollyhocks came from a railroad embankment where their roots had gone two feet down into the inhospitable gravel searching for food, while their starved leaves were about as big as the palm of my hand.

These hay-scented lady ferns that glorify my shady border came from the banks of Grand river in April, on the first one of a summerful of never-to-be forgotten launch rides. My hardy roses, the shell pink blush, beautiful of buds and beloved of bugs; the ancient English York and Lancaster; the mosses and

cabbage and brave old sweet brier, came from my husband's birthplace—the homestead his father cleared from the wild, thirty miles straight into the woods from the nearest store or post office. That flowering currant that flings its clean perfume at evening, this lusty bumpkin of a trumpet creeper over the arbor, and those monstrous "sugared lilacs" with their evergreen carpet of myrtle came, unmissed, from a mass of greenery that was doing its best to cover the desolation of a burned home, deserted these ten years.

The wild phlox that tosses its whorls of purest lavender through all the merry May, with arabis, poet's narcissus and English daisies for cheek-to-chin neighbors, came some hundreds of miles in a suitcase, souvenir of a canoe trip down Opie Read's paradise, the St. Joe river.

That two-foot hedge of white feverfew which can hold the garden boundary against the onslaughts of even June grass and chickweed, came in a letter, and the "fairy flax" that opens a thousand blue, innocent child eyes to me every summer morning, all came from a single plant sent me when in full bloom by a lady who wished to know its name. The spruce and jaunty cornflowers here and there came on the wings of a mischievous zephyr, and the lemon-lilies, forget-me-nots and iris came from my mother's old garden on the banks of the blue St. Clair, on my garden's first birthday—and my first.

These hardy chrysanthemums, golden and bronzy and snowy white, came from the yard of an old lady who called them

artemisia. They were in exchange for Oriental poppies that I had raised from seed. That riot of bogus sunshine in front of them, the most frenzied supporter of the Rooseveltian baby-theories I ever saw, came two springs ago as California poppy seeds that had stowed themselves away among some violet roots.

The thrifty, neat clove pinks that have taken the contract to border every border I shall ever possess, once upon a time scrambled through the fence of a country cemetery and gadded gaily down the road to seek their fortune. Soon they met a Giant for whose seven bonny daughters I had just planned and started a flower garden. The Giant persuaded the pinks to travel in his coat pockets, and half of them were brought to me as a thank offering, and half planted in the new garden to teach the seven daughters how to grow trim and fair and fragrant.

The Hall's honeysuckle vine on the trellis and my Frau Karl



The sweet rocket that hurries to complete her masterpiece of white and lavender uses the woodbine behind as a background

Druschki rose came as stems in a bouquet; the white clematis, Virgin's Bower, came with those dogwoods and that Judas tree, their feet in a picnic lunch basket, their heads trailing ingloriously. The biggest spiraea, Van Houttei, was one of a carload of whips sold to the school children at five cents each, while the wild grape vine on the back porch, the bergamot so valuable for sweet green in bouquets, and the flowering spurge, almost equal to gypsophila for fine white flowers, came all at once from a parched and dusty highway one sultry day in June!—because it was then or never.

The wild plum trees that shade the swing in the corner came with the birds, I suppose, long ago; and the ribbon grass that creeps about their roots flagged my attention with its creamy pennons beside a tumble down bridge and a crumbling cottage wall just out of town.

(Continued on page 333)



Such queens of the garden as Madonna lilies and this bank of Shasta daisies do not come except in exchange for very hard cash, but for all their beauty, they haven't the loving memories of some of the more modest ones

The Proper Finishing of Hardwood Floors

THE VARIOUS METHODS IN USE FOR THE TREATMENT OF HARDWOOD FLOORS—SUGGESTIONS ENABLING ONE TO BEGIN PROPERLY AND TO KEEP THE FLOOR IN GOOD CONDITION

THE subject of finishing and caring for hardwood floors is one that is a little difficult to put in condensed and concrete form, because of the many different methods of finishing and the different conditions under which people have floors that need attention of this kind.

Beginning with new floors, the matter is comparatively simple and resolves itself into a choice of two or three different finishing methods and a variety of stains and color schemes.

The first essential in finishing off a new floor is to use what is termed a filler, and fill up the pores of the wood. There are several recipes for making fillers at home out of cornstarch, linseed oil, and things of that kind, but usually it is cheaper, simpler, and more economical to buy from a paint supply house a wood filler in paste form. To thin this filler for application to the floor one has the choice of using turpentine, benzine or gasoline. Really the benzine or gasoline serves best and is cheapest. Moreover, there is no practical difference between benzine and gasoline except the difference in the flashing point. You dissolve the filler in this until it assumes the consistency of an ordinary liquid paint, apply it to the floor, and then rub off the surplus filler as soon as it gets dry.

The best plan to handle this is with two at work, because benzine or gasoline evaporates rapidly and you must work swiftly. One spreads the filler and the other follows after with some cotton waste, rags, or excelsior, and just as soon as the liquid begins to dry, but before it gets hard, rub it well into the pores of the wood and scrub the surplus that is not absorbed.

There should be included in this filler whatever stain is wanted for the floor. Ordinarily, on an oak floor, not much stain is required. One can get some of the light oak stains that are furnished by the paint houses and add enough of them to the filler while it is in liquid form to give the stain required. Any stain may be added in the same manner; that is, any liquid stain, or one can take the dry powdered stains and add them to the liquid and get whatever color is desired.

After the filler and the stain is on the floor let it dry 12 or 24 hours, then begin the finishing process.

Here we come to the point where there is a choice of several finishes. If it is a floor that has been scraped on the surface and is intended for the parlor or dining-room, or for dancing, the best finish is to use two or three coats of shellac as a foundation on the wood and then finish with floor wax.

To do this, apply the first coat of shellac 12 to 24 hours after the filler has been put on. Then, let this stand for 6 to 12 hours,



The irregular, uneven appearance of this floor surface might have been obviated by the use of a good wood filler, treated with a suitable stain

BY J. CROW TAYLOR

Photograph by Jessie Tarbox Beals

go over it with 0 grade sand paper, smoothing it off nicely, but not cutting it through. Then apply a second coat and treat it in the same manner.

If you have used your shellac rather thick and heavy, two coats will give body enough. If, however, your shellac has been thinned it may need three coats. Where one desires to avoid spotting with the shellac it is easier to make a

good job of it by thinning it with wood alcohol and applying three coats.

After the top coat of shellac has dried thoroughly, and it is a good idea to wait two or three days for this so that the entire body may harden up well, go over it with sand paper as the others were and smooth it up nicely, using old rags or cloths, clean it off thoroughly and you are ready to wax.

There are a number of floor waxes on the market and you may use that which pleases you. The main point is to get one with "body." Perhaps the best method for applying floor wax is to take cheesecloth and double it to get a little more thickness, then make it into a sort of bag. Put a handful of wax inside of this and with it go over the floor thoroughly. You will find that you can work enough wax through the meshes of the cheesecloth to give a coating evenly all over the floor, and this prevents getting too much wax on in spots and unnecessarily wasting the wax. It should not require a lump of wax larger than an ordinary hen's egg to wax the floor of one good sized room thoroughly. If you think it is too light you can go over it again in a few days.

After the floor has been gone over with the wax and allowed to dry (some wax will dry enough in a few minutes and other wax takes 10 or 12 hours), it is ready to polish. For polishing one should use a weighted brush. There are two sizes of regular floor brushes for this purpose—one of 15 pounds and one of 25 pounds. The 15 pound brush is heavy enough and it is easier to use. Moreover, in case there is not a brush available of the regulation type, one can take soft flannel rags and by patient and persistent rubbing bring out an excellent polish.

The method described above is acknowledged today as being the most approved for finishing a hardwood floor, and to care for it afterward all that is necessary is to go over the spots where there is the most wear every week or two. Places near the doors and near the stairs need special care. Occasionally one can go over the whole floor. After a dance or reception renew the wax or is put on just before and only rub it a little. The idea is to keep just a thin coat of wax and renew it when it wears through. Never permit the shellac to wear. By keeping this up you can retain the beauty of your floor indefinitely. Perhaps

once or twice a year, depending considerably on how much the floor is used, it may accumulate dirt and become soiled so that it cannot be cleaned up with the ordinary rubbing over with a cloth. Then, take benzine or gasoline and a rag, go over the floor and take up the wax. The wax will dissolve in the benzine or gasoline, and you can clean the wax, dirt and all, off thoroughly just as you can mop up the dirt and grease from linoleum with water and a rag. Then, let the floor dry out thoroughly, after which you are ready to wax again.

One should avoid using an ordinary broom on a wax floor, for it scratches. Make a bag of cotton-flannel, or some cloth that will draw over the broom, and use the regular rubbing brush. Or take a soft cloth of any kind and clean off the floor.

There are other methods of finishing hardwood floors, and even though the above is considered the most approved some may prefer one of the others. After staining and putting on the filler, instead of shellac one can use some of the hard floor varnishes of which there are several advertised now. Sand and smooth the first coat, then follow with the second, or thin the first two coats with turpentine and make a three-coat job of it. After applying the top or last coat it may be left in its natural gloss, rubbed down to a dull finish with fine sandpaper, or after being rubbed down to a dull finish given a furniture polish with rotten-stone.

As another alternative, one may put two or three coats of varnish on the floor and smooth it off with sandpaper and finish with wax just as was done when finishing with wax on top of shellac. This gives a higher finish, but it is not considered as good by expert floor people. Hardwood floor men will tell you that if you want a wax floor you should use shellac on it. If you don't want to wax your floor then use varnish.

There is another variation in the matter of finishing that the varnish men will advise you against, but notwithstanding this, it appeals to the writer. That is, no matter just what you use afterward, make your first coat on the floor of shellac. Put on the filler and stain, then a coat of shellac, no matter whether you intend to finish with shellac and wax or whether you intend to apply varnish. The shellac serves to seal in the filler and makes a body or ground work that is good as a starting point for any kind of finish and any kind of finish will stick to it. The practice of the writer in work of this kind is to use a filler and a stain, then a coat of shellac. After that if the floor is to be waxed there come one or two more coats of shellac and then the



Even the old floor yields to this treatment. Smooth off, apply a filler and proceed as directed

wax. If it is to be varnished, the same order is used.

Remember, however, that you cannot reverse the matter; while you can wax on top of varnish or on top of shellac you cannot varnish on top of wax. The varnish will not stick, will not dry out as it should when applied on top of wax. It is possible that if you have wax on a floor that has been shellacked you can take benzine or gasoline and clean it off thoroughly. Let it dry and then get varnish to stick. It is well to remember, however that wax is simply a surfacing and finishing coat, and it may be applied on top of shellac or varnish, but it wears better on shellac.



One can only have good floors by giving them regular attention. One secret of success is to maintain a thin coat of wax, renewing it when it begins to wear through

The Making of a Walled Garden

THE FUNCTION OF A WALL IN RELATION TO THE GARDEN—VARIOUS SUITABLE TYPES AND THEIR MANNER OF CONSTRUCTION—HOW PLANTS ADD TO THEIR ATTRACTIVENESS AND WHAT KINDS TO USE

BY HAROLD DONALDSON EBERLEIN

Photographs by Jessie Tarbox Beals, the author, and others

THE walled garden is no longer regarded as an exotic in America. Here and there architects and their clients have awakened to its attractions and each year more garden walls arise. Possession of a walled garden is not the exclusive prerogative of great estates.

The smallest country place may readily have one, and the question of construction, in many instances, may be considered a problem for "home made" solution. With a little thought and the aid of an intelligent workman the building of the garden walls is a comparatively simple matter. Care and foresight, to be sure, must be exercised in choice of location and exposure and the selection of the kind of wall to build.

Though perhaps there are not the same reasons in America for the walled garden as in England, or parts of Continental Europe, we have quite sufficient cause to regard it with high favor. Since it affords privacy, it provides at once an outdoor living apartment and a place for gathering together the choicest garden things that we would have always nearest us. It shelters the tenderlings of early arrival and more intensive care of the things within its limits is possible. It has too strong a hold on our liking to need an apology for its existence.

In choosing the site for the walled garden the two chief points to consider are exposure and the contour of the land. Where conditions permit it is best to face the garden to the southeast, south or southwest; this exposure will give the plants the full benefit of the spring sun and in summer the prevailing southwest breezes will add to the comfort of sitting there. By laying out the garden so that a stretch of timber, a hillside or the house and outbuildings make the northern boundary you may oppose an effective barrier to the biting blasts of winter. The more protection your garden has on the north, northwest and northeast the better; earlier blooms will result. When the situation does not admit of such a plan, the northern wall should be carried up to a greater

height than the other walls and, if practicable, a windbreak of trees planted beyond it. There is no reason why the walls should be of uniform height; diversity is rather pleasing than otherwise.

If it be possible so to place the garden as to have running water the opportunity should not be neglected; to secure this feature it is even worth while to make some sacrifices. The presence of water will make many pleasant things possible. It may be utilized for a foundation or, if there is sufficient slope, for a succession of foundations by piping the overflow from one to another lower down and so on. The matter of proper drainage must also be taken into account.

Having determined the location, shape and size of the garden, the next thing to settle is the kind of walls to have. Other things being equal, it is always a wise principle economically to select building material from the source most readily available. From the aesthetic point of view, too, it is generally true that the material provided by Nature ready at hand will conduce to sincerity of feeling and harmony with the surroundings. Sundry causes, however, may make it advisable in certain cases to set aside this principle.

If brick be decided, upon the variety will naturally be the same as that used in the house and other buildings on the place. Rough-textured bricks, however, will be best as they give support to climbing plants and vines and reflect the sun's rays less fiercely. This may seem a trifling matter but it is not. In our climate it is of the first importance that garden walls exposed to the summer sun for any considerable portion of the day be covered with growths of

some sort; otherwise the plants within the zone of reflection will be withered and scorched. The foundation may be of rough rubble or of concrete and should go at least two feet below the surface of the ground. A greater depth is preferable, for it is better to err on the side of precaution than to have mishaps. No structure is satisfactory that cannot defy all con-



The dry wall is a great deal more effective if irregularly laid



A type of dry wall with finished side that is not fitted for crevice planting. Flowers at its base appear attractive, however



In the cracks and holes of a rough wall, creeping plants take hold and grow vigorously



The concrete wall should be of rough surface and is made attractive by vines and shrubs

ditions of climate and weather. Build the wall thick enough to be substantial and look well to the coping which, whether it be of stone, concrete, specially moulded brick or other material, should be, before all else, water tight so that no moisture may get inside the wall and start disintegration.

A concrete wall should have concrete foundations. Where buttresses or pilasters occur between panels staunch foundations should be provided at least two feet in depth. Under the rest of the wall the foundations need not be as deep, perhaps, because of the monolithic character of the material, but it will not be amiss to make them of unquestionable stability and proof against inroads of frost or burrowing moles. Above ground the surface of the concrete should be finished rough-cast for the same reasons mentioned in the case of brick walls. If you wish to train fruit

trees or shrubs against the walls the *espaliers* should be made of bamboo or some sort of light woodwork and set far enough out (two or three inches) to prevent the bark from rubbing against the wall surface. Moreover, if the branches press too closely against the brick, concrete or stone, insects are very apt to find a harboring place there.

When we come to stone we can choose between walls built with mortar and those of dry construction (without mortar) and it must be said that frequently the latter seem preferable. The general appearance of the masonry in a mortar built wall is a matter of taste to be settled by the owner and cannot be discussed here further than to enter a protest against the rejection of stones for irregularity of color often the one feature which gives life and warmth to the whole fabric. There ought to be

enough Portland cement in the mortar to prevent any softening or disintegration from the effects of the weather or the pull of vine tentacles. Mortar composed mostly of gravel with very little lime, such as is sometimes used in walls, is thoroughly unsatisfactory; it soon falls out and the wall disintegrates. The same general advice about substantial foundations applies here as well as elsewhere, and it is easy to obtain this without losing character in the wall.

To the dry stone wall belongs a charm denied all others. In the crevices between the stones all manner of rock plants will grow and many that ordinarily are not considered rock plants will grow there too. The whole wall surface may be instinct with life and completely covered with foliage and blooms, and even in winter it need not be bare. It can readily be seen how appropriate is such a wall for a garden enclosure.

A dry stone wall filled with rock plants is effective not only in gardens but for any terrace work. The stones should be set far enough apart to admit of inserting plants and sufficient soil must be put in the crevices for them to grow in. Retaining walls of dry



If water may be piped to a basin in the wall, ferns and mosses grow luxuriantly and make a most interesting garden feature



Where the wall is used for retaining purposes, the lower stones should be laid at right angles to its length



Everlasting, rock cress and bearberry are some of the plants which are so successful in covering this wall

stone construction, where the moisture can penetrate the interstices from the supported bank, are still more successful as a base for planting than mere enclosing walls, which need more care and water, though even then the satisfaction gained is worth the trouble. The lines of earth connection in a retaining wall should be continuous from the bank so that moisture may work through and the plants be not wholly dependent on water from outside. The stones in a dry wall should be slightly tilted where the wall stands independently. This may be done by means of small wedged shaped stones. In this manner rain will trickle through the crevices.

Fall is the most suitable time for building dry stone walls. Then everything has a chance to get settled in place before winter. The condition of the ground and the delay in planting makes spring wall-building unsatisfactory. A properly constructed dry wall is proof against injury from the weather and when it retains a bank no frost action can make it bulge. The best foundation for such a wall, whether it be meant to support a terrace or merely to enclose, is made of concrete. For a retaining wall the depth and breadth of foundations must be determined by the requirements of the particular instance, in some cases where a steep and high hillside is to be kept in place a depth of $3\frac{1}{2}$ or 4 feet and a breadth of 5 feet being necessary. Ordinarily, however, a depth of 2 to $2\frac{1}{2}$ feet will be enough.

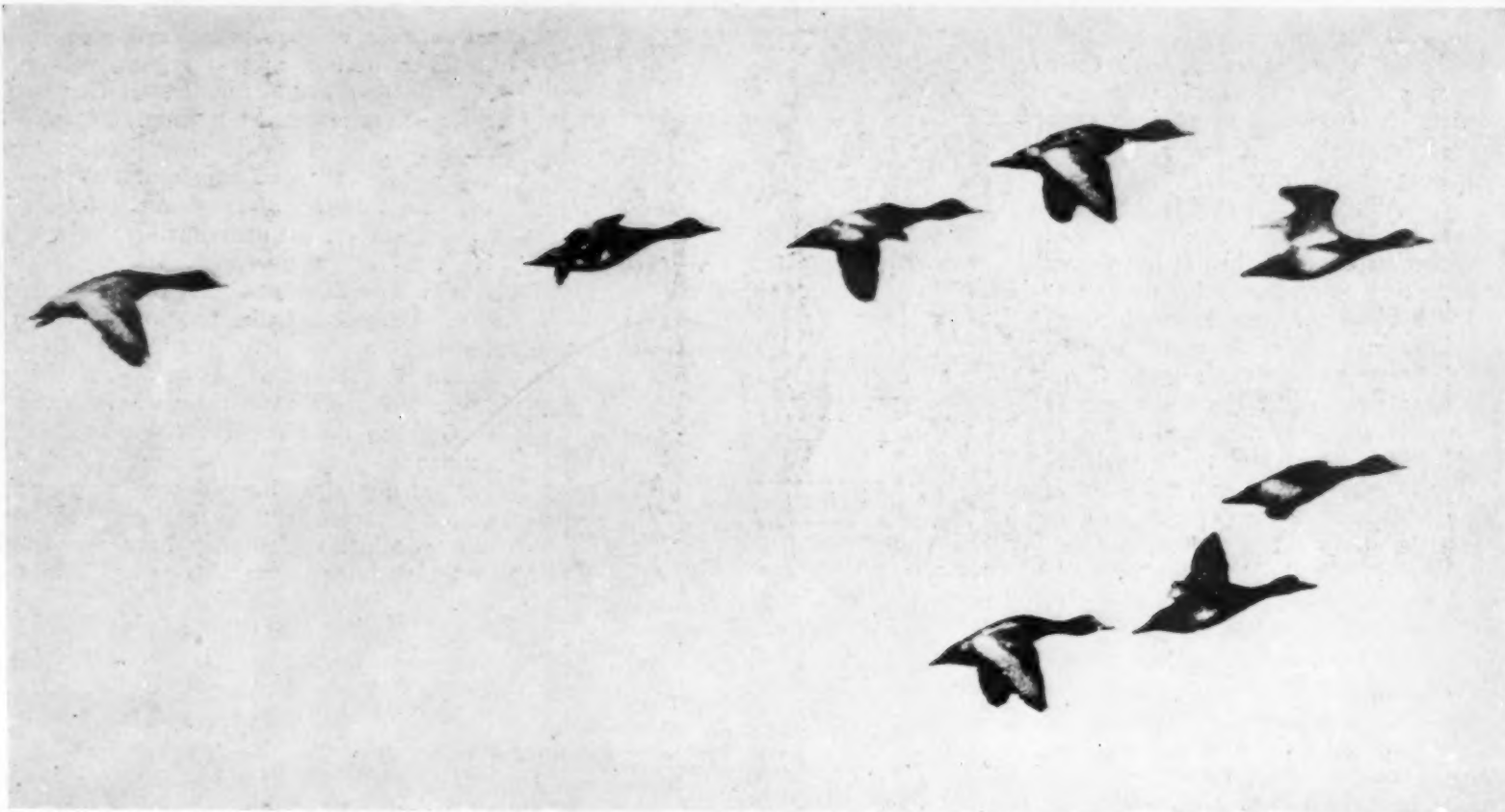
For building the part of the wall above ground it may be found better to employ intelligent laborers under the direction of a competent person rather than skilled masons. It is often difficult to persuade the latter, with their desire to do a "good job," to refrain from "dressing" the stone. Do not let them "trim things up." Make them put their hammers by, and, if one stone will not fit, get another. If the stones are "trimmed" the charm of the wall will be gone and it will look prim. Almost

any kind of field stone or rough stone from a quarry can be used as long as it is properly laid in place. Few will deny the beauty of the old rough boulder walls between New England fields. In a retaining wall, which must be thick enough at the base (sometimes 3, 4 or even 5 feet) to sustain the thrust of the bank above, the large stones at the ground line, resting immediately upon the foundation, should be laid with their length at right angles to the line of the wall and their inclination nearly at right angles to the batter of the wall. This will keep the earth from washing out. Toward the top the breadth lessens greatly.

Whether the wall be a dry one or of mortared joints, the question of soil is important. In the former case a mixture of loam
(Continued on page 338)



Where the garden wall is of brick, it is best of rough surface. Put the lattice work a few inches from the surface to prevent the accumulation of dirt and insects



The ducks and geese are day migrants, flying seldom more than an hour at a time, passing from one well-known feeding stop to another

The Migrations of the Birds

ONE OF THE MOST FASCINATING BRANCHES OF NATURE STUDY—WHICH BIRDS MIGRATE AND WHY—HOW FAR THEY TRAVEL AND HOW FAST

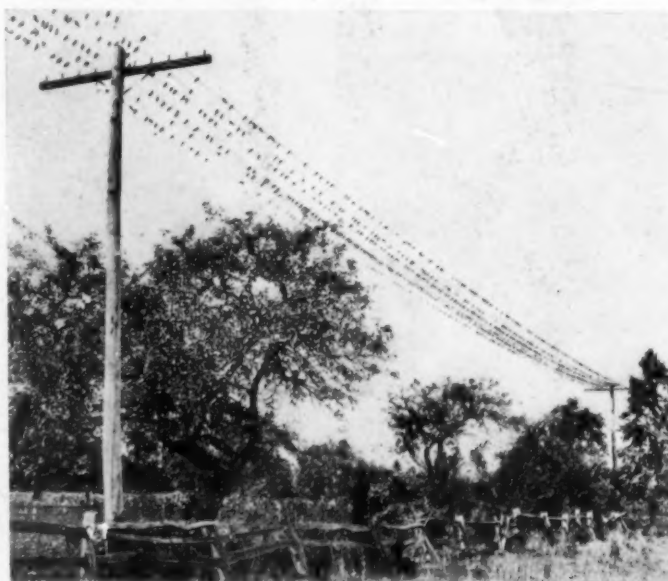
BY WELLS W. COOKE

BIOLOGICAL SURVEY, UNITED STATES DEPARTMENT OF AGRICULTURE

Photographs by A. R. Dugmore, Scott & Van Altena and Julian A. Dimock

THE mystery of bird migration has proved a fascinating subject from the earliest times. The birds were noticed to disappear in the fall and reappear in the spring, and not knowing where the intervening season had been spent many fanciful theories were advanced of hibernation in trees or in the mud, and stories were current of whole flocks seen to disappear beneath the waves of the Mediterranean to winter in its depths. With the later years has come a fuller knowledge of the particular region in which each species passes the cold season and more definite information in regard to the routes employed in the spring and fall journeys. But the increase of knowledge has not lessened the interest in the general subject. More persons today are watching the birds and noting their times of arrival and departure than ever before. Indeed, the Biological Survey has received migration notes from more than

two thousand different persons, showing how widespread has become the late development of nature study.

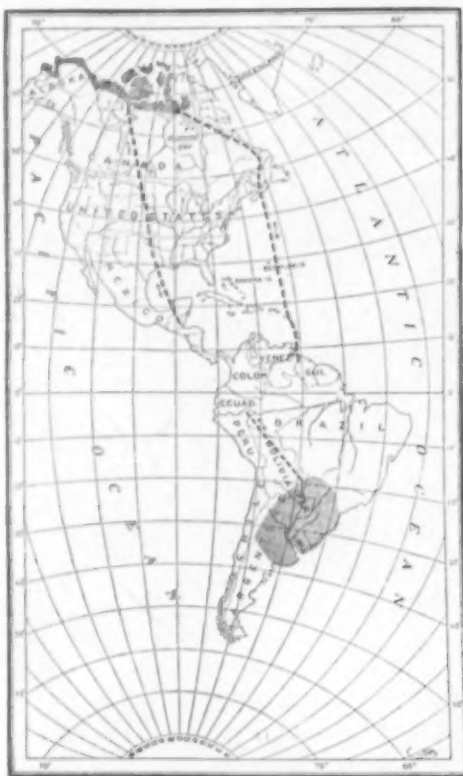


One of the great migration mysteries is the destination of the chimney swift, traced until he reaches the northern coast of the Gulf of Mexico, to which he returns five months later from no one knows where

The ever recurring question of why do birds migrate arises at once in the mind of every student of bird movements. No definite and complete answer has been or can be given to this question. It can be stated, however, that some advantage must accrue to the individual or the species as a result of the long journeys or else they would long ago have been abandoned or curtailed. Birds are not instruments of fate; they can and do change their breeding areas and modify their migration routes correspondingly. Yet two classes of migratory movements can be distinguished. In the one the bird seems eager to migrate. Examples of this are to be found among the geese and ducks, the robin, flicker and some of the black birds. All these birds press forward in the spring as soon as the tempera-

ture rises above the freezing point and unlocks the ice-fettered streams, or the melting snows lay bare the fields to furnish adequate food supplies; and even some days earlier the tree sparrow and the horned lark have begun their northward journey. All these birds stay in the north-land until driven south by the approach of the winter's cold, and when at last forced to move they retreat only far enough to the south to obtain nourishment through the winter and are ready at the earliest possible moment for the return. Such birds seem to consider the neighborhood of the nesting site as their real home, to be left with regret and to be revisited speedily. On the other hand, a still larger group of birds remain in the south as long as possible, make a late and hurried migration, arrive at the breeding grounds just in time for nest-building and depart for the south as soon as the young are fully grown. One would judge them to consider the land of their winter choice as their home, which they are reluctantly forced to leave by the exigencies of the period of procreation and to which they gladly return. This latter class includes more than half of our migratory birds—the warblers, vireos, thrushes, flycatchers, orioles, tanagers, swallows and such of the sparrows as winter south of the United States. Many an orchard oriole arriving in southern Pennsylvania the first week in May, leaves there by the middle of July, thus spending only two and a half months out of the twelve at the nesting site, while robins can be found in the same locality from March to November, being absent less than a third of the year.

Nothing can be more variable than the distance travelled by birds in their migrations. A few birds, like the grouse, quail, cardinal and Carolina wren are non-migratory. Many a Carolina wren rounds out the full period of its existence without ever going ten miles from the nest where it was hatched. Some other species migrate so short a distance that the movement is scarcely noticeable. Thus meadow-larks are found near New York City



The longest single flight made by any bird is that of the golden plover from Nova Scotia to South America

even to Patagonia. Among these long distance migrants are some of our commonest birds; the scarlet tanager migrates from Canada to Peru; the bobolinks that nest in New England probably winter in Brazil in company with the purple martins, cliff swallows, barn swallows, nighthawks and some of the thrushes who are their companions both summer and winter. The black-poll warblers that nest in Alaska, winter in northern South America at least 5,000 miles from the summer home. The land-bird with the longest migration route is probably the nighthawk, which occurs north to Yukon and south to Argentina, the two countries being 7,000 miles apart. But even these distances are surpassed by some of the waterbirds and notably by some of the shorebirds which, as a family, have the longest migration routes

of all birds. Nineteen species of shore birds breed north of the Arctic Circle, every one of which visits South America in winter and six of which penetrate to Patagonia, a migration route more than 8,000 miles in length. The champion migrant of the world is the Arctic tern; it nests on the most northern shores of the Arctic Ocean as far north as it can find anything stable on which to construct its nest and it winters along the ice pack in the Antarctic as far south as it can find open water and food. The two extremes of its migration route are fully 11,000 miles apart or a 22,000 mile round trip each year.

More wonderful, however, than the total distance the bird migrates in the year, is the enormous distance traveled at a single flight.



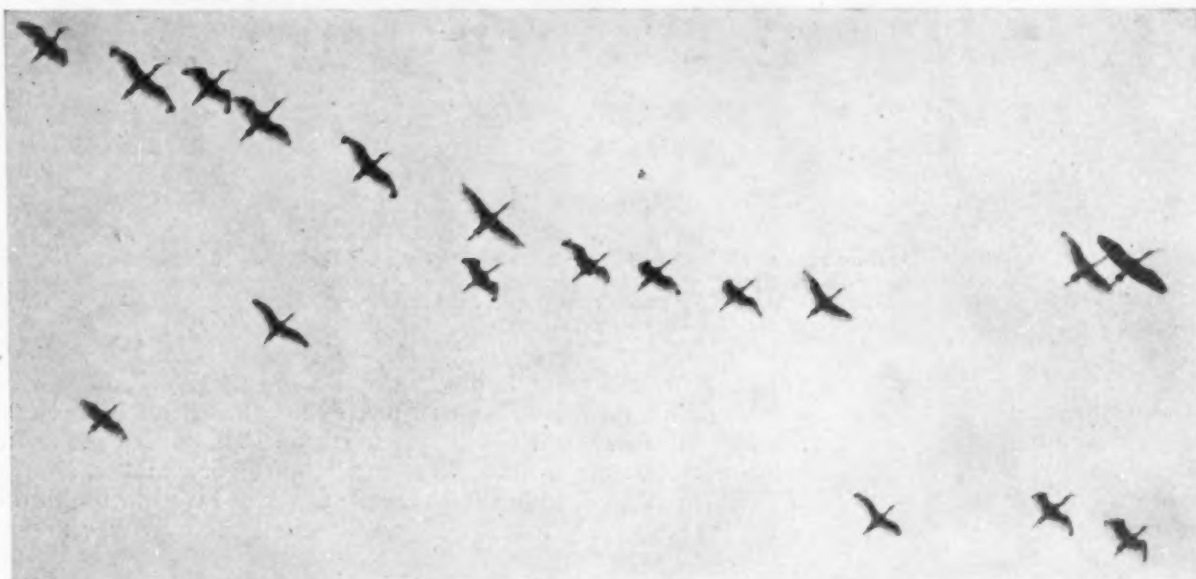
The nighthawk has the longest migration route of the land birds, traveling each year north to Yukon and south 7,000 miles to Argentina

When birds are migrating over land they fly a short distance—an hour or so at a time—and then stop and rest and feed for a day or several days before they undertake the next stage of their journey. But when they come to a stretch of water, as for instance when birds in fall migration reach the northern coast of the Gulf of Mexico, they make the entire trip across the Gulf from Louisiana to Yucatan at a single flight in a single night between darkness and daylight. Moreover, they do not seem to attempt to shorten the flight as could easily be done by passing to the west through Texas or to the

east by way of Florida, but thousands of them cross the Gulf at its widest point. Strangest of all, they do not seem to be exhausted by these long flights, but often fly a hundred miles over the land on the other side before they alight. Indeed, it is certain that their energies are not severely taxed by these flights or they would not undertake them, since, as just remarked, there is no necessity of their making these long flights if they were not preferred. These long flights are made by many of the smaller birds and even by the humming bird, the smallest of all, which spring and fall makes the flight of more than 500 miles between the coast of northwestern Florida and the Mexican coast.

These distances seem great, but they are small compared with the distances flown by some of the water birds to whom a thousand-mile trip is an easy journey. The longest single flight of any bird in the world is made by the golden plover from Nova Scotia directly south across the Atlantic Ocean to the coast of northeastern South America. In fair weather this whole stretch of about 2,500 miles is made without a stop and probably requires nearly if not the whole of twice twenty-four hours for the trip. Here is an aerial machine that is far more economical of fuel than the best aeroplane yet invented. The to and fro motion of the bird's wing would seem to be an uneconomical way of applying power, since all the force required to bring the wing forward for the commencement of the stroke is not only wasted, but is more than wasted, for it largely increases the air friction and retards the speed, while the screw propeller of the aeroplane has no lost motion. Yet less than two ounces of fuel in the shape of body fat suffices to force the bird at a high rate of speed over that 2,500 mile course. A thousand pound aeroplane to be as economical would have to fly 20 miles on the force from a single pint of gasoline.

Some birds migrate by day and others by night. Day migrants include the ducks and geese, the hawks and such birds as the gulls, swallows and nighthawks that are endowed with exceptional aerial powers. The



A flock of white ibis. Greek and Roman writers give many fabulous stories regarding this bird, arising from the fact that the sacred ibis arrives in Egypt coincidentally with the inundation of the Nile

larger part of the small birds migrate at night for the sake of greater safety from the attacks of birds of prey. The night's flight is begun soon after dark and usually lasts only a few hours. Night migrants stop to feed during the day time; ducks and geese seldom fly more than an hour at a time, merely passing from one well known feeding spot to another, while the gulls, swallows and nighthawks catch their food while on the wing during migration.

How do migrating birds find their way? They do not journey haphazard, for the familiar inhabitants of our dooryard martin boxes will return next year to these same boxes, though meanwhile they have visited Brazil. If the entire distance was made over land, it might be supposed that sight and memory were the only factors used in the problem. But for those birds that cross

the Gulf of Mexico, and still more so for the golden plover and its Atlantic Ocean crossing brethren, something more than sight is necessary. The best explanation seems to be that birds have a "sense of direction," such as we know ourselves to possess, only in the case of the bird it is vastly more acute than with us. Sometimes, however, the birds are caught by storms of such severity that their sense of direction fails them and then they become the prey of the lighthouses scattered along the coast. Tempest tossed and bewildered, they seem to be fascinated by the lantern rays piercing the darkness and hurl themselves to death against the glass. A red light or one that flashes is avoided, but a steady white light like that of Sombrero Key Light in southern Florida proves irresistible. As long as the light shone in the Statue of Liberty in New York Harbor many hundred birds were killed by it each year. Nor are the lighthouses the only peril to the migrant. Many a flock while crossing the Gulf or the Ocean is overtaken by storms and buffeted until with strength exhausted it sinks into a watery grave. Even the comparatively short trip across the Great Lakes has proved disastrous

(Continued on page 331)



A great many birds, among them the tiny hummingbird, fly 500 miles across the Gulf of Mexico without difficulty

The Case for Hot Water Heating

THE REAL FACTS URGED IN FAVOR OF THE HOT WATER SYSTEM—COMPARISON WITH OTHER METHODS ALONG THE LINES OF SERVICE, COST, ECONOMY AND OTHER ADVANTAGES

BY JAMES A. HARDING

Editor's Note.—"What heating system shall I use?" is the constant query of the home-builder. To assist in solving his difficulty, *HOUSE & GARDEN* has had experts in heating engineering present the advantages of their own favorite types of apparatus. For the first time the whole case of the best heating method will be presented to the public as a jury. This article will be followed by others presenting the characteristics and advantages of steam, hot air, and the indirect system.

ANY demonstration of the advantages of hot-water heating necessitates frequent comparisons of the three best known types of heating apparatus, viz.: hot-water, steam and hot-air, and a word as to ventilation seems appropriate, as in the modern scheme of physical life ventilation has become the hand-maiden of heating and is almost as important as the question of heat itself.

Special provision for the ventilation of all the rooms in a dwelling such as has latterly been advocated in connection with hot-air furnace heating is prohibitive in a large majority of houses because of its excessive cost. Such provision is more in the nature of a boosting appliance to insure the successful operation of the hot-air furnace (which mostly fails to deliver heat to unventilated rooms) than it is a necessity or boon to the dwellers in the house.

It is now the almost universal custom of well informed people to leave one or more windows in their bed chamber open during the night, which excellent practice entirely obviates the need of artificial ventilation through pipes or flues, as regards at least one-half the interior space of the house.

In a house of ten rooms occupied by a family of six adults, for example, with a proper allowance for the incidental leakage or ingress of fresh air, which is considerable in

the best built house, not more than five thousand cubic feet of fresh, artificially warmed air per hour need be provided for.

The necessity for burning an excessive amount of coal to warm more fresh air than health and comfort demand, because the supply of heat from a hot-air furnace can be carried to the rooms only by the medium of this excessive air supply, becomes at once the Waterloo of that type of heating apparatus.

The custom of connecting a return air pipe from a large register in the hall to the hot-air furnace, in the interest of economy of fuel, is pernicious from a hygienic standpoint. The health and physical comfort of people in the house during their waking hours depend upon a reasonably constant temperature, imparted

to the air by heating (radiating) surfaces at such a low temperature as to act moderately and constantly upon the air in contact with them. The unpleasant and unhealthful odors from minute particles of organic matter, always present in the air indoors, and made apparent by contact with the high temperature hot-air furnace and steam radiator, are thus avoided. A radiator should

never be hotter than 170° F., even in zero weather.

The intermittent "going down" of the pressure in a steam heating apparatus, the consequent condensation of steam in the radiator and pipes and filling of these spaces with air, results in a rapid fall of temperature in the rooms. Upon the recurrence of pressure, a discharge into the rooms of a volume of foul, odoriferous air from the air valves takes place, sometimes with an accompaniment of noise, as the steam, water of condensation and air agitate the radiator. To add to these, the rooms are often overheated.

The modern hot-water heating apparatus maintains a steady, noiseless and positive circulation throughout, with moderate temperatures of the radiating surfaces.

In the earlier history of hot-water heating (as far back as 1840) the water was heated under

pressure to high temperatures, and that method is followed to some extent at the present time in the interest of reducing the size and first cost of the apparatus; but it has been conclusively proven by physicians and others, that the "open tank" hot-water system chiefly in vogue today, with its lower temperature of radiators, is infinitely superior from the standpoint of health.

The flexibility of a heating apparatus in successfully meeting changes in weather conditions is an important consideration in the interest of comfort.

While steam and hot-water systems are equally positive in the delivery of heat to the points of use, the former requires a certain constant condition of the fire in order to generate steam



Radiator enamel is now obtainable to match any color of woodwork or wall-covering. The radiator here is less obtrusive as it fits in with the paper's coloring and striped pattern

from atmospheric pressure to two pounds gauge pressure.

The temperatures of the radiators in ordinary systems of steam heating will range from 212° to 220° , whereas the atmospheric conditions prevailing out of doors may vary from 50° F. to 10° below zero.

With hot-water heating the temperature of the radiators may be maintained at any degree from say 80° to considerably above 200° if necessary.

Again, after the fire has been banked or otherwise regulated for the night, there is a constant supply of heat from the fire to the radiators, so that in the morning the temperature of the water will be within 10° to 20° or so of that required for maintaining the desired 70° in the house.

In the steam heater after the fire is banked at night, the steam pressure goes down and the house cools off to a low temperature. In reply to them, it is urged that it is possible to get up the temperature quickly with steam heat. While this is true, it is of negative advantage in comparison with the greater one of having a constant temperature which obviates the need of forcing the apparatus, and the consequent waste of fuel which continues while the heater is operated under forced or excessive draught.

In vapor or vacuum systems of heating the variable temperatures of the radiators possible, constitute a valuable claim to superiority in the interest of comfort and economy. If such systems were designed to employ as large radiating surfaces as in modern hot-water heating and not to depend upon steam at high temperatures during excessively cold weather, then such systems would approach the excellence of hot-water heating:—provided, of course, that the vacuum necessary to produce vapor of a wide range of temperatures were not dependent upon the intermittent action of an automatic device, nor the positive action of an expensive mechanical or electrical device.

As to the hot-air furnace system of heating it is urged, and with apparent reason, that the hot-air furnace supplies fresh air to the house through its cold-air box and hot-air pipes, while direct radiator systems of heating do not supply fresh out-door air.

When, as stated above, a limited volume of air only is required for a family of ordinary size in order to maintain a given standard of purity throughout the house, it will be seen that this can be obtained by means of one or two indirect hot-water radiators furnishing fresh out-door air to the halls or principal living rooms of the house, thus providing heat and ventilation at once.



Almost every corner of the room may be especially provided for from the hundred designs of the modern radiator

The hot-water radiator obtains its heat from the source of supply, the heater, unhampered by effect of wind; whereas, as is well known, with furnace heating, rooms exposed to pressure of prevailing cold winds do not obtain warm air through the furnace pipes.

Again, with the hot-air furnace the air passes over its iron (usually cast iron) surfaces and takes up in this passage, coal gas and particles of dust, such as moulding sand and accumu-

lated deposits from the street; which impurities more than counterbalance the advantage to be derived from the air, originally fresh then entering the furnace, but which reaches the rooms considerably impaired.

In the matter of leakage of coal gas from the interior of a hot-air furnace into the fresh air passages immediately surrounding it and communicating with the rooms through pipes, the reasons for it are easily comprehended

when the physics of furnace construction are understood. A cheaply-constructed furnace is extremely pernicious in its insidious promotion of ill-health and it would seem that if civic authority were as wide awake in the enforcement of ordinances for the exclusion of coal gas from our homes as they are in the matter of sewer gas, then the cheap hot-air furnace would be driven out of existence.

With the hot-air furnace the temperatures of its several parts when in operation will frequently vary through a range from 1000° F. to 200° F. This inherent condition renders it necessary not only to build the furnace in sections, but to assemble its several parts with unsealed elastic joints, so that inequalities of expansion and contraction will not cause a fracture. In the combustion of coal the force of air entering the draught-doors and the expansion of gases in the furnace create an internal pressure with every charge of fuel which will overcome the resistance of the joints in the best made furnace.

It will be of interest to note the reasons why hot-water heating is more economical than the other types, and in considering these reasons it should be borne in mind that comparisons are here made between systems which embody all features necessary to express the highest standard of each type.

It is convenient to base comparisons upon concrete examples, and a country house of ten rooms will afford an average basis of calculation.

A hot-water heating apparatus for such a house should cost approximately \$475.

The interest on this amount per year at six per cent. is \$28.50. Such an apparatus will require about nine tons of coal for the season which at six dollars per ton makes a total of \$54.00 per year for fuel, and a total annual expense of \$82.50.

A steam-heating apparatus for the same house will cost about \$375, and the interest on this amount will be \$22.50. This apparatus will require about twelve tons of coal at a cost of \$72.00.

In steam-heating the fluctuations of pressure occasion alternate rapid expansion and contraction of the pipes and other parts at frequent intervals, which promote leaks. Radiator valves should be repacked at least once a year. Automatic air valves are prolific sources of trouble and expense. Damper regulators need repairing and the alternate filling of the system with steam and air promote the rapid oxidation or rusting of the interior of pipes and radiators, and their gradual disintegration.

(Continued on page 335)



The window-seat is only one of the means whereby a radiator may be placed almost entirely out of sight



Starting with a viewpoint commanding the foothills and Adirondacks beyond, the garden worked itself out as a long central path, flanked by poplar trees, hardy borders and strips of lawn

A Garden in the Foothills of the Adirondacks

BY MARY LLEWELLYN GIBSON

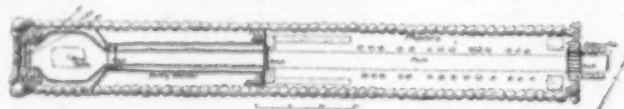
Photographs by the Author

WHEN I decided to evolve a garden I was so well imbued with William Morris's sense of art from my winter's reading that I selected a field from which the view of the hills, on and on, to the Adirondacks seemed to fulfil what he felt to be a situation for a garden. To him a garden was not a shut-in place but a retreat, from which as one looked abroad the vista gave promises and thoughts suggestive of hope, ever reaching on beyond. That appealed to me, so at this viewpoint I built my seat, a large rustic affair with projecting screens of cedar posts about seven feet high. As a background I transplanted four very large bushes of pink honeysuckle from the woods.

From that my plan grew. I decided to make a straight path down the center a distance of one hundred and eighty feet, with a lawn on either side about ten feet wide and a hedge as an outside line. The hedge question was most puzzling, as in perspective any ordinary hedge plant at such a distance, at least the size I could afford to buy, looked about the size of a geranium. Being an American, of course I had to have an immediate effect, so I decided on trees—Carolina poplars. They grow so rapidly, and then the summer wind when it gently blows their willing leaves has always been to me such a delightful sound. I put them in, the following spring, fifty on a side, about three feet apart.



Rustic arches helped the vista down the long path, and an edging of field stones bounded the hardy border and kept the garden from washing out



The garden is a tree-bordered rectangle 25 x 180 ft.



A bird table is the center of interest near the sheltered seat at the viewpoint

I knew unusual difficulties confronted me, as this potato patch that I had chosen was composed of clay soil and I could have no water supply. I prepared my borders, which were seventy feet long on each side, by digging down three feet and filling in with compost. As simplicity, I felt, must guide me in all I did, I decided it would be effective to edge the borders with field stones, which I proceeded to collect, selecting the most irregular shapes. They not only made an edging but kept the spring rains from washing away the hill.

I could see as my garden grew that I must break that long plain look to the path. I built three different arches of rustic cedar over the path, and at the end where I put the seat I built a bird table and planted trumpet vine around it. On this I keep a pan of water, which seems to attract the birds particularly well in our country. The beds around the bird table are filled in with clove pinks and white phlox. In spite of the rustic arches the path still lacked something to me. It was too symmetrical for an informal garden—it had no atmosphere. It was not until I saw one day in front of a hardware store, an English crate for dishes, a big affair of slender branches with the bark on, that I saw fences and backgrounds galore. I immediately bargained for that one at fifty

(Continued on page 333)



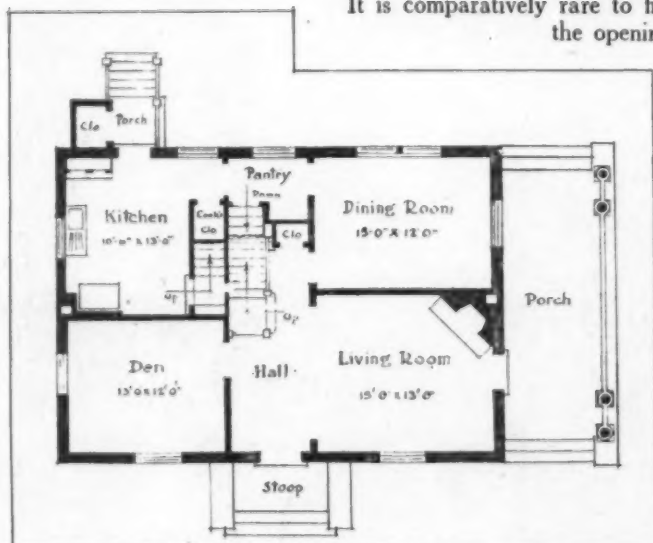
It is interesting to note the ingenuity with which the architect has kept this comparatively small and high house in good proportion by the deep overhang of the eaves on the gables as well as in front and rear

THE HOME
OF
MR. R. S.
MACNAMEE,
BERWYN, PA.

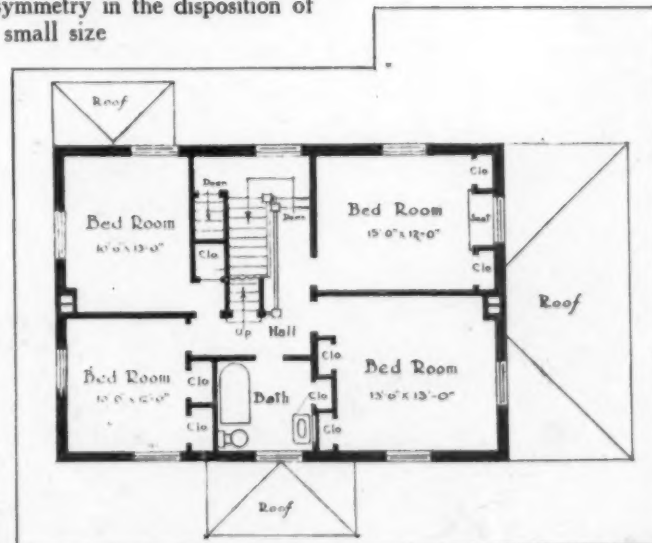


David
Knickerbacker
Boyd,
architect

It is comparatively rare to find such pronounced symmetry in the disposition of the openings in a house of this small size



By opening up the front end of the hall, the working area of the living-room has been largely increased



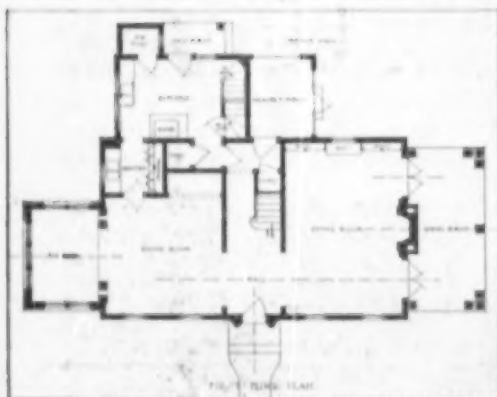
The back stairway, leading directly out of the kitchen, joins the main stairway on an upper landing



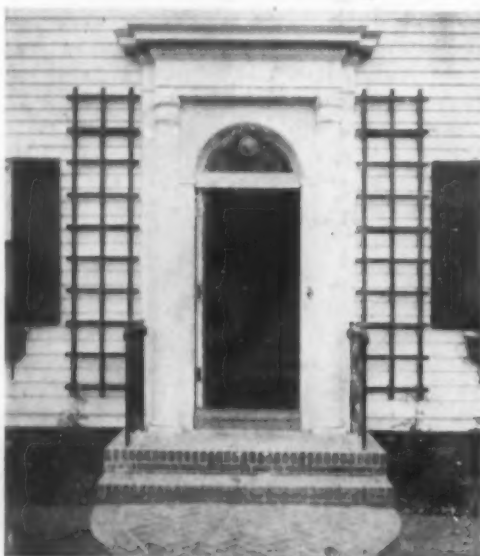
Mr. Bush's home is a modification of the Colonial style with white clapboards and solid green shutters. The evergreens in the window-boxes carry out still further the contrasting effect of green and white

THE HOME OF
MR. C. H. BUSH,
CRANFORD, N. J.

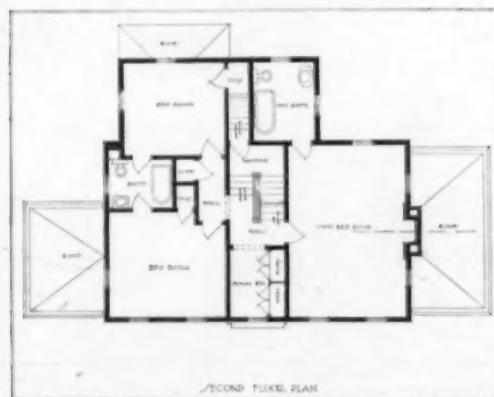
*Hollingsworth & Bragdon,
architects*



The large living-room is practically part of the porch when French doors are opened



The entrance doorway flanked with green lattice is suggestive of old Salem doorways



The owner's bedroom is unusually large and extends across the whole depth of the house



The dining-room is made cheery by the sun room, which opens out from one end of it



The breakfast porch is screened in lattice and will be vine covered, making a delightful room in summer days



The original of "Graycroft" was an ugly square barn of concrete blocks



The living-room was made to extend across the whole width of the barn and is lighted by seven windows



Over the cement blocks wood lath and stucco were applied



The living-room opens upon a living porch, which is screened in. This was an addition to the original structure



The house sits up on a hill among the trees, and with its gray stucco walls blends beautifully into the surroundings



An especially attractive feature of the living-room is the wide fireplace with its inglenook and raised brick hearth



"Graycroft" is simply another exemplification of the great possibilities of remodeling. Formerly a hideous cement-block barn, it is now a most attractive home, and made so at a cost of but \$6,000

THE HOME OF MR. S. J. LATHROP, WYOMING, N. J. *Howell & Thomas, architects*



The Editor will gladly answer queries pertaining to individual problems of interior decoration and furnishing. When an immediate reply is desired, please enclose a self-addressed stamped envelope.

A Candle Lamp

A NEW candle lamp that seems to have been evolved from a combination of a lantern and the old-fashioned candlestick with a windshield, is a novelty that is decidedly practical and will no doubt prove useful. The frame is of dull burnished copper with a cylindrical glass shield extending from top to bottom. Perforations in the base and also in the top give free circulation of air, while the candle is so thoroughly protected by the shield, that it burns with a steady flame.

A substantial handle not only adds to the appearance of the lamp, but makes it particularly easy to carry about. It is quite suitable for indoor or outdoor use, and for country houses with neither gas nor electricity it is especially serviceable, as it not only gives a low, steady light for the hall or veranda, but is readily moved about from place to place, and besides seeing that candles are always available it is no trouble to keep in order.

Finishing Floors at Slight Cost.

IN country houses when cleaning in the fall, preparatory to comfortable living in the winter, if one would take the trouble to finish the floor for rugs (which can readily be made from the carpets) the appearance of the home would be greatly improved as well as the labor of keeping clean lessened.

First fill the cracks, if large, with pieces of wood, or if they are not wide enough for that, fill with pieces of newspaper torn to bits and mixed with a paste made of flour and water. Then apply a flat, ground, color and when dry, put on a coat of walnut varnish. If there is much walking to be done in certain places, it will pay after letting the varnish dry, to put on a coat of shellac, or elastic finish. This gives a splendid looking floor, one that wears well and costs little. A finish of this kind for two feet and a half around the baseboard of a room works wonders in the cleanliness and appearance. Be sure to let the ground color dry for at least twelve hours before applying the walnut varnish. It then gives the color of a hardwood floor, neither too dark nor too light, and can stand nearly as much wear.

Protection Against Ice in Gutters

SOMETIMES much damage is done by leaks in the roof, when the gutters freeze in winter. I visited a house where such an emergency was provided for by a hot water pipe leading to the gutters. Whenever a sudden freeze followed a day or two of warm weather which melted the snow on the roof, the hot water was turned into the gutters and speedily cleared them of ice. I believe this device was invented by the owner of the house, but it is not patented and anybody is free to adopt it.

Laying Matting

TO lay straw matting is a difficult thing to do, as the cheaper grades are likely to get wrinkled and to wear in ridges. When you put the matting down, get it as smooth as possible; then with a pail of hot water, to which a cupful of common salt has been added, mop and wash the

matting as if it were dirty. Use the salt water freely, renewing often enough to keep it hot. Wash with the grain of the matting, and leave it quite damp. The salt toughens the straw and prevents it from breaking.

The Desirable Medicine Cabinet

THE sanitary value of a metal medicine cabinet is beyond question. No absorbent material comes into contact with spilled medicine—the metal may easily be cleaned with soap and water, and dried immediately. And metal does not swell, warp, shrink, crack nor sag, as wood is apt to do.

These cabinets are most satisfactory when set into a recess in the wall, but may also be attached to the wall-face with screws. In purchasing it is well to procure the model with moveable shelves, to accommodate bottles of different sizes. And the good housekeeper will find that glass shelves are obviously most desirable. The cabinets are all made with bevelled mirror on the door. Some of them have the inside corners rounded, with no place for dirt to accumulate. The cabinet is attached to the recess without injury to marble or tile-work, and without showing the holding screws.

Small Water Pitchers for the Guest Room

LITTLE pitchers which are of use in the guest room come in various pretty designs in pink, green, blue and yellow. I have one for each guest room, pink for the pink room, blue for the blue room, and so on. They stand on a table in the upper hall, and when we retire for the night a large pitcher of ice-water is carried upstairs, each small pitcher filled, and put in its respective room. Each pitcher holds just two glasses of water which, unless one spends a very wakeful night, is quite sufficient for one's needs.

These pitchers are made of a very good quality of china, smooth and thin and for a wonder they can be purchased at the ten-cent store. The shapes are most convenient—the opening is large enough to admit the whole hand in washing, so that



A combination candle lamp and lantern in brass offers a various service both indoors and out



These three little water pitchers come in different colors and designs and make a good addition to the guest-room equipment

they can be kept clean very easily, which is not always the case with small pitchers. It is most difficult in washing a pitcher with a small opening to reach the cracks and crevices, many or few according to the simplicity or ornateness of the design. The best of drinking water contains a little sediment which settles in these crevices and stays there unless they can be easily reached with the dish-cloth.

A set of these little pitchers, one for each sleeping room, will be found to be a dainty and most useful accessory to your household appointments.

Two Well Planned Rooms

A MOST alluring color scheme interested me in a New England country house recently. The spacious, low-ceilinged living-room, with a cozy, ingle-nook at one end, had casement windows and doors opening on two stone porches and a terrace that overlooked the sea. The trim of the room was in white enamel paint, with mahogany doors. The walls were of silvery gray grasscloth, and the rugs were a soft olive green. The furniture was chiefly of silvery gray wicker; stained, not painted, and of very simple design. In addition there was an occasional piece of old mahogany.

But the principal attraction was a wonderful English cretonne of which valanced window-curtains, lamp-shades, and several sofa-cushions were made. This cretonne had all the richness of the finest stained glass, and reminded me of La Farge's famous Peacock Window. It had a gray background over which shaded green peacocks spread their decorative tails, while bunches of deep purple grapes and rose-pink peonies gave the requisite dash of color. The portières, leading into the hall and dining-room, were of Arras cloth in an exquisite shade of purple, and the cushions for the wicker chairs and divans were also of Arras cloth, some in purple and some in green. Fascinating shades for the electric light were made of small pink wall-paper flowers appliquéd

on a semi-transparent material. The casement doors had curtains of silvery green unfadable gauze—shirred top and bottom.

The dining-room, opening out of the living-room, carried out the same color scheme, only, instead of the grasscloth, the walls were wainscoted in square white panels for about five feet. Above the woodwork was a charming foliage paper, shaded gray poplar trees on a white ground. The same colorful cretonne was used here with green rugs and mahogany furniture.

Hot Water from the Furnace

FURNACE water-backs for supplying the hot water necessary for the entire house—bathroom, butler's pantry, kitchen, laundry, etc.—are now to be had at a very low cost, and are widely coming into use. The vast advantage of installing them in the furnace of the house, and so only having one coal fire both to heat the house and supply hot water, are readily apparent to all careful householders. It should be remembered in this connection that such a water-back will absorb a cer-

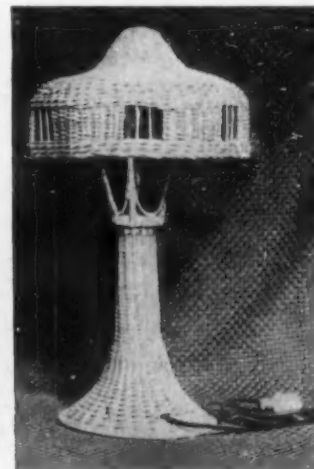
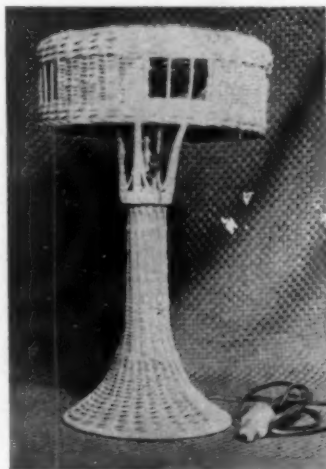
tain amount of the furnace fire heat. When planning for a new heater, allow two feet more heating surface in its capacity for each gallon of water the kitchen boiler contains; for example for a forty-gallon boiler allow eighty additional feet of heating surface if your furnace is a "direct" steam system, and three feet additional heating surface if the heater is a "direct" hot water system. Also see that a sufficiently large hot-air furnace is installed when this appliance is to be used.

Willow Lamps

A DECIDED novelty in the way of lighting arrangements is the electric light stand in the shape of a lamp made of willow, the standard, shade, and all parts being woven in one piece. The incandescent bulb is screwed to the regulation socket just as in an ordinary lamp made of brass or copper with glass shade, and with the cord and plug the lamp may be attached to any electric light fixture.

It is suitable for both indoor or outdoor use. Corresponding in design as it does with the present style of willow furniture, it makes a most attractive piazza light and is of so little weight that it is easily moved about. For use in a library, hall or den it is equally effective when left the natural color or stained to tone in with the furnishings of the room.

The shades are made in a number of different shapes, some conical, others with perfectly flat tops, and a number have simple designs in openwork effect, either in the sides or serving as a decorative border. For indoor use this is particularly ornamental, as the shade may be lined with silk of a contrasting tone that gives a satisfactory touch of color through the open places. With the exception of the electric light bulbs there is nothing about these lamps that can be broken and, owing to the fact that the shades are practically opaque they are useful as reading lamps, besides being just the thing for rooms or porches where a certain amount of light is desired with no glare from a shade of brilliant colors.



The use of willow is by no means limited to the summer season. It is now woven into very useful lamps for the informal room



Garden Suggestions and Queries



Conducted by
F. F. ROCKWELL

The Editor will be glad to answer subscriber's queries pertaining to individual problems connected with the garden and grounds. When a direct personal reply is desired please enclose a self-addressed stamped envelope.

November

WHEN November comes we are thankful indeed to turn to the plants rescued from the garden—or more prudently grown all summer for winter gardening—that make cheery some spot in the living-room.

Without, the sky is dull, the wind chill and cutting; it is the season of sere and yellow leaves and a desolate outdoors. Within, every petal, even every fresh green leaf, for weeks to come, will be treasured, and rightly so, for whatever adds to beauty adds to life.

However, the trouble is not over—in fact, it has just begun—when we get our plants into the house. Only yesterday I called at a house where the mistress exhibited with some pride a fine lace fern (*Asparagus plumosus nanus*) which she had been doctoring up during the summer for a friend. She added sadly, however, that she could not keep it in its present

flourishing condition because she has gas illumination in the house. There are many less experienced women who do not realize the baneful effect of even a trace of gas in the air, and who fuss over their plants all winter and watch the leaves and flower buds die as they unfold, without knowing what causes the trouble, and wondering why they do not have better luck with flowers.

How I Save My Geraniums From Year to Year

FOR a number of years I have not been obliged to buy any geraniums for my garden, having saved my stock from year to year. While I succeeded in carrying over the plants, I cannot say that they were particularly good to look at in the early spring, because of their long drawn out scraggy appearance. Judging from what I saw in other gardens, I was content with this condition. A fortunate meeting with a person more skilled in the gardening art than myself quite upset my notions. It was a happy upheaval, however, for I learned much about geraniums, and now instead of plants for which I feel obliged to make apologies, I can show a stock that will compare favorably with that grown for the trade. In the fall I now take out of the garden all the geraniums that I care to carry over through the winter. Some of these I pot and others I pack away in boxes, first cutting them down to mere stumps. Almost 90 per cent. of these small cuttings will grow to be plants. These boxes with the stumps are put in the cellar and just kept alive by an occasional watering during the winter. If a weak growth shows up it is pinched off.

About March I take out these stumps and pot them and place them at the cellar windows. Geraniums thrive best in a cool place. A warm room produces a lanky growth that makes poor plants.

I get good plants by bringing them along slowly in a cool temperature. If there is need of forcing it can be done with nitrate of soda, never with heat. This must be done carefully, as a disregard of instruction will defeat expected results.

I take a number of bowls, or larger receptacles, and fill with enough water to cover the roots of the geranium's stumps. Before this is done, however, I dissolve in the water about five or ten grains of nitrate of soda, according to the relative size of the vessel. The geraniums are then put in the light. In a short time root action begins and the plants make such rapid growth that in a month they can be potted off as stocky plants or even planted outdoors. In administering this treatment, remember to change the water when it gets foul, and also to wash out the roots of the plants, as they are apt to collect a greenish scum.

In potting the geraniums from the water, do it carefully as the roots will be found very tender and rough treatment will do them great harm. I sometimes puddle the loam and pour it in on the roots. This is a good method and results in the minimum injury to the delicate root fibre of plants.



The nitrate solution should just cover the roots of the plant to be forced



After standing in the light awhile the effects soon show in a vigorous and stocky growth

In connection with my cellar treatment I have a coldframe out of doors, and just as soon in the spring as possible, even before the frost is gone, I put out my plants. On cold nights I cover them with mats. This treatment in the coldframe hardens them and makes them in prime condition for planting.

I wish I could impress on people the fact that there is no mystery or difficulty in keeping plants over during the winter in the cellar and then getting from these same plants in the spring a new stock sufficient to plant your garden many times over. The idea is to keep them quiet in the winter and then force them early in the spring. Cuttings taken from any of them at this time will grow and will, with the aid of a coldframe, make sturdy plants by planting-out time.

Care of Plants in the House

IN order to be successful with plants in the house, one must give them the right conditions: a proper environment, proper temperature, proper ventilation and proper degree of moisture.

In regard to the first condition there is not room here to go into much detail. In most dwelling houses there may be found one or two sunny windows that may be fitted up with shelves and used for the winter garden. The first shelf, on a level with or a few inches below the window sill, may be made a foot or even two wide and longer than the width of the window, as some plants will thrive without direct sunlight, and may be kept in the partially shaded background. Other shelves, eight to twelve inches wide, may be fitted in above, at sufficient height to allow the plants on lower shelves plenty of room. If a thin strip of wood, say $\frac{1}{2} \times 3$ inches, is nailed along each edge of the shelves, and they are covered with an inch or so of small pebbles, the pots will drain better, look neater, and make less muss than if simply set on the flat boards.

There are many instances in which a special place may be easily made for winter plants. Bay windows may frequently be partitioned off from the rest of the room, by glass partitions or even by curtains of closely woven cloth, and the temperature and moisture in the air within the enclosure managed independently of the rest of the room. This is fully as important in keeping the proper degree of moisture in the air as it is in giving an even temperature, for no matter how thoroughly the latter may be regulated, if the air is dry, as it is almost certain to be in any living-room, the plants will suffer.

The temperature for most house plants should be kept at from forty-five to fifty-five degrees at night—not under fifty degrees when it can be prevented. The day temperature may run ten to fifteen degrees higher. The temperature should be kept as even as possible, as much harm being done by sudden changes as by too low a temperature. Do not go by guesswork; a good thermometer should be kept

near the plants, but shaded from direct sunlight.

Ventilation is as necessary as heat. Plants to be healthy must have fresh air. As a general rule, plants in the house should be given all the fresh air possible while maintaining the required degree of temperature. This does not mean, however, that on a cold windy December day you should open a window near your plants because the thermometer climbed to sixty or sixty-five. To do so would work havoc with your plants. Direct drafts must at all times be avoided when the outside atmosphere is cold. A window in another part of the room, or behind a screen, may be used. Or in very cold weather, it will be better to bring it in in

and boxes saturated at all times so thoroughly that the soil is heavy, like mud. Well drained pots in summer, when water is evaporated very rapidly and when they are making rapid growth, will stand a great deal of watering. But in winter, when for the most part they are undergoing their resting period—usually from October to February, and when the soil will retain moisture for days—no such quantities should be given. The safest rule is to water thoroughly until the soil is wet through (as can be determined by inverting a pot some ten minutes after watering, and knocking out the ball of earth) and then withhold it altogether until the soil itself, by slightly drying out and whitening on the surface, indicates that more



The pleasure of house plants to cheer the winter days need not be missed simply because local conditions appear adverse. Here a little ingenuity has made a substitute for the greenhouse

some more roundabout way—through a hall or an adjoining room. Too frequently in cold weather our living-rooms are closed up tight as drums, and the air becomes unfit for humans as well as for plants to breathe. This is a false policy, for it is easier to keep warm in a fresh than in a de-oxygenized atmosphere. Plants are more neglected usually in regard to ventilation than on any other score.

There is also a good deal of misunderstanding in regard to watering. Too frequently one finds the "little and often" system in use. A little sprinkle on top of the soil will wet it down half an inch or so and leave the bottom as dry as a cobblestone in a drought. Others indulge in the "plenty and often" way, keeping the pots

water is needed. Water thoroughly and then withhold it altogether until it is again actually needed, as near as you can judge.

It is not, however, for moisture in the soil that plants in the house suffer most. Moisture in the atmosphere is what they lack. It is dry air that holds them in check when the lady of the house thinks she has given them every care, and is sure that no coal or furnace gas is working insidious injury. It is in overcoming this difficulty that the enclosed partition of some sort affords great assistance. The air within such an enclosure may be kept as moist as desired. A good deal, however, can be done in the living-room. In the first place, keep dishes of water evap-

(Continued on page 326)



EDITORIAL



ASTRIDE A HOBBY

WHEN a man buys an automobile there are few details of its construction, design or working characteristics that he does not investigate in advance. Before he pays real money for a car he knows enough about it—unless he is the one man in a thousand who is willing to buy a “pig in a poke”—to expatiate at length upon its advantages in design and the excellence of the materials employed. He knows that only the highest class of drop forgings have been used in the axles; that the best known type of magneto has been put into the car; that there are installed all the little devices that make for comfort and luxurious ease of operation. It is hard to conceive of a man who would buy a car without knowing that he was getting tires of a reputable manufacturer. Yet this same man, who must have the quality of every part in an automobile demonstrated before he buys, will buy a house after the most casual sort of an inspection. He does not know whether the stucco on the outside walls is on a good or a worthless support. He does not know whether this support is fastened directly to the stud frame or whether it has the desirable board sheathing and building paper in between. Whether the flooring consists of a single thickness of cheap North Carolina pine or of dependable Georgia pine on an under-floor, is a question that he does not think it worth while to investigate. Why this unquenchable thirst for information in the case of the automobile and this blind faith in a protecting Providence in the case of the house? The only reason that occurs to us is the tendency on the part of a hobby to induce hard riding. Moral: Get the house hobby.

PRIDE OF CRAFT

IF you will examine in detail a house built a century or more ago, comparing it with a modern house of the same general class, you will notice a difference that corresponds very closely to the difference between a piece of jewelry that is modeled by an enthusiastic hand-craftsman and one that is stamped out by a die in a machine. Here and there in the old house you will find some curiously interesting eccentricity of construction—some ingenious solution of an awkward problem. When a carpenter was fitting the wood trim around a door close to the end of a partition he used his judgment and turned out an attractive if not a perfectly symmetrical doorway. Today the carpenter would change the location of the door rather than risk being unable to follow his rule-of-thumb treatment of the opening. The result is that the great majority of our modern homes look as if they had been stamped out with the same set of dies from some vast house-making machine. It is too bad, for this makes it all the harder for a home to have that air of individuality that we all recognize and promptly covet on sight. Our houses are turned over to us, fresh from the die-stamping machine, and our only hope of attaining individuality in them lies in the furnishings and decorations. But there is a way out of this and it deserves earnest consideration. Before the building is quite finished, go over it and note the details that are not beyond your own ability as a craftsman. There are sure to be some of these, even for the most unskilled. In all probability you are enough of a carpenter to build your latticework for vines, from your own designs; or perhaps you can take the bread out of your mason's mouth by laying your own hearth; homemade hardware can be given an air of distinction very easily, as Mr. Maxfield Parish has so well shown in his own home; built-in shelving and presses for photographs, engravings and such things are not beyond most of us. If we would stamp something of our own personality upon our homes we must make up our minds to the fact that the work of our own hands must find its way into the structure—the more it is in evidence, pro-

vided only that it is well done, the more surely will that particular house be ours unmistakably.

A SUGGESTION FROM THE COUNTY FAIR

THE county fairs of 1911 are past and the man who failed to attend at least one of them missed a rare treat. There is a good wholesome atmosphere about these fairs that fosters optimism. Each year the prize pumpkin seems a bit larger than ever before, the broad-backed hogs more unwieldy and shorter-legged. On every side there is something to remind you that nature has once more produced a marvelous harvest of grains, fruits and livestock. A day at a big county fair is the surest antidote for pessimism that we know.

It seems a pity that the amateur gardener has not taken his cue from the county fair and shown a greater activity in organizing competitive exhibitions of flowers, fruits and vegetables. While we do have the great benefit and pleasure to be derived from a few of these shows, like the recent Dahlia Show in New York and the annual events of the Massachusetts Horticultural Society, competitive exhibiting among amateur gardeners is not nearly so common as it should be. In England the various local shows of the National Rose Society bring out not only the keenest competition between amateurs and professionals, but a wide dissemination of rose-growing knowledge that has made our English brothers the most skillful rosarians in the world. Our fellow-enthusiasts, the amateur photographers, have no end of competitive exhibitions, tending always to raise the standard of pictorial photography in print or lantern slide to a still higher level. The time has come for some much-needed work in organization of local horticultural societies among amateurs. What can you do toward helping along the good work?

EGG LAYING IN THE CANAL ZONE

AS related in the Canal Record of August 23, 1911, the hospital at Ancon started a poultry farm in January, 1910. They began with 200 Brown Leghorn hens and 15 cocks. Later 100 hens and 10 cocks of the Rhode Island red type were added, and the next winter 230 Plymouth Rocks arrived. This stock was increased this year by 100 Brown Leghorn fowls. The first 18 months saw a total egg production of 53,469 eggs (about 4,455 dozen). Analyzing the part each breed had in this total it was found that the Leghorns laid 29,329 eggs, the Reds, 9,098 and the Plymouth Rocks, 15,042. As to the comparative share each hen had in this total, the figures showed that the monthly average over a period of eighteen months for each Brown Leghorn was 8.2 eggs; for R. I. Reds, 7.7 eggs, and for Plymouth Rocks, 6.5. A table is also published giving the monthly number of eggs produced and the approximate cost. Although difference of climatic conditions would have to be taken into consideration to apply these figures to conditions here, the comparative laying ability of the different breeds and the cost of running the farm may be used as standard with our results. We reproduce this table entire:

	No. of Dozen.	Total Cost.	Cost per Dozen.
January	287	\$36.97	\$0.13
February	243	28.33	.11 $\frac{3}{4}$
March	247	28.81	.11 $\frac{3}{4}$
April	281	29.16	.10 $\frac{1}{2}$
May	299	29.94	.10
June	235	32.34	.13 $\frac{3}{4}$
July	223	25.15	.11 $\frac{1}{4}$

The greatest story that these figures tell is the careful method of proceeding in a business-like way in recording the success or failure of a husbandry undertaking. Without such a record the last year's experiences have nothing to teach us for the future. They shed no light on improving our methods or buying new stock.

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Garden Suggestions and Queries

(Continued from page 323)

orating on or by all registers, radiators, etc. These may be made decorative as well as useful, by the use of cut flowers, or placing in each an inverted empty pot to support a fern, palm or other plant which will thrive in partial shade. In the second place, shower the plants frequently. This does not mean watering them. Use a rubber sprinkler, or better, a small florist's syringe, and spray the foliage without wetting the soil.

This treatment is useful not only in keeping the atmosphere moist, but it helps keep the foliage clean. The plant's lungs are its leaf pores, and if these get coated over and clogged with dust it cannot remain so healthy as it otherwise would. The plants should be covered over with a light cloth when the room is being swept, and the leaves wiped off occasionally with a soft cloth. Plants kept in such positions that they cannot be freely sprinkled where they are may be from time to time set in the bath-tub or sink and given a showering there.

A sharp watch must also be kept for insects. The conditions which usually breed them are weak, crowded or dry plants, and lack of thorough ventilation. Cleanliness and fresh air will do much to keep them away. The green plant louse or aphid, mealy-bug, a white cottony looking bug, and the red spider, so minute that he can hardly be seen, are the three most commonly encountered. Methods of fighting them will be explained in a subsequent issue of *HOUSE & GARDEN*.

IN THE VEGETABLE GARDEN

THE vegetable garden looks pretty forlorn now—that is, if you have not cleaned it up yet. It must look empty at this season of the year, but it should look neat and clean. No old pea bush, bean stalks, asparagus tops, should be left scattered around to harbor insects and delay work next spring. Clean them all up and burn or compost them. Most of the vegetables will have gone to winter quarters before this. Parsnips, salsify, brussels sprouts, celery, are yet out. The former, for use during winter, should be dug out and trenched or stored. Some may be left in the ground where they are, but it will be better to take them up and put them somewhere out of the sun, where they will stay frozen. Celery should be trenched or stored, as already described, for early spring use. Roots and all are stored, and it is not trimmed until wanted for market or table.

Do not forget the compost heap. It is the chance to be storing up plant food for next summer's garden—anything that will rot, as we have frequently said. A little lime, and once in a while a wetting down with water, will help things to rot quickly.

IN THE FLOWER GARDEN AND GROUNDS

OUTSIDE there is not much that requires attention. See that the roses have been properly cut back and mulched.



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that the stalks and leaves of hardy perennials are cleaned up and removed, and a mulching of leaves or rough manure given. The objection to leaving the old leaves for a mulch is that disease germs and insects' larvæ and eggs are carried over in them, ready on the spot to work injury the next season.

In the trees and shrubs any branches which may have been broken by fall winds should be cut off clean and painted if of any size. Do not leave them to be whipped about and start rot where water can lodge in uneven breaks.

As the snows come, and the last vestiges of summer disappear, keep your eyes open for pleasing effects with berried and colored-barked shrubs in the gardens you visit or pass, and note what could be utilized in the improvement of your own home surroundings.

OTHER SUGGESTIONS FOR HOUSE PLANTS

HOUSE plants of any kind that seem to need more life and energy will thrive by submitting the soil to a course of ammonia water application. Ammonia, when diluted in the proportions that one makes it to wash windows, is a fertilizer. Soapy water is quite as good, and a combination of soapy water and ammonia is still better. Give the poor house plants a drink that is also food to them when you are about to throw into the drain a material that they actually require to keep them at their best.

Another cheap and effective way to keep house plants free from disease is to put a bag of soot in a pail of water, let the contents settle and use a very weak solution for watering plants. Soot is a very valuable fungicide, and when used in this way will keep plants healthy.

During the winter months house plants are frequently attacked by destructive worms. Their presence is indicated by a sudden drooping of foliage and a general decline of vigor. Yet there is no outward sign of the underground siege. A way to exterminate these pests is found by pushing into the earth, near the plant, a number of parlor matches, sulphur end down. The fumes of sulphur destroy the animal life, yet are non-injurious to the vegetable life of the plant. An almost instantaneous relief is effected.



Fireplace Fixtures

(Continued from page 297)

which is to keep the sparks from flying out into the room and causing damage. For practical purposes only, the best thing is the common woven-wire article in brass, copper or black enamel. These screens are either in one rigid piece or they fold in sections. They are sure to keep the sparks in place and they leave an unobstructed view of the fire. One commonly used variety is of black wire in a brass frame, in four or five folds. Their height



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is from 25 to 36 inches, and their prices are from \$1.50 to \$2.50 a fold. Extra folds can be had for very large fireplaces on special order. The same screen can be furnished in solid nickel plate, bronze or dead black to match the other fireplace fixtures when desired.

Still another variety of the fireplace screen is known as the spark arrestor; this is one flat section of wire neatly bound, to stand close against the framework of the fireplace, with slots in the bottom for the andirons. Still another type of folding screen is of the arts and crafts design with shield of fine brass wire held by brass framework with cast bolt heads; this is the proper screen for the craftsman type of fireplace.

Next comes the wood basket, or whatever receptacle is selected for storing wood near at hand while it is waiting to be offered up for sacrifice. In many houses of recent construction the wood box is carefully concealed under a window-seat or under the settles of an ingle-nook, but where this arrangement is not possible there must be a wood box or basket. A fine wood box, not shown in the illustrations, is of solid quartered oak with hand-wrought steel hinges, handles and decorations. It is 36 inches long and costs \$50. These wood boxes would hardly be the proper thing for many decorative schemes, but they go well with a majority of the modern fireplaces of brick or tile. They are not in any respect Colonial, and would be out of place in a Colonial room where the better thing is undoubtedly the less conspicuous basket.

Another staunch friend of the olden time fireplace was the bellows. Present-day methods of fireplace construction, with their numerous ways of insuring perfect draft, place the bellows among the implements that have become more ornamental than useful, but still they are good friends to have on hand, and they do more than any other commonly known fireplace furnishing except the andirons and the tool sets to bring back the spirit of the olden days. Carved woods or hammered brass or copper are the common materials for bellows, and the design, when there is any, is usually quaint and often grotesque.

In the time of our forefathers, when the fireplace was used for cooking as well as for heating, the crane and kettle were its most indispensable assets. Unfortunately we have no excuse now for these things, and they would hardly be at home in a modern house unless in a camper's bungalow or in an old-fashioned farmhouse. Wrought iron is, of course, the logical thing for these articles, and the crane can be had for \$7.75, while the kettle costs \$6.

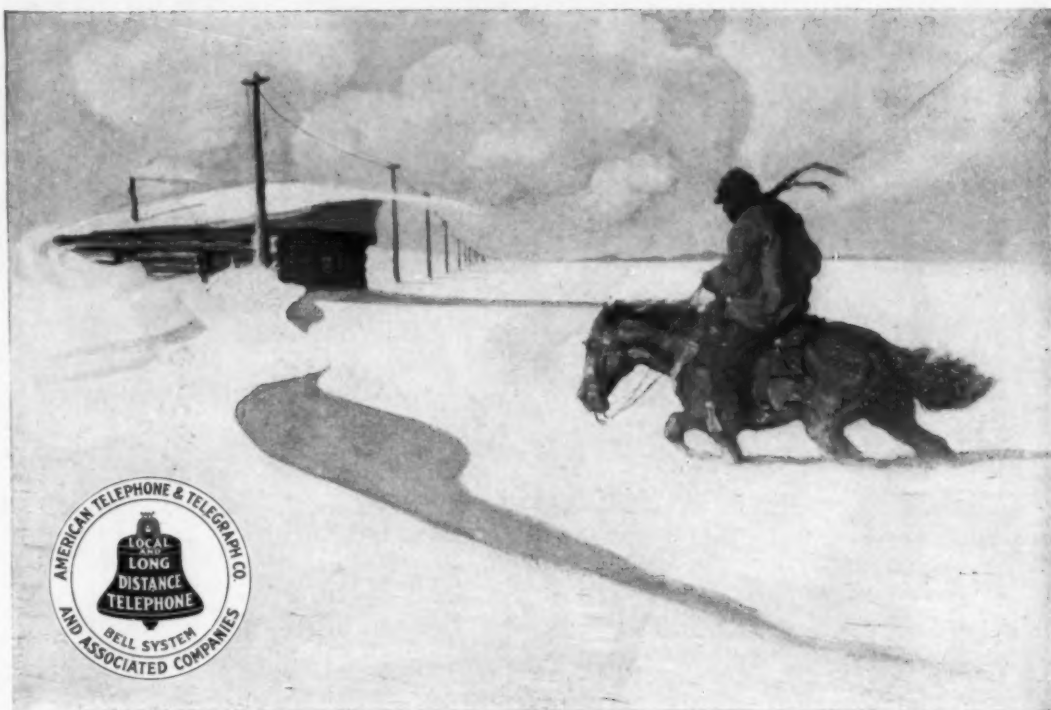
In the same class with the crane there is another little device whose kind in some strange way has almost become obsolete. This is the trivet, and it is doubtful if many of us would know a trivet without an introduction. It has never become permanently transplanted in America, but the

old English hearth was never complete without its trivet, and if one of New York's dealers in antiques has his way, it may soon become re-established on this side of the Atlantic as one of the most conspicuous of fireplace furnishings. It is a simple little stand with a cast brass flat top, and usually on a three-legged base about a foot high. Its purpose is to stand close up to the fire and hold the tea-kettle or other dish for warming purposes, thus taking the place of the crane. The toast stand belongs to the same family, and is used in the same way, but can only stand on the hearth on its own feet, whereas the trivet has hooks on one side to be hung over the foot rail or fender when desired. Dickens tells us about the trivet, and it has been a leading character in many fascinating fireside stories. In one of its forms it has an ingenious sliding arrangement whereby it can be pushed out over the flame, and in some forms it has extra long legs with room for a plate rack below the top surface.

Another old English idea which never gained much headway in America is the seat fender. This is a simple piece of furniture used as a settee in front of the hearth or to be pushed up against the mantel when there is no fire burning, and still serve the same purpose. It is made in all lengths from 18 inches to 5 feet, and usually has an upholstered top. Its most fitting place would seem to be in large halls, club-rooms, or places of that sort.

It would hardly do to omit the fender or foot rail from the catalogue of the hearth's equipment. We do not use the foot rail as much as our ancestors did. It is, in fact, one of the things whose value we have grown to doubt. It offers no protection against sparks or heat, like the screen, and certainly it does not keep us out of the fire were we determined to walk into it. On the other hand, it would be a most convenient thing to trip over if we were looking for something for that purpose. Then, again, while it may have been ornamental at one time, it is no longer needed as an ornament, and we have grown to prefer the fine brick and tile hearths just as they are. Still, if the fender is wanted, it can be had in any one of many fine patterns in polished brass.

The fireplace hood is a somewhat modern device originally introduced to secure better draft when the chimney is not altogether efficient or large enough for this purpose. More recently the hood has often been extended further up the mantel, and sometimes even to the ceiling, to produce a decorative effect. However, if the chimney is well constructed to permit the fire to draw properly, we can well dispense with the hood, and can rely on the brickwork or tile of the facing for the decorative requirements of the case. The hood is seen at its best in the craftsman style of fireplace, and it affords much opportunity for the worker in brass and bronze to display his skill, but there is something about it that makes us feel that



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its days are numbered and that we had better spend our money for other forms of decoration.

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Character in Brickwork

THE article on "The Best Use of Brickwork," which appears in the February issue of *HOUSE & GARDEN* has awakened the interest of many of our readers. Among these is Dr. P. E. Truesdale, who



The possibilities for character in brickwork are well evidenced in this window treatment

encloses the following description of a novel piece of brick work. The building described is The Highland Hospital, at Fall River, Mass., and was designed by Mr. Parkerhouse Hooper, of New York.

An interesting artistic effect has been here achieved by the architect in the use of bricks. A Roman yellow brick is laid as a stretcher, while the headers are of a much lighter tone giving the surface a soft

buff color. The deep yellow of the long brick is also relieved by the wide mortar joint which is nearly white.

The window arches are formed in counter sunk areas. The key of each window arch is subordinated by what would appear to be an original idea (if such there is) in the use of bricks. The periphery of this sunken area is made of headers alternating in color, deep yellow and buff. The center of the arch is a highly polished piece of marble of diamond shape. About this and surmounting the lintels are the same face bricks as above described, broken into squares and laid on edge. The cut surfaces of these bricks show quite rough, but not objectionable. Whether original with Mr. Hooper, or not, the design is artistic, attractive and wears well.



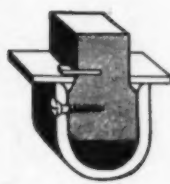
The Migrations of the Birds

(Continued from page 313)

and several times after storms, windrows of dead birds have been found at the water's edge.

It is interesting to note the relation between migration and the bird's molting. Most birds care for the young until they are old enough to look out for themselves, then go through the molting period and when the new feathers are fully grown start on their southward journey in their fresh new clothes. But the birds that nest beyond the Arctic Circle have too short a summer to allow of such leisurely movements. They begin their migration as soon as possible after the young are out of the nest and molt en route. Various peculiar changes of plumage are presented by some birds in the different migrations. The bobolink goes south in the fall as an obscurely marked bird of buff and olive; he returns the next spring the well-known black and white denizen of the marshes. The scarlet tanager performs his fall migration in a suit of uniform greenish yellow that is known to only a small part of the persons who welcome him as an old friend when he returns the next spring in his striking black and scarlet.

Among the idiosyncrasies of bird migration may be mentioned the fact that a few birds choose different routes for the spring and fall migration. The Connecticut warbler goes north in the spring up the Mississippi Valley to its breeding grounds in southern Canada and then in the fall journeys at first almost due east to New England and then south along the Atlantic coast to its winter home. The golden plover has the same double route, but on a much larger scale. This bird goes south in the fall by way of Labrador and Nova Scotia and across the Atlantic Ocean to South America and by land to Argentina. Then the next spring the return trip is made by way of northwestern South America, Central America and the Gulf of Mexico to the Mississippi Valley and across central Canada to the nesting



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grounds on the shores of the Arctic Ocean.

Much has been learned during these later years of the migratory birds, but much remains to be learned. Not a month passes without additional information on some phase of the migration of some species appearing in the ornithological magazines. The migration route and the winter home are known now in more or less detail of every species of United States bird except the chimney swift. Where the millions of this well-known bird pass the winter has not yet been ascertained. Their progress southward in the fall across the United States can be traced and timed until they reach the northern coast of the Gulf of Mexico. Then they start out over its water and become lost to our knowledge. The next spring they return in countless thousands, but where they have spent the five intervening months is thus far an unsolved mystery.



Cosmos After Frost

LAST fall, quite by accident, I happened upon a pleasing discovery regarding the cosmos plant.

As usual, just as these plants began to flower prolifically in my garden, Jack Frost put in an appearance. One afternoon late in September the wind veered suddenly to the north, the mercury dropping steadily until there was no doubt that freezing weather was actually close at hand. So cold grew the air that there seemed not the slightest hope that temporary covering of any kind could save the glory of the cosmos plants and the only course left appeared to be the picking of the blossoms that their beauty might be enjoyed a few more days inside the house. My hands grew numb with the cold as I pulled the blossoms and in the wild hurry to save each flower one strong thrifty plant, fully four feet high, was unearthed bodily. The soil was so dry that *not a particle* of it adhered to the roots. Someway, I could not bear to leave the plant in this bare uncovered condition to the ravages of the cold, and although possessing not the slightest hope that the plant in question would live, I hastily filled an old leaky tin pail with earth, planted the cosmos in it, carrying the plant into the house along with the cut flowers.

That night the ground froze solid and the beauty of every growing thing was laid low. Great was my surprise and joy, however, to find that the cosmos plant I had brought into the house apparently was suffering no ill effects from its rude uprooting, the leaves giving no sign of wilting and the flower buds standing as fresh and wiry as when growing out of doors. For a few days the plant was kept in a shady corner of the room and the roots were watered faithfully. When the flower buds began to unfold, however, the plant was moved near a sunny window.

Until Christmas time the plant was

loaded with flowers, and I have never had a more showy or beautiful display in the house than was given by this cosmos plant.

The cosmos is one of the most beautiful of all the flowers. Its only drawback, in fact, is its late flowering season. That this exquisite plant may be so easily and safely transplanted when in full flower and that it will thrive gloriously in the house, seemingly, is a "find" worth telling others about.

A. F. F.



The Garden That Came

(Continued from page 305)

The hardy white pinks with their spicy breath came in the hands of the toughest boy in the city precinct, who loved my flowers; and the sweet rocket that hurries to complete her masterpiece of white and lavender in a shady corner every spring before the roses begin to exhibit, came in the tiny apron of a fairy girl-child who loved my flowers; and the woodbine on the high fence behind them came from the brookside where the tough boy and the girl-child and I went after minnows. The boy is worshipping the fairy now, and here grow the white pinks and the sweet rockets and the woodbine in remembrance.

Of course, such queens of the garden as the six-inch dahlias and hybrid gladiolus, such pictures as the blue larkspur and Madonna lilies and Shasta snowbank do not 'come' except in exchange for very hard cash. Neither do Persian cats and blooded bulldogs. But with the blooming of these modest ones the loves and memories in them bloom anew each summer-time, and they are dearer than the florist's dearest rarities. As for rescuing the graceful, grateful lesser ones from the highways and byways and darkest woods, if they will persist in holding up pleading hands and faces that need washing every time I stir abroad, seeking sanctuary with me as does every homeless kitten and tramp dog in the valley—what else is to be done?



The Garden in the Foot Hills of the Adirondacks

(Continued from page 316)

cents and engaged all future crates they might get. So far I have used four and the effect is wonderful. Flowers of every color look well against that twisted bark fence, which I put as a background for the borders.

Looking down my garden the effect is yellow, looking up, pink and white. Below the middle rustic arch are two beds filled with larkspur and iris, and further down I have shrubs on either side. The entrance arch is covered with a Japanese climbing rose, and to emphasize the approach I have planted five small arbovitae on each side. Directly across, join-

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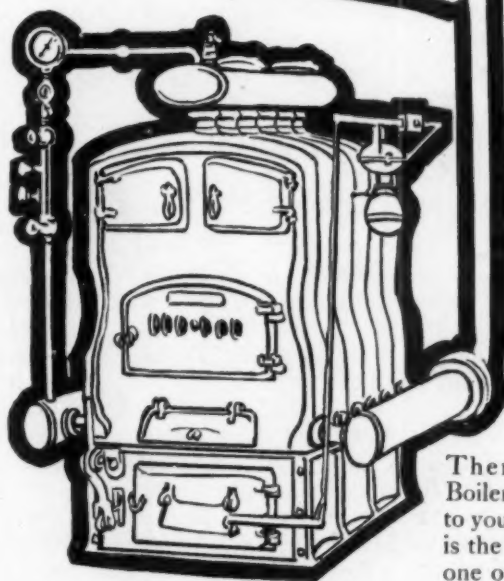


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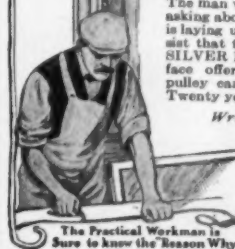
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ing the trees, I transplanted some wild barberry.

I rather coax along plants that do not mind a clay soil, of which there are a number, such as hollyhocks, pinks, larkspurs, columbine, and others. In spite of the northern climate, no one, I am sure, after June, can boast of more glory than I. When I realize the hundreds of dollars that are spent on gardens and the feeling so many have of not being able to afford one, and see the delightfully pleasing effect I have produced with so little outlay, I only wish I could help others toward the possession of a little garden, that they may know this source of unending pleasure.



Planning the House and the Garden Together

(Continued from page 300)

Of course in the case of a large country place the problem, because it is more complex, is usually handled less fearlessly by the average owner, because the difficulties are more apparent. At the same time it is well to insist on the fact that the best results are to be obtained by a cheerful co-operation between the owner, the architect and the landscape designer. To obtain this result it is always best to consult with your architect *before* the selection of the landscape designer in order to insure the selection of men who can work together in harmony.



Experiences with House Plants A Symposium

(Continued from page 295)

its place in the dining-room and put on its stand, which has on top of it a galvanized iron pan, painted green, sixteen inches in diameter and two inches deep, which serves as a receptacle for the water that drains out after watering. This reserve is held there to be absorbed as needed before the next watering. Each plant is operated on and cared for in just this same way, and by the first week in May they are growing beautifully and ready to be put on the veranda. From this time until October they are thoroughly watered every twenty-four hours, but never until the sun has entirely gone down, and once a week one tablespoonful of ammonia to the gallon of water is used at watering. The growth is so rapid that soon the newly developed fronds almost entirely cover the pots and touch the floor. By the last of October brought back into winter quarters and given all the air possible until freezing is feared, and even in the cold winter doors are left open sometime each day. No special attention is ever paid to the exact temperature of the room they occupy. We just make an effort to see that they do not have any extreme heat

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or extreme cold. While indoors, ferns are injured, I have found, by over-watering. If they are kept as a beautiful decoration all winter, they should not be watered until they have entirely absorbed all water drained through from the last watering into the under-pan, and the soil looks a little dry on top. February is the rest month, and they should not be watered more than once thoroughly in that month.

My ferns are so large, they are never moved during the winter months, only to turn them every two weeks, so that all sides may have the direct rays of light. Care is taken to make as little dust as possible, as the only showers of water they ever get are secured at the time of transplanting and during the summer, when all the plants are lifted off the verandas to enjoy two or three gentle summer showers. In the country they do not have the dust to collect on them as they do in towns and cities.

With healthy plants to begin with, these directions should bring successful results to those who wish to grow the Boston fern.

EDNA COULTER.



Homes that Architects Have Built for Themselves

(Continued from page 303)

holding clothes, but now promoted to the rôle of a writing-desk; Indian temple hangings, Chinese candlesticks, a Norwegian wooden horse collar acting as a mirror frame, and pipes from all corners of the globe.

The remainder of the house may be considered as stereotyped, unless electric washing and ironing machines in the laundry are deemed unusual.

Such is one architect's home; and, if it is a poor thing, it is at least mine own.



The Case for Hot Water Heating

(Continued from page 315)

At least five dollars per year should be allowed on repair account for the items mentioned, making the total yearly expense for steam heating \$99.50.

A hot-air heating apparatus for such a house should cost exclusive of any special features in the interest of ventilation not less than \$250, the interest on which is \$15. For a performance with this type of apparatus that will measure up, even approximately to the results obtainable in hot-water heating, at least fourteen tons of coal will be required, or a yearly expense for fuel of \$84. In the matter of repairs not common to hot-water and steam-heating apparatus fire pots and many other parts of a furnace are comparatively short lived. A yearly allowance of five dollars for repairs and five dollars for rapid de-



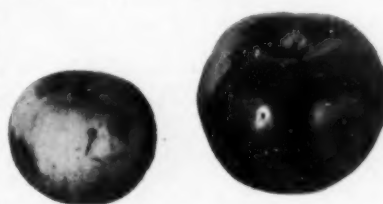
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and feeding. But common sense is the most uncommon—

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The apple on the left grew on a tree receiving the usual orchard care, which is practically no care. It is small, unevenly colored and badly scarred by insects.

The right hand one is of the same variety, picked from a tree cared for Munson-Whitaker's way. It is a big, beautiful specimen, free from blemishes and having a delicious flavor that brought a retail price as high as 12c apiece in New York. It only goes to show what right care will do.



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Hot-water heating costs per year, \$82.50; steam-heating, \$99.50 and hot-air heating, \$109.

It will be of interest to consider why one type of apparatus requires more fuel than another. Heat, like gas, provisions, electricity, clothing, etc., has a unit of measure and it is convenient to consider it by its unit of measurement as we do the cubic feet, pounds, gallons, watts, yards, etc., of other commodities.

Manufacturers of boilers or heaters publish capacities in their catalogues, which are expressed in the number of square feet of radiating surface the heaters are competent to supply, and it is ostensibly the object of the manufacturer to name the capacity of each boiler which will most accurately express its maximum efficiency, i. e., its greatest capacity for doing work when it is utilizing the largest percentage of the total heat units generated from the fuel burned in it.

Engineers who design heating systems usually base their calculations upon the heat units necessary to warm the rooms to 70 degs. in zero weather.

The burning of coal in the domestic heater is usually accomplished at temperatures ranging from 1000 degs. Fahr. to 2000 degs. Fahr. and the percentage of heat units thus generated which are transferred from the fire to the water surrounding the fire determines the efficiency of the heater.

The material (cast iron) of which steam and hot-water heaters are usually constructed, is the same and therefore does not affect the present calculation.

The rapidity (consequently the quantity) of heat transmission from one medium (fire) to another (water) through an intervening substance (iron) is directly dependent upon the difference in the temperature of the two mediums.

In steam heating the water surrounding the fire is never less than 212 degs. Fahr. In hot water heating the average temperature for the season, of the water returning to the heater will be less than 120 degs. Fahr., which makes almost 100 degs. greater difference in transmission activity in favor of hot-water heating.

In the hot-water heating of the house referred to above, to 70 degs. Fahr. during zero weather, there will be required 108,000 heat units per hour to maintain the 70 degs. temperature of the rooms and 6363 heat units per hour for warming the air supplied by the indirect radiators; a total of 114,363 units per hour delivered into the rooms; and this quantity of heat net, is all that it will be necessary to produce from a hot-water heater.

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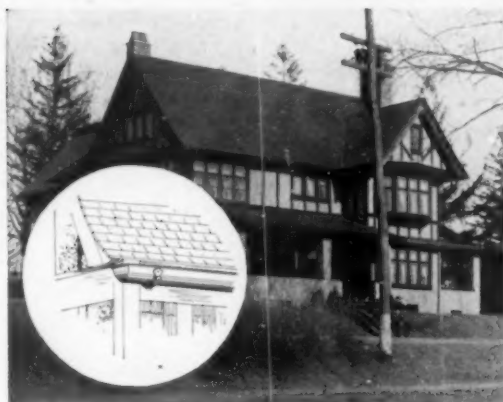
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With hot-air furnace heating it is usual in the best practice to limit the velocity of hot air entering the rooms through the registers to about four feet per second. The house in question should have a total free area of registers of about three and one-half square feet. With the above area and velocity the furnace will deliver into the house 50,400 cubic feet of air per hour. This volume of air must be heated from 0 degs. to 70 degs., the temperature of the rooms, and such heating will require 64,120 heat units. In addition there must be supplied 108,000 units to maintain the 70 degs. in the rooms against the usual losses, making a total demand upon the furnace for 172,120 heat units per hour.

Assuming the efficiency of the hot-air furnace in producing heat from coal equal to that of the hot-water heater and that 8,000 heat units per pound of average quality of coal is the amount of heat delivered to the rooms, then we determine that it will require 14.3 lbs. of coal per hour for hot-water heating and 21.5 lbs. of coal per hour for hot-air heating.

It will be well to note that the volume of air required to convey the heat from the furnace to the rooms, as above, will need to be heated to a temperature of 131 degs. Fahr., which is as high a point as consideration of health will permit. A smaller volume of air at a higher temperature would be pernicious.

Another important point of difference between hot-water and hot-air heating is that the air entering the room through the register flows almost directly to the ceiling and has but little effect upon the cooler strata of air near the floor. The hot-water radiator induces a flow of the cool air near the floor toward itself, and heats it, thus contributing to more nearly equal temperatures at the floor and ceiling of the room.

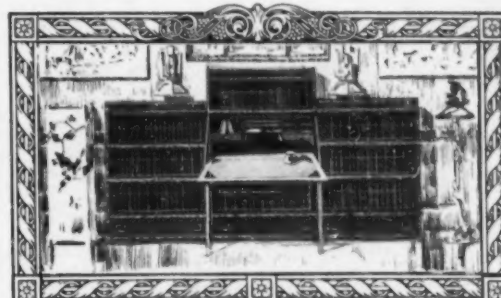
A point of advantage in hot-water over steam is that in the former method moderate temperatures of the water will serve both direct and indirect radiators at the same time, but with steam at 212 degs. and no gauge pressure, the direct radiators may be sufficiently heated, and the steam will have no appreciable effect upon the indirect.

In the relative acceptability of the hot-water, steam and hot-air apparatus in their adaptability to the structural, architectural and decorative features of the house, one is confronted with the problem of providing spaces for registers or radiators as the case may be.

In the matter of locating them so as not to displace the rugs, the radiator being much narrower than the register, its position next the wall seldom interferes, while the floor register does.

The pipes of the hot-water system are readily concealed within the walls without special structural provision or cutting important timbers of the frame, which is nearly always necessary in providing spaces for the large caliber hot-air pipes.

In the earlier piping methods employed,



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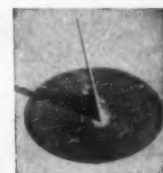
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and with the crude, ugly designs, then common with radiators, much was left to be desired from the esthetic standpoint. Today, however, design and decorative coloring of radiators make them notes in the general harmony of the room.

There is scarcely a space of any shape or dimension in a room (the general arrangement of which has been designed without reference to heating) but can be utilized for the reception of one of the hundred shapes, sizes and designs of the modern radiator.

While the window seat is only one of the means whereby a radiator may be wholly out of sight, a little personal attention on the part of the architect and some exercise of his professional ingenuity will evolve new possibilities.



The Time to Purchase Palms

ONE of the best seasons to buy palms for house culture is in the early fall, before cold weather has set in. Then there is less danger from exposure, and the plants have time to become well acclimated before the trying experience of a long winter in a tightly closed house. Oftentimes palms are forced rapidly for winter selling, which means that they are kept in a high temperature. As a result, they suffer when transferred to an ordinary living room.

The palm should not be kept in full sunshine in summer, but will be grateful if allowed to stand out of doors in a gentle rain. Indeed, it is a good plan to give the palm an occasional spraying with tepid water at all seasons.

Palms must be kept out of a draught, and it is well to avoid pots which are unduly large, as all palms do best when there is not a large amount of earth around the roots. It is advisable to loosen up the earth occasionally and to see that the water applied soaks through all parts of the soil. Palms need an abundance of water, but abhor wet feet—water must not be allowed stand in the saucer.



The Making of a Walled Garden

(Continued from page 310)

and leaf mold should be used just as if it were mortar, except that it is advisable to use small stones or pieces of brick to keep the joints wide. When the wall is used for retaining purposes one should endeavor to make it possible for the roots to run through to the earth beyond. In mortar-joined walls interstices may be left to be filled with earth. These should be of sufficient size to support normal growth of the varieties planted.

Planting may be accomplished by means of seed or seedlings. If seeds are chosen, see that they are given a fair start. A good way to do this is to prepare a pill of



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seeds by wrapping them in moist loam and sphagnum moss and pushing them into crevices. With seedlings, one should allow them to gain a fairly thriving growth of rootlets and carefully hollow out a place for them. Pack the soil tight, as in potting, and leave but little of the plant projecting.

There are numerous plants suitable for wall planting, but a characteristic list of those giving best service is here given.

Alyssum	House Leek
<i>Arabis alba</i> and <i>Alpina</i>	Mill-foil, woolly leaved— <i>Achillea tomentosa</i>
Alpine Aster	Pear, Prickly
Baby's Breath	Pink, Sea or Cushion— <i>Armeria maritima</i>
Barnwort	Plumbago
Bearberry— <i>Arctostaphylos</i>	Phlox, Trailing— <i>Procumbens</i>
<i>Uva-Ursi</i>	Rock-ress, Purple— <i>Aubretia deltoidea</i>
Bugle— <i>Ajuga reptans</i>	<i>Saxifraga longifolia</i>
Catchfly— <i>Silene acaulis</i>	<i>Saxifraga</i> , Mountain
Columbine	<i>Sedum sexangulare</i>
<i>Dianthus deltoidea</i>	Snow-in Summer
" <i>silvestris</i>	Speedwell
" <i>plumarius</i>	Stone-crop— <i>Sedum acre</i>
<i>Euonymus radicans</i>	var. <i>aurum</i>
Forget-me-not	Thyme— <i>Thymus montanus</i>
Garland Flower— <i>Daphne</i>	Yucca
<i>Cneorum</i>	
<i>Gypsophylla cerastoides</i>	
" <i>repens</i>	
Harebell	
Ferns: Ebony Spleenwort— <i>Asplenium ebeneum</i> . Dry soil mixed with leaf mold	
Woodsia. Rocky location	
<i>Pellaea atropurpurea</i> . Rocky ledges	
<i>Aspidium fragrans</i> . Dry cliff sides where anything else would be sun-scorched	
Dwarf Spleenwort— <i>Asplenium trichomanes</i> . Shade. Grows in any rock-cleft where it can find merely a foothold	
Common Polypody— <i>Polypodium vulgare</i> . A very reliable sort	

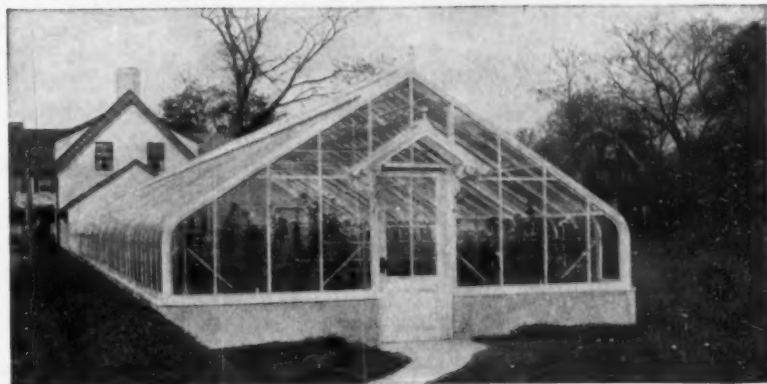


The Swiss Chalet for America

(Continued from page 292)

terior paneling there is nothing more attractive, all things considered, than red-wood and to the interior plans of American chalets, architects have given fancy full play. It is a difficult matter to preserve the artistic simplicity of the Swiss interior and yet to harmonize it with the requirements of modern convenience. Yet this has been done by many builders and has made the American chalet delightful both inside and out.

In our money-governed world one must not forget the matter of expense which enters very largely into the building plans of so many people. Economy was necessary to Swiss people; consequently their architecture was on a style that cost little. And the same is true in America. One can build a Swiss chalet for a third less money than it will cost to erect a house of similar pretension in other styles. Of course one may also put a great deal of money into a chalet, so that it really satisfies all classes; but to such as want an inexpensive home that will be homelike and picturesque and will not look cheap in that worst sense of striving for an elegance one cannot afford, the Swiss chalet is, to my mind, the ideal habitation. It is a happy, light-hearted style; it is capable of an infinite variety of treatment without radical departure from its central and fundamental principles of advantage and excellence; it is strong; it costs little and endures. What more can one ask of architecture?



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THE old teapots belonging to the Staffordshire class comprise many colors and designs; a study of them will show thirteen varieties of shapes, handles, spouts and knobs. If color photography could have been employed to bring before the reader these rows of antiques, with hues shading from pink to the dark purplish tints of the mulberry; the light blues to the depths of the dark, rich blue of the Washington's tomb pot; the fine red, blue, green and pink floral designs on the back-



A baker's dozen of Staffordshire ware showing the different varieties of interesting teapots

grounds of white—it would make him concede the palm for good colors to the Staffordshire potters—Adams, Wood, Mayer, Joseph Heath, Wedgwood, Clews (James and Ralph), Alcock and many others. These were the men who from the latter part of the eighteenth almost to the middle of the nineteenth century made the beautiful designs which are a lasting joy to the collector. Their sphere of work was in the English villages and smaller places of Staffordshire—that clay country which has been the seat of potteries from earliest times—in Fenton, Lane End, Lane Delph, Hanley, Stoke-on-Trent, Cobridge, Burslem, Tunstall, Longport, Shelton and less well-known places, all adjoining, and which now make almost a continuous city ten miles in length. In recognition of the artistic achievements of these renowned workers in clay, who would not place their names in the Hall of Fame of potters!

Beginning from left to right in our illustration, on the top shelf of the old cupboard is a teapot in pink and white floral decorations; next comes a prettily shaped low one, with red, green and a bit of yellow in the floral pattern on a white ground; while the third is of the same white background with a floral band of pink, blue

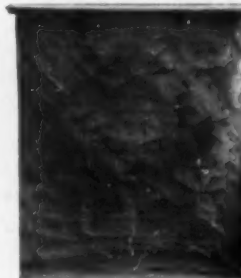
(Continued on page 341)

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Brenlin is supple, not stiff—and always hangs straight and smooth. It won't bag or sag—won't crack—won't fade.



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The Brenlin Shade

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Then look at a Brenlin shade. It has no streaks—no pinholes.

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(Continued from page 340)

and green running around the center of the pot.

The second shelf starts with the old Washington's Tomb Teapot (Mayer) in dark blue. This design rarely has the mark of Mayer on it, as Wood made the same design with the exception of the flowers, which are different. The figure which is seated is supposed to be that of Lafayette at the tomb of Washington and represents a bewigged man with knee-breeches, carrying a scroll. Though the print is usually known as "Lafayette at the tomb of Washington," the face is not that of Lafayette, and when General Lafayette visited Washington's tomb he wore trousers, knee-breeches being out of the fashion. It has been thought that the figure at the tomb was intended for Jefferson. The seated, solitary figure, the temple in the distance with the rays of the setting sun as a background, are the same as in the Wood pieces. In N. Hudson Moore's "Old China Book" the sugar-bowl (Mayer) which matches the teapot tomb piece (Mayer) in this collection is shown among the Staffordshire illustrations.

Next to the tomb piece comes the beautifully shaped black and white one with bunches of grapes, two strawberries and a bird with three ball-like feathers as a top-knot. Following the plan of many potters, this piece, like many others, is marked with an anchor impressed, without color or other markings to identify it (like the anchor with "R. H.," or the three anchors, like the Robert Hancock or Richard Holdship or Chelsea pieces, respectively). The last teapot on the second row is a Burslem piece (Wood) with lanbrequin-like decoration in two shades of royal blue, the cover set well down into the top of the pot. On the third row comes first a mulberry teapot with "Pagoda" and cypress trees; second, a white one with royal blue band about half an inch wide running around the concave-octagon central part of the teapot, the knob being formed by a flower pod. The marking seems to indicate it as being a Colebrook-Dale pottery piece. Another of the mulberry family, with willow trees shading the pagoda and a picturesque piece in light blue and white, completes the second shelf.

On the lower row another blue and white begins the line, "Basket of Flowers," being the name stamped on the bottom of the pot. Then comes a large pink one, which gives a fine bit of coloring of a warm tint to the middle of this shelf. The agricultural scene is very interesting, with the farmer sowing the seed in the newly ploughed ground, while the horses, plough and ploughman are distinctly seen in the distance. This teapot is the only one of the Baker's Dozen which boasts feet, which, together with its fine color floral border and ample proportions, make it a beautiful antique. In the collection of donated old china pieces in the Metropolitan

(Continued on page 344)

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A mass planting like this will take about 50 shrubs and cost less than \$20.00. We supplied them and they all thrived.

Shrubby, as you know, is the most economical quick way of massing the foundation of a house. In the picture above they have been allowed to grow a little too high, interfering with the breeze entering the windows. The taller Upright Honeysuckle and Syringa, at the back should be taken out and the Thunberg's Barberry allowed to occupy more space. The Rosa Rugosa should be cut down and allowed to grow up again, which makes it more dense. The stepping stones in the grass illustrate a good idea that should be more widely used. They cut up the lawn less than a path and the lawn mower runs over them, which insures neatness and economical maintenance.

Don't you want some especially fine Golden Bell, Upright Honeysuckle, Syringa, or Mock Orange, and Viburnum Dentatum? Or, have you spots where you have planned to put Weigela, snow ball bush, or sweet shrub, that old fashioned favorite with its unforgotten perfume? Hicks' shrubs, like Hicks' trees, are strong, sturdy, well developed stock that you can thoroughly depend upon. Dependable shrubs from a dependable firm.

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Send your order, and we will fill it carefully and promptly with freshly dug stock.

Now is also the time to plan winter tree work; such as moving big evergreens ten to forty feet high. Have Hicks move them for you.

(Continued from page 342)

Museum of Fine Arts, New York City, it was recently a pleasure to see the pink sugar bowl which matches this pink teapot. How fine they would look side-by-side!

Last but not least comes the very fine china teapot in white with gilt spring decoration and charming outlines. A good contrast in its delicateness of tone with its gayer neighbors and a fine finish to the Baker's Dozen. Thirteen cherished possessions! "How did you get so many and such beauties!" is the exclamation of the beholders. Like Topsy, they "grewed"; not in a night, for by day three friends have made "red-letter days," each by bringing an offering of a teapot to add to my collection—long enriched by the Washington's Tomb and the pink Agricultural ones (two shrines for a score of years in my china cupboard). Others were bought from the shelves of antiquarians and were carried home by hand, riding in the cars with moments of fearful anxiety. These add beauty and grace to my lovely family of growing teapots. More are on the way and the next family group will contain a score—then twenty-five will be coveted, and who can say how many shall yet be numbered mine!

JOSEPHINE RICE CREELMAN.



Book Reviews

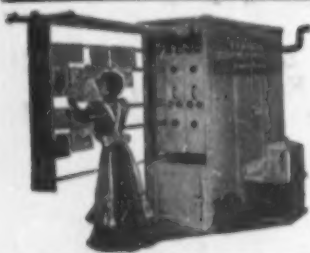
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Detached Dwellings, Part II. Illustrated. Cloth, 9x12 inches. New York. The American Architect. Price \$5.00, postpaid.

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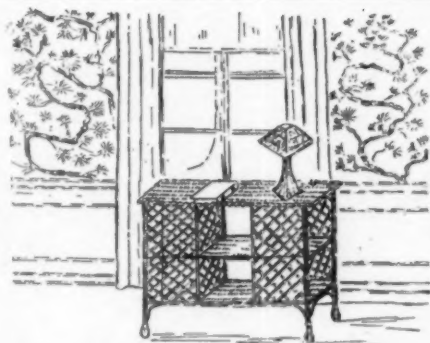
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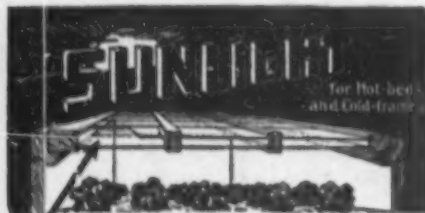
Outlines of Practical Sanitation, price \$1.25; *The Sanitation of a Country House*, price \$1.00; *The Sanitation of Recreation Camps and Parks*, price \$1.00, by Dr. Harvey B. Bashore, M. D. Illustrated. Cloth, 8vo. New York, John Wiley & Sons.

We are more than likely to dwell upon the sensational side of progress and overlook the homely steps in national advance. As an example of this our interest in sanitation seems to be passive although science has for some time shown us the vital necessity of sanitary methods. Framed to meet this state of ignorance, these three books are full of compact and practical information which is of prime importance to everyone,—not merely the house owner—in that they give a clear and concise idea of what is requisite for normal healthy living and for prevention of disease.

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