

THE GARDEN MAGAZINE



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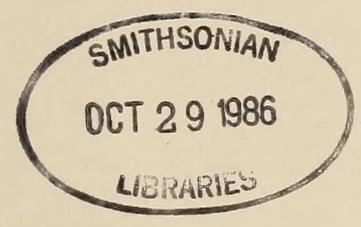
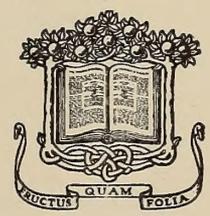
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THE GARDEN MAGAZINE

*Devoted to Planting and Managing the Grounds About the Home
and to the Cultivation of Fruits, Vegetables and Flowers*

Volume VIII

August, 1908, to January, 1909



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AUGUST

1908

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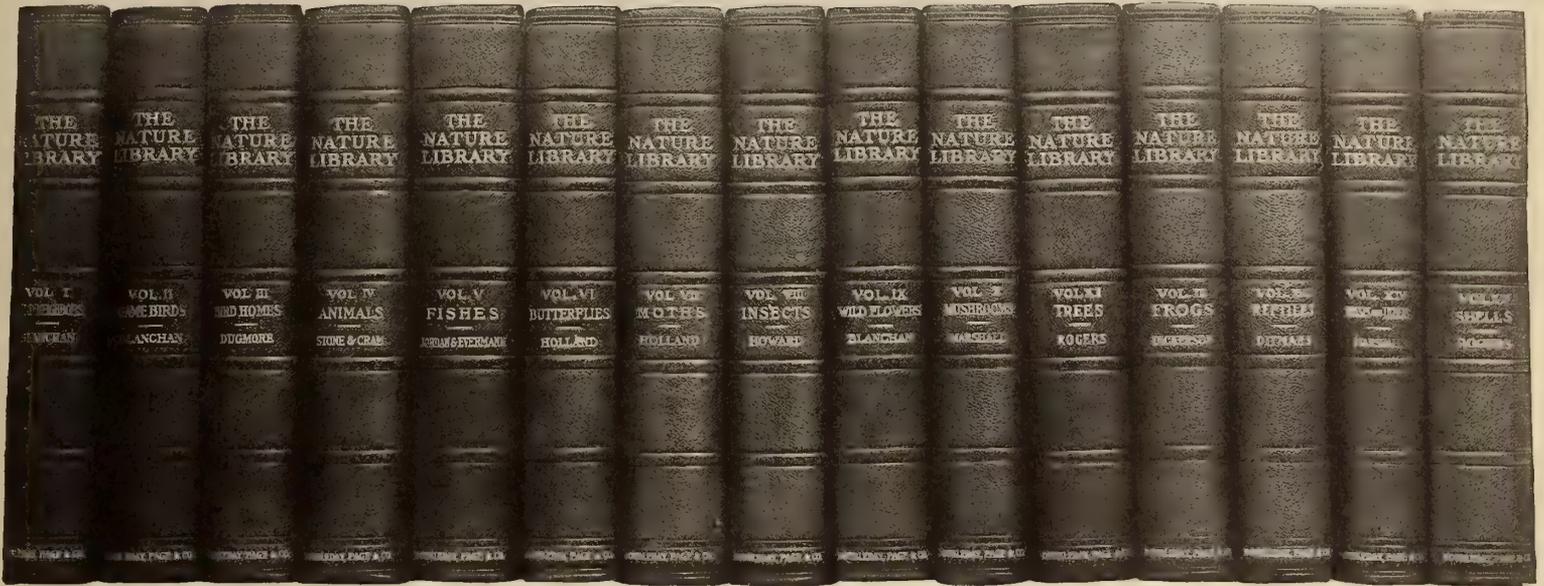
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| Vol. 2. Game Birds | Vol. 7. Moths | Vol. 12. Frogs |
| Vol. 3. Bird Homes | Vol. 8. Insects | Vol. 13. Reptiles |
| Vol. 4. Animals | Vol. 9. Wild Flowers | Vol. 14. Mosses and Lichens |
| Vol. 5. Fishes | Vol. 10. Mushrooms | Vol. 15. Shells |

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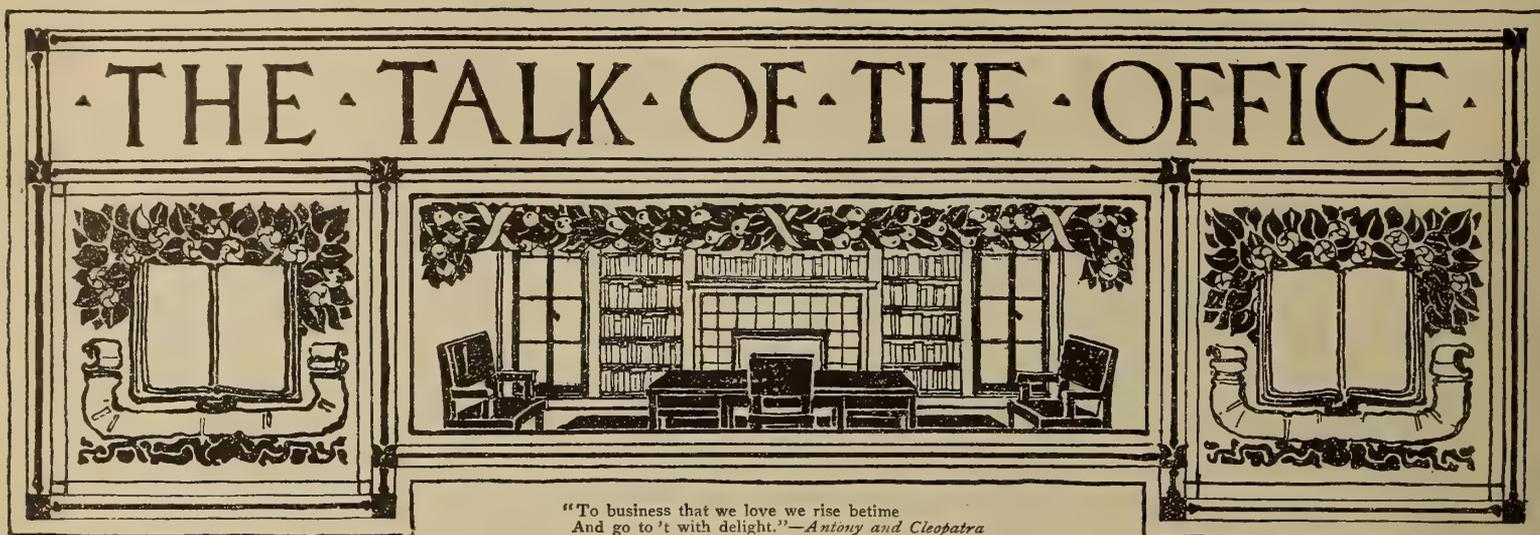
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MR. ROCKEFELLER'S REMINISCENCES IN THE WORLD'S WORK

Under the title "Some Random Reminiscences of Men and Events," by John D. Rockefeller, *The World's Work* will begin, in the October number, the publication of a series of autobiographical articles which cannot fail to be of the utmost interest all over the world.

In the opening chapter Mr. Rockefeller says:

I have come to see that if my family and friends want some record of things which may shed light on matters that have been somewhat discussed, it is right that I should yield to their advice, and in this informal way go over again some of the events which have made life interesting to me.

Starting with this point in view he goes on to tell in a simple and frank way his experiences in many fields of effort. He discusses with straightforward directness, without a particle of self-consciousness the statements which have so frequently been made against the Standard Oil Company in connection with the so-called oppression of rivals. He writes not in any way a defense, but gives the story of just what happened, and the reader is left to draw his own conclusions.

His early struggle to get a start, his first job, the hazards of the oil trade, the building up by conservative management into a substantial business what had always been regarded as a mere risky adventure, the pen pictures of his early patrons and friends, his generous praise of those who worked with him, the statement that more credit has been given to him than he deserves in the building up of the Standard Oil Company, and his account of the founding of this great company, make a contribution to periodical literature more interesting than anything that has been published for many years.

Mr. Rockefeller has much to say about the philosophy and conduct of business; the American business man and his methods and inspirations, which he highly praises. He set forth also his ideas about giving effectively, and pleads for efficiency in philanthropy. This chapter is of striking interest and importance.

On the other hand, he tells of his particular hobbies and pleasures, of road-building, surveying, and country life generally; of tree-planting, big-tree moving; of golf, which he says might almost be considered a training in the moral

law; and discusses many other subjects which interest him and fill his days until, as he says, "no day is long enough."

There is a complete lack of egotism and the narrative has a charm and quiet humor which will be a revelation to people who do not know Mr. Rockefeller personally.

The articles will run through the winter of 1908, and will be fully illustrated with many new and interesting pictures.

BOXES FOR COLLECTORS

We have some mahogany boxes for collections of various kinds, photographs, butterflies, shells, etc., and we had too many of them manufactured for us. They are of solid mahogany, and made with great care and exquisite



workmanship. To sell out what remains of the stock, we offer them at half of what they cost. They will be carefully packed in a pine outside covering, but at this price, we must ask the customer to pay the express charges, which will be perhaps fifty cents, or less this side of Chicago. Size, inside dimensions, $20\frac{1}{2}$ x 16 inches, and $1\frac{1}{2}$ inches deep, wood $\frac{1}{2}$ inch thick. The price is \$2.50, express not prepaid.

So many people wrote for these mahogany boxes after they were mentioned on this page last month, that we repeat the offer. We should add that the boxes are dust-proof and close with an effective catch.

NINETY-CENT NOVELS

Last fall we began the publication of works of fiction which were too long to be considered a short story and too short to be accepted as a full-fledged novel. In these busy days, good books if they are short are not less attractive

for that reason, and we shall expect a great popularity for this set of books as they become better known.

They are also especially attractive in their makeup, with good illustrations in color, including large pictures in full color published as lining papers. The first volume was Booth Tarkington's story of a young American's experiences in Rome, "His Own People," and the second is Mr. Maurice Hewlett's longer tale "The Spanish Jade," with superb drawings by W. Hyde. Books in this series are coming by Mrs. Humphry Ward and Gertrude Atherton, and we hope and expect many other famous writers.

ON JULY 15TH

we published two books which ought to be acceptable in hot weather. We can best describe them by slight quotations from the books themselves. The first is "Potted Fiction," by John Kendrick Bangs.

This library of Condensed Best Sellers is designed to meet the literary needs of those who have troubles of their own so numerous that they have not much spare time to devote to the trials and tribulations of the heroes and heroines of the hour. It is the purpose of the United States Literary Canning Company, of Pennsylvania, to put up in small packages, of which this is a sample, the most talked of literary products of our best, if not most famous authors, in such convenient form that they may be carried in a vest pocket, or a vanity bag, to be consumed as opportunity presents on trolley cars, between courses at quick lunch counters, between rubbers at bridge parties, or in those restful hours which the consumer may be called upon to endure at lectures, during after-dinner speeches of unusual length, or between the acts of current dramas and comic operas.

And the second is by Mrs. Nellie L. McClung, and is called "Sowing Seeds in Danny." A little book of delightful humor.

"Will you bring Daniel to see me to-morrow, James?" she said, as Camilla handed him his pail. "I would like to speak to his young mind, and endeavor to plant the seeds of virtue and honesty in that fertile soil."

A MISSION TO AFRICA

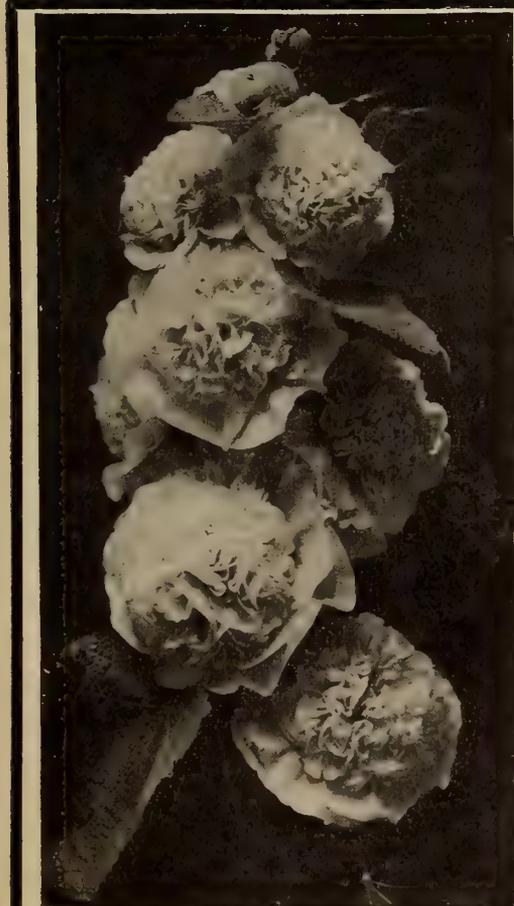
Mr. E. A. Forbes, a member of the editorial staff of *The World's Work*, is about to leave for a long journey to South Africa, the result of which will, we expect, be recounted in that magazine. His trip will include an important exploration up the Congo, and the facts about that much discussed Free State will be studied by an impartial student.



AUGUST, 1908

COVER DESIGN—Greenhouse Interior					<i>H. H. Saylor</i>	
WHY YOU WANT A GREENHOUSE		PAGE				PAGE
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Photographs by the author			SOW PANSIES NOW		<i>Thomas J. Steed</i>	30
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PLANTING FLOWERS AND VEGETABLES	<i>Thomas J. Steed</i>	26				

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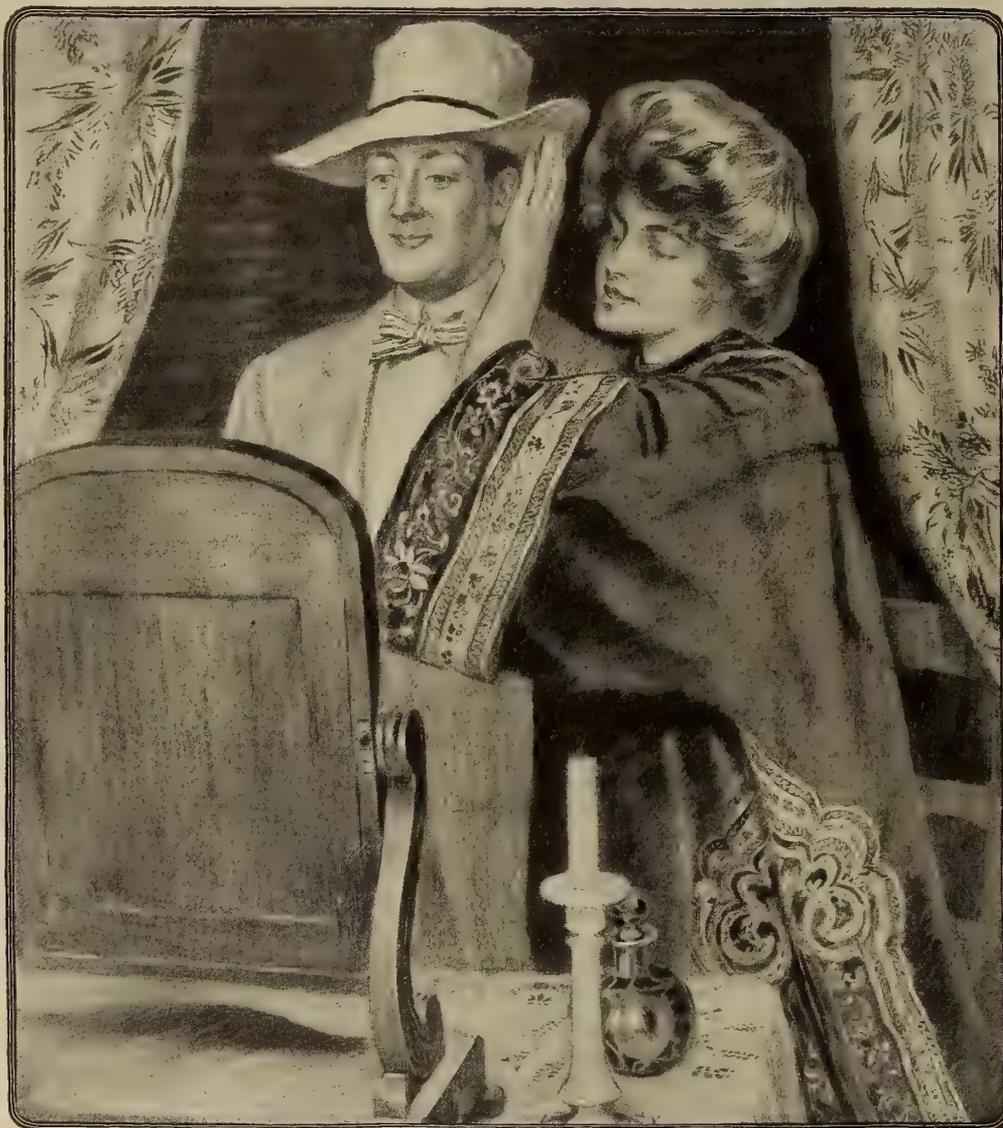
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Hesperis Matronalis (Sweet Rocket), mixed	10
Lathyrus Latifolius (Everlasting Sweet Pea), mixed	10
Lobelia Cardinalis (Cardinal Flower), red	10
Myosotis (Forget-me-not), mixed	10
Oenothera (Evening Primrose), mixed	10
Papaver Nadicale (Iceland Poppy), mixed	05
Papaver Orientale (The Oriental Poppy), finest mixed	10
Platycodon Mariesii (Chinese Bell Flower), mixed	10
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THE STORY OF A STRAW HAT.

May 25—Bought by A Man.

June 1—Man caught in rain-storm. Hat slightly soiled.

June 7—Wind-storm. Hat blown off Man's head. Just misses mud-puddle. Man very angry—not half as proud of hat as when he bought it.

June 29—Another storm. Hat looks considerably the worse for wear. Man's wife comments on its appearance. Asks him why he doesn't wear his new hat. Man greatly mortified. Leaves hat at home next day.

July 3—Wife finds hat in closet. Has an Idea. Why not clean it with Ivory Soap? Gets a bowl of clean, lukewarm water, a stiff brush, a drying cloth and a cake of Ivory Soap. Goes to work. Looks at hat, ten minutes later and is delighted with it.

July 4—Hat so clean Man fails to recognize it. Wife places it on his head. Man delighted, too.

Aug. 4—Hat cleaned again with Ivory Soap.

Sept. 4—Ditto.

Sept. 30—Ditto. And put away for the winter.

Ivory Soap 99⁴⁹/₁₀₀ Per Cent. Pure.

The Garden Magazine

VOL. VIII—No. 1
PUBLISHED MONTHLY

AUGUST, 1908

ONE DOLLAR A YEAR
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[For the purpose of reckoning dates, New York is generally taken as a standard. Allow six days' difference for every hundred miles of latitude.]

Why You Want a Greenhouse

EVERY reader of THE GARDEN MAGAZINE should have a greenhouse or some substitute for it. Begin this month to lay your plans, for if the full benefit of a greenhouse is to be had during the coming winter, construction should be completed in late summer so that, as the crops of the garden outdoors mature and autumn approaches, succession crops may be started under glass to yield an unbroken supply until the spring opens up again.

Have you ever thought what great opportunities you miss if you do not have a greenhouse or, at all events, some hotbeds? The latter are partial substitutes, and if you begin with them you are almost sure to want a little greenhouse as time goes on.

It is not true that you can get nothing for less than a thousand dollars. A hundred dollars has given other people really practical houses. Read the article on page 15 of this month's GARDEN MAGAZINE and get inspiration from that.

When winter comes and outdoor vegetation is at a standstill, the owner of a greenhouse serenely goes along enjoying work among growing plants, raising seedlings and producing flowers. By no means the least important advantage is in an abundant supply of luscious, tender, fresh, vegetables all the year round.

The easiest way to build a greenhouse is to get the lumber for the frame from someone who makes a specialty of greenhouse construction materials, and have it put together by a local carpenter. If you want the most perfect building ask some of the horticultural builders to give estimates on the proposed work.

Elaborate details of construction do not improve the growth of the plants inside, although they may facilitate operations in

some way; but they are chiefly employed to make things look prettier. Better begin with the simple, businesslike house of the commercial style having an even-span roof.

If you have any hotbed sash these can be used for the roof and sides by building a frame support of any convenient material. Such a greenhouse is a cheap one, because the sash can be taken off in summer and used for other purposes.

SEEDS FOR INDOOR SOWING

"New crop" vegetable and flower seeds are ready for delivery during the month. Send in your order early and get your supplies for winter forcing. Beans, lettuce, cucumbers, radishes are easily grown vegetables. Among flowers pansies, cineraria, cyclamen and mignonette must all be sown now for early flowers next year.

During August sow seeds for the winter supply of cauliflower, melons, tomatoes and cucumbers. These are all tender plants and require the winter protection of a greenhouse. But just think how welcome the crops will be when no one else can get them from the garden! Cucumbers can be sown now in hotbeds and will yield in early winter.

Carnations that have been growing outdoors during the summer must now be lifted and brought into the greenhouse for winter bloom. They will supply cut flowers until March or later.

Pot up Easter lilies for forcing. Keep them in a cool, dark place under the benches until they are well rooted.

Cyclamens that have been grown from seed must now be given their final shift into the flowering pots.

SOW THESE OUTDOORS

As the various crops mature clear the ground immediately, dig it over, turning in manure if necessary, and sow vegetable seeds for late crops. Most people miss this opportunity of having these vegetables, young and succulent, in late fall: Bush beans, peas, sweet corn, lettuce, beets, collards, turnips, and mustard.

Sow rutabaga for winter storage. For next year's plants make sowings now of salsify and globe artichoke.

Harvest onions as soon as they are ready. Thin late sown crops that are above the ground so as to give plenty of room to the plants that remain. Success in late crops depends largely on giving the plants every opportunity to grow—thin out and cultivate.

Sometimes mushrooms can be grown successfully in outdoor beds by spawning in August. If the compost material is available, it is worth while making the

attempt. An old spent hotbed will often give surprisingly good crops.

WATERING AND CULTIVATION

Keep the wheel hoe working hard all through the summer drought. This is as good as the hose and an excellent substitute. The garden that is cultivated continuously does not suffer from absence of water.

In the vegetable plot cultivate deeply cabbage, cauliflower, and celery.

Water fruit trees, berry bushes, and everything that is making growth now for crops next year.

Attention to bearing fruit trees now will show wonderful results in larger, more juicy fruit. Remember, the whole process of good development is pumping water from the soil and giving the tree a chance to do its part.

Cut off strawberry runners that are not wanted for layers. Keep the beds tidy and trimmed. Plant new beds from pot-rooted layers any time after the first of the month. The dealers offer pot-grown strawberry plants now, and by setting them out during this month, you can be sure of getting reasonable crops next June.

Cut out old canes of raspberries and blackberries, and thin out the stools to three or four shoots each. Top the bushes four or five feet. Cultivate, water and lay up the foundation for next year's crop.

BULBS ARE ARRIVING

The earliest bulbs to arrive from Europe reach us in August. These are from France and include the Paper White narcissus, Trumpet Major daffodil, alliums, jonquils and *Lilium candidum*; also autumn flowering crocus. Place your order at once and get the pick of quality. "First come, first served." The reason why so few people get satisfaction with early forced "Dutch bulbs" is because they do not get their orders into the dealer's hands sufficiently early to get the French stock. *Lilium candidum* for outdoor planting must be handled in August, and every day that it is out of the ground weakens its vitality. It is perfectly hardy and once established, the beautiful white flowers of the Madonna lily will appear every summer.

Take time by the forelock and send in your Dutch bulb order at the same time. Order now what you want of hyacinths, tulips, crocuses, Van Sion and Horsfeldii daffodils, and any other named sorts that have taken your fancy this year. Get the bulb order off your hands all at once and ask the dealer to ship "as received." In this way you will not only get the best stock but you will be conferring a favor on the seedsman by relieving the usual rush later.

Ornamental Fruits of August — By Alfred Rehder, ^{Massachusetts}

IS YOUR SHRUBBERY DEVOID OF FLOWERS NOW? THEN HAVE SOME OF THESE BERRIES. THEY WILL GIVE A MORE DIGNIFIED AND FITTING BEAUTY TO SUMMER HOMES THAN GAUDY BEDDING PLANTS

Note—This is the third of a series on "Ornamental Fruits for Every Month." The Author has had a cosmopolitan experience, but writes these articles solely for American conditions. They were prepared at the best collection of trees and shrubs in America (the Arnold Arboretum) where Mr. Rehder studied while preparing most of the articles on trees and shrubs in the Cyclopaedia of American Horticulture." Mr. Rehder has devoted his life to studying the hardy trees and shrubs of the world. He is one of those rare persons who understands his material from three points of view—those of the botanist, the cultivator, and the landscape designer.

THE attractive fruits of August are a very important group because they enliven the shrubbery at the time when there are very few flowers. Moreover, August is the great vacation month in America, and the American summer homes could be made far more interesting by the use of these fruits. Since they are borne on hardy trees and shrubs they are more natural and fitting than the tender exotic bedding plants which give such a gaudy exhibition in parks, hotel grounds and other public places. The first cost of these trees and shrubs is greater, but they are more permanent and dignified and in better taste. They will increase in size and interest as the years go by, for they are continually changing and revealing new points of interest, while bedding plants are monotonous.

The best thing you can do is to read this article now, mark the species that interest you most, try to see them this month and place your order now for what you want to plant this fall. Do not put it off, or you will forget it and lose a year or more.—EDITOR.

One of the most characteristic berried shrubs of August is the sweet elder (*Sambucus*



A conspicuous object of the country side is the staghorn sumach, which begins to show in August



The bluish-black pendant berries of the sheep-berry (*Viburnum Lentago*) remain on the tree all winter

Canadensis), which is commonly seen along roadsides and streams. In June it is covered with flat clusters of white flowers and by the middle of August it is weighted down by its wealth of purplish black berries in great nodding clusters. Of the European black elder, which is very similar, there are varieties with greenish and whitish berries.

THE MAGNOLIAS

The umbrella-tree (*Magnolia tripetala*) is beautiful in August with its cone-like crimson fruit surrounded at the base by the large bright green leaves.

The fruits of the swamp magnolia (*M. glauca*) are smaller and assume their red color somewhat later. In the Northern states this is a deciduous shrub, dropping its leaves in October.

The Japanese *Magnolia hypoleuca* has the showiest fruit. This is a handsome large-leaved pyramidal tree which is hardy in sheltered situations as far north as Boston. The fruits are crimson and about six to eight inches long.

The fruits of all magnolias are particularly beautiful in October when they open and disclose the large seeds of a brilliant scarlet color which are suspended for a while on slender threads before falling to the ground.

THE EARLIEST HAWTHORNS

An important genus as regards ornamental fruits is the hawthorn, of which there are numerous good kinds not in cultivation. They are either large shrubs or small trees,

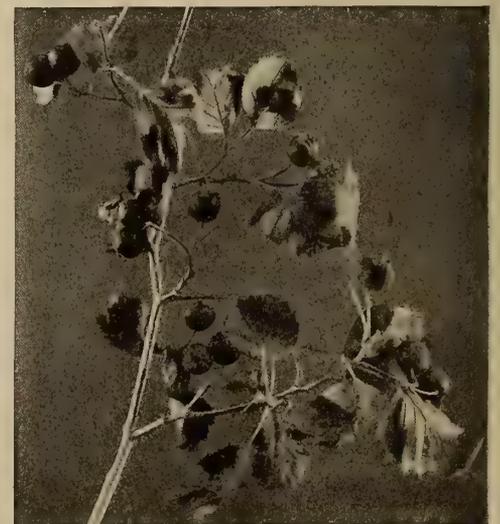
and most of them have red fruits. The earliest to ripen are *Crataegus Arnoldiana* and *C. submollis*, both native in New England. The large bright orange-red fruits begin to color in August and drop soon after maturity in the beginning of September.

THE VIBURNUMS

The Japanese *Viburnum tomentosum* bears in August small scarlet berries in upright umbels. The berries change to bluish black and drop in September. This shrub is also beautiful in June with its umbels of white flowers along the branches and has handsome foliage which turns to a deep blood red color in the fall.

The wayfaring tree (*Viburnum Lantana*), exhibits in its fruits a similar change of color. These change from pale green to bright carmine and finally become black. It is a handsome shrub reaching a height of about fifteen feet and is well adapted for planting dry slopes and especially for chalky soil. It is one of the earliest viburnums to bloom.

The American wayfaring tree or hobblebush (*Viburnum alniifolium*) grows less high but more spreading and its handsome fruits turn only from red to dark purple.



Crataegus Arnoldiana is the earliest of the thorns to ripen fruits. Native to New England

Its large leaves turn deep red in fall. It does not always do well in cultivation and demands a cool and shady situation. The fruits of the withe rod (*Viburnum cassinoides*) which appear in great nodding clusters change like those of the wayfaring tree from pale green to bright pink and finally dark blue and begin to shrivel in October. It is a very handsome shrub of neat and compact appearance usually about three to eight feet high, with large flat clusters of white flowers in June or July and hand-



The conspicuous bright red berries of the matrimony vine. Excellent as a vine or hedge



The magnolias have scarlet cone-like fruits which later open, disclosing scarlet seeds

some foliage turning purple and vinous red in fall.

Similar in foliage but of higher, more tree-like growth is the sheep-berry (*Viburnum Lentago*). Its pendulous clusters of bluish black fruit remain on the tree all winter.

Very beautiful in fruit is also the Japanese *Viburnum dilatatum* with numerous small scarlet berries in loose ample clusters. Less showy are the dark blue fruits of the well-known arrow-wood (*Viburnum dentatum*) and they usually do not stay very long on the branches since the birds seem to be very fond of them. The similar veined arrow-wood (*Viburnum venosum*), produces its flowers and fruits a little later. Both are handsome shrubs of compact habit and keep their foliage until late in fall.

The cranberry tree (*V. Opulus*), was described in July and the black haw (*V. prunifolium*) will be mentioned in October.

ROSES WITH ATTRACTIVE FRUITS

In August some of the roses begin to show their brightly colored hips. One of the most handsome is the Japanese *Rosa rugosa* with large bright scarlet hips which remain until midwinter. The large single flowers of purple or white continue to appear sparingly until late in fall when the dark green glossy foliage assumes beautiful orange and scarlet hues. Of the native roses, the meadow rose (*Rosa blanda*), is the earliest to show its scarlet hips. It is followed later by the swamp rose (*Rosa Carolina*), the glossy rose (*Rosa lucida*), the pasture rose (*Rosa humilis*), and *Rosa nitida*, which all have bright scarlet fruits. The last three species hold their fruit almost the whole winter. They are all low shrubs spreading by suckers and well adapted for rocky slopes and for borders of shrubberies. In fall the foliage assumes a bright yellow or red

color. Also the European *Rosa villosa* and *R. cinnamomea*, with scarlet to crimson, and *R. spinosissima*, with deep maroon to black fruits, are very handsome. The latter is one of the most beautiful single roses in bloom when it is often almost covered by large white or light pink flowers.

The alder buckthorn (*Rhamnus Frangula*) is attractive with its numerous berries changing from red to glossy black among the shin-

berries. They grow as well in dry as in wet situations. In June they bear numerous clusters of white flowers followed in the black chokeberry (*Aronia nigra*) by shining black berries ripening during August and dropping in September. Somewhat later the purple chokeberry (*Aronia atropurpurea*) ripens its dark purple fruits which remain until midwinter or in a shriveled state until spring. Another species will be mentioned in October. The foliage of all kinds assumes a handsome deep red color in fall.

THE SUMACHS

Several species of sumach begin to show in August their large upright clusters of beautiful crimson or scarlet fruits and in September and October their handsome pinnate foliage assumes brilliant tints of scarlet. The largest of them is the staghorn sumach (*Rhus typhina* or *R. hirta*), which sometimes becomes a small tree up to thirty feet high and is easily distinguished by its thick velvety branches.

The shining sumach (*Rhus copallina*) is smaller and more often a shrub. Its leaves are of a dark glossy green and smaller than those of the preceding species. The smooth sumach (*Rhus glabra*) which is a shrub rarely more than ten feet high is similar to the staghorn sumach, but has perfectly glabrous branches and leaves. All the sumachs are well adapted for planting on dry



Changing from red to glossy black. The alder buckthorn bears immense numbers of berries

ing foliage which stays on the shrub until late in fall and turns finally bright yellow before falling. Prettier still is the Carolina buckthorn (*Rhamnus Caroliniana*), with scarlet berries in August changing to black in September and remaining almost until midwinter. Both are thornless, medium-sized shrubs growing about ten feet high or more and sometimes tree-like. The Dahurian buckthorn (*Rhamnus Dahurica*) is like the common buckthorn (*Rhamnus cathartica*), but differs in the longer and more glossy leaves. It is a thorny shrub with black berries becoming conspicuous only after the leaves have fallen late in autumn and remaining through the winter.

THE CHOKE BERRIES

Closely allied to the mountain ashes, though only low shrubs, are the choke-



Several roses have distinct merit as fruiting shrubs. *Rosa rugosa* is the best known



The changing colors of the widgeon from green to pink and then deep blue give life to the shrubbery

and sunny banks. As the flowers are polygamous fruiting plants should be selected.

OTHER INTERESTING AUGUST FRUITS

The brilliant scarlet berries of the spicebush (*Lindera Benzoin* or *Benzoin aestivale*) ripen in August but they usually soon disappear, as the birds are very fond of them. This shrub, which reaches a height of about twelve feet, has handsome foliage which

turns bright yellow in fall, and in early spring its small but numerous yellow flowers are conspicuous. It prefers a moist situation.

A handsome shrub especially adapted for dry and exposed situations is the buffalo-berry (*Shepherdia* or *Lepargyrea argentea*). The small scarlet berries thickly clustered along the branches form a pleasing contrast with the intense silvery hue of the small leaves. The edible berries stay on the branches until midwinter if not eaten by the birds. This shrub sometimes attains a height of eighteen feet and becomes tree-like. It has stiff, spreading and rather thorny branches. To secure fruit, it is necessary to plant staminate and pistillate bushes together.

A handsome shrub is the alpine currant (*Ribes alpinum*) when studded with the bright scarlet berries which ripen in August and remain attractive till September. It is a valuable shrub for planting under the shade of trees where few other shrubs succeed. The leaves remain fresh until late in fall.

An interesting shrub is the bladder senna (*Colutea arborescens*) with inflated bladder-like pods of pale green color prettily flushed purple on the side exposed to the sun. They begin to appear about the beginning of August and continue together with the yellow papilionaceous flowers until the frost sets in. The shrub prefers sunny positions and is not quite hardy, but even if partly killed the young shoots, springing from the old wood, flower and fruit usually the same year.

Elaeagnus multiflora ripens in August its numerous dark-red fruits much smaller than those of *E. longipes* and the still prettier *E. umbellata* produces its clusters of dark red berries which often almost cover the branches, rarely before September; they remain for some time after the leaves have dropped. These two species grow



The long hanging clusters of red berries of the cranberry tree (*Viburnum Opulus*) are familiar to all

higher and are of more spreading habit than *Elaeagnus longipes*.

The matrimony vine (*Lycium Chinense* and *L. halimifolium*, usually called erroneously *L. barbarum* or *L. Europaeum*), is really a shrub but it is easily trained as a vine. It is particularly beautiful when growing over rocks and walls with its long and slender branches weighed down by the brilliant scarlet berries which show conspicuously against the bright green foliage because the color of the leaves remains unchanged until winter.

Vegetables for August Sowing—By I. M. Angell, ^{New York}

EVEN THOUGH YOU HAVE JUST MOVED INTO A NEW PLACE, IT IS NOT TOO LATE TO PLANT A SCORE OF VEGETABLES FOR FALL USE AND START SUPPLIES FOR EARLY SPRING

IT will be a surprise to many to realize that a score of vegetables may be started during the month of August and be enjoyed the same year. Some will make a sure crop under ordinary conditions and others will be well worth risking for the interest of the experiment. Therefore, even though you may have moved from one place to another in midsummer, there is still time to do some gardening.

Our experiences show that all these vegetables are worth a trial for August sowing: Bush string beans, beets, carrots, celery, turnip-rooted chervil, collards, corn, corn salad, cucumbers, endive, lettuce, mustard, Welsh onion, parsley, peas, salsify, radishes, spinach, turnip.

Make sowings of all these vegetables on the first day of the month, or as near to it as possible, for if the fall be an early one the



Young beets large enough for greens from a sowing made August 5th

season will be rather short for maturing crops before frost catches them. The hardy vegetables need cause no anxiety on this score as a little frost does not injure them, some of them being safe if left till November for harvesting. Tender sorts may require some protection, such as newspapers or old rugs spread over them on the approach of cold nights.

Several degrees of frost will be endured by lettuce, radishes, beets, spinach, endive, turnips, parsley, and carrots.

SOME ACTUAL RESULTS

Beans.—Very often the best string beans of the season are the product of an August sowing. Nothing is lost and much is gained by sowing beans early in the month, for an August first sowing was in bearing by September 20th, nearly three weeks ahead of



Sow turnips early in August for pulling in October
—they like the cooler weather

the most satisfactory crops of the season, when conditions are favorable. To counteract the effects of a possible hot or dry season, ease in watering and shading should be arranged for when sowing. Seed planted August 3rd produced leaves large enough for the table before the middle of September. Well developed heads from the same sowing were gathered from early October until after the middle of November, a twenty foot row giving us lettuce that would have cost two dollars if bought in the stores. An ordinary peach basket inverted over the plant as it is growing will blanch lettuce sufficiently to give an attractive color, and at the same time it allows a sufficiency of light and ventilation. Black-seeded Simpson is the

October and even November. A very early variety, such as Peep o' Day or Golden Bantam will yield full-sized ears in October. The stalks of these sorts, being so short and slight, might be protected from the first touches of frost. The sowing made August 1st reached perfection October 15th.

Radishes.—This is the quickest crop of all, maturing in eighteen days or more according to the variety. We have made the best record with the rocket sorts, but consider Bright Breakfast one of the finest for quality. Sowings may be made even as late as September.

Turnips.—The White Egg variety of turnip was sowed August 1st and pulled the third week in October, having reached a

those planted ten days later. The latter planting yielded from the 7th to the 23rd of October. Even so late a sowing as the third week in August produced full sized pods before frost; still so tardy a start is not to be recommended except where earlier plantings are impossible. Improved Golden Wax was the variety sowed August first.

Peas.—While not so profitable as string beans, peas are an interesting crop for August sowing. They are sensitive to adverse conditions and would probably never equal a June yield from plantings of the same variety. Maincrop peas sowed the first week in August bore in early October. A better record was made by Gradus, an excellent sort having pods and peas of unusually large size. In sweetness and productiveness it is also a leader. From a sowing on August 1st pods were gathered in less than seven weeks.

Carrots.—If sowed in the early part of the month carrots will yield roots that are sweet and tender and large enough for immediate use, but not sufficiently mature for storing purposes. Early Scarlet Horn is excellent where a small and early kind is wanted.

Lettuce.—August sowed lettuce is one of



Early Scarlet Horn carrots, photographed November 18th, from sowing made on August 5th

variety most highly recommended for August sowing.

Sweet Corn.—Corn is one of the doubtful crops, as it may not come to perfection before severe frost, but if the season be favorable there is great satisfaction in being able to provide fresh corn for the table in

size of four inches length and more than seven inches around.

Spinach.—A satisfactory variety of spinach for August sowing is the Victoria. Our August 1st sowing produced plants that were large and tender by the middle of October. One measured in circumfer-



To keep up the supply of salads, both lettuce and endive may be sown during this month. Crisp-as-Ice lettuce on the left; curled endive on the right. Both photographed on October 20th from sowings of August 1st



September scene in an August planted garden. It would be desolate but for these late crops

ence five feet lacking three inches. If the season be uncommonly hot, try collards instead of spinach.

Beets.—Another vegetable that may be safely recommended for August sowing is the beet. An August 1st sowing yielded tender young roots by the fourth week in September. They reached full size late in October. The growth was more vigorous than early plantings from the same package of seed. There would have been an excellent crop of greens even had the roots failed to mature. As it was the planting provided us with tender roots for the table for six weeks. Columbia, an excellent sort, was used.

Endive.—Sowed August 1st, endive reached full size by the middle of October.

Kohlrabi is a cool weather vegetable and will endure considerable frost. It is worth trying for an August sowing, since it matured in two months when sowed the first week in July.

Cucumbers, in a favorable season, might reach pickling size before frost, and could be added to the list.

PREPARATIONS FOR SPRING

Besides sowing for immediate returns there are a few things that must be done now in order to have fresh vegetables in

the early spring. Welsh onions are sown now for leaves to be used for seasoning in early spring; salsify, to leave in the ground till spring; celery plants may be set out in August for a late crop; mustard will yield leaves large enough for use in less than a month; corn salad, to protect during the winter and use in early spring. Turnip-rooted chervil should be sowed in August to prevent the seeds drying out as they would if kept till spring; they will not germinate till the following season.

Parsley sown on August 1st made a growth of three inches, giving plants large enough to transplant to a box for winter growth indoors. It thrives in the same conditions as other houseplants and makes a constant and vigorous growth. A half dozen roots in a box that measures a foot square will be sufficient for a family of ordinary size.

One point is important in all seed sowing in hot dry weather. The soil must be firmly pressed after the seeds are planted. As soon as the seedlings reach a size where cultivation is possible, the surface soil should be well stirred and kept so during the entire season. This treatment keeps down the weeds and provides a mulch to prevent the escape of moisture.

Cannas for Central Texas

By H. B. BECK, Central Texas

IN my opinion, cannas represent an indispensable group of summer bedding plants, and for the last ten years I have tried to grow as good and if possible better flowers than those of my neighbors. But as I have been forced to rely on Eastern experiments and advice not at all suited to this section of the country, it is needless to say that my task has not been an easy one.

The first lesson I learned was that for a permanent summer effect, the beautiful Crozy type, which is too delicate to stand the sun and wind, must be discarded and that the more hardy Italian and hybrid classes must be depended upon. I next learned to make my beds lower in the centre than on the edges and that, in order to strengthen the plants for the irrigation required to induce vigorous growth and bloom, it was best to put on from six to twelve inches of fresh stable manure in the spring and six inches more in mid-summer. I also found that there are no dwarf cannas in this climate, the Little Express growing four feet high instead of eighteen inches and Austria attaining a height of eight feet by the middle of July.

While many beautiful varieties, like Black Beauty and King Humbert, are too delicate for our bright, clear sunshine and ceaseless winds there are some that succeed wonderfully well. Austria, the best yellow, is a superb and constant bloomer, Pennsylvania and Louisiana are gorgeous reds, and Allemania is a fine blend of red and yellow. They give excellent results from the middle of April to the 10th of December, and with the addition of Flamingo are among the best varieties.



Peas are worth a trial. If they do not mature there is little lost; if they succeed they are a welcome fall vegetable



No. 1, greenhouse, 40 x 9 ft. Cost \$250



No. 2, measuring 75 x 12 ft. Cost \$1,000



No. 3, 90 x 12 ft., with frames, cost \$2,000

Pleasures and Profits of a Small Greenhouse — By W. C. McCollom, Long Island

NOT NECESSARILY A RICH MAN'S HOBBY, BUT A POSSIBILITY FOR ANYONE WITH TWO HUNDRED AND FIFTY DOLLARS AND A SMALL PLOT OF GROUND — HOW IT INCREASES THE RETURNS FROM THE GARDEN

EVERY suburban place that is occupied through the winter should have a greenhouse. It's well enough to talk of the beauty and winter comfort of evergreens and red berries and shrubs with brightly colored bark but during the cold weather there is nothing like the joy of seeing things grow. Besides the pleasure a greenhouse gives us, there is a real tangible value in growing flowers and vegetables for household use and besides there is always a chance to dispose of the surplus at good prices and thus make our hobby partially if not wholly self-supporting.

Somehow we associate greenhouses with millionaires, but there is really no reason for it. Of course, a large amount of money can be expended on a greenhouse just the same as on a house or barn, if it is a rich man's hobby, but a small greenhouse can be erected at a very small expense.

The first one I built (shown in the picture) cost only \$250 complete. In fact it did not really cost that, for it was built by a gardener and his assistant and the bill for material was \$147. This house is built in the form of a pit, with 8-inch concrete walls, ventilated, and heated with hot water. The house is forty feet long and nine feet wide. While this little house has given me a great deal of pleasure, I should recommend a house a trifle larger if you can afford it.

The one in the second picture cost about \$1,000. This house is 75 x 12 ft. — plenty large enough to grow all the spring plants for a large place, besides furnishing fresh vegetables during winter.

The third house I built is 90 x 12 ft. with heated frames running the entire length. It is built with concrete walks and walls and iron braces throughout. It is the kind of a house that can be used for growing anything from orchids to cabbage, and cost about \$2,000.

While there is considerable to learn about running a greenhouse the same is true of any kind of gardening. It is not necessary to employ a gardener, although of course it makes success surer. A man can care for a small greenhouse and attend business in the city. If one must be absent during the day, some assistance will be

necessary to ventilate the greenhouses, but this is a comparatively simple matter.

WHAT CAN BE DONE?

But suppose we have a greenhouse, what can we grow? The general answer to this is almost everything. It is possible to have beans, tomatoes, cauliflower, radish, and lettuce in mid-winter, besides an endless variety of flowers. The idea with a greenhouse is to keep it working all the time. As soon as a crop is gone from the benches it should be replaced with another. It is surprising how much can be grown in a small greenhouse properly handled. In one season in the thousand dollar house I raised from seed about 1,000 celery plants and had celery ready for use by August 1st. I also grew about 300 cabbage plants and the same amount of cauliflower, 60 egg-plants and 120 peppers all ready to use in June and July. I grew 150 muskmelons that ripened in the latter part of July, 300 tomatoes with fruit ready for picking

by July 1st, and over 300 lettuce plants. Besides this I raised about 2,000 early plants for the flower garden, such as asters, ageratum, amaranthus, carnations, heliotrope, cosmos, scabiosa, stocks, salvia, snapdragons, single dahlias, tuberous rooted begonias, verbenas, petunias, pansies, celosias and so on. During the summer I grew a crop of chrysanthemums and cut about 1,000 flowers of the very best quality. I have taken a number of prizes at chrysanthemum shows with the product of this house.

STORING TENDER BULBS

The growing of plants, flowers and vegetables is not the only useful factor of a greenhouse. It also solves the problem of storing tender bulbs, such as cannas, dahlias, caladiums, gladioli and so on during winter. But its greatest use is in the help it is to the garden in the spring. With the smallest kind of a house to start your seeds in, you can beat your neighbors' gardens by a full month. Just think of sweet corn



Build a greenhouse now and raise your seedlings in flats with tomatoes, etc., overhead

on your table on July 1st, when everybody else is satisfied if the corn is "knee high."

Although I grow vegetables, flowers are really the principal crop. I usually grow at least 2,000 each of tulips, narcissus, and hyacinths, 100 stocks, 200 Easter lilies, 2,000 freesias, 100 cyclamen, 100 cineraria, 2,500 lily-of-the-valley, besides quantities of mignonette, primulas, lilacs, daisies, roses, and carnations. Returns of this kind can only be brought about by careful attention to crops and keeping the benches filled at all times with growing plants. If you allow weeks or even days to elapse between crops, the lost time cannot be made up.

While the details of running a greenhouse involve some study, as a matter of fact they are comparatively simple. Suppose we take mid-summer as the starting point when our hothouse will have nothing in it but chrysanthemums. About August 1st, sow the seed of tomatoes and cucumbers, using good



All winter, and until the outdoor crops are ready, beans are grown in succession

forcing varieties of both. Sutton's Winter Beauty, Stirling Castle, Comet and First Best are all good tomatoes, and I have found Telegraph to be the best cucumber. The young plants are kept growing in pots and when large enough are planted in the benches in the end of the house nearest the boilers, as they both like heat. I fertilize them heavily and keep them rather dry during dull damp weather.

About September 1st I begin to sow cauliflower seed and continue to sow it every two or three weeks until January 1st—just enough to give about four dozen plants at a time. These are pricked off into a large flat box when large enough, taking pains to keep them growing. They are never allowed to get stunted, but are benched when they are about four inches high. Radishes and chervil are sown between the cauliflower as soon as it is planted. They will be ready for use before the cauliflower crowds them



Unless you have eaten greenhouse cauliflower you have not tasted this vegetable at its best

out. A good strain of the early Erfurt cauliflower is the best forcer and can always be depended upon.

I also sow glass house lettuce every three weeks beginning September 1st, and handle the young plants the same as the cauliflower, except that in planting I allow ten inches for lettuce and fifteen for cauliflower.

As soon as ten linear feet of bench are empty, it is refilled with good soil and after waiting a day or two for the soil to warm up and get a trifle dry, some Black Valentine or Early Mohawk bush beans are sown in rows about one foot apart. I never sow a quantity of any vegetable at one time, but sow about every three weeks to keep up a succession.

A good way to grow parsley, without taking up a great deal of space, is to take a butter tub, clean it inside by burning, bore holes about six inches apart in the sides with a three-quarter-inch bit, lift some old roots from the garden in September, and plant them in the tub so that the crown of the plant projects from the hole. Also plant some roots in the top. The result is a ball of green parsley all winter. To give parsley a dark green color, water it occasionally with nitrate of soda, using a teaspoonful to two gallons of water.

ECONOMIZING SPACE

Rhubarb is planted under the benches where it does not take up any valuable space. Old roots are brought in from the garden and forced. It is a good plan to divide the roots, leaving only one eye to a clump. Put the rhubarb in the coolest end of the house. Seakale is forced in much the same manner, only the seeds are sown in the garden in early spring. The roots are lifted and stored, and brought in as required. The seakale is forced in the warmest end of the house. Mushrooms are grown under the benches. A good plan is to have a



Fresh strawberries are always welcome and are easily had in spring

double decked bench, using the lower one for mushrooms and the top one for low plants.

Of the flowers, stocks, cyclamen, mignonette, and cineraria are sown about the same time—August 15th. They will all flower the first season, except the cyclamen, which must be kept until the following winter. Cyclamen can also be sown in March. The stocks, cyclamen, and cineraria can be grown in pots, but the mignonette should be planted in the bench. Use the coolest end of the house for the mignonette and the cineraria and the warm end for the cyclamen and stocks.

All bulbous flowers, such as tulips, narcissus and hyacinths should be potted or boxed up as soon as received, and buried outside until they have made root. It is not advisable to force tulips or narcissus before the holidays, but a few hyacinths can be grown early. After the holidays, however, the tulip and narcissus can be forced in quantity. Cover the bulbs outside in very



Mushrooms under the bench are a sort of extra profit for plants grow above

heavy weather to prevent the ground from freezing, as it is then quite difficult to get them out. Lilies, when received, should be potted up and covered lightly with ashes, but must be brought in if it freezes hard outside. Another grand bulbous plant is the freesia. This should be potted or boxed during August and forced in a frame as the young plants must not be kept too wet before they start to grow.

Lily-of-the-valley is received in cases from Europe. Although costing a trifle more I always get the cold storage pips as they can always be depended upon. I have found it best to plant them in sand and place them right on the pipes in the warmest part of the house. They are kept dark and well sprayed until the leaves show pretty well when they must be removed to the light to give a good color to the foliage. Lily-of-the-valley if properly handled will be



Frames outside are convenient for growing lettuce in winter and seedlings in spring for transplanting to the garden

ready for cutting in from eighteen to twenty days.

In the outside frames, we grow water-cress, parsley, pansies, spinach, lettuce, chervil and tarragon. In fact, an outside frame, if heated, is as good for growing low plants as the greenhouses.

It is impossible in the limits of a short article to go extensively into the handling of a greenhouse. If we consider that it is simply an artificial way of duplicating summer conditions in the winter, its care should not be especially difficult. The mechanical part of constructing a greenhouse is quite outside the province of this article. If the building is properly constructed, the rest is easy.



Fresh tomatoes every day in the year are only possible when the outdoor supply can be supplemented like this

A Home-made Greenhouse for \$80—By V. R. Bruce, New York

HOW THE PROBLEM OF A CHEAP BUT SERVICEABLE GREENHOUSE FOR WINTER USE WAS OVERCOME BY ONE AMATEUR—INGENIOUS METHOD OF AUTOMATIC VENTILATION AND HEATING BY NATURAL GAS

THERE are many persons who would have a small greenhouse large enough in which to start a great many plants for yard and house, and still have room for lettuce, radishes, parsley, etc., also a place to start winter bulbs, if they only knew what a nice little house can be built and fully equipped for even less than \$80.

Though I longed for a greenhouse I could not see how I could possibly afford one, as even the very smallest ones advertised cost much more than I could afford. My discontent and restlessness set me to figuring and I found I could build a house which would be quite large enough for about \$60—one in which I could spend my few spare hours very enjoyably and satisfy the desire to work with plants and dig in the soil during winter.

From a nearby contractor who was tearing down some old tanneries, I secured twelve sash 36 x 42 in., containing nine 10 x 12 in. lights, at six cents a light, making a total of \$6.48. These were put into the cellar where I have a work bench, and during the evenings for two or three weeks I painted and puttied them. These supplied the side lights of my greenhouse by setting between the studding two feet from the ground, using four sash to a side and two sash for an end, one each side of the doorway, thus making a house thirteen feet long, eight and one-half feet wide and six feet high, not including the 2-foot pitch of the roof.

With a local builder I made a deal whereby I was to buy all the glass, paint, sash for sides, ventilating sash, and do my own painting, besides putting glass on the roof, and he would do the carpentry work and furnish all the lumber (hemlock) for \$25. The plans were prepared to scale and it took two men just two days to put up the house. I spent another half day painting the house and putting the glass on the roof.

When finished there was room for two benches thirty inches wide and twelve feet long, besides two shelves on each side of

the house, one twelve inches wide and the other about six inches wide. The lower one is used for seed boxes; the other is filled with 2-inch pots.

For ventilators, the upper row of glass on the sheltered side of the roof was removed, and four sash of three lights, each 10 x 14 in., were hinged to the ridge. These overlap the vacant space and are raised and lowered readily from inside.

Natural gas, which costs net twenty-seven cents a thousand, is employed for heating. It is easily controlled, but the first difficulty I encountered was to regulate the heat so that I might leave it for several hours and feel comfortable as to the welfare of my plants. Here my trouble began; as there was no one who could run out often enough during the day to keep tab on the heat.

One cold day early in March I left the house about 8 o'clock in the morning, regulated for weather as it was then. About 11 o'clock the sun came out bright and warm, and stayed so the rest of the day. The house had been left at 60 degrees; at 3 o'clock, upon my return, I found it at 120 degrees and the plants sweltering. This same thing happened several times.

The only thing to do was to get some kind



This little house, costing \$80, gave winter vegetables, early seedlings and winter flowers in abundance

of regulator to automatically turn on and off the gas as the temperature changed. Finally, a second-hand Power's regulator was bought for \$15—a new one costs \$40, not including a special gas valve which is \$6 more. It takes 10 degrees change to operate this machine, but the plants can stand that. The thermostat contains an air pressure of ten pounds or so, which, as it extends or contracts with a change of heat, moves the lever of the diaphragm up and down through a space of six or seven inches. This lever is attached to the gas valve, which is a lift valve, by a metal strap that can be set at any temperature. (I have mine fixed at 45 degrees and 55 degrees.)

When the sun warmed the house up considerably more than 60 degrees, with the gas all shut off, the lever dropped down several inches more than was necessary to turn off the gas. As the arm had power to lift ten pounds or so, I fastened two of the ventilators together so that one arm would raise them, and made a wooden lever, fastening one end to the ventilator arm and the other to the diaphragm lever, and counterbalanced the weight of the sash with a lead weight so that it only takes a pull of one or two pounds to move the ventilator up and down. For all the months since I have had it fixed I have not once touched the regulator. No matter what the weather may be, I have no worry about the temperature of the house. If it turns colder, the gas is turned on; if warmer, it goes off.

I am entirely satisfied with the house now, and have spent many happy hours in it. I have a great many plants in proper season, such as salvia, asters, pansies, marigold, hollyhock, campanula and cosmos for my yard, and peppers, tomatoes, cucumbers, lettuce, and celery for my garden. If I were to build another house I should set my side glass in 2 x 2 in., rabbited out three-eighths of an inch the same as the roof, using a 2 x 4 between every third glass to stiffen the building.

This was the actual expense, itemized:

12 sash 36 x 42 in., 9 lights each, at \$.06 a light	\$6.48
4 boxes glass 10 x 15 in. (used only three) at \$2	8.00
150 lin. ft. 2 x 2 rabbited out $\frac{3}{8}$ in. for glass at \$.02 $\frac{1}{2}$ lin. ft.	3.75
1 gal. paint.....	1.50
4 sash for ventilators each 3 lights 10 x 14 in.	2.00
Gas stove.....	4.00
Piping gas from house and material.....	8.50
Material and work on house by contractor.....	25.00
Power's regulator and valve.....	15.00
Connecting regulator.....	3.00
	<hr/> \$77.23

The cost of building the house alone, where material and labor are about the same as in Western New York, would be as follows:

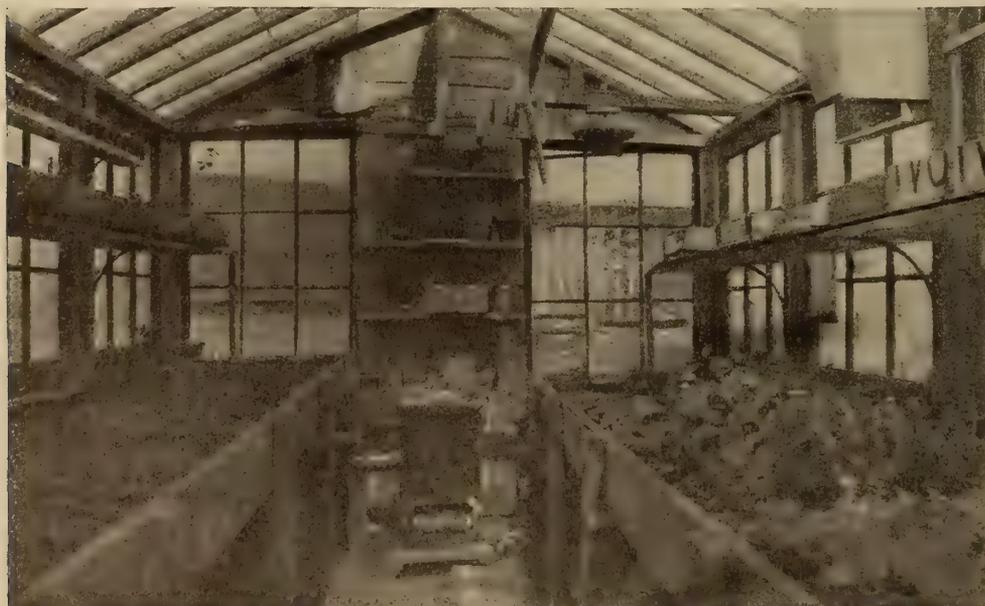
30 pcs. 2 x 2 in. 5-ft. rabbited $\frac{3}{8}$ in. for glass at \$.02 $\frac{1}{2}$ lin. ft. for roof.	\$3.75
35 pcs. 2 in. 4-ft. rabbited $\frac{3}{8}$ in. for glass at \$.02 $\frac{1}{2}$ lin. ft. for sides.....	3.50
2 pcs. 2 x 2 in. 13-ft. rabbited $\frac{3}{8}$ in. for glass at \$.02 $\frac{1}{2}$ lin. ft. for ridge.....	.65
4 sash, 3 lights each, 10 x 14 in. for ventilator...	2.00
4 boxes glass 10 x 15 in. at \$2.25.....	9.00
18 pcs. 2 x 4 in x 6 ft. studding.....	.81
4 pcs. 2 x 4 in. x 13 ft. side plates.....	.37
4 pcs. 2 x 4 in. x 9 ft. end plates.....	.28
4 pcs. 2 x 4 in. x 12 ft bracing.....	.36
4 pcs. 1 x 12 in. x 12 ft. inside boarding.....	.96

278 at \$25.00 per M.	7.00
100 bd. ft. matched flooring for outside.....	3.50
60 lin. ft. 1 x 6 in. for cornice.....	.75
60 lin. ft. molding for cornice.....	.75
1 gal. paint.....	1.50
6 days' labor at \$2.50.....	15.00
Nails, hinges, lock, etc.....	1.50
2 12-ft. benches 30 x 6 in.	
4 pcs. 1 x 12 in. x 12 ft. = 48 ft.	
7 pcs. 1 x 6 in. x 12 ft. = 42 ft.	
20 pcs. 2 x 4 in. x 3 ft. = 45 ft.	
20 pcs. 2 x 4 in. x 30 in. = 45 ft.	

140 ft. at \$25 per M. . . . 2.60

\$51.50

To hold up my benches, I used five 2 x 4 ft. frames under each bench made like an inverted A, thus giving a 2-inch air space between the bench and side wall which keeps the house from rotting even though the bench may do so.



Vegetables all winter and plants ready for setting out in early spring are raised in the home made greenhouse, heated by natural gas

Alfalfa in Eastern New York

By W. H. JENKINS, New York

WHEN fed correctly, alfalfa is, in my opinion, the best soiling crop that can be grown, and I know of no other that will produce as much milk and as cheaply.

Horses kept in a stable in summer will eat it green, keeping in good strength and flesh, with considerably less grain than if fed with timothy hay; hens will also eat it cut in short lengths as readily as grain, and in this case it is far more economical. It has been my experience that better results were obtained when alfalfa formed a part of the hen's daily ration.

If alfalfa is to be fed green, it must not be cut when the dew or rain is on it. Cut on a bright, sunny day, spread it out, and late in the afternoon heap it up in small mounds, covering with muslin hay caps. Allow it to remain for two or three days, when it will be wilted. Feed dry and in not too large quantities. If cut when it is wet and fed in that condition, alfalfa will very often cause trouble. Those who desire to feed



The blue flowers of alfalfa are really quite as pretty as some garden plants



For green feed cut alfalfa on a bright day and when there is no dew on it

alfalfa so as to save money and at the same time get the most satisfactory results should use a ration of alfalfa combined with other foods. Be sure that the ration does not

contain too much protein; a ton of alfalfa hay contains as much protein as a ton of wheat bran.

On the alfalfa lands in the West and the lime-stone soils of Onondaga County, New York, there is no question regarding the success of the crop; but on the long cultivated soils in the dairy regions of Eastern New York and New England, where the land has become seeded to weeds, is acid, and in poor mechanical condition; or where there is a clay subsoil and imperfect drainage, it is doubtful whether alfalfa can be successfully grown. To determine what the soil requires grow corn or some other cultivated crop on it for a year or two and carefully observe the growth. For the best results with alfalfa the soil must be thoroughly tilled, cleaned, rightly fertilized, and, if it needs it, drained; and it might also be necessary to sweeten it with lime or ashes. I always use stable manure and wood ashes.

About seven years ago I first attempted growing alfalfa on a piece of land that for several years had been used for gardening. The soil was a well-drained, heavy, clay loam on a gravel subsoil. In the spring, as soon as the ground could be worked, I plowed deeply and harrowed with a spring-tooth harrow, special pains being taken to make a level seed-bed of very fine soil. The land was mowed several times during the summer to keep down the weeds.

Seed was sown at the rate of thirty pounds to the acre and was rolled. The alfalfa grew so rapidly the first summer that the yield was between two and three tons to the acre. The last cutting in October was left on the ground for a mulch, and the land was top dressed with ashes or lime.

Summer Flowers for Porch and Window—By P. T. Barnes, Pennsylvania

IF YOU WANT TO KEEP UP A CONSTANT SUCCESSION OF FLOWERS AFTER THE SUMMER SEASON CLOSES BEGIN NOW TO MAKE YOUR SELECTIONS—GORGEOUS PLANTS THAT ARE EASILY PERSUADED TO FLOWER TO SUIT ONE'S FANCY

NEXT to geraniums I believe the fibrous rooted begonias will give the most satisfaction as flowering plants for the house. They are easily grown and will remain in bloom for long periods, producing new flower clusters as the old ones fade. Though their flowering season is in



Quite apart from their flowers the ornamental leaved begonias are handsome all the year (*B. imperialis*, velvety green)

the winter months, the plants are attractive all the year round because of their foliage, and in summertime are among the best subjects for porch decoration. According to the variety, the colors range from red through pink to white, the flowers are often two inches across and showy, particularly the reds.

The showiest begonia for the house or window garden is the coral begonia, *B. coccinea*, but almost universally known in the trade as *B. rubra* or *B. maculata* var. *corallina*. If planted out in the greenhouse it will grow eight to ten feet in height but in pot culture one can expect a plant having a reasonable amount of care to grow from eighteen inches to two feet in height. The stems are bright green and are very stiff and upright, giving the plant a rather columnar habit. The leaves are from three to six inches long and about half as wide with wavy red margins. The flowers are about half an inch across, deep coral red in color and are borne in rather large clusters. In a sunny situation flowers are produced during three or four of the winter months. Another begonia nearly as good as the coral begonia is *B. semperflorens* var. *gigantea rosea*. A young plant started in the late winter or early spring months will grow so fast during the succeeding winter that it will need a 7 or 8 inch pot; it will attain a height of eighteen inches to two feet and will produce many clusters of large rosy red flowers.

The best variegated foliage begonia is *B. metallica*, very attractive at all times, independently of the flowers. The leaves are from three to six inches long, about half as wide and the general outline is sort of oblique heart shape. The edges are more or less notched. The upper surface of the

leaf is green shaded with bronze. The large, depressed, very dark red veins add materially to the effect. The bluish white flowers are borne in medium-sized clusters and are quite numerous. A very similar plant but with larger leaves and insignificant rosy white flowers is *B. Thurstoni*, a hybrid from *metallica* and *sanguinea*.

Two spotted leaved begonias, either one of which is worth having, are *B. albo-picta* and *B. argenteo-guttata*. The leaves are glossy green with small silvery white spots. While the flowers of the former are always white, those of the latter are variable but prettier. They will make plants one and one-half feet high.

Of the creeping stemmed kinds, which will cover large areas if given space, I am quite fond of *B. heraclifolia*, with deeply divided



Gloire de Lorraine, the most popular flowering begonia, can be grown in the window garden, with special care

leaves, looking like huge five or six-pointed stars six to twelve inches across, the leaf stalk being from six to eighteen inches long according to the size of the plant. The upper surface is rich green, the under side reddish, and on one of its varieties the leaf stalk is covered with long, reddish hairs.

The easiest of all to grow—anybody anywhere can succeed with it—is the beefsteak begonia (*B. sanguinea*). It thrives in darker places than other begonias, and is an admirable plant for a north window. In the early spring months it sends up some long spikes bearing pinkish white flowers. The leaves are roundish, leathery in texture, dark green above, red below, often measuring six to eight inches across.

HOW TO GROW BEGONIAS

In their cultural requirements, begonias are quite simple. All those having stems

may be increased by cuttings; those having rhizomes merely need to have pieces of the rhizome about an inch or two long put into a cutting bench much as you would plant so many large seeds.

As to soil, mixing together two parts well rotted sod, one part peat or leafmold, one part well decayed horse manure, and one part of sand will make the ideal; but almost any loose but not light soil will answer fairly well. Plenty of drainage is essential. The best time to repot begonias is in the spring, but it may be done any time during the summer. Never attempt to do it during the winter. In the summer put them outdoors where they will be protected from heavy winds and the mid-day sun. In the winter grow them in a sunny window. If the glass has an unequal surface damage may ensue when the foliage is damp by the sun becoming focussed on the leaves. That causes burning.

The most popular winter flowering begonia Gloire de Lorraine, is rather difficult to grow (even professional gardeners sometimes have difficulty with it), but I have seen good specimens grown in the house. It needs special care, but if it succeeds you will be amply repaid by the mass of soft, rosy pink flowers from October until April. The best way to begin is to buy a plant from the florist when it is in flower and grow it on. When the plants are through flowering in the early spring months, give them a rest, i. e., do not give them so much water, but of course they must never get dry. Keep them in a cool, but light place. By May they will be ready to start into growth once more. But



The showiest red flowered begonia (*B. corallina*) grows several feet high if given room. It also makes a good porch plant

comparatively speaking, little growth will be made during the summer, but the plants must be kept in a shaded position until the hot summer weather is past. As soon as the days become cooler the plants will make a rapid growth and must be gradually inured to full sunlight. Get them as near the glass as possible.

The best plants of this begonia are those started from cuttings in the early winter. Cut off the leaf stalk to within one-quarter of an inch or so of the leaf blade and place in sand. If possible, give a little bottom heat, but the leaf will root without it. Keep the temperature about 70 degrees and the atmosphere humid by putting a sash or light of glass over it. Pot off the rooted plants in small pots. One of the secrets of success with this begonia is to never over-pot; when shifting advance one size at a time.

FOR FLOWERS AT ANY TIME

The lady's ear drops (Fuchsia) is one of the best old-fashioned houseplants, easily grown, not insisting on sun, a fast grower and remaining in bloom for months. A north window has sufficient light for it. Very shapely plants can be grown without much difficulty. All that is necessary is a little pinching and the plant must be frequently turned so that all sides will have an equal amount of light.

The charm of the fuchsia is in its flowers. The most common one, *F. speciosa*, has a long white or creamy white calyx tube, one to one and a quarter inches long, with four narrow, pointed lobes. The petals are red. There are many forms of this, both single and double, the chief points of difference being the color which varies to flowers having red calyx tubes, and red to purple petals. The flowers vary in length, in some very short, while in one variety, Early Beaconsfield, they are three inches long.



The best long season flowering tender shrub, especially for shaded corners, indoors or out, is the fuchsia

If wanted for porch decoration or for planting in shaded places about the porch in the summer, start the plants from cuttings in the fall. After flowering the plants need a rest for several months. If this resting period is during the early spring put the plants in a cool, dry place and withhold water; if it is during the summer place them outdoors in a shaded place and give no water, for they will get sufficient from the summer rains to keep the wood from shrivelling.

Many people do not care to carry their fuchsias over from year to year, drying them off during the summer and starting them into growth again in September. When starting old plants which have been resting knock the plants out of the pots, shake out from among the roots as much of the old soil as possible, and replace in the same pot with new, rich soil. Keep the plants in a rather humid atmosphere but do not give much water until the roots have taken hold of the new soil and the stems begin to "break." At the time of repotting, cut back, leaving only an inch or two of the last season's growth.

For winter bloom, start the old plants into growth in December. By January or February, there will be plenty of new shoots from which to make cuttings. Do not use old hardwood, or even new growth which has become hardened. Make the cutting two joints long. As soon as the cuttings have rooted, put them in 2-inch pots, using a rich soil. Keep them growing along rapidly, shifting them to larger pots as needed, and pinch out the ends of the new growth frequently in order to produce stocky plants. These will make good plants in 5 or 6 inch pots the following fall. Plants may be grown from seed in a night temperature of about 55 degrees but a few degrees lower will do no harm.

The flowering maples (Abutilon) chiefly



Your callas will surely flower if the bulbs are dried off in summer, starting growth again in September

used as bedding plants in the summer, may also be grown for foliage or flower during the winter. The commonest type is *A. striatum*. The leaves are thin, dark green, about three inches across, five-parted, and very closely resemble the leaf of a maple. The bell-shaped flowers, about an inch and a half across, are borne on long, drooping pedicles, and are red or orange in color marked with many brownish red veins. The stamens are borne in a large bunch on the end of a column which is as long as the petals. A larger, stronger growing kind is *A. Thompsoni*, in which the leaves are only three-parted and mottled with lighter green and yellow. The flowers are yellow or orange with red veins.

In addition to these there are many named kinds in the trade, the most common of which are Savitzii and Souvenir de Bonn. The species of abutilon can be grown from seed easily but it is hardly worth the trouble because they are so easily increased by greenwood cuttings taken at any time of the year, but the best results will be had from spring struck cuttings. The abutilon is so easily grown that the old plants may be thrown away as soon as they get ungainly and new plants started. The old plants can be kept small enough for the house if they are occasionally cut back.

THE BEST YELLOW FLOWER

The best yellow-flowered plant for early winter bloom is the yellow flax (*Reinwardtia trigyna*, but almost always spoken of among gardeners as *Linum trigynum*). The plants grow nine inches to a foot high and are

quite symmetrical. The bright yellow flowers are from one to one and a quarter inches across, and stand out in sharp contrast against the beautiful dark green foliage.

The yellow flax is not a difficult plant to grow if one can give it a night temperature of 55 degrees or 60 degrees and lots of sunlight; it will not succeed in windows having but few or no direct rays from the sun. You can grow plants from seed, or from cuttings. The latter are taken from the growths which starts from the base of the plants; cuttings taken from top growths have a tendency to flower prematurely. Make the cuttings in the late winter or early spring, when the plants are through flowering, and plant them out during the summer.

Such plants will be large enough for a 5 or 6 inch pot late in August or early September. Be very careful when lifting the yellow flax, for it does not like shifts.

Among the showy large flowered bulbous plants the common calla (*Richardia Ajricana*) does not always give satisfaction because of failing to bloom. The summer treatment of the bulbs largely determines whether the plants will flower or not. If water is withheld and the pots laid over on their sides in a dry shaded place so that the bulbs may rest, there will be no trouble with non-flowering during the winter. Start into growth in September. At first give them one good watering which will be sufficient until the roots have started growth. Until the plants are in good growth, water sparingly; after that, copious amounts of water will be needed until late in the following spring or early summer when the bulbs must be dried off. The calla is a gross feeder and the soil must needs be rich. Let it contain about one-third of well rotted horse or cow manure and the balance of rotted sod with enough sand to make good drainage. The Little Gem calla is a dwarf form, twelve to sixteen inches high, well worth cultivating.

The golden calla (*Richardia Elliottiana*) is a summer blooming kind, the bulbs being kept over winter in a cellar, or other convenient place, in a temperature of 45 degrees. In April they are potted in a rich soil and



Hybrid amaryllises are the most showy and the largest flowered bulbs. Order now for November delivery

given a watering. For the following week or two they can be left in any cool dark place such as in the cellar or under a bench until the roots have started. Having once started the plants will make a rapid growth and come into bloom in ten or twelve weeks.

The most showy bulbous plant is the Amaryllis (or rather, Hippeastrum) with lily-like trumpets four to five inches across borne on stems eighteen inches to two feet high, and the one which will best withstand the conditions of house culture is Johnsoni, a garden hybrid, or any of its progeny for the plants have been cross-fertilized times innumerable so that now one may secure them in almost any shade of red. The best named varieties of this amaryllis arrive from abroad in November. They cannot be secured before because the bulbs must be thoroughly ripened before shipping. Very good American grown bulbs can be secured about a month earlier, however.

As soon as they are received pot the bulbs in a good soil composed of three parts rotted sod, two parts well decayed horse manure and one part of sand. Never let them lie dormant until along in January when if they are good strong bulbs they will flower. As soon as the flower bud is seen emerging from the bulb put the plant in the window where it can get plenty of sunlight and water.

The flowers appear before much leaf-growth is made, after that time during the period of growth, water must be given, and manure water once or twice a week will be of benefit. When all danger of frost is past plunge the potted plants out doors in cool ashes, soil, or anything else handy to prevent the rapid evaporation of water through the

pots. When the leaves begin to turn yellow it is a sign that the bulbs are ripening. Gradually withhold water and when they are quite ripened store the bulbs in a cool dry place until the flower scapes begin to push out of the soil the following winter.

The blue African lily (*Agapanthus*) has many long, narrow, dark leaves from among which rises a stem two or three feet high, bearing a large cluster of very handsome blue flowers. The easiest way to handle this is to grow it in pots or tubs which are stored in a light cellar or other dry place during the winter. During the resting period give the plant just enough water to prevent the leaves from falling. In the spring, when danger of frost is past, the plants are put out doors to flower and make their growth. The *Agapanthus* is however, easily forced into bloom at other seasons of the year, for the flowering season is controlled by the resting period. The earlier you wish it to flower the earlier you dry it off, and then it does not have to rest all winter if the growth was made outdoors during the previous summer, for it can be brought into the house after the turn of the year and started into growth.

When once established, the plants need not be repotted for several years if they are fed with manure water during the period of growth.

The clivia (*C. miniata* or *Imantophyllum miniatum*) is an evergreen bulbous plant well worth growing for the beauty of its dark green foliage. It flowers during the spring or early summer months. The flowers are funnel-shaped, as in the amaryllis, bright orange, red, or flesh, with a yellow throat and about three inches across. Give it a strong well drained soil which will not wear out for a couple of years and which will not become sodden or sour for it is not necessary to repot it each year. During the winter the clivia can be stored in a light cool place the temperature of which does not go below 40 degrees. Under such conditions it needs but little water.



Clivia, an evergreen bulb, flowering in summer, is one of the best cool house plants



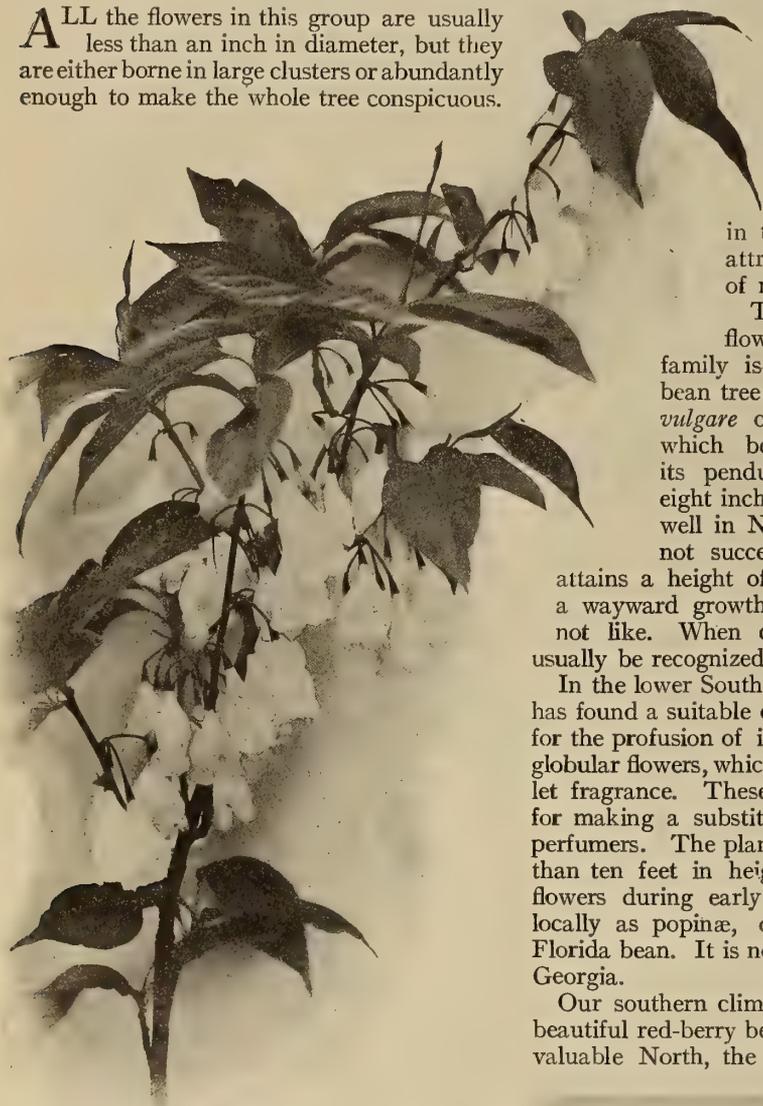
Among the flowering begonias *Gloire de Sceaux* has also very ornamental leaves

Trees That Are Loved for Their Flowers, II.—By P. J. Berckmans, Georgia

THE FIFTH ARTICLE IN A SERIES OF MEMOIRS BY THE DEAN OF AMERICAN POMOLOGY AND OF SOUTHERN FLORICULTURE IN WHICH HE TELLS OF HIS PERSONAL EXPERIENCES IN THE INTRODUCTION OF MANY NEW PLANTS

[Editor's Note:—This article has aroused enthusiastic admiration in all parts of the country. The first article, "The Best Hedge Plants South and North" appeared in November, 1907. In subsequent months, Mr. Berckmans gave wonderfully lurid accounts of the pine, spruce, fir, yew, cedar, cypress, arborvitæ and araucaria types. The first portion of this article, dealing with the larger and more striking flowers, appeared in THE GARDEN MAGAZINE for July.]

ALL the flowers in this group are usually less than an inch in diameter, but they are either borne in large clusters or abundantly enough to make the whole tree conspicuous.



The snowdrop tree is the most exquisite of the small flowered kinds (*Halesia tetraptera*)

The first three are legumes with pea-shaped flowers.

In March (in the South) our native redbud, or Judas tree (*Cercis Canadensis*), opens its deep-pink colored flowers, which appear before the leaves, lining the branches, often seeming to come out of the bark of the main limbs. The European redbud (*Cercis siliquastrum*) has somewhat larger and darker flowers. The form with white flowers is slower growing and dwarfer. Redbuds have handsome heart-shaped leaves.

In May, comes the rose acacia (*Robinia hispida*) with its lovely rose blossoms. The only fault of this plant is that it tends to spread too fast by the root when allowed to grow in its natural condition when it

makes a bush two to eight feet high. It is, therefore, commonly grafted upon the yellow locust with an eight or ten foot stem.

It grows wild from Virginia to Georgia in the mountains and has attractive leaves composed of nine to thirteen leaflets.

The loveliest yellow-flowered tree of the pea family is the golden chain or bean tree of Europe (*Laburnum vulgare* or *Cytisus Laburnum*), which bears in May or June its pendulous racemes, often eight inches long. It does quite well in New England, but does not succeed below Virginia. It

attains a height of twenty feet and has a wayward growth that some people do not like. When out of flower it can usually be recognized by its three leaflets.

In the lower South the *Acacia Farnesiana* has found a suitable climate. It is valuable for the profusion of its small golden-yellow globular flowers, which emit a delightful violet fragrance. These flowers are often used for making a substitute for violet water by perfumers. The plant seldom grows more than ten feet in height, is deciduous and flowers during early spring. It is known locally as popinæ, opopanax, cassie and Florida bean. It is not hardy north of lower Georgia.

Our southern climate is unsuited to that beautiful red-berry bearing tree, which is so valuable North, the mountain ash (*Sorbus*

Aucuparia), which will not succeed outside of the mountain regions.

The horse chestnut (*Æsculus hippocastanum*) ought to be considered a flowering tree rather than a shade tree. Its shade is too dense for streets. Few people realize the beauty of its flowers, their complicate form and marking. They are borne in stately pyramidal clusters a foot high. This Asian tree does well only in the middle and northern sections of the United States. There are many forms in cultivation, single and double, red, white, and pale yellow. The forms usually grow to a smaller size than the single white type, which often attains a height of fifty feet. They mostly bloom in June or a month later than the common kind. The native horse chestnut often attains a height of forty to fifty feet in the mountains of western North Carolina, but is worthless outside of these regions.

The tallest member of the lilac family is the Japanese tree lilac (*Syringa Japonica*) which blooms in June and attains thirty feet in its native country. If planted singly and given ample space and rich soil, it often grows to be a medium-sized tree. Its yellowish white flowers open later than most of the Persian lilacs, and are produced in profusion, but their odor is not pleasant, being in this respect similar to the flowers of the privets. The tree resembles more a privet than a lilac.

The most exquisite tree of the small-flowered group is the snowdrop or silver bell tree (*Halesia tetraptera*). This tree is frequently found in mountain soils of western North Carolina where it grows to a height of forty feet. Outside of that region it is usually classed as a tall growing shrub,



In May the rose acacia is conspicuous all through Virginia and Georgia. If on its own roots it spreads very fast

seldom attaining more than ten feet, and those who are familiar with it only in this condition, can scarcely form an idea of the beauty of these tall mountain-grown trees when covered with innumerable white flowers about one inch long and resembling a snowdrop.

The most interesting small-flowered trees of July are the two known as "Japanese varnish trees." This name is properly applied to *Sterculia plataniifolia*, which is also called Chinese or Japanese parasol. At the South the *Sterculia* attains a large size and has large panicles of yellowish white flowers, which exhale a honeyed fragrance that attracts enormous quantities of bees as they contain much honey. This tree also has showy green bark and very large maple-like leaves (palmately lobed).



One of the few blue flowered trees is *Vitex Agnus-castus*; not always hardy in New England

It is not hardy north of lower Virginia. It has a very singular fruit composed of four upright leaves about three inches long, on the edges of which are borne pea-like seeds.

The hardy varnish tree (*Kalreuteria paniculata*) is literally covered with long clusters of yellow flowers each half an inch long.

The foliage assumes a bright-crimson tint in autumn. The leaf is composed of four to seven pairs of leaflets and the fruits are triangular bladders two inches long, red first, later brown.

Clouds of tender pink are produced by the tamarisks, which have long slender sprays of minute flowers and feathery cypress-like foliage. They must not be confused with the tamarack, or American larch, which is not showy in flower. *Tam-*



The red bud's flowers are produced all along the branches. Compare with whole tree below

arix Gallica and *Odessana* grow to a height of fifteen to twenty feet, are hardy in New England, and are especially desirable for city lots, where they do not seem to suffer from the effects of dust or smoke. *T. Japonica* is the most graceful and its growth is quite compact, which cannot be said of most species, but it is not quite hardy north of New York. *T. hispida*, var. *astivalis*, has the longest flowering period. It begins to bloom as early as June, and its carmine-pink flowers frequently last until autumn. It forms an elegant small tree.

A very interesting type of inflorescence is the huge panicle of the aralia family, with its numerous umbels of small yellowish flowers. The best tree of this family for the South is the Hercules club (*Aralia spinosa*) which in rich woods at the South



For seaside and for smoky towns the tamarisk is exceedingly satisfactory. Flowers pink and feathery

often reaches a height of twenty feet, but usually remains a small tree in the average garden. It has magnificent compound leaves two to three feet long, bipinnate and composed of a great number of leaflets. Its prickly stems add to its striking appearance. It is native as far north as Tennessee and hardy as far as New York. The Chinese angelica tree (*Aralia Chinensis*) is much like it but has leaves sometimes four feet long and is nearly hardy in New England.

There are so few trees with blue flowers, that the chaste tree (*Vitex Agnus-castus*) is well worth a trial, although is it not always able to withstand the cold winters of New England. Its long spikes of very small light-blue flowers are produced from June until late autumn, thus lasting during a longer period than most of our flowering trees. There are several forms which differ in the shade of the flowers, ranging from dark-blue to lilac, pale-rose, and white. All have fragrant foliage and grow to a height of fifteen to twenty feet, though they are commonly shrubby in the North. *Vitex incisa* is hardier, but less showy.



No flowering tree or shrub is more loved than the lilac



Every branch of the red bud bursts into flower in spring

The Monkey Puzzle and its Kin—By Harold Clarke, New York

ARAUCARIAS FOR CALIFORNIA AND THE SOUTH, INCLUDING THE NORFOLK ISLAND PINE, WHICH IS THE MOST SYMMETRICAL CONIFER GROWN AS A HOUSEPLANT IN NORTHERN COUNTRIES

THE most symmetrically habited of all the evergreen conifers are the araucarias usually seen in the East only as pot plants* but they grow into handsome trees in California. As pot plants for house decorations all the dozen or so kinds make excellent subjects and are equally good lawn specimens or street trees in a suitable climate; while some of the species such as the Moreton Bay pine (*A. Cunninghami*) and Cook's

*The facts regarding the behavior of these plants in California were supplied by Mr. Ernest Braunton.

pine (*A. Cookii*) may be planted in masses. The species are all natives of the southern temperate zone and with the exception of two from South America, they come from Australia.

Some of the species seemingly will thrive only in restricted areas, but all demand a deep, well-drained soil, with plenty of moisture, but never stagnant. In shallow soil, i. e. where the subsoil is near the surface, the roots do not have sufficient chance to develop, and the plants are short-lived.

The most commonly grown araucaria on both sides of our continent is the Norfolk Island pine (*A. excelsa*). This tree has the most conventional habit of growth of any tree grown in California—or anywhere else for that matter—they have branches growing out from the trunk at fairly regular intervals, in “shelves” or whorls, by reason of which old specimens may be easily recognized at a considerable distance. In their young state they often put forth five branches, and for this reason it is sometimes called star pine. The foliage is a bright grass-green. As a florist plant in the East this pretty pine is justly popular, especially at Christmas time, it is the best formal plant for house cultivation, and stands indifferent treatment very well as long as it is reasonably cool and moist at the roots.

The Norfolk Island pine is most easily injured by frost and does not succeed in warm, dry situations so that its range as a tree is restricted to the warmer portion of California. On account of its strict form it is not adapted to planting in small yards and is seldom in harmony with other vegetation upon grounds of considerable size. People have been slow to appreciate this so that many of the smaller front yards of California contain one of these stern and forbidding “exclamation points.”

All conifers lose their lower branches if planted closely together, but with none is the loss so noticeable as in this majestic, dignified, yet graceless tree. There are several varieties of the Norfolk Island pine occasionally seen in cultivation and this is most particularly true in the East where they are especially favored for pot plants in winter. The variety *robusta* is very much stronger growing than the type and has larger leaves. It is known in the trade under various names such as *Goldiana* and *Sanderiana*. The variety *glauca* has lighter green foliage which is more or less glaucous. Perhaps the most striking variety is *alba spicata* the branches of which are white-tipped.

THE BEST SPECIES

Rule's pine (*A. Rulei*) is the best of the genus but it is very rare in cultivation. The branches are horizontal and rigid but the branchlets are more or less drooping. The leaves are set closely together arching slightly toward the branch, about one inch long, and deep green.

Two species which should be more generally planted in the warmer states are *A. Cunninghami* and *A. Cookii*. Neither have the stiff conventional habit of the commonly grown kinds. Cook's pine (*A. Cookii*) in its native land makes a straight columnar shaft 150 feet high. There is a pleasing lack of exactness in the disposition of its branches which come out in a sort of a “hit or miss” style instead of being in whorls



The Bunya-bunya (*A. Bidwillii*) has dark green foliage and very dense habit



Cook's pine (*A. Cookii*) on the left and the Moreton Bay pine (*A. Cunninghamii*) on the right. These two should be more frequently grown

or shelves. It is slow growing. The foliage has a pleasing, light shade of green.

The primary branches are spreading, the branchlets droop. When the trees get large they shed their first branches for a distance of five-sixths their height; these are replaced by a short dense bushy growth which gives the tree a very singular appearance. This species seems to be perfectly hardy in the southern part of California.

There was a very handsome araucaria introduced into the country some five or six years ago under the name of *elegantissima* which is probably a form of *Cookii*. It has been distributed into a very few collections in the East. Its branches have a waved effect unlike that of any other plant.

A. Cunninghamii is larger than *A. Cookii* and has a very informal habit. When young the longer slender foliage and compact growth make it one of the most handsome of all conifers. As the plant becomes older it loses this compactness but none of its beauty. The upper branches ascend, the lower are horizontal and the foliage is borne in tufts on the ends of the branches. Large specimens have a very stately, dignified appearance.

The Bunya-bunya (*A. Bidwillii*) is a close second to the Norfolk pine in popular favor, and like it should be grown only on large estates where it can be seen from a distance. This is a most ponderous looking tree when of considerable age, and the very dark green of the foliage has a depressing effect upon grounds limited in area. Trees having foliage of a lighter green or flowering trees planted in masses will overcome this undesirable and inhospitable impression. The Bunya-bunya is somewhat hardier than the Norfolk pine and therefore may be more generally planted.

To have the best results with this species the newly set plants must be shaded from the sun until they have become thoroughly established which will be in about eighteen months. Shading may be given by covering the plant with lath screens or burlap, placed far enough above the plants to give a free circulation of air.

THE MOST INTERESTING SPECIES

The monkey puzzle (*A. imbricata*), that curious plant with rope-like branches covered with very stiff scale-like leaves, is the hardiest of all the araucaries but does not thrive on the Pacific coast even in the locality of San Francisco, yet it can sometimes be grown in the East. It demands a cool moist climate and the soil must be thoroughly drained. Much better specimens of it may be found in the warmer parts of the United States and in Europe than in California. In interior valleys, and the dry, sunny southern portion of that state it never makes a satisfactory growth. If one wishes to attempt to grow this tree it must be shaded from the sun like the Bunya-bunya.

Another araucaria which is sometimes



The Norfolk Island pine (*A. excelsa*) is the common araucaria of the florists in the East. It is easily grown from tip-cuttings, which make more compact plants than those grown from seeds



In California the Norfolk Island pine makes an excellent lawn specimen for large estates and parks. Do not plant it in small yards, as it soon outgrows its surroundings

grown in California is the Brazilian pine (*A. Braziliana*). It has little, however, to recommend it. It demands a humid atmosphere, but in the part of our country where this condition prevails the temperature is too low; where it is warm for a large portion of the year the air is too dry, and the trees burn badly during the summer. The young plants have a loose straggling habit and few branches with considerable distance between the whorls; the older plants lose their lower branches and are sparsely foliated.

Araucaria imbricata is native to the western slope of the Andes Mountains of Chili, where it grows near the snow line and is subject to practically as much frost in the winter as in the vicinity of New York, where, however, it is not hardy.

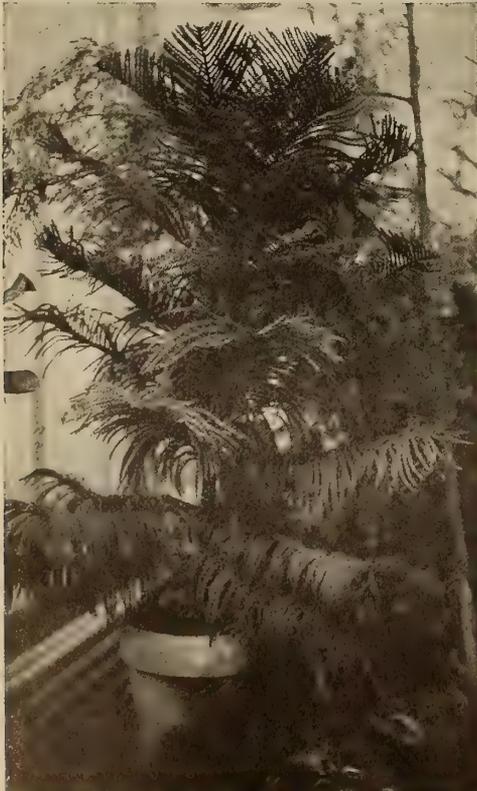
Why the plant does not thrive seems never to have been definitely determined. In Stamford, Conn., there is a specimen which has survived a dozen winters, but the plant is covered upon the approach of cold weather with a double boarded house, i. e., there is a dead air space between the inner and outer boarding. This house protects the tree from the extremely low temperatures. Mr. Hans, who has had charge of the tree from the time of planting, says it will stand 22 degrees of frost.

There does not seem to be any place East of the Rocky Mountains where this plant will really succeed unless it is in the mountains of North Carolina. Mr. P. J. Berckmans, of Georgia, who is probably the best informed person as to which trees succeed in the South, says: "*Araucaria imbricata* is indigenous to the Andes of Chili where the temperature often reaches many degrees

below the freezing point, but there exist there peculiar local conditions which seem to allow the trees to withstand a very much lower temperature than in other countries of equal latitude where climatic conditions are entirely different. For instance, I have seen excellent specimens in the southern part of Scotland where the winters are severe, but in this part of the South these trees cannot resist the summer heat, and are often injured by 12 degrees of frost. I believe that if these trees were planted in the mountains of North Carolina they would stand



This specimen of the monkey puzzle (*A. imbricata*) has been growing at Stamford, Conn., for more than twelve years



Araucaria elegantissima of the trade, probably a variety of the Norfolk Island pine, photographed in the Buffalo Botanical Garden

the temperature of zero as well as they do in Belgium and Switzerland, but they cannot thrive in sections of the United States where the range of temperature is 100 degrees in the summer and 20 degrees in winter."

The probable reason why the monkey puzzle does not thrive outdoors here in the East is that the summers are not sufficiently moist. In the native home of the monkey puzzle there is a very copious rainfall and this probably is augmented by the condensations of moisture from the clouds brought in by westerly winds which are the prevailing winds of that coast. From this it is easy to see why the tree cannot thrive here in our hot, dry summers. And it is probably due to this hot, dry weather that the plants fail to succeed, but the grower does not realize that the plant is unwell, until the following spring; then he lays the trouble to the winter rather than to the previous dry summer. In England, where there are many excellent specimens of the monkey puzzle growing in the open, it has been found that they demand an open, deep, rich soil, and an abundance of rainfall, the greater the precipitation the better.



Planting Flowers and Vegetables

AUGUST is the hottest month of the year in this part of the country and all flower seeds planted now must be sown in rich, damp soil, in a partially shaded spot.

Hollyhocks, carnation, platycodon, perennial phlox, and peony seed should be planted during the first part of the month when it can be had fresh, and it will germinate quicker and better than if sown in the spring when several months old. When cold weather comes, spread lightly over the plants some old straw or leaves which may be held in place by a small quantity of heavy brush. Just as soon as the warm weather comes, remove the brush and straw.

Why not have some tulips, hyacinths and narcissus in flower for Christmas? If such be your desire the bulbs must be potted during the first part of August.

For flowers in the late fall sow the seed of sweet alyssum, candytuft, and mignonette early in the month. The plants will produce better flowers during the cool fall months than at any other time of the year.

If any of the plants being grown for fall bloom appear to be in an unhealthy condition, give two light dressings (about two weeks apart) of nitrate of soda, nitrate of potash, or some other quickly available plant food. This will not only greatly improve the appearance of the plant but will increase the rapidity of its growth, and the result will be larger and better flowers produced earlier in the season.

During the last week of the month, order peony plants for planting out in September.

Continue to sow the seed of early bush squash until the 15th; it will be ready for use in October.

Sow the seed of early bush beans during the first part of the month and they will be ready for the table the last of September. At the same time make another planting of early Irish potatoes for use from the first of October until frost.

Asparagus seed must be planted very early in the month in this state in order to have small roots for planting out in December or January. As a rapid growth is absolutely necessary at this time of the year, plant in very rich, damp soil.

It will not be necessary to cultivate the cotton later than the first of the month, unless the ground is very weedy and grassy. Weeds and grass must, of course, be cleaned out.

Georgia

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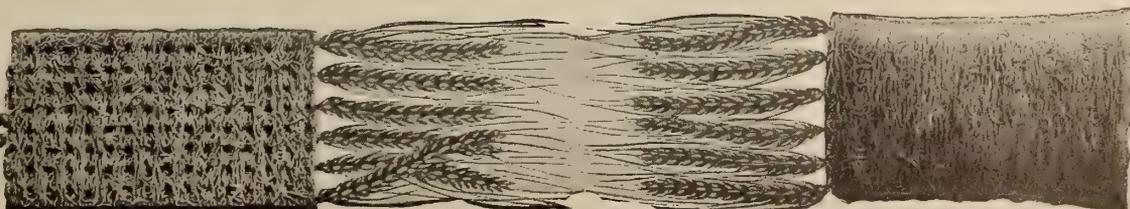
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Everyone Should Grow Celery

THE end of July or the beginning of August is the time to put out celery plants and since there is usually plenty of available space as other crops mature even the smallest garden can grow a crop profitably. It will conveniently follow peas, for instance, or if you are renewing the strawberry bed the site of the old one will be an excellent place and it will give deep cultivation to soil which has not been turned over for a year or two. Get stocky plants that have been twice transplanted, as they have a more compact and sturdy root system. If you are depending on purchasing the plants see that they are delivered in fresh condition and have the ground ready in advance. This means open up a trench about a foot deep and dig in some well decayed manure, mixing in a good portion of the soil which has been taken from the trench. Make it about sixteen inches wide in the portion where the plants are to go. This allows for a double row planted about ten inches apart either way. There should be four feet distance between the trenches.

Choose a showery or cloudy day for planting; but if these weather conditions are not to be had, endeavor to keep the plants from wilting by sprinkling them as soon as you have planted a few feet of row, and if possible shade them with newspapers or old pieces of burlap. When the whole row is planted, give a thorough soaking with water to settle the soil round the plants so that every rootlet is in contact with it, and put about two inches of lawn grass or some strawy litter over the plants as a mulch. After a fair amount of growth has been made a little weak liquid manure applied occasionally or some artificial manure sprinkled around the plants and well watered in will be very beneficial.

For those who find it too much trouble to plant in trenches, or who may wish to try another method of culture, there is the flat or bed system. Plant in beds four feet wide, setting the plants ten inches apart either way, and when the plants are nearly full grown put boards down either side of the beds to help in the blanching of those on the outside.

The most suitable varieties for the beds are self blanching kinds, such as White Plume, and Pink Plume, Golden Self-Blanching, etc., while for trenches the same kinds are good, as are also Perfection

Hartwell, Boston Market, Major Clark's Pink, Giant Pascal and Fin de Siècle.

If at the time of planting there is any sign of leaf spot or rust, it would be well to dip the plants in a mixture of one part Bordeaux to twenty of water. This ensures a better covering of all the plant than any spraying could possibly do, and will be sure to check if not to entirely cure the disease.

When it makes its appearance after planting, the only way is to spray frequently with the same mixture. However, the best way to do is to avoid the disease by having ideal conditions, which are largely provided by the following, viz., a rich, well-drained soil, thorough waterings, mulching, and never to check or crowd the plants, allowing them at all times a free circulation of air and an abundance of light.

Mass.

E. JENKINS.



Geraniums Raised From Seed

INSTEAD of buying from a florist geraniums of known kinds, or growing from slips, duplicates of what one has already had, why not try planting seed, thereby getting plants of more stocky and robust growth? It is really not a difficult undertaking, and I have raised a large number of healthy, insisently blooming plants in an ordinary, well-sunned dwelling room.

The first and most essential point is to secure seeds of a good strain. Seedlings from mediocre flowers are so utterly despicable — is anything more forlorn than a thin-clustered, small-blossomed, purplish-pink geranium? — that one is not inclined to give labor, time, and space on a sunny shelf for six months, to plants that are likely to

produce this particular kind of bloom. It is, I have found, difficult to obtain good seed. Because so few amateur gardeners grow geraniums by this method the seedsmen offer either very few or very cheap strains. Year after year I have bought

mine from an English specialist who has houses devoted entirely to geranium culture, and the average of his "hand hybridized" seedlings produces a high grade of flowers.

August and February are the two best months for planting the seed, and plants may be expected to flower within six months from the time of sowing. In my opinion February is the best time, for the seedlings may attain much of their growth in the open ground and, after flowering in August or September, be culled out before being potted up to bloom indoors all winter. On the other hand, an August sowing will bring your seedlings into flower the following February, which is usually a dull time, and will give a supply of excellent little blooming plants for bedding out in spring.

Plant the seed, covering it lightly, in boxes of rather light, rich soil and if it is desirable to hurry germination, keep the temperature at about 65 degrees. From fresh seed, some plants may show themselves in five or six days, and they will continue to appear from the same sowing for weeks. I have had the seeds germinate from February 24th to June 12th from a sowing made February 10th. This last date, 113 days, is my record. By reason of this very irregular germination, it is best to sow the seed thinly, so that, if it is necessary, any one plant may be removed without disturbing the other seeds. I have also found it a good plan to pot up into thumb pots seedlings as soon as they can be handled. If all the seeds have not germinated, the seedbox may be allowed to remain for a longer time in the dark and warmth. The large number of thumb pots may be easily handled by setting them in cigar boxes, one box being large enough to hold six pots.

The little seedling plants cannot have



A crop of seedlings. Germination takes place in from five days to sixteen weeks

too much sun and it is amazing how rapidly they grow. They are so persistently zonal that the seed-leaves themselves sometimes assume the characteristically colored stripe. With their bright green leaves and brilliant little bands of color, the plants are much more attractive than those raised from cuttings. Although the record with me thus far for flowers has been trusses fifteen and one-half inches in circumference and pips two and three-quarters inches across, I think it is, after all, in their first months of existence that I find them most irresistible.

New York

L. S. B. S



Seedling geranium just potted up into thumb pot

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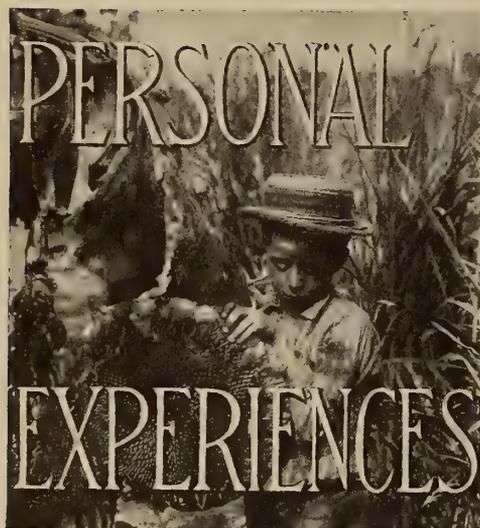
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MOST varieties of the pansy will succeed in this section of the South if planted at the right time and properly cared for. Seed must be sown in the open ground late in August or very early in September for flowers in the late fall, and for very early spring blossoms sow seed in a hotbed during December or January. The large-flowered sorts, which are the most desirable, can be grown here only during the cool fall and spring months. I have had very satisfactory results from Hercules Giant, Cassier's Hortense Rose, Giant Bridesmaid, Masterpiece, and Mammoth Butterfly, although Hercules Giant proved to have the largest and handsomest flowers.

For flowers in the late spring plant in the open ground during February and March. At least two weeks before sowing the seed or setting out the plants the soil should have a good quantity of well decayed cow or poultry manure spread over its surface and spaded or dug in, and the soil must be made loose and fine to a considerable depth so that the long roots can penetrate deeply. Horse manure ought never to be used for pansies unless it is applied to the soil at least six months before planting.

Sow the seed thinly in drills six inches apart in the place where the plants are to grow and flower, and cover one-fourth of an inch deep with fine soil. If the soil is dry press it firmly over the seed to insure quick germination. When the plants have four or five leaves thin out to one every four or six inches.



It is always an economy to get the best seed. Cheap seed gives poor flowers like these

Seed is sown in the hotbed in the same method, with the exception that the drills must be three inches apart instead of six. When the plants have five or six leaves set out in the open ground if the weather is sufficiently warm, which is usually about the time the trees begin putting out new leaves. Place the plants six inches apart each way, and be careful to firm the soil about the roots of each. They are very tender and are easily injured — just a slight bruise will check their growth for a very long time.

The best method of transplanting is to use a flat trowel or a board with a small sharp end, lifting one plant at a time with a good quantity of soil about the roots. Make the hole where the plant is to be set large enough to receive both roots and soil comfortably. Transplanting should always be done when the soil is damp but not too wet.

Begin cultivation just as soon as the young plants are well up. Dig or scratch around them in the hotbed with an old fork, and use a small garden hoe to work those that are



The proper sized pansy for transplanting. Handle carefully, so as not to injure the long roots

growing in the open ground. One thorough hoeing each week is necessary to keep down the weeds and grass and to promote sturdy, healthy growth which, unless the weather becomes too hot and dry or freezing cold, will continue as long as the cultivation is kept up.

The beds of pansies should always be partly shaded in the spring, and if the soil becomes very dry give the plants a thorough watering twice a week. Apply the water late in the evening in trenches around the plants, and when the water has soaked into the soil do not fail to cover the trenches. A light watering every day or two will do more harm than good.

Keep all the old flowers picked off not allowing any to make seed — that would shorten the flowering period considerably. If one teaspoonful of nitrate of soda in solution or some other reliable plant food, be applied to every two large plants or four small ones once a week, it will greatly lengthen their flowering period and will also increase the size of the flowers.



Giant pansies can only be grown in the South during the cooler months. Get good seed

In this locality pansy plants can be kept through the winter outdoors if given a covering of pine straw or any sort of light leaves, although wheat or oat straw is best to cover the plants with and, if possible, should be used instead of the leaves.

Georgia

THOMAS J. STEED.

Growing Celery With Corn

AS AN experiment in celery culture I decided to plant the crop between rows of corn which was eared out and about ready for the table. This was late in July. The ground was rich from a heavy dressing of manure that had been plowed under the previous spring; otherwise, it would have been necessary to have mixed some well rotted manure with the soil. Trenches were dug between the rows of corn to the depth of the spading fork, and all earth that fell through the tines of the fork was allowed to remain in the trenches, a fine mellow soil being thus furnished to receive the plants.

The plants were well watered after being set out, and the corn afforded sufficient shade to keep them from wilting in the heat of the summer sun, while at the same time allowing sufficient light and air to reach them to make them thrive. By the end of the first week in August the corn was ready for the table, and as fast as it was used the stalks were cut and the sunshine gradually permitted to fall upon the now fully established plants. The ample space between the rows facilitated cultivation and banking up later in the season. By the latter part of August the corn was all cut and the celery was in excellent condition.

Ground previously supposed to be unavailable for such a crop has been producing delicious celery for three years.

Illinois.

ROBERT BEBB.

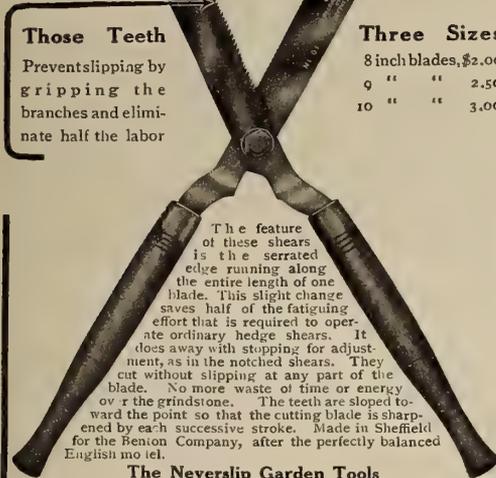
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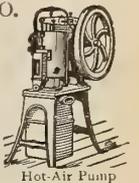
child can start the rain-maker and stop it when required. It runs itself—it is the HOT-AIR PUMP. Every house, farm, or ranch, in fact every place where animal life exists, depends primarily on three things: sunshine, air, and water. Nature supplies two of these, the HOT-AIR PUMP supplies the third.

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A Practical Garden Hose Arrangement

THE cost of keeping several hundred feet of rubber hose in good condition may become a serious item in garden work. Sun and water combine to rot the fibres of the hose no matter how good the quality, and the strain and drag of handling weakens it sooner or later. To save this expense and that of extra hydrants and their added water-rates, the following plan was carried out in a private flower and vegetable garden, fifty or one hundred feet of hose doing the work of 800 and one hydrant answering for several. For cheapness, convenience, ease of handling, and freedom from care, the experiment was a success.

Ordinary three-quarter-inch galvanized gas or water-piping was placed along the central path which extended in a straight line for about eight hundred feet. This "main" was laid — not buried — along the path close to one side where it was partially concealed by the turf or border. This "main" was not one continuous pipe, but was in sections, each section beginning and ending where the side paths opened at right angles to the central path. When the pipe was in use, these breaks were bridged with rubber hose of suitable lengths coupled across the width of the openings.

The path openings were about fifty feet apart, and the links were as long as the width of the paths. They lasted a long time because after use one end was always disconnected and curved back against the service pipe; or else the links were removed entirely, drained, and taken to the tool house.

The main service pipe permitted use at its extreme end, if required; or in order to connect the regular rubber garden hose at any break in its length, it was only necessary to uncouple the link that bridged the specified path and attach the hose in its place. A fifty or one hundred foot length with nozzle, thus attached and extended to the right or left down the side paths in succession, enabled the distribution of water over a very wide area with little expenditure of time. The main pipe remained in place year after year, the only precaution taken being to raise one end of each section every autumn, with a small block so that all moisture would drain out and leave the pipe as dry as possible through the winter.

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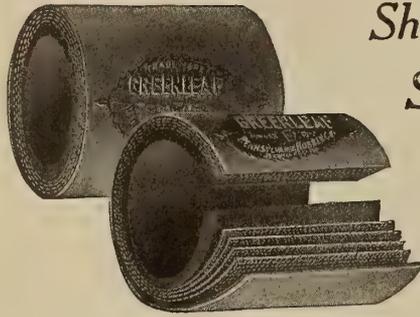
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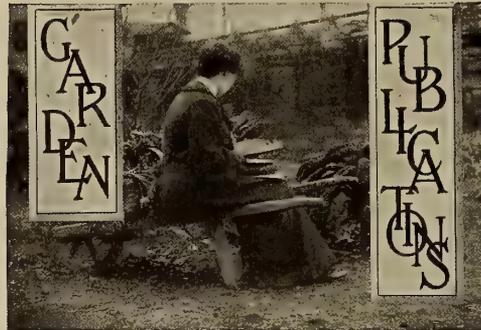
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Types and Breeds of Farm Animals. By Charles S. Plumb. Ginn & Co., Boston, 1908; pp. 563, 256 half-tone illustrations. Price, \$2.00 net.

This is certainly an epoch-making book. Since 1888 there has been no American book devoted to the breeds of horses, cattle, sheep, and swine. Professor Shaw's "Study of Breeds," in America (1900) omitted the horse. The present work includes even the ass, mule, angora, and milch goats. It is an invaluable reference and text-book, and, though crowded with facts is not dull. The comparative merits and limitations of the different breeds are stated with a fulness and fairness never found in periodical literature. It should be in the library of every country gentleman, breeder, and progressive farmer.

The Principles of Agriculture edited by L. H. Bailey. The Macmillan Company, New York, 1907. Twelfth edition; pp. 300 XV. Price \$1.25.

This admirable book on agriculture was first published in 1898 and has been so popular that since then eleven editions have been exhausted making the present one necessary. It is a very good, elementary text-book on agriculture.

Spirea and Goldenrod

BY AN unfortunate oversight, the two illustrations of goldenrod and white beam-leaved spirea on pages 322 and 335, respectively, in last month's GARDEN MAGAZINE were transposed. The illustration appearing in the lower right-hand corner of page 335 should have the caption which appears under the cut in the lower right-hand corner of page 322, and vice-versa.

The Garden Beautiful



requires proper care and cultivation but equally depends upon intelligent selection of varieties and harmonious design in planting. Neglect of any of these points will give a garden lacking in some element of beauty. We make a specialty of **Designs for Suburban Grounds** and have furnished plans for many of the most beautiful places near New York City. Planting designs we supply to distant customers uniformly give complete satisfaction—they are practical and easy of application.

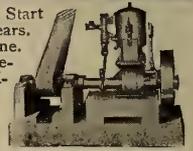
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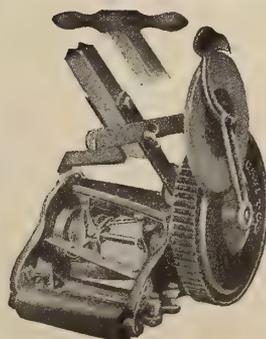
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The true willow-leaved spirea (*S. salicifolia*) with pink flowers. The two other meadow sweets have white flowers

commoner in the western parts of the United States, while *S. latifolia* is chiefly found east of the Alleghanies. The lower ramifications of the flower clusters are spreading or horizontal and much longer than their supporting leaves, while those of the preceding species are not so long.

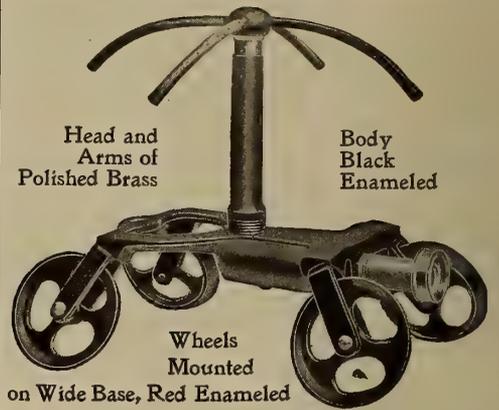
The eastern meadow sweet (*S. latifolia*) has larger flowers than those of the western species and the clusters are perhaps broader at the base. The blossoms are sometimes slightly blush color but not so pink as in the true willow-leaved spirea. The safest botanical distinction between this and the two preceding species lies in the panicles. Those of the first species are tomentulose, while those of the *S. latifolia* are quite glabrous.

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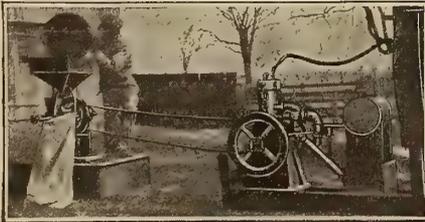


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Some facts about their Equip-
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and Ventilating—and how
to avoid excessive repairs

THERE are four vital points that must be considered in building and equipping a greenhouse—that is, if you would be saved from useless expenditures, and have the pleasure and reward of its being a compensating success, and not an out and out expense.

Lightness, endurance, perfect ventilation control and absolutely dependable heating are the four essentials.

A greenhouse must be constructed in such a skilful way that there shall be the least possible frame work to cast shade, and the greatest amount of glass to allow the light and sunshine to reach the plants.

Then there is the taking care of the condensation inside the house, and provision must be made to carry it off, not only because you don't want it dripping down your neck, but wherever it settles in the joints, decay at once begins. It is the most destructive thing that greenhouse builders have to contend against, and one about which the ordinary builder knows practically nothing.

Upon the perfect control of ventilation depends much, both in preventing mildew on your roses and giving to the various plants just the right amount of air to keep them hard and blooming freely.

You know what an inconvenience and annoyance balking heating is in a dwelling, but in a greenhouse it means absolute disaster if your plants get either chilled or sweated out; so here again is a necessity for accurate knowledge.

All this may sound very hard and discouraging to one who has been dreaming of putting up a house of his own—but there is a way out—a way that costs no more in the end, than the grotesque, home-made affairs that always limit you to growing the less light-exacting kinds of plants or such course, sturdy varieties as can best combat against continued conditions of handicap.

We will erect the house complete for you, or if you want to have the work done by your local mechanic, then send to us for the materials. When you receive our materials consisting of various wood and iron parts they will be already cut and fitted, holes drilled, bolts, screws, hinges, putty, everything furnished ready for immediate erection, even to the first coat of paint, and enough additional sent along for two more coats after the house is finished. These materials are exactly the same thing, made identically the same way, as furnished by us for the immense growing houses of the florists, and have the same finish

and attractiveness of the ornamental houses that we put up in such numbers on private estates, park, or institution grounds.

Along with these materials we will send you complete erection directions. Now with every part ready to go right into place, nothing is likely to go wrong.

The heating, if left to us, is guaranteed to be perfect, and we will install a special greenhouse boiler that will run long periods without any attention, and still keep the uniform temperature desired, and do it economically.

The ventilating apparatus is supplied with the materials.

The benches are made of either cypress or iron according to what you feel like expending.

When your house is finished think what you have: it will be an attractive, thoroughly made house free from constantly recurring repairs; one that is so skilfully constructed that you can grow any plant, no matter how difficult. You can have as profuse results as the florist, or equal the specimen plants and blooms of the gardeners.

You will have a house that is so carefully designed and thoroughly made that if you wish, it can be effectively joined directly to your dwelling with the delight of having all the fun of a garden spot only a step from the dinner table.

But if you don't feel to spend the money for a greenhouse that is a greenhouse, then by all means don't put your money into a make-shift affair. Buy cold frames, and they will better answer your purpose until you can build right. A two sash frame complete, covering 36 square feet, costs only \$14.50, and is a necessary adjunct to your future greenhouse—a logical expenditure you see.

If you want a good greenhouse that costs comparatively little, send for circular No. 57, which gives full information and is freely illustrated.

On the other hand, if you think cold frames will have to answer for the present, send for the Two P booklet, which tells of Cold Frame Pleasures and Profits, and how to get started.

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The tuna makes a more formidable hedge



A gigantic tub plant grown from a single joint of the prickly pear or Indian fig

plant and is commonly planted in the arid regions of Mexico for a defensive hedge. Its fruits are brightly colored and remain on the plants a long time after ripening, so that the hedges are more attractive in fruit than in flower.

Both these species were early taken home by the Spaniards and soon overran the Mediterranean region, escaping from cultivation and becoming troublesome weeds. In South Africa they have become a serious menace to agriculture and grazing.

The accompanying picture is reduced from one in the "Hortus Eystettensis," a book published in 1613, which described the garden of the Prince of Eystadt in



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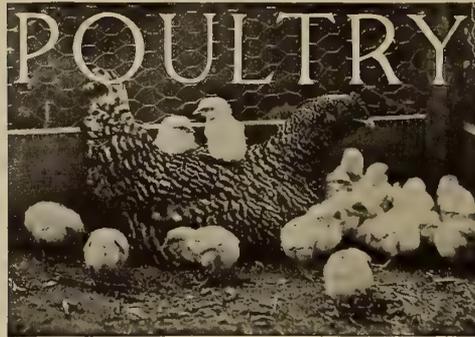
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Germany. The great wonders of the vegetable kingdom are reserved for the last pages of this superb work and the climax is reached with this picture of the Eystadt variety of the Indian fig. The legend of the old picture clearly shows the wonderment with which the people of that age viewed this extraordinary growth from a single joint leaf of this cactus.

New Jersey. THOMAS McADAM.
[The next article will describe *Iris Susiana*, one of the most famous flowers of the Holy Land.]



The Chicks in the Garden

THERE is n't the shadow of a doubt that the chicks will do well in the garden, but how about the garden? Aside from some of the smaller vegetables, like lettuce, radishes, etc., which even quite small chicks would doubtless destroy at once, the chicks would be a decided benefit to most garden crops. They destroy many insects, furnish some fertilizer, and the little scratching they do about large plants is no detriment. The chicks in turn are benefited by the insects obtained, by the young and tender weeds and grass blades which they help to destroy, and in hot weather, by the partial shade of the growing plants. If it is possible, the best plan is to place the coop containing the mother hen or the outdoor brooder, in the shade of a tree in the part of the garden where it is desired to have the chicks forage. When one brood of chicks reaches such size that they begin to damage the growing plants, or to do too much scratching, they are removed to another range, and others are substituted. Of course, among some of the larger plants, like corn, potatoes, beans, etc., the chicks could be allowed to run till well grown without doing damage.

On many large poultry farms, the ground where the chicks are raised one season is plowed and planted to some crop the next spring while the chicks are raised on fresh ground. This past winter I visited a 5,000 hen plant, and a large field which was well seeded to clover was pointed out as the place for growing the next crop of chicks, while another large field well covered with colony houses and brooders where the chicks had been raised the previous year was to be cropped the coming season. This garden method of growing chicks furnishes a similar plan to the man with little ground
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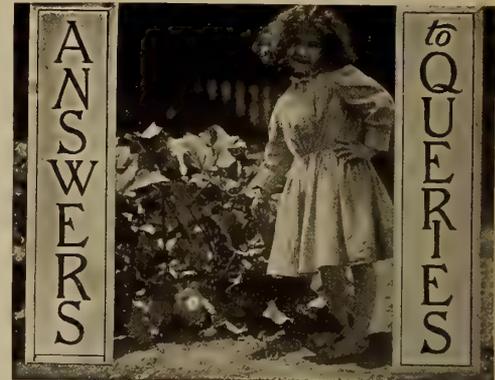
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LATE SOWING OF PEAS

F. H. M., Conn. — When sowing peas late in the season be sure to plant seeds far enough apart so that there may be a good circulation of air between the plants. Also try spraying them with sulphide of potassium, using half an ounce to the gallon of water to prevent mildew, etc.

TO FOLLOW PEAS

E. G. F., New York. — A good crop with which to follow peas is millet, any of the common varieties, although because of its large growth the Japan millet is preferable. Buckwheat might be used; it is an excellent crop for soiling purposes, or barley for late feed might be planted. Green barley seems to withstand the frost late in the fall better than almost any other green crop.

TROUBLESOME INSECT PESTS

W. F. W., Ill. — The insect that is now most troublesome to China asters is the flea beetle. Spray with arsenate of lead at the rate of one pound to ten gallons of water. To get rid of the grasshopper, mix thoroughly one pound of dry Paris green with fifty pounds of wheat bran. Make this moist but not sloppy by adding water in which a quart of cheap molasses has been dissolved. Place this mixture in spoonful piles where they are working.

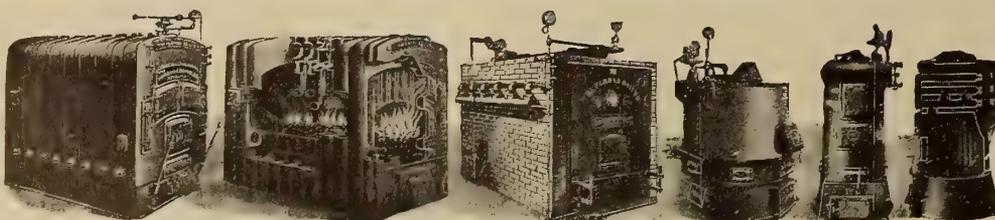
SEEDING FOR PASTURE

M. T. B., Penn. — Sow immediately (August) in your corn a mixture of twenty pounds of timothy, eight pounds red top, eight pounds red clover and six pounds of alsike clover, covering with the last cultivation. If you wait until you get off the corn crop it will be too late for these grasses to get well rooted before freezing weather and the chances are that anything you would put in would kill out before spring. For a permanent meadow, there does not seem to be anything equal to a top dressing of barnyard manure every year or two years. It is surprising how permanent meadows will respond to this treatment, even when there are only seven or eight loads put on to the acre. One Massachusetts man got three tons of hay the first cutting and at the second cutting late in the season, one and one-half tons. His meadows have been given this treatment for a number of years.

TROUBLE AMONG CURRANTS

R. P. I., N. H. — The shriveling of the currants may be due to many causes. Examine the canes for the currant borer. If they are tunneled, cut them out below the lowest point where they are hollow. Do this every year. Bushes weakened by San José scale or by winter injury often behave in the same way, not showing the injury until about the time when the fruit ripens. Also look for the scurfy, gray appearance of a shoot heavily coated with the scale; if found, spray the bushes this fall with lime-sulphur, a recipe for which is found on page 146 of the April, 1907, GARDEN MAGAZINE. If only a few bushes are infested it would pay to take them out. Possibly the currant "tubercle," which is often serious in New York and New Jersey, may be the cause. This is a fungus disease which appears as a pinkish swelling near the base of the cane, but occasionally the diseased canes have no swellings. The leaves wilt, turn yellow and fall off; the fruit colors prematurely, shrivels and drops. Then the whole cane dies. The only really practical remedy is to take up and burn the affected bushes at once, and to burn all prunings especially dead currant wood. The best general treatment is to cut out all diseased canes as soon as they look sickly, mulch the bushes heavily with manure this fall and spray them with Bordeaux mixture twice next year — once just after blossoming and again after the fruit has been gathered. — S. W. F.

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By **NELTJE BLANCHAN**

Author of "Nature's Garden," "Bird Neighbors," etc.

WE TAKE pleasure in announcing that, after several years of preparation, "The American Flower Garden" has now so far progressed that we feel justified in stating definitely that it will be published in the autumn of 1908.

¶ The edition will be limited to 1050 numbered copies and the right is reserved of increasing the price without notice.

¶ Purchasers will be assigned numbers in the order in which their applications are received and each person will be promptly notified of the number for which he has been entered. The indications are that subscriptions will be received for the entire edition before publication.

¶ There has been needed an authoritative work treating the American flower garden, as that famous work by William Robinson describes the English flower garden. The present book will be less encyclopedic, but will cover adequately the needs of the amateur whose garden is either extensive or the reverse.

¶ The following Table of Contents will indicate the main outline of the work.

<p>I. Introductory. The Partnership of Nature and Art</p> <p>II. Situation and Design</p> <p>III. Formal Gardens</p> <p>IV. The Old-fashioned Garden</p> <p>V. The Naturalistic Garden</p> <p>VI. The Wild Garden</p> <p>VII. The Rock Garden</p> <p>VIII. The Water Garden</p>	<p>IX. Evergreens, Flowering and Other Decorative Trees</p> <p>X. Shrubs</p> <p>XI. Hardy Perennials</p> <p>XII. Annuals</p> <p>XIII. Vines</p> <p>XIV. Bulbs and Tuberous-Rooted Plants</p> <p>XV. The Rose Garden</p> <p>XVI. The Lawn</p> <p>XVII. Garden Furniture</p>
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¶ Following each chapter there is given a list, by Leonard Barron, of the best plants suited to the purposes described, with clear cultural directions.

¶ The pictures will be printed as inserted plates, and will form, it is expected, the best collections ever attempted in a book about gardens. There will be 10 plates in full color, and 96 plates of sufficient size to adequately treat the subjects presented.

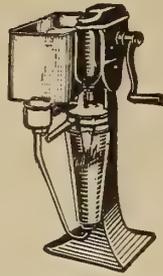
¶ The size of the volume will be 8½ x 12 inches, printed on a water-marked paper made especially for it. The type used is a Caslon old style. The cover design is drawn by T. B. Hapgood.

¶ We have prepared a four page circular giving more complete information and containing a sample color plate and a full page half-tone illustration. Both of these plates are worthy of being framed for wall decorations. Upon request, as indicated in the attached blank, we will take pleasure in sending you this folder for your information.

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It creates moisture and retains it, an absolute necessity at this season. "Bonora" will make your plants bloom in profusion, make your lawns look like velvet, your vegetables mature two to three weeks earlier and in abundance. Use it and be convinced. Order direct or through your seedsman.

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ROOT APHIS ON PEAS

F. S., Mass.—For aphis on the roots of sweet peas give abundant dressings of tobacco dust, cultivated in lightly and followed by copious waterings. Being an annual, the full growth of the plant is very quickly accomplished, and once it has become a victim there is but little hope of waging a systematic and successful campaign against a root pest.

GROWING ANNUALS FOR SEED

C. S. F., Ill.—The large growers of asters for seed purposes grow the separate colors apart, not because of danger from cross fertilization by bees (which do not work on the flowers to any great extent) but to avoid mixing the seed in harvesting. Varieties of Sweet William may also be grown together without danger of cross fertilization. Pansies, however, must be grown quite apart as they are much visited by the bees.

WORMS IN THE LAWN

G. H. L., Penn.—The best method of exterminating worms in the lawn is by watering with a solution of corrosive sublimate (bichloride of mercury). Dissolve one ounce in seven and one-half quarts of water. For watering the lawn add three or four pints of this solution to a barrel (forty-five to fifty gallons) of water. Bichloride of mercury is a deadly poison, so the greatest care must be used in handling it; but after the lawn has been watered it is said that cattle or sheep may graze without danger. One watering will probably be sufficient to kill the worms.

PLANTS UNDER TREES

P. W., Ill.—There is little use in trying to grow plants directly under oak trees as their shade is likely to be too dense for satisfactory results. Elm trees are notorious robbers of soil moisture, so that for a plant to succeed near them the ground must be soaked often, particularly during a dry spell. The following plants, which are either annuals or may be grown as annuals, will probably give a good return of flowers: Godetia, musk, monkey flower, nemophila, pansy, tarweed (*Madia elegans*) and the wishbone flower (*Torenia*). The tarweed remains open in the morning and evening but is closed during the middle of the day. Forget-me-nots and tuberous rooted begonias (plants of which you can buy from any florist) may do well. The begonia is tender so must not be set out until all danger of frost is past.

TREES ROBBING FLOWER BEDS

W. B. B., Ill.—Unquestionably the proximity to the elms is the reason for your flower beds not doing well, and it is not likely that you can very greatly improve the conditions without removing the elms or in some other way controlling them. The roots are most likely running all through the soil. Something might be done by digging a very deep trench (eight or ten feet deep and two feet wide) behind the bed and filling it with clean sand, thus cutting off direct communication between the flower beds and the roots of the elms. The best fertilizer under these conditions would be heavy dressings of stable manure, as that would help to retain the moisture which is necessary, persistent rainfalls throughout the year notwithstanding. Peonies are not likely to do well in such a place because they demand an abundance of moisture in thoroughly well-drained land. The ideal situation for them is on a gentle slope in heavy, moist soil having thorough drainage. They will not grow satisfactorily in either dry soil or soil that is constantly moist through stagnation of water.

CORN AND COB MEAL FOR STOCK

L. M., Texas.—Corn cobs are indigestible, contain practically no nutriment, and are a detriment to a highly organized dairy animal, in the opinion of most expert feeders. Where other fodder or roughage is scant there is some excuse for feeding corn and cob meal to cattle, as a certain amount of "filling" is essential to their digestion. Corn meal is rarely considered as a horse feed where oats can be obtained at a reasonable figure. Throughout the South corn feeding is common, and if ground corn must be fed it is certainly preferable to have the corn and cob ground together, as the meal alone forms a pasty, fermenting mass in the horse's stomach. Corn and cob meal was quite a fad in this section, Northern Pennsylvania, some ten years ago but such a mill is a curiosity here now. I got one from a local miller which he had no further use for and use it to crush oats for the dairy cattle. With valuable animals it generally pays to furnish a higher class of roughage than ground corn cobs. Where a horse is unable to masticate whole corn the corn and cob meal is much to be preferred to clear meal.—F. E. B.



For Autumn Planting Flowering Shrubs and Hardy Perennials Roses, Irises and Paeonies.

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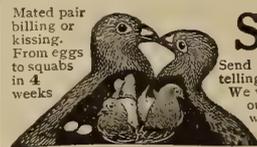
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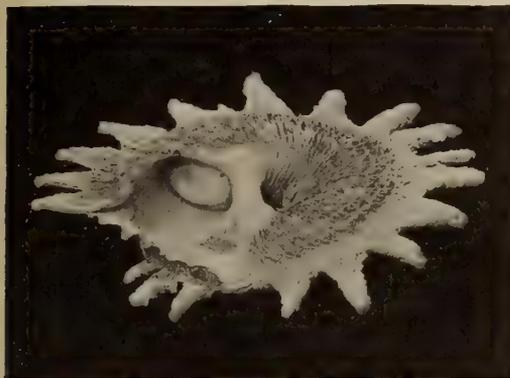
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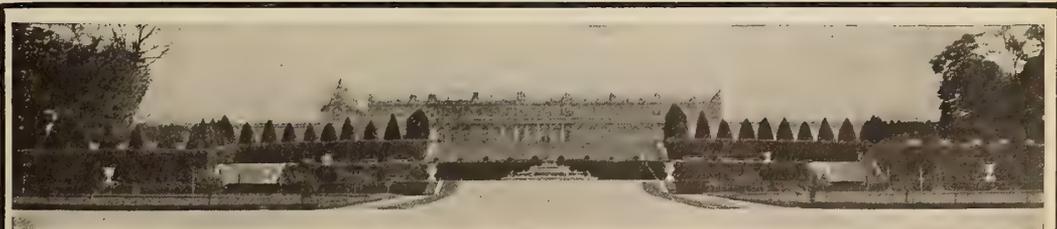
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from selecting the breeders to marketing the product. It tells how to get eggs that will hatch, how to hatch nearly every egg and how to raise nearly all the chicks hatched. It gives complete plans in detail how to make everything necessary to run the business and at less than half the cost required to handle the poultry business in any other manner. There is nothing complicated about the work, and any man or woman that can handle a saw and a hammer can do the work.

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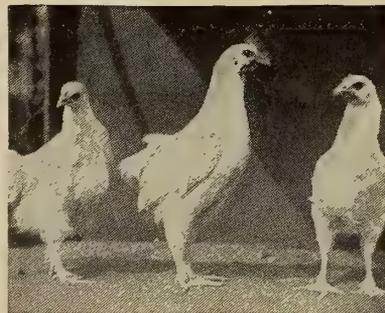
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Three-pound White Orpington roosters, 10 weeks old, raised by the Philo System. Note the large, well-developed feet and legs and the width of the pullet showing the front view.

VALLEY FALLS, N.Y., Sept. 5, 1907

It was my privilege to spend a week in Elmira during August, during which time I saw the practical working of the Philo System of Poultry Keeping, and was surprised at the results accomplished in a small corner of a city yard. "Seeing is believing," they say, and if I had not seen it would have been hard to believe that such results could have followed so small an outlay of space, time and money.

(REV.) W. W. COX.

BINGHAMTON, N. Y.

Your system of poultry keeping should appeal to all poultrymen. The advantages of your system are many, and the quality of the large flock of poultry you have raised on your city lot is the best evidence of its success.

GEO. L. HARDING.

WINDSOR, Vt., March 8, 1908

I consider the one dollar I invested in the Philo System, Poultry Review and American Poultry Advocate the best investment for the money I ever made. ROBERT L. PATRICK.

JACOBS CREEK, Pa., Nov. 25, 1907

I received the Philo System Book mailed to my home address, Beechtree, Pa. I am highly pleased with it, and anxious to spread the good news as far as I can. I am a preacher of the Gospel engaged by the Baptist Ass'n to do Evangelistic work. I am very much interested in the hen, and will do all I can to help the other fellow to know HOW, and to spread the good tidings received in the Philo System.

(REV.) F. B. WILLIAMS.

SPECIAL INTRODUCTION OFFER By special arrangement

we are able to give for only \$1.00 the book with the right to use all plans.

One year's subscription to Poultry Review—a monthly paper for utility breeders;

One year's subscription to the American Poultry Advocate. Upon receipt of \$1.00 you will get the book by return mail and your subscription will start at once.

This offer is to old subscribers as well as new, and gives them a chance of extending their subscription for one year.

Copy of the Philo System book and a year's subscription to Poultry Review and the American Poultry Advocate, all for \$1.00.

American Poultry Advocate 233 Hogan Block Syracuse, N. Y.

FERTILIZERS



Fertilizers for Potatoes

THE advisability of using wood ashes or lime in any form on the potato field as recently advised by a writer in THE GARDEN MAGAZINE has been questioned. The ashes will, of course, induce a vigorous growth but some growers consider that the lime in the ashes—a ton containing something like 700 pounds—sweetens the soil and causes conditions favorable to the development of the scab fungus.

The common practice of composting hen manure with wood ashes is also condemned by some people who believe that a considerable part of the ammonia in the manure is set free and lost. One person asserts there is no danger of scabby potatoes even from very heavy dressings of fresh stable manure if applied in the fall or during the winter; but advises (if smooth potatoes are wanted), applying fresh stable manure just before planting, although thoroughly rotted manure may be applied at planting time with perfect safety.

Mr. Darlington, in his article on potatoes in the February, 1908, GARDEN MAGAZINE-FARMING, recommended a high-grade commercial fertilizer, but he tells us that from using wood ashes and hen manure compost on well-drained soil he has grown smooth-skinned potatoes free from scab. He thinks the potash in the wood ashes in combination with the nitrogen of poultry droppings makes a pretty well-balanced food ration for the plants, and while a small portion of the ammonia or nitrogen may escape in the composting, it may nearly all be caught and held by the addition of one-third of fine dry soil and frequent turnings or workings of the heap.

The fertilizing elements are partially digested by composting and this is the point in the fall spreading of manure and plowing it under—the manure becomes rotted and assimilated with the soil before planting time in the spring. Mr. Darlington thinks that in composting poultry droppings there is only a slight loss of a portion of the fertilizing elements and that the balance is made more available for the feeding of the plants. If the wood ashes are allowed to remain in the spot where the wood was burned they will probably cause trouble, for an excessive quantity of strength will leach into a limited area.

It has also been recommended to use lime for the crop following potatoes in the rotation, thus having it as far away from the potato crop as possible; and by keeping the manure on the ground as long a time as possible before planting the potatoes, excellent results have been obtained.

The Reminiscences of John D. Rockefeller

Begin in an early number, probably the

October Number of The World's Work

FOR many years there has been no more interesting announcement made than that Mr. Rockefeller has prepared his Reminiscences for publication. But while this announcement is most important, the extraordinary character of the narrative which Mr. Rockefeller gives to the public is of far greater interest.

Not a Dull Line

The life of even the greatest man of business affairs might be thought a sober narrative, but there is not a dull line in this story. The charm of style comes from a simple and direct story told by a man whose mind is full, and whose ideas are clear and direct.

The great range of topics touched by Mr. Rockefeller will, we are sure, come as a surprise to the reader, showing as it does the wide extent of his life's activities. He fully and freely discusses the Standard Oil Company and the aspects so much in the public eye. He tells of his business career, his pleasures, his ideas about forestry, golf, and kindred subjects, of his wonderful experiences in the ore trade, when he made a large fortune out of a plan where he faced great loss. He tells of his early friends and struggles to get capital, of the beginnings and building up of the oil trade. Mr. Rockefeller in no instance writes a defense, he relates simply and directly what happened, and the reader is left to draw his own conclusions.

The Illustrations

The pictures will add greatly to the interest of the story. In many cases they are historical.

The first Chapter will include these Subjects:

The Reason for preparing the Reminiscences.
The Story of the Standard Oil Company.
The Facts about the "Oppression" Stories.
How the Business has been and is conducted.
The Modern Corporation; its regulation and future.
The Opportunities of to-day as compared with those of a generation ago.

The American Business Man.
The Story of Neighbor Foley.
The Principles of Business Conduct.
Knowing the Facts of a Business.
The Trite and the Obvious—and how often overlooked.
The Responsibilities of the Business Man.

These articles will probably begin in The World's Work for October, and will run for six months.

In the September number will appear the second of the articles on Great Corporations (the first of which appears in August), by Mr. C. M. Keys. It will tell from inside information how the Standard Oil Company runs its affairs.

The World's Work

is the most interesting magazine in America for the active minded. It is made for optimistic people.

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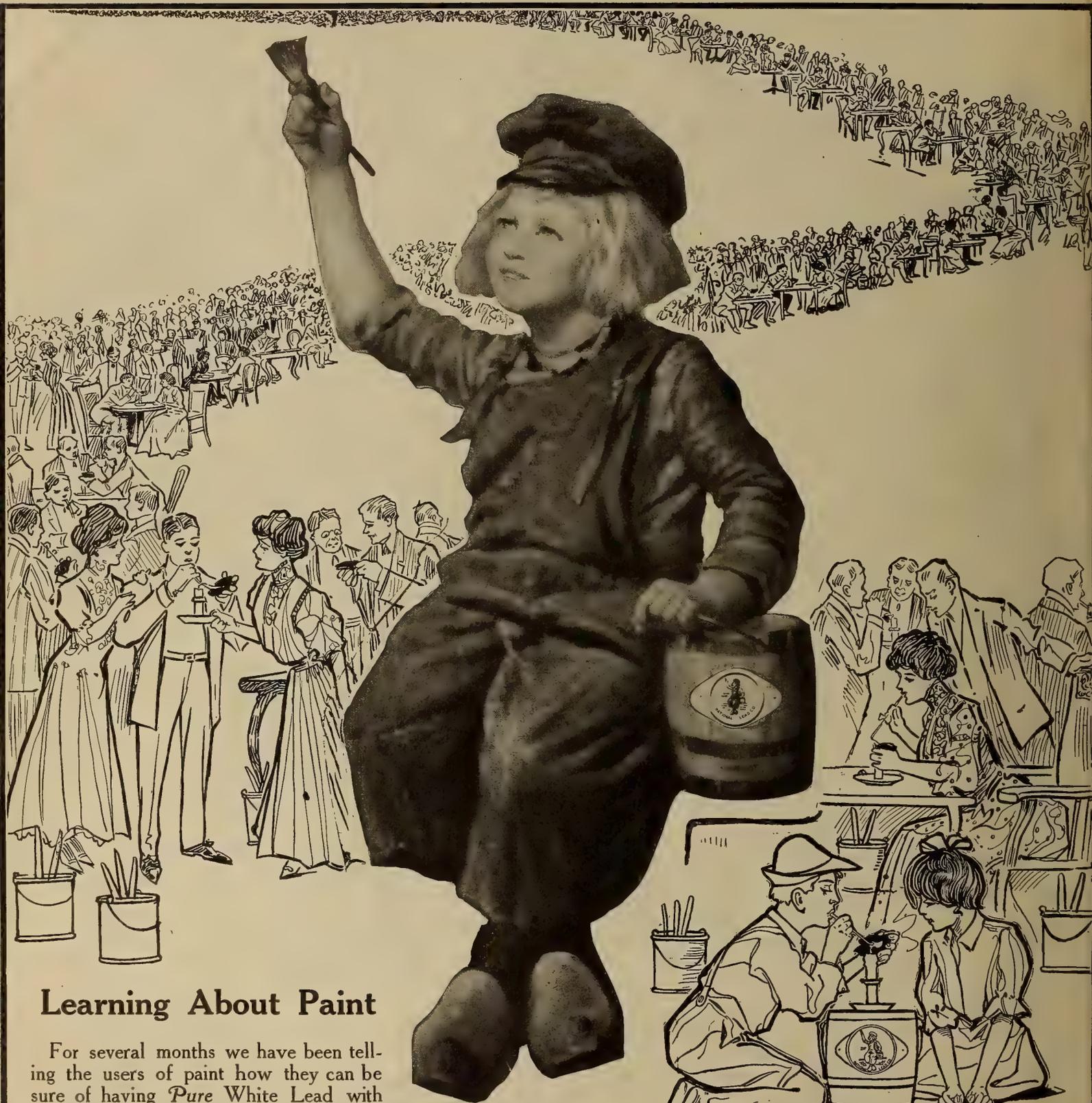
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SEPTEMBER

1908

Vol. VIII. No. 2

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THE GARDEN MAGAZINE

FARMING

COUNTRY LIFE
IN AMERICA



DOUBLEDAY, PAGE & CO.



THE WORLD'S
WORK



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Ablaze with immense, brilliant flowers, our fields of **Mallow Marvels** are now a sight to see. Huge blooms from 8 to over 10 inches in diameter, in **fiery crimson, rich blood-red, soft shell-pink** and **clear snowy white**. Their great beauty is indescribable.

All visitors are amazed at the wonderful show. Meehans' Mallow Marvels surpass all other perennials in profuseness of bloom, flowering propensities and brilliancy of color.

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Easy to grow, perfectly hardy, free from all attacks of insects, and herbaceous—they come up year after year and thrive under varied conditions. Every garden, large or small, should contain them, as it is possible to have success with them from the coldest sections to the sunny south.

Order at once. Our supply, though large, may become exhausted, as it has each season since they were introduced, in March, 1907.

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We want every Garden Magazine reader to have a clump of our wonderful Mallow Marvels on his lawn, and therefore make this special offer:

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Vick's Garden and Floral Guide for Autumn

gives reliable information about planting Hyacinths, Tulips, Crocus, Narcissus, Lilies, etc.

Vick's Catalogue of Perennial Plants illustrates and describes the favorite hardy plants for permanent places.

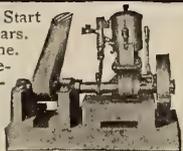
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To preserve your Victor Records and get best results, use all Victor Records.

A complete list of new Victor Records for September will be found in the September number of Munsey's, Scribner's, McClure's, Century and Everybody's; and October Cosmopolitan.

Don't Let the Old Trees Die

Young trees may not equal the old ones in size and beauty during your life. Insecticides, fertilizers, bolting, pruning, tree surgery, and cavity-filling are only part of the practical means of restoring sick and dying trees to health and beauty. We examine estates, suggest improvements in planting new stock, and direct the work of saving diseased trees and shrubs. Trained assistants equipped with proper tools are furnished when desired. A booklet entitled "The Care of Trees" is sent on request.

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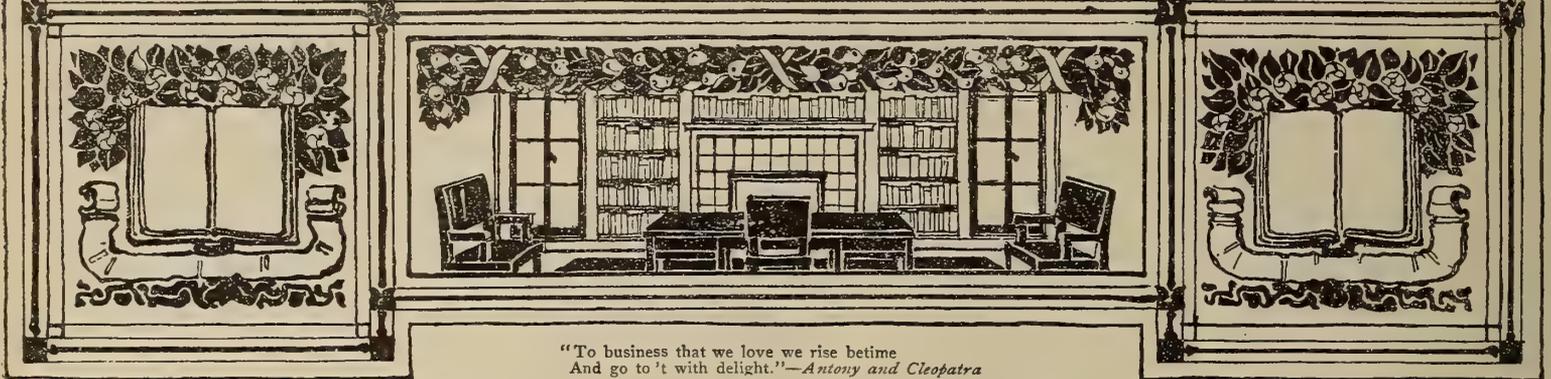


BEFORE TREATMENT OF CAVITIES



AFTER TREATMENT OF CAVITIES

THE TALK OF THE OFFICE



"To business that we love we rise betime
And go to 't with delight."—*Antony and Cleopatra*

OLD WORLD EFFECTS WITH NEW WORLD MATERIAL

This spring we sent Mr. Wilhelm Miller, who for years has been a member of the Editorial staff of *Country Life in America* and *The Garden Magazine-Farming*, to England, to find out what that country could teach us about gardening and kindred subjects. He is writing twelve articles for *Country Life in America*, as follows:

WHAT ENGLAND CAN TEACH US ABOUT

Gardening.	Wild Gardening.
Living Out of Doors.	Wall Gardening.
Landscape Gardening.	Rock Gardening.
Formal Gardening.	Rose Gardens.
Hardy Gardens.	Joys of Collecting.
City Gardening.	Indoor Gardening.

"Our task," he writes, "is to reproduce with long-lived material in the United States some of the effects which the English gardens have secured." Much of his time is devoted to having photographs made to illustrate these articles, and in these pictures there will be shown only those plants that can be grown in the United States. Heretofore books and articles on English gardening have discussed gardens which were entirely impractical for America, but Mr. Miller, being an experienced American horticulturist, has carefully excluded all plants which cannot be safely and effectively grown on this side of the water. The pictures which have already arrived are very remarkable, and we think they will be a new and interesting feature for *Country Life in America*.

Mr. Miller is also making a study of garden effects, and has in preparation a series of articles for *The Garden Magazine-Farming* on "Old World Effects with New World Material," and these will add much, we believe, to the attractiveness of the magazine.

The October issue of *The Garden Magazine-Farming* will be the Double Annual Fall Planting Number, with a special cover in color. There are many things that must be planted in the fall, and the growth of many others may be advanced several weeks by timely fall planting. This number will contain a great number of valuable suggestions which, if taken advantage of, will save a good deal of effort in the busy spring season, when every minute counts.

"HOW THE STANDARD OIL COMPANY MANAGES ITS BUSINESS"

is the subject of the second article about this great company — in the September number of *The World's Work*, by Mr. C. M. Keys. The first article (in August) was, "How the Standard Oil Company Brings to the United States \$1,000,000 a Week from Its Foreign Trade."

The September *World's Work* contains also an article by Mr. F. N. Doubleday giving

DAFFODILS — NARCISSUS

The early fall is the time to plant bulbs for daffodils or narcissus for spring blooming, or to force them to bloom indoors for the Holiday Season. The bulbs are inexpensive, and by devoting a small amount of time and space to them excellent results can be secured. "Daffodils — Narcissus, and How to Grow Them," in our Garden Library, is an excellent handbook, and can be procured from booksellers for \$1.10, or we will send it direct for \$1.18, post-paid. Other books of the Garden Library are:

"Roses, and How to Grow Them."
"Ferns, and How to Grow Them."
"Lawns, and How to Make Them."
"Water-Lilies, and How to Grow Them."

LIMP LEATHER EDITION OF KIPLING

The work on the limp leather pocket edition of Mr. Kipling's works is steadily going forward. "Kim," "The Day's Work," and "Departmental Ditties" are ready, and "Plain Tales from the Hills," will be published before the first of September.

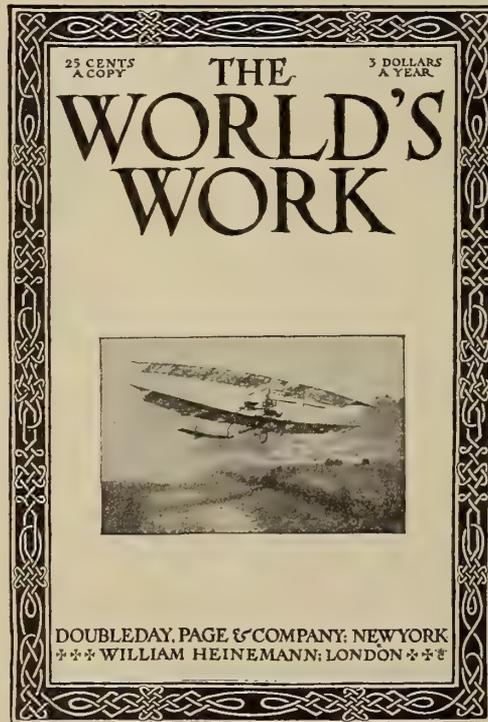
NEW BOOKS

During August we shall have the pleasure of adding to our book list:

"The Weeping Cross," by Henry L. Stuart.
"The Blotting Book," by E. F. Benson, author of "Sheaves."
"My School and My Gospel," by Sir Hubert von Herkomer, the Great English Artist.
"Round the Corner in Gay Street," by Grace S. Richmond, author of "The Indifference of Juliet."
"Studies in the American Race Problem," by Alfred Holt Stone.
"The Altar Stairs," by G. B. Lancaster, author of "The Spur."

SPENDING SPARE TIME WITH PROFIT

The articles and plans under way for the fall make it possible for us to offer an unusual opportunity to those who can represent us for our three magazines. We desire not only those who can represent us by personal canvassing, but those who have a smaller amount of leisure time in which they can do letter writing profitably for themselves. Of course, the "Reminiscences of Men and Events," by John D. Rockefeller, will greatly increase the demand for *The World's Work*. For further particulars, address The Circulation Department, DOUBLEDAY, PAGE & COMPANY New York City.

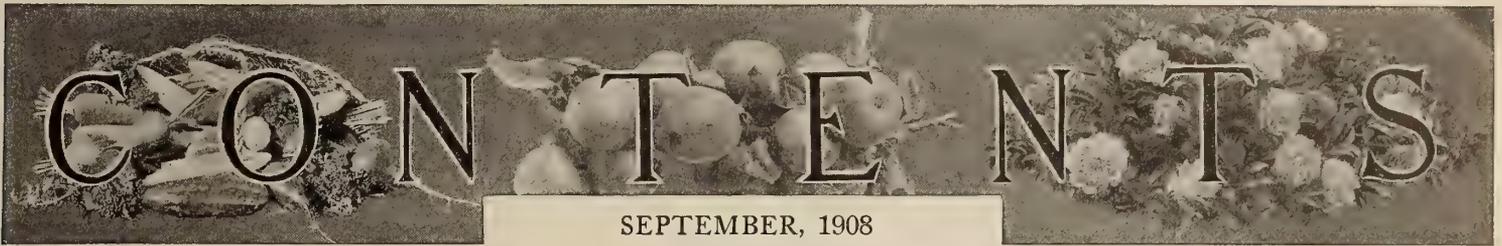


Facsimile of September "World's Work" Cover

"Some Personal Impressions of Mr. John D. Rockefeller," which throws new light on this reticent man's character and qualities.

In the October *World's Work*, by the way, there will begin the Reminiscences of Mr. Rockefeller.

The September *World's Work* contains also an elaborate article by Mr. Frederick Todd on "The Airship Is Here," the most instructive and elaborately illustrated article on flying machines that has yet been published.



SEPTEMBER, 1908

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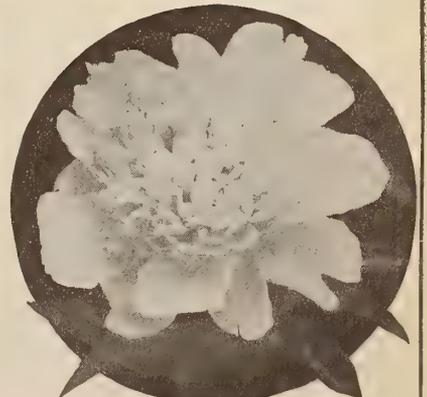
In 420 varieties of Iris and over 500 different Peonies. All these are described in "Farr's Catalogue of Iris, Peonies, Phlox and hardy plant specialties"—the most complete Iris and Peony list published. A copy will guide you in buying for fall plantings, whether you require only a few things or need a large stock in complete assortment.

This Catalog Free on application.
Send your name for a copy—today!
Just as well have a complete list of hardy plants as a partial one.

BERTRAND H. FARR

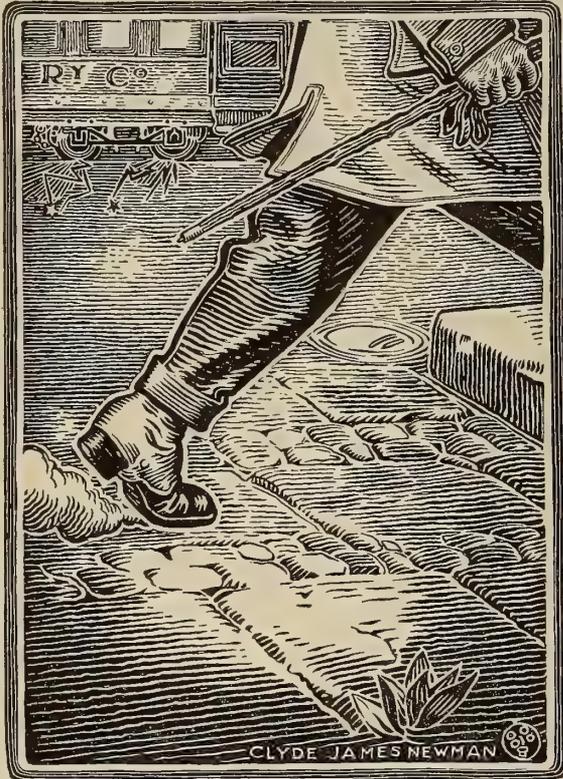
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AN IVORY SOAP FABLE

(With apologies to Aesop and Geo. Ade)



ONCE upon a Time, there lived a Man who Determined to be Economical. He Resolved to Frequently walk to and from the Office to save Car Fare.

At the End of a month, he had Saved nearly, but not quite, enough Money to have his Shoes half-soled. They needed it.

Shortly afterward, his Wife became Economical, also. She made up her Mind to Save Money on Soap. She Decided to Wash her Dishes with ordinary laundry soap rather than with Ivory Soap, as had been her Custom for Years.

At the End of Six Months, she had Saved nearly, but not quite, enough Money to Have her Hands "treated".

They needed it. They were very Red, very Coarse and very Rough. The Combination of Hot Water and

ordinary laundry soap had been too much for Them.

When she got back from the Beauty Shop, she did a little figuring. She found that in the Course of twenty-six weeks, she had saved 43 cents. She did not Know where the Money was, but she Knew she had saved it.

She also Knew that she had lost her Temper fifty-two times because her Husband had Said Things about the china; and eighty-three other times because her Hands were "all shrivelled up."

So she stopped Trying to Economize on Soap.

Moral: The Best—which is Ivory Soap—is none too good for the Woman who does her own work. The second best is not half good enough.



Ivory Soap

99⁴⁴/₁₀₀ Per Cent. Pure.

The Garden Magazine

VOL. VIII—No. 2
PUBLISHED MONTHLY

SEPTEMBER, 1908

ONE DOLLAR A YEAR
FIFTEEN CENTS A COPY



[For the purpose of reckoning dates, New York is generally taken as a standard. Allow six days' difference for every hundred miles of latitude.]

A Really Busy Month

ALTHOUGH September sees the end of the growing season outdoors, the gardener who is up to date will find plenty of work in preparing for the harvesting of this year's crops and for the starting of early crops for next spring. The amateur who keeps at it all this month will gain several weeks on his neighbor next spring.

There are four important things to be done:

1. First of all, send for the bulb dealers' catalogues. Make your selections of named varieties of your favorite flowers and get your order in immediately. Ask the dealer to ship "as received," and by the end of August the early flowering bulbs can be started to give flowers at Christmas. The bulk of the order for outdoor planting will reach you by the end of the month. In buying bulbs, make the bulk of your order from well tried favorites, but also buy a few novelties to test out. If you don't try novelties you lose half the fun of gardening.

2. Prepare for winter! Clear up all useless litter and burn over all crops that have been afflicted with disease or insects. Get protecting litter ready to put over half tender plants on the approach of frost. Order supplies of straw, mats for hotbeds, and anything that will be needed to protect from the winter's cold. See that the storage cellars for root crops are well cleaned out and ventilated. If mold has been prevalent, burn some formaldehyde candles. Wash over shelving with a solution of salicylic acid. For outdoor storage of root crops, dig holes and sink barrels to the rim, having first knocked out the bottom. Put a layer of straw over the bottom and everything is ready.

3. Get ready for spring. Take cuttings of tender bedding plants that will give stock for propagating from in early spring; don't attempt to carry over the same plants

from now until next year. Get seed beds ready for perennials, either in the open or in frames. See that you have sufficient seeds of hardy vegetables for sowing this month and next. It's worth while risking the loss of a little seed if you can get an extra crop a few weeks earlier than usual.

4. Overhaul shrubberies and borders. Don't defer until half the foliage has gone the inspection of all your plantations to see just where things can be improved. Make up your mind now as to what needs removing and rearranging in October or spring. Tie a cord on every tree or shrub that is to be moved. In this way, you will avoid the chance of forgetting the most important alterations that you have contemplated.

COMING OF FROST

In the northern sections early frost may be expected by the end of this month. Sometimes it strikes with great severity and kills all the tender outdoor plants. You can often save them for several weeks by being prepared for this one early snap. A shield of cheesecloth thrown over the beds when frost is expected will insure results.

Clean up the vines from melon beds as soon as they are frosted.

Harvest field corn before frost. Get in the root crops too, except that rutabaga may stand outdoors for another month.

SOW VEGETABLES

For the Christmas dinner, sow a few feet of spinach now. Risk a few peas of the round seeded sorts on a warm sandy soil—they may come up early in the spring. Make sowings of lettuce from the last week in August until the middle of the month, and have salads under the snow. Sow strap leaf turnip for winter storage. Radishes may be sown now in succession every ten days until November.

For earliest spring salads, sow corn salad out in the open now. This will give a green vegetable in March if lightly protected with litter in the heart of winter.

Save three weeks on next season's onions by sowing seed now. Also plant sets of Welsh onion before September 10th to give salad greens in the spring. Late cabbages which are still growing should be bent over so as to break the roots and hasten maturity.

Celery should be ready for a first handling and must be earthed up slightly now, the final banking to be done later. Sow cabbage and broccoli in coldframes to give earliest plants for transplanting. During September sow down any meadows for hay, and lawns that have been properly prepared may be seeded now with a first class mixture. If the land is heavy, better cultivate thoroughly

and let lie idle over winter. For late fall and spring pasture, sow rye. Land that has lain fallow can now be plowed up and seeded down to either of these purposes or to winter grain.

SMALL FRUITS AND STRAWBERRIES

It is not yet too late to plant pot-grown strawberries for fruiting next June. If you are moving runners from your own beds and have sufficiently cultivated and pulverized the soil, with plenty of manure for winter protection and spring feeding, you can make strawberry beds up till October and get fair results. But don't expect results without special care. Now is the time to take hard wood cuttings of currants, gooseberries, and grapes. Tie them in bundles and insert them in the ground deeply for planting out in the spring. Buy currant and gooseberry bushes now, in the Southerly portions plant grapes.

Don't forget to pick early ripening fruits a little bit before they are really ripe. That is the only way to have them keep a reasonable time. Autumn and winter kinds can remain on the trees much longer and will be all the better. Select trees now that are to give you grafting wood. You can see their bearing qualities and other good points better at this time. Don't trust to memory, but mark each one with a label, explaining why it is selected. If you have young seedling peaches and don't wish to wait several years, most likely to reap disappointment, bud over the seedlings now with some recognized variety that does well in your district.

FLOWER SEEDS FOR PRESENT SOWING

Any time during this month sow hardy perennials in prepared seed beds in the open or in frames for plants that will bloom next year. Sow poppies and other hardy annuals such as sweet peas towards the end of the month. Gather seeds of native flowers which you wish to naturalize and sow immediately in shaded, well-drained spots where the ground has humus and moisture. Protect outdoor seed beds by a light screen of lath or cheesecloth to break the direct rays of the sun, but don't exclude air.

GET THE GREENHOUSE READY

See that everything is in order for getting to work. Have the pipes and joints overhauled and any leaks properly fixed. You may be called upon to start up a mild fire at almost any time to keep down mildew. Bring inside azaleas and bougainvilleas, that are to flower next Easter. Sow English cucumbers for forcing, if you would have a new delicate vegetable. See that all glass is in good repair, for broken glass means loss of heat, and that means money.

The Wild and Run-wild Tulips of Europe—By Wilhelm Miller, New York

THE SHOWY FLOWERS THAT WILL LAST INDEFINITELY IN THE GRASS, MULTIPLY WITHOUT CARE AND LOOK LIKE WILD FLOWERS—WE SHOULD USE THEM BY THE THOUSAND FOR GORGEOUS NEW EFFECTS

EVERY visitor to the Mediterranean region naturally gets the mistaken notion that the common garden tulips are native to Europe, because they have grown wild about Florence for centuries. And every student who consults the great *Index Kewensis* gets the erroneous impression that there are many other species of tulips native to Europe. On the contrary the showy tulips of European fields have all run wild from gardens, and the only species really native to Europe are so few that anyone may understand them in two moments.

THE FOUR SPECIES NATIVE TO EUROPE

The only tulip that grows wild north of the Alps is the wood tulip (*Tulipa sylvestris*), a yellow flower which I should like to see naturalized by the thousand on every great estate in America. It would be more like a wild flower than the showier tulips because the petals are only two inches long and sharp instead of rounded as the garden tulips are. The old writers are silent about its fragrance, but modern dealers (who offer it as a synonym of *T. Florentina*) declare it has the odor of violets.

In the wild the flower is flushed with green outside, which makes it all the more suitable for woodland planting. It is "scarcely to be seen," says Burbidge, "until its gold stars open sweet and showy in the sun." This dainty wood flower is quite hardy in New England, but it may not bloom freely



Red and white Duc Van Thols (*T. suaveolens*), which bloom early

the first year or until it feels at home. The bulbs cost only two cents each by the hundred.

The Southern representative of the wood tulip is *T. australis*, which is also a yellow flower, but red outside instead of green. I fancy that it would bloom in March in the Carolinas. Though smaller, it is gayer than the northern form, and the bulbs cost about four times as much. This and the next three species should be tried in rock gardens by Northern connoisseurs.



T. Kaufmanniana, a pink and white tulip that blooms a month ahead of most others

The most exquisite of the European tulips is the lady tulip (*T. Clusiana*), because of its unique color scheme. Fancy a flower that is white inside, flushed red outside, and then add a pure violet eye! It grows only eight inches high and the blossom is only two and a half inches across when open, but the effect is irresistible. Though the lady tulip has been loved and cultivated ever since 1636 and though it is widely spread in nature, it has never produced any marked variation from this clear-cut type. And the bulbs are equally unmistakable because of their thick blanket of wool which protrudes like the neck of a "sweater." These bulbs, according to Barr, should be planted six to nine inches deep among stones and roots of other plants, and they are said to hate rich soil.

It is hard to believe that in Europe, every foot of which has been traversed many times by eager botanists, two flowers as conspicuous as *Tulipa Orphanidea* and *Hageri* should have lain undiscovered until 1862 and 1874 respectively, especially as the latter grows not far from Athens. The former is an orange flower two inches long, and both have a conspicuous black eye. From the fact that they have been found only in the mountains of Greece, one is tempted to suppose that they may be only garden tulips that have escaped to the mountains and adapted themselves to wild life. This would easily explain their smaller flowers, sharp petals and black eyes, and possibly even the tuft of hairs at the base of their

filaments (for we might regard this as a natural outgrowth for the protection of the delicate pistil against mountain frosts). But the total absence of hairs inside the bulb coat goes dead against this theory, since the higher the altitude the greater the need of wool. For such interesting species one should not begrudge thirty-five cents a bulb.

THE PROTOTYPE OF GARDEN TULIPS

Practically all the important garden tulips are derived from *Tulipa Gesneriana*, an Asiatic species which has produced a far wider range of colors than any other. Moreover, it is one of the few species that naturally have the petals rounded at the tip instead of sharp pointed. Not all of the earliest pictures show round-petaled tulips, but one of the first things the Dutchmen did when they began seed-sowing about 1591 was to preserve the varieties with the broadest and roundest petals since these combined to make a perfect cup and therefore a showier flower. For the same reason they neglected the varieties with stellate or starry flowers, i. e., those which showed daylight between the petals. Arbitrary as this may sound, you would do the same thing yourself if you were to raise new varieties, for the tendency is irresistible in floriculture. In all important flowers, the rounding of the petals has come to be a sure sign of improvement on the part of man.

On the other hand, a reaction against this process is always present. Almost everybody rebels at the first intimation that flowers can, or ought to be, "improved." Americans particularly are quick to condemn



T. Billietiana, the most glorious yellow tulip for naturalizing. It has a three-inch flower



T. Gesneriana var. *rosea*, has a wild-looking flower that is ideal for naturalizing

On the other hand, the sharp-petaled tulips that have run wild in Europe and have maintained themselves for many generations without human care are just the thing we want in order to give a new life and zest to American floriculture. At first they will seem strange, but if they like our climate and multiply without the slightest evidence of human care, the Americans of the next generation will assume that they are wild flowers, just as the Europeans now do. Dozens of the other less interesting flowers have already gone through this process.

Probably the most satisfactory purchase a man can make in this line is the scarlet tulip known as *T. Gesneriana*, var. *spathulata* or *major*, because this is the showiest and can be had for a cent and a half a bulb by the thousand. The flower is three inches long. The only other suitable kind that can be had so cheaply is *T. Gesneriana*, var. *rosea*.

The history of these two varieties I cannot give, and as the demand increases for tulips to be naturalized, I presume that the dealers will be tempted to invent a lot of new names and pass out any kind of garden tulip of the required color which they can supply for a cent or two. Clearly such varieties cannot

compare in interest with the famous old run-wild varieties of Europe. It is these historical forms of *T. Gesneriana* that I now propose to describe.

FIVE BLACK-EYED BEAUTIES

There is no surer sign of wildness in a tulip than the bold black eye formed by the spots at the base of the petals. This black eye has been bred out of all modern tulips by centuries of relentless persecution. The reason is that a dark eye generally goes with dark stamens and the bursting of the latter soon litters the cup of the flower with an untidy mass of powder which stains the flower a muddy color.

But when your point of view is that of naturalizing tulips on a great scale so as to produce a gorgeous sheet of wild flowers, these spots become a joyful sign of wildness, and they may be black, brown, blue, violet, or dark green.

Add to color the differences in size and shape of these spots and you have endless material for innocent enjoyment. For, in some of these run-wild tulips, the spots are so large as to coalesce into one great perfect eye, the animation of which is heightened by a narrow border of yellow which separates

florists' standards as formal, artificial, technical. Consequently, there is a great popular demand at times for the "simple old-time originals," which connoisseurs, despise. To meet this demand the dealers catalogue about a dozen varieties of *Gesneriana*, so that you can get back as near a possible to the original scarlet, crimson, rose, orange, yellow and white. But when you get these rustic varieties in your garden in comparison with larger flowers, more varied colors and greater refinement of form, your loyalty to the "good old timers" begins to cool, and the chances are that the next June you dig up the bulbs, banish them from the garden and put them in the shrubbery, orchard or some wild corner

OUR GREAT NEW OPPORTUNITY

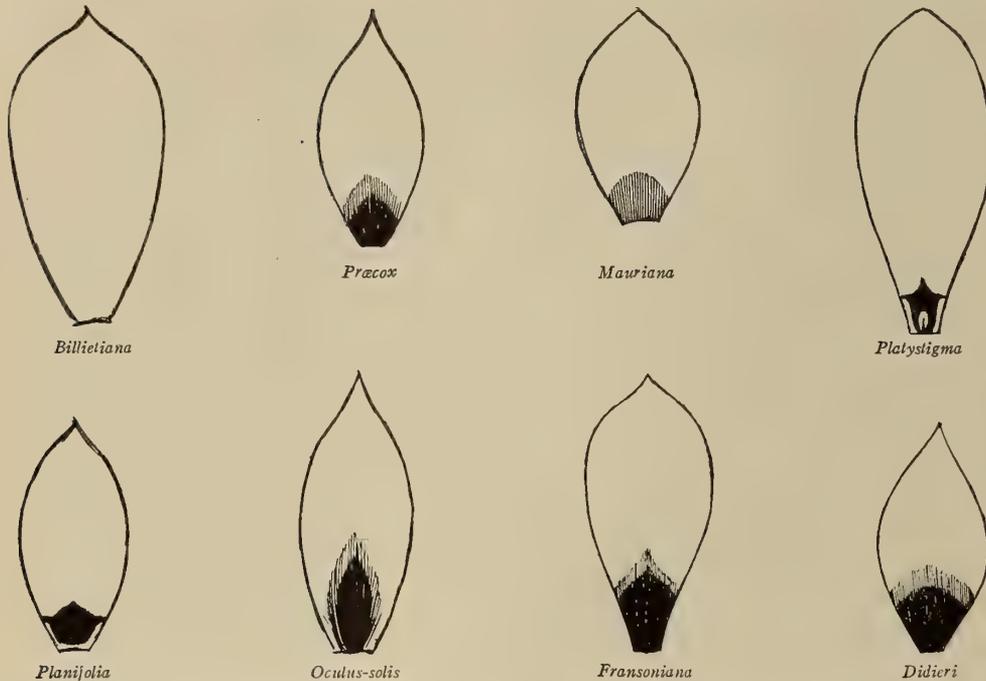
That is precisely what we all ought to do, for we can create gorgeous new effects by treating these old tulips as wild flowers. Fancy a thousand red tulips coming up year after year in the same meadow and gradually multiplying until they become ten thousand! And this at a total cost of fifteen dollars, plus a day's work for the original planting! We can produce similar pictures in half a dozen other colors. There is no cheaper way of painting hillsides with color in the spring-time, and our great estates can be transformed as by a magician's wand, if country gentlemen will plant tulips with as lavish a hand as they now plant daffodils.

"But," you may exclaim, "we can never make tulips look like wild flowers. Everyone would recognize them at once as exotic, because everyone feels instinctively that we have no spring wild flower as gorgeous as the tulip."

Such an objection springs from a fine sense of propriety. I shall never advocate planting garden tulips in the wild, even though they are so cheap that it will be impossible for many people to resist the temptation.



A gorgeous array of dark red *Gesnerianas* that might most happily be grown like wild flowers



The wilder tulips have the dark central eye, which has been bred out of the garden varieties. They also have pointed petals. This shows the shapes and markings of the petals

it from the untamed red or other solid color of the petals. In others, the six spots are small but shaped with such geometrical precision that they range themselves in the heart of the flower like a circle of gems. Others, of course, are muddy in color or uncertain in form, and the first rain is likely to bedraggle this wild beauty, but I am sure we can forgive the absence of technical perfection in consideration of the immense gain if we can make the most splendid of all spring flowers as much at home in every American landscape as is the orange day lily, another exotic, along our country roadsides.

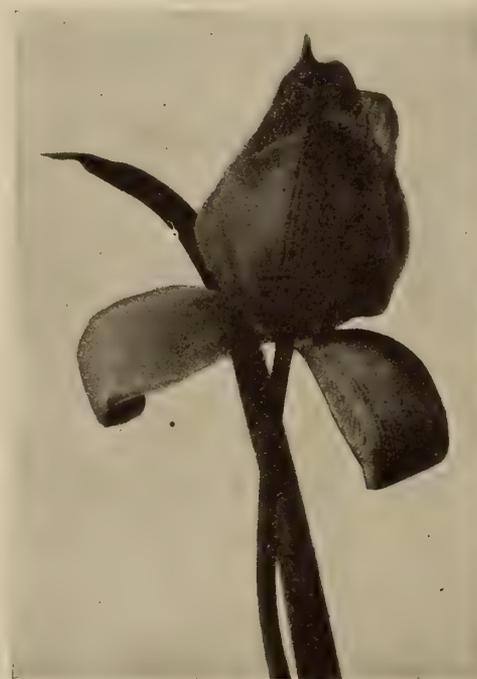
The most interesting of all these black-eyed tulips is the Sun's-eye (*T. Oculus-solis*), because it is the oldest. Although not formally described as a species until 1808, this gorgeous red flower with a black eye was known to the Italians as early as 1601 by the name of *Ochio di sole*. In explaining this name, Clusius said that the flower has a black or bluish black spot surrounded by a yellow circle which suggests an eye. But why *sun's* eye I cannot imagine, except in the same poetical sense that the daisy is the "day's eye."

Although this Sun's-eye has been found wild in France, Italy, and Switzerland and has been cultivated more or less for over three hundred years, I dare not recommend it for lavish planting, even if the bulbs cost only three dollars a hundred, for the only kind I have seen under this name in the trade is a worthless flower compared with the original. Moreover, the trade recommends it for the rockery, a pretty sure sign that it requires extra good drainage. You can tie to this — the true *Oculus-solis* ought to have flowers three inches long, and the original form had woolly hairs all over the inside of the outer bulb coat.

This wool is, indeed, the main botanical

reason for considering the Sun's-eye and its close relative *T. præcox* as separate species from the garden tulips, for in *T. Gesneriana* there are few hairs except at the base of the bulb. But I cannot make the hairiness of the bulb the all-important character that Baker does for discriminating species of tulips. The woolly-bulbed tulips of the mountains tend to lose their hairiness when cultivated in Holland, and conversely the garden tulips tend to assume hairiness of bulb when they escape to the wild.

Two other red tulips with black eyes date from 1823 and 1858 respectively, viz.



T. sylvestris, sold as *Florentina odorata*. A yellow flower that holds its own in wood or meadow

T. maleolens and *planifolia*, but as they would cost twenty to thirty dollars a hundred in this country, they are only for collectors. The former gets its name from its faintly unpleasant smell; the latter was found wild in the Alps. The horticultural distinctions between all these dark-eyed tulips are here indicated by drawings from the original pictures, but, however delightful they may be in real life, it must be confessed that these eye-markings are too unstable to be of any importance as botanical characters. I cannot see that the great botanist Jordan had the slightest excuse for describing all the tulips of the Alps as separate species. I am familiar with the botanical differences between all the tulips mentioned in this article, but I cannot accept as species flowers known only in cultivated fields, and all these differences seem to me only such as one would naturally expect to find in garden tulips that have escaped from cultivation.

In *T. Fransoniana*, we get a lovely cerise-rose with a large violet-black centre which is edged with white.

The fifth and wildest of these black-eyed tulips was called *T. strangulata*, "from the unexpanded flower in which the tips of the petals cross each other as if a ligature had been applied below." This description will bring vividly to the mind of every tulip lover the peculiar beauty of a flower with reflexed petals. Every visitor to my tulips last spring exclaimed with delight at the first glimpse of a reflexed flower, yet nothing is more odious to a Dutchman. The plant breeder wants a tulip with straight petals because it is more symmetrical and stately. But for wild gardening nothing can be more appropriate than these reflexed tulips.

The oldest of these reflexed tulips are the four varieties found growing wild near Florence in 1837, which pass under the name of *strangulata*. The cheapest variety is primrose flushed with rose, which will probably cost five cents a bulb, by the hundred, on this side of the Atlantic, but even then it is 100 per cent. cheaper than the favorite reflexed tulips of the day, viz. elegans (red) and retroflexa (yellow). The latter are generally classed as "cottage tulips" from their unknown origin, but I see no reason why they should not be used for naturalizing by the wealthy.

TWO BLUE-EYED BEAUTIES

Why in the world we do not have a blue tulip surpasses my understanding, for there are plenty of tulips with clear blue eyes having little or no trace of purple.

If there is any blue-eyed tulip more gorgeous than the red-flowered *T. Didieri*, I should like to know what it is, and strangely enough *Didieri* is quoted as so cheap that I dare not write the price for fear that there may be some mistake. Every owner of a country estate can afford five hundred bulbs of it this fall and I should advise him to get five hundred of its pure white variety also, for this seems to be the cheapest and best white tulip for naturalizing. An Irish bulb grower has lately produced about a



Another variety of *T. Gesneriana*. A thousand bulbs can be bought for \$15

dozen varieties of *Didieri*, all of which I mean to have. The original colors, however, were only three—red, white and pale yellow—and they date from 1846.

The least rustic of all run-wild tulips, it seems to me, is *T. platystigma*, a lovely cherry-rose flower, three and a half inches long. Unlike all the others it has distinctly rounded petals. The blue spots, also, are small. I commend it to collectors for garden culture, but it has the reputation of being a shy bloomer and for the general public *Cassandra* is doubtless a more satisfactory flower. *T. platystigma* was found in the Alps in 1855.

YELLOW AND YELLOW-EYED TULIPS

The most glorious yellow tulip for naturalizing that I know of is *T. Billietiana*, a 3-inch flower that breathes the spirit of wildness in spite of its great size. The fact that there is no trace of black in its centre is not to be taken as a sign of sophistication, for some of the earliest yellow tulips had no



White variety of *T. Didieri*, the blue-eyed beauty that may be naturalized at small cost

black eye. Only the inner petals are rounded, the outer being sharp enough to make the flower suitable for wild gardening. The bulbs cost two and a half cents each by the hundred, which is cheap enough for so magnificent a flower—a bigger yellow blossom than any wild flower we have. It was found in the Alps in 1858. I am not sure whether the dealers have exactly the right thing, for their *Billietiana* has a rosy margin and there can be no question that the original was an all-yellow flower.

The only interest of *T. Mauriana* (another red tulip found in the Alps in 1858) is that it reverses the color scheme of the other run-wild tulips. They have black-eyes; this one yellow, yet this is nothing wonderful for the first thing the Dutchmen tried to do was to give their red tulips a yellow or white centre instead of a black one. It is, therefore only for collectors, not for wild-gardening.

TWO INTERESTING EARLY TULIPS

So far we have been speaking only of May-blooming or permanent tulips, whereas the bedding tulips (of which the bulbs must be lifted and stored every summer) bloom in April. But there is a third or extra-early group which bloom with the hyacinths in early April, a fortnight or so before the rank and file of bedding tulips.

The most famous of these extra-early tulips are the Duc Van Thol varieties in many colors which were long ago described as *T. suaveolens*, and distinguished from the garden tulips by early bloom, dwarfness, fragrance and sharp petals. These differences seem so small (in view of their suspiciously wide range of colors) that they might easily be accounted for as early varieties of *T. Gesneriana*; but wild specimens have been found in Asia Minor that preclude this theory and moreover, the Duc Van Thols behave very differently from the bedding tulips under glass, since they are the only tulips that can be forced with certainty for Christmas bloom.

However, no European specimens of *T. suaveolens* have been collected save in the southeastern corner of the continent and, therefore, I omitted it when considering the species that range widely over Europe. I have seen *T. suaveolens* catalogued only once, and, at \$1.12 a bulb on the other side, it is not a very tempting proposition, especially when one can buy Duc Van Thols in this country at a few cents each. But even the Ducs, I fear, are too familiar to be used for naturalizing.

A much more interesting early tulip for collectors is *T. præcox*, a red tulip with a black eye which can be distinguished from the Sun's-eye only by its season of bloom. This is possibly a real species as it has been reported from Syria but I want to see the herbarium species in Europe before believing that it did not originate in cultivation from the garden tulip. However, it is very interesting to collectors, because cultivated since 1811, and it can be had for about two dollars and a half a dozen.

The New Yellow Lily

By T. McADAM, New Jersey

UNFORTUNATELY yellow is a rare color among lilies. We have a good bell-shaped one in *Lilium Canadense* and a good cup-shaped yellow lily in a variety of *L. elegans*; but heretofore there has been no cheap, easily grown yellow lily of the Turk's cap type save one with an odor which many people find disagreeable, viz., *L. pomponium*, var. *Pyrenaicum*.

The most promising candidate for this position is *Lilium tenuifolium*, var. *Golden Gleam*, which has the further interest of being the product of crossing. Nothing is more obvious than the need of hybridizing the lilies and nothing would seem easier. Indeed the seedlings always look wonderfully different up to flowering time, and then alas!

there is nothing new. I do not know a single lily hybrid beside the nankeen lily (*L. testaceum*) that has introduced any really important new color or form, unless the following proves itself to be worthy of general cultivation.

The new yellow lily is the product of crossing the Siberian coral lily with a white variety of the Turk's cap (*L. tenuifolium* and *L. Martagon*, var. *album*) so that the yellow color is a most surprising outcome. The new lily was secured by Mr. E. Huftelen, of Leroy, N. Y., who sends the following particulars:

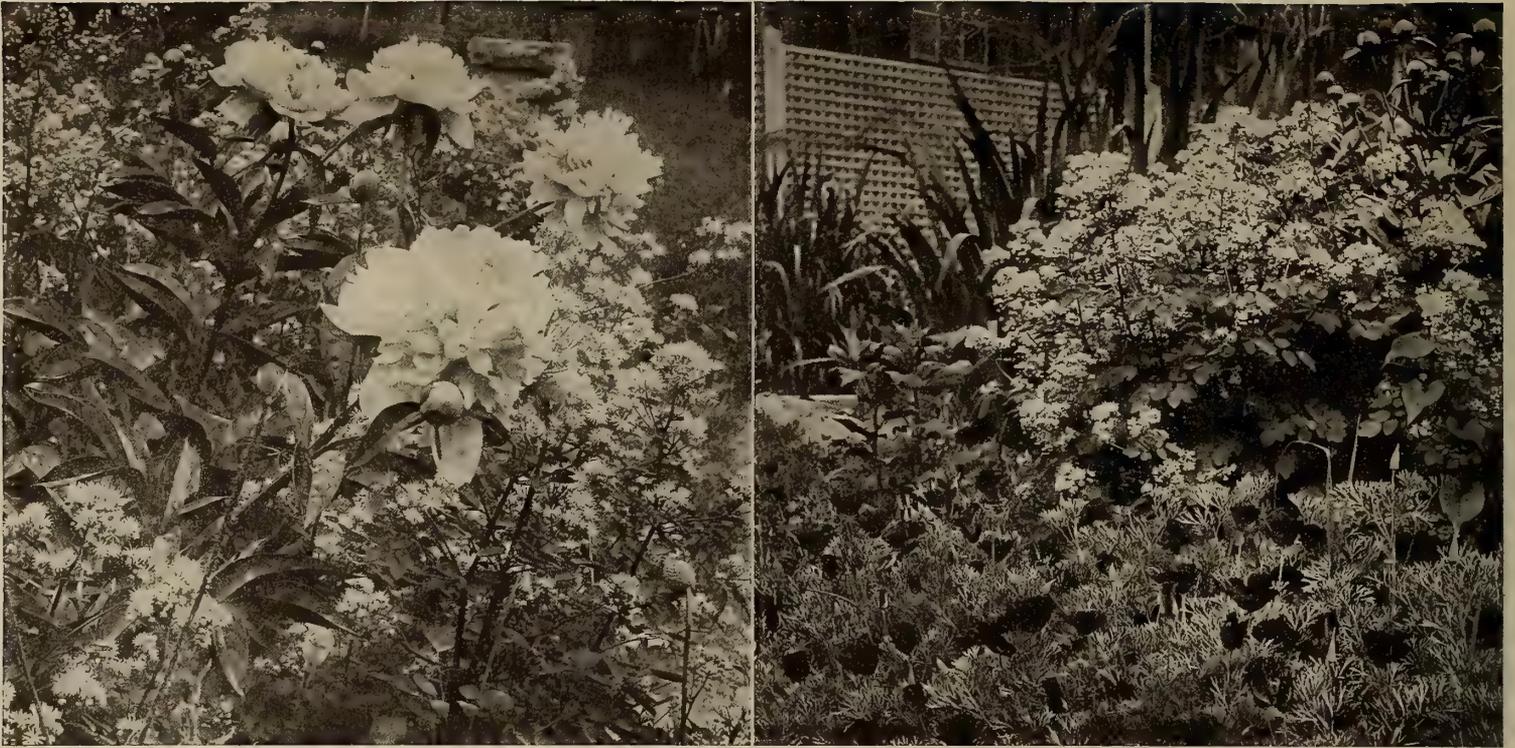
The Siberian coral lily blooms from about June 6th to July; has scarlet flowers about one and one-half to two inches across; and established bulbs will produce about seven flowers.

The Turk's cap blooms from June 15th to July 10th; has purple or whitish flowers of the same size; and established bulbs will produce about twenty flowers.

The new lily, *Golden Gleam*, blooms June 1st or 2nd, has yellow flowers; and old bulbs will produce ten or twelve flowers. The only trace of *Martagon* influence would seem to be the tendency to flower in whorls, which is more significant than the additional number of flowers and the greater height. Both the reputed parents have strongly revolute petals.



The new *Golden Gleam* lily, flowering July 1



The foamy white flowers of the meadow rue are welcome in any combination and are the glory of the garden in early summer. These two pictures show it with peonies on the left and with the California poppy on the right

Growing Wild Flowers from Seed—By Flora Lewis Marble, Pennsylvania

A SURE WAY TO HAVE THE NATIVE FLOWERS WITHOUT EXTERMINATING THEM—BEGIN NOW TO COLLECT SEEDS FOR IMMEDIATE SOWING AND ENJOY THE FLOWERS NEXT SEASON

THERE are three reasons why you should start your wild flowers from the seed. First, if you gather only seeds from the woods, fields, and roadsides you leave the plants growing to make the places beautiful for the next passerby; second, at the end of a couple of years you will have many more plants in your garden if you plant seed than if you run the risk of transplanting from the wild; third, there is a pleasure to be had from growing plants from the seed that can never be had from buying them, or digging them in the country.

I find the surest way is to sow the seed as soon as it ripens. Light, rich woods dirt is the ideal soil for most seeds, though garden soil mixed with sand is successful. The ground should be kept moist and the hottest sun avoided. If the seedlings are treated with the same respect shown to rarer plants they will amply repay by their lusty growth.

A seedling contains all the elements of chance. I gather seed from a wild plant, the characteristics of which I know perfectly. The seedling grown in the

garden may develop entirely different traits from its parent. Cultivation aids the sporting varieties to play the wildest freaks.

A notable instance of this is a seedling from an obnoxious ragweed that crept into the garden. This young ragweed was a sport from the beginning. The parent plant had coarsely cut leaves. The seedling showed leaves minutely cut and crinkled like parsley. This characteristic was shown in every leaf until the plant stood nearly four feet high, when it was as beautiful a rich green foliage-plant as one could wish for in

the centre of a bed. Then it bloomed, and the flowers were only common ragweed productions, little and green.

A touch-me-not hedge is one of the annual events in my garden. The seed of the yellow and spotted varieties was originally gathered from a brookside. Now it is thoroughly established in cultivation. It sows its own seed every fall and comes up early every spring. A lawn mower keeps the edge of the hedge straight. The plants grow to a uniform height, and bloom from July to frost. They like partial shade and plenty of moisture.

The hedge ends in a clump of wild balsam apple. This fragrant flowering vine clammers over an unsightly gate and up into an apple tree. It, like the touch-me-not, is an annual. The seed was gathered from a vine growing in the wild and has been given to dozens of folks who admire it growing in my garden and would never see it in its wild place.

Hibiscus is a shrub that is often found now in cultivation, though the seed can be gathered from the wild if one wishes, as sev-



The lemon lily introduced from Europe has earned itself a place among our natives



Hibiscus militaris sown in fall will make plants next season, flowering the second summer

eral varieties of the shrub are wild over many states. Seed planted in the fall will grow the next spring and be a flowering bush two or three feet high the second summer. In my garden *Hibiscus militaris* freezes down to the ground every winter. It grows three or four feet high, however, during every summer, coming along after the low growing plants in the beds are past blooming and filling their places in late summer. It is a fine flowering shrub that is well worth more cultivation.

Pokeweed, in spite of the fact that it is a common weed, is most satisfactory growing with hollyhocks close about the house wall. It is easily and quickly grown from seed. Its silky green leaves and red stalks are pretty all summer and its berries are attractive to winter birds.

We all know and love the masses of wild asters that enrich the autumns. These are decorative in their proper place in a garden. So is the fall anemone, which proves that a plant is only a weed when it is out of place.

I have been very successful raising our native ampelopsis from the seed, and that other finer leaved one which is wild in China and Japan. If the seed is planted in the fall the vine will be three feet high by the next fall. Wild clematis shows about the same growth from the seed.

Hepaticas may easily be raised from seed. The seed can be gathered in the woods in late May or early June. Planted at once the seedlings may appear the same summer, though often not before the following spring. If it does grow at once the seedling will be too small to produce more than a flower or two the first spring, but the second spring it will bear quite a cluster. Seedlings should be planted close together at first if a good, heavy border is desired. The plants can be reset as they grow.

Pale corydalis (*Corydalis glauca*) is one of the most attractive plants of the Pennsylvania woods. Its pale green foliage is decorative all summer. It grows two feet high. It

bears dainty pink blossoms tipped with yellow which show its relation to the bleeding heart. It blooms off and on from early spring to frost when it has good soil and plenty of water. Seed planted in early summer will germinate at once if conditions are favourable. Often the seedling will bloom the first summer. Its great flowering time, however, is the second summer, after which it dies.

The wild flower that is the glory of my garden in early summer is meadow rue. It stands three or four feet high, and is a mass of foamy white when in bloom. Growing with pale pink peonies no combination could be more attractive. It forms the centre of a bed of California poppies. It banks in behind the blue English delphiniums and bachelor's buttons. Wherever white is wanted in early summer the meadow rue adapts itself. After the flowers are gone the tall stalks can be cut down to make way for other plants.

The blackberry lily and the lemon lily are practically wild flowers to-day. The seeds from which my blackberry lilies grew came from woodlands in Virginia, while the



The wild balsam apple makes a great growth of vine and is really useful for covering unsightly objects. It is an annual and self-sows

lemon lilies had escaped from an old garden and were roadside tramps on a Pennsylvania mountain. These seeds, if sown as soon as they ripen, will start seedlings as soon as the ground thaws the next spring, but, like the young plants of the Turk's cap lily and the irises, they will not bloom for two years. Milkweed is another plant that is slow to bloom.

I have large beds of violets grown from the seed of common, blue, meadow violets. The flowers from these garden raised plants are as large as the California violets sold in our city streets every spring. They bloom through April and May.

Following is a list of the plants now growing in my garden from seed collected from the wild. I sow columbines in July and



This border of hepaticas was raised from seeds gathered in the nearby woods and sown in June

hepaticas in June: all the other named here are sown in September or October.

PERENNIALS

Seed sown as soon as ripe. Young plants appear next summer; bloom the following year.

Hepaticas	Clematis
Violets	Pokeweed
Columbines	Hibiscus
Wild cranesbill	Virginia creeper
Iris	Ampelopsis hetrophylla
Meadow rue	Wild asters

SLOW BLOOMING PERENNIALS

Seed sown as soon as ripe. Seedlings appear next season, but do not bloom for three years.

Lemon lily	} Escaped from old gardens to the wild
Blackberry lily	
Turk's cap lily		Milkweed

ANNUALS

Seed sown when ripe. Plants bloom and die the following year.

Touch-me-nots	Wild balsam apple
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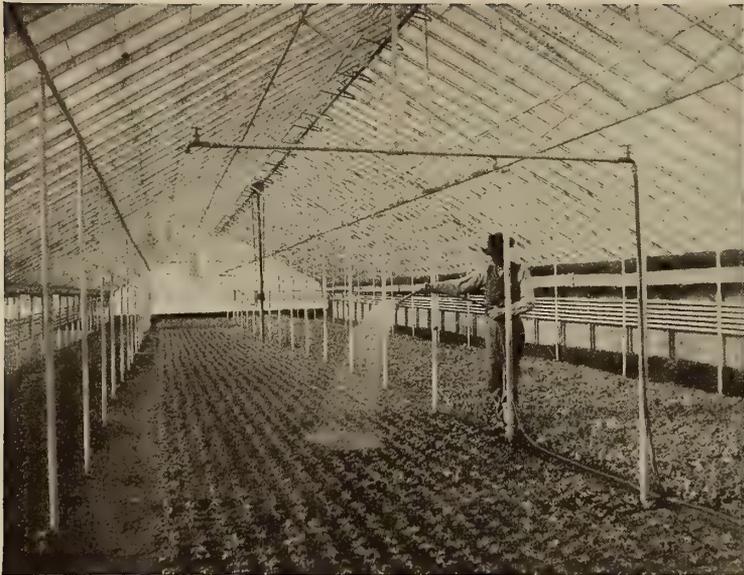
BIENNIALS

Seed sown when ripe. Plants will grow next year. And die year following.

Pale corydalis	Evening primrose
Herb Robert	



Crimson Eye hibiscus is quite at home and blooms the year after sowing



Water as little as is necessary and only on bright days



When preparing the soil two inches of manure are spaded under

Starting a Greenhouse Business on Small Capital—By S. W. Fletcher, Virginia

HOW A FAIR PROFIT IS MADE IN THE CULTURE OF LETTUCE, CUCUMBERS AND TOMATOES UNDER GLASS—POSSIBILITIES OF AN INVESTMENT OF \$2,500 ON LAND ADJACENT TO A FAIR-SIZED TOWN

THE rapid increase in the area of crops grown under glass is commensurate with the rapid development of towns and cities; it is bound to keep pace with the demands of our urban population. There are many types of greenhouse farming, each having attractions and advantages to certain persons. The one I here describe is especially attractive to the person of small means. This is the lettuce-cucumber-tomato type of glass farming, with lettuce as the main crop. These are all staple crops, and the greenhouse supply of them is in demand in every Northern town having several thousand inhabitants.

The chief prerequisites for success in this business are a location near a thriving town or city, a capital of two thousand dollars or more, and a love of plants. It is very desirable, but not absolutely essential, to work with a successful greenhouse man, before starting in for yourself. There are many details in this business—as watering, ventilation, firing, etc.—which cannot be learned from books or magazine articles, however minutely stated.

The following is an interview with Mr. S. J. Perry, of Grand Rapids, Michigan, on February 12, 1908, as representative of this type of greenhouse farming. Mr. Perry is a successful greenhouse gardener on a small scale. He has also traveled widely among the greenhouses of the East and observed closely. His statements are, I believe, fairly representative of the conditions that everyone who undertakes this business will have to meet. Following is the gist of the conversation.

The first thing to do is to buy cheap land, and close to a railroad, if possible, where you can get a spur. This land must be near your

local market—a large town or city. It is well to be within seven miles of the market, so that you can drive in, thus saving packing and express, which are heavy items of expense. Such land will probably cost seventy-five dollars an acre or more. You cannot afford to start with less than four to eight thousand square feet of ground space under glass. At the present time, five thousand square feet under glass can be built and heated for two thousand dollars, provided you do most of the work yourself—and that is what you must plan to do in this business. Little other expensive equipment is necessary except a team and wagon. There are a few pots to buy in the spring. The main item of expense is that of fuel. For 4,000 feet it will be fifty tons of soft coal per year, at \$3.50 per ton. There need be little or no expense for help—for one man can run ten thousand feet alone easily. There are some incidental expenses, such as reglazing, painting, hail insurance. If the houses are built properly, the depreciation

is slight. They should last twenty-five years with good care.

CONSTRUCTION OF HOUSES

Even span houses, on the ridge and furrow system, are best. Each house is twenty feet wide and one hundred feet long. Run the house east and west, with the heating plant in the middle on the north side, so as not to have too long a run. For four thousand square feet of ground space, you would have two houses, each twenty feet wide and one hundred feet long, and this is enough for a beginning, until you have become familiar with the business.

As to the details of construction, I prefer a house six feet clear at the centre, with a slope of eight to twelve inches each side. Build the outside wall of concrete, six inches thick, and two feet above the ground. I think it is well to sink the house into the ground about two feet, and bank up on the outside; it saves heat. On top of the concrete wall put a plate, with bolts set into the concrete. Creosote the plate and put galvanized iron over it. Above the plate is the glazed side wall, four feet high.

The gutter is an important item of construction. Cast iron gutters are best, but they cost fifty-five cents a foot, or \$1.10 a running foot for the house. I prefer a cypress gutter lined with galvanized iron and then painted with hot asphalt. This gutter costs twenty cents a foot. The posts beneath the gutter should be of iron, set in concrete. Use cypress sash-bars, about 1½ x 2½ in. with or without drip grooves, and a cypress ridge covered with a galvanized iron cap, so that water drips on the glass.

For a small plant like this, and especially when the owner does his own firing, hot



Good lettuce soil is light, well drained and full of humus

water heating is best. I use a tubular boiler, costing \$250. This will carry ten thousand square feet of floor space, for cool plants. Get a self contained boiler of the marine type, requiring no brickwork and no setting up. Set the boiler so that the top will be at least level with, but preferably below the level of the greenhouse floor. I prefer the downhill system, in which the highest point is immediately over the boiler, with the expansion tank above that, so that no air-cocks are necessary. The piping is carried from the centre both ways, on purlins, using four 2½ inch mains, two on each purlin, returning them either by the gutter or on the purlins.

The chimney should be at least fifty feet high, with an inside diameter of fifteen inches. Set it as close to the boiler as possible. It is very essential to get a good draft, as it saves fuel. A good chimney can be built of concrete, with a sewer tile lining, for \$50 or \$60. There is no difficulty in firing a system like this yourself, without additional help. In mild weather there is no firing between 9 P.M., and 6 A.M.: in cold weather there is one firing between these two periods.

SOILS AND FERTILIZERS

We use ground beds entirely. They are not built up at all, but are on a level. Usually the soil has to be made. If not very well drained naturally it must be tile drained. Since the main crop is lettuce, it is essential to secure a favorable soil. I grow the leaf lettuce entirely, using the Grand Rapids variety, which originated with Mr. Davis, of this place. The Eastern markets prefer head lettuce, but are just beginning to take leaf lettuce, and will soon take it in quantity. This type of lettuce needs a sandy soil. If the greenhouse site does not have this soil, you must bring it in. But since it is necessary to grow cucumbers and tomatoes in the summer, it is well to use a heavier soil than is necessary for lettuce alone. If muck that has been well seasoned and sweetened is mixed with a light sandy soil, a very good soil is secured. The soil should be at least six to eight inches deep the first year, and should be added to from time to time until it is sixteen to eighteen inches deep. The first year spade under two coats of well rotted manure at least two inches thick, one before the first crop of lettuce, and the other



Transplanting from the "double-rooting" bed



The first transplanting of "double-rooting" lettuce

before the cucumbers. After the first year only one coat of manure per year is necessary.

STARTING THE LETTUCE CROP

Seed for the first crop of lettuce is sown in the seed bed, under glass, in August. Use very light soil and wet it thoroughly. Sow broadcast, smooth the soil over with a lath and cover it with cloth or paper for three or four days, not watering it the meanwhile. When the plants show the second leaf, prick them out and transplant to another bench in rows two inches apart and one inch between plants. This is called "double-rooting." When these plants are three inches high, transplant them to the beds in rows six inches apart each way. The soil should be laid off into beds six feet wide, with narrow paths between. As soon as the lettuce has grown to a size where it falls down into the alleys, make lath racks to support it.

LETTUCE DISEASES AND INSECTS

Never water lettuce except when the weather is bright enough to dry it off the same day; if it goes into the night with wet leaves, there is sure to be trouble with "damping off" or "drop." Keep the top of the soil as dry as possible. For green aphids, fumigate with tobacco stems, and be careful that the leaves are dry when fumigating. As dark weather approaches, in late fall, paint a sulphur and lime mixture on the pipes. This controls mildew, one of the worst troubles of lettuce. To avoid "drop" and shot-hole rust, keep the temperature down and water just as little as is necessary.

The first crop is ready to cut the last of

October. It is well to set only a small part of the houses for the first crop, setting one or two beds at a time thereafter, so as to have the beds coming on in succession. The main crop should mature about Christmas time, allowing six to eight weeks from seed sowing to cutting. In November, and December, it will take longer than this, for plants grow very slowly then. All the houses should be set by November 1st. The main crop should be off by February 1st; a crop can be held for two or three weeks after it is ready, by keeping the houses cold. Plants are ready to cut when the centre leaves come up even with the outside leaves.

YIELDS AND PRICES

A yield of one to one and one-half pounds per square foot should be secured. A bed six feet wide and one hundred feet long should produce from 500 to 800 pounds, occasionally 1,000 pounds. Lettuce is cut off level at the ground, washed, and packed in barrels or boxes lined with newspapers. A sugar barrel holds about 100 pounds of lettuce. It usually sells for seven to twenty cents per pound, but this year it is bringing only three or four cents per pound, because there was no frost down South.

The beds are reset as soon as a crop is taken off, the rule being to sow seed once a week and take off a new crop every week. The crop maturing about the last of March, or the first of April, usually brings the most money, and this is also the heaviest crop. After this is off, setting may be made for the third crop, which matures in May, and almost always brings good prices. Leave out a row of lettuce every four feet for cucumbers, or tomatoes. Another plan is to sow radishes, leaving space for cucumbers or tomatoes. The cucumbers are started about February 15th, and the tomatoes in December. The cucumbers are transplanted to pots to make a ball of roots. Never let them get pot-bound; when they show buds it is past time to transplant them. Tomatoes, however, should be pot-bound before being transplanted. I use White Spine cucumber and Comet tomato. This variety of tomato does not have to be pollinated by hand and produces ten pounds per plant. The tomatoes are trained to a single stem, and begin to ripen in June, and



Lettuce plants ready to set in the beds



A yield of one and one-half pounds per square foot is not an uncommon occurrence



Lettuce drop. A disease induced by a high temperature, cloudy weather and wet foliage

pickings are made until August, when the houses are made ready to receive the next crop of lettuce.

Cucumbers are set four feet apart each way. Both cucumbers and tomatoes are trained to galvanized iron wires two feet apart each way, strung on poles six feet high. Bees are used to pollinate cucumbers. Sometimes bees will not work on them readily, owing to the excessive heat of the house. In this case, the hives should be set on the outside of the house, where they can fly to the fields if they wish. If the bees do not readily enter the house through the side ventilators, confine them in the house for a few days. Cucumbers begin to ripen about May 20th, and the height of the crop is in June and July. My cucumbers have paid me one to two dollars per plant, according to the season and market.

Mr. Perry states that on an investment of \$2,500 in this business, an annual net income of \$1,000 is quite certain, if no help is hired. This is not a large profit, but it is a fair return for the investment of



Usually six weeks elapse between sowing the seed to harvesting well-grown heads

time and labor. As the business is developed and more houses added the profit should increase correspondingly. But no man should go into the greenhouse business with the idea that it is a bonanza. It is not. But it offers a fair return to the man who likes to work with plants.

Home Grown Daffodils for Christmas — By A. M. Kirby, ^{New York}

THE SECRET OF WATER CULTURE IN BOWLS, AND WITHOUT SOIL — BUY BULBS AT ONCE AND GROW A LOT OF NOVEL HOLIDAY PRESENTS FOR YOUR FRIENDS

IT IS an easy matter to grow narcissus in the house and have flowers by Christmas, if a start is made with the newly arrived bulbs in September or even August.

The growing plants need occupy no space in the window garden, or conservatory, excepting while in bud and blooming, and their flowering period may be hastened or retarded at pleasure to keep up a succession.

For the earliest blooms grow the earlier flowering varieties of the Tazetta group, particularly Paper White and Double Roman; these are often in flower even earlier than Christmas.

Success is dependent upon four factors:

1. Early planting. Procure the bulbs as early as possible and pot up at once.

2. Plenty of time to root thoroughly. Allow about twelve weeks for hardy varieties and six weeks for tender Tazetta varieties.

3. Slow growth when first brought into the house, giving ventilation and keeping the room cool: 50 degrees until budded, then 60 degrees or 65 degrees for flowering.

4. Plenty of water when the buds are developing and when in flower.

IMPORTANCE OF AUGUST POTTING

Too much emphasis cannot be put on getting the bulbs as early as possible and potting them at once.

A general order for daffodil bulbs sent to the bulb dealer will not be filled in the usual course of things until he can complete the order and so ship the whole lot at one time — that is, after the arrival of the Dutch, English, Irish and Guernsey bulbs, which means that you get your bulbs about the middle of September. Be emphatic, therefore, in giving instructions to ship the bulbs "as they come in." By the middle of August you can procure the South of France and Asia Minor narcissus including Paper White, Double Roman, and two or three others of the older Tazetta varieties, as well as three or four varieties of the trumpet daffodils — probably Spurius major, Golden Spur and Emperor. It is just possible that the bulb dealer will also have a shipment of a few

sorts of home grown bulbs from Virginia, probably Golden Spur, Emperor, Empress, Barri conspicuus, poeticus, and ornatus.

With an early start of half a dozen varieties and the arrival of the European stock in September, it is perfectly easy to have a grand show of narcissus and daffodils all winter from Christmas on.

WATER CULTURE IN THE HOUSE

For the parlor and library or any place where there is more or less danger of damage to carpets and furniture from overflow of watering, the bulbs may be grown in glasses of water, bowls of pebbles and water, or moss or fibre and water. The vessel holding the bulb, and sufficient water to come almost in contact with the bulb is put into an airy

cool cellar, garret, storeroom, or cold pit where the light is dim — not into a close confined closet — and kept there until the bulb is well rooted. This requires from five to six weeks for the polyanthus varieties, and from ten to twelve weeks for the hardy varieties. By this time the tops will also have grown an inch or two. At this stage, remove to a light room, with a temperature of from 40 to 50 degrees, for two or three weeks or until the growth and buds are pretty well developed, when the plants may be placed



Emperor, a strong healthy grower and free bloomer; one of the best and largest of the all-yellow daffodils



The Chinese sacred lily does best in a temperature not exceeding 60 degrees and produces an abundance of pure white flowers

soluble plant food, purchasable at the seed stores, in each glass of water once a week, while the plants are in bud and blooming will be of great benefit.

Probably any of the early flowering daffodils may be grown in this way, but the following trumpet varieties have been proven and are reliable: Henry Irving, Golden Spur, Horsfieldi, Victoria, and Double Van Sion.

GROWING IN BOWLS

Daffodils or narcissus in glass bowls filled with pebbles and water are pretty ornaments. The pebbles are used merely to support the bulb. Use shallow bowls, place a little granulated charcoal in the bottom to keep the water sweet, and cover with a one-inch layer of bird-gravel or sand. Set the bulbs on this nearly touching one another, three or more to a bowl according to size. Fill in with white pebbles, or, if they are not available, more bird gravel, to prevent the plant from toppling over when in leaf and bloom. Pour in water until it almost reaches the bulbs. Place in a cool spot to root, and grow on in a low temperature, just like the others.

Some of the early flowering trumpet daffodils may be grown in this way, but the polyanthus varieties, are almost infallibly successful especially *Gloriosa*, *Grand Soleil d'Or*, *Grand Monarque*, *Maestro*, *Paper White*, and particularly the Chinese sacred lily, the latter coming into bloom the quickest of any, often in six weeks from planting.

An incision made just through the skin across the bulbs of the Chinese variety and about an inch from the top of the main bulb, will induce an additional lot of leaves and flowers. By this method one bulb will often bear eight to twelve spikes of bloom.

FIBRE OR MOSS AND WATER

This is perhaps the best and most successful of all methods of water culture. Use bowls, pots, or jardinières without holes. Take one pint of cocoanut fibre — or if that be not available, sphagnum moss — and add to it one pint of granulated charcoal and one quart of washed sand or bird gravel. Mix thoroughly. It will probably be necessary to tear the fibre or moss to pieces to accomplish this. Place about two inches of this material in the bottom of the jardinière, putting the bulbs on it nearly touching one another, and fill in with more material, making all compact, but do not jam too tight. Leave only a portion of the neck of the bulb exposed. Water to thoroughly moisten the fibre and then turn the vessel on its side until all surplus water has drained off.

Rooting can be done in any cool, airy room, and for the rest follow the directions given in the preceding paragraphs. The fibre must never be allowed to get dry, neither must it be so freely watered that it becomes soggy, at least not until the plants are in bud and blooming, during which period they will stand more water, and even a little weak liquid fertilizer.

As food for the bulbs grown by the water method a little weak manure water may be used, but I prefer the soluble plant food



Horsfieldi, the bicolor counterpart of Emperor. This is an early flowering variety which has been found reliable for house culture

where they are to be used for decorative effect. Too much warmth, especially at first, induces long, limp leaves and is apt to cause the flowers to "blast," i.e., a failure to open the sheath.

For hyacinth glasses use soft or rain water so that it does not quite reach the bottom of the bulb. Put a lump of charcoal in the bottom to keep the water sweet. Replenish the water as evaporation reduces the quantity, and change entirely every week or two, or whenever there is an indication of its getting stale. A pinch of some

tablets on sale at the seed stores. They are clean, odorless, and quickly dissolve in warm water. Dissolve one tablet in a gallon of water and give each pot a tablespoonful of this solution once a week.

All hardy varieties recommended for pot culture, and all the half-hardy polyanthus varieties may be grown in fibre or moss and water, preference being given to the early and mid-season flowering kinds.



Grand Monarque, one of the best of the larger flowered polyanthus narcissus



It does not represent a very difficult undertaking to have daffodils and narcissus in bloom at Christmas time

All the "Herbaceous Spireas" Worth Growing—W. E. Pendleton, Connecticut

THE TWENTY-FIRST OF THOSE HERETICAL "LITTLE MONOGRAPHS" WHICH FIGHT THE IDEA THAT ALL PLANTS SHOULD BE INDISCRIMINATELY PRAISED AND NOTHING SAID ABOUT THEIR COMPARATIVE MERITS AND LIMITATIONS

OF ALL the many plants that the people call spireas, the most refined are the herbaceous ones and by that same token we should expect them to be in the worst botanical muddle. Nor shall we be disappointed. All the stock troubles are here present in an acute form—few popular names, and those sadly mixed, all the scientific names changed from *Spiraea* to something else; and when you calmly assume that the specific name is retained in the new genus, you find you are mistaken.

But the whole thing is as clear as day, and every other botanical muddle could be made so, if botanists would only talk plain English to the people. I respect, as everyone does, the man who has formed the habit of confessing promptly his real ignorance of any subject, but I have no patience with mock modesty. There is nothing deadlier than such cant phrases as, "The roses are all mixed up"; "I guess nobody knows anything about asters"; "There's no use trying to classify German iris"; "All the distinctions have vanished in gladiolus"; etc.

For this is the easy way to "acquire merit" with people of general intelligence, just as the ignorant nursery laborer often fools the casual visitor into thinking he is learned because he can roll out the nursery names of plants. This form of pedantry is the analogue of apathy in politics.

Any fair-minded person can see that Linnæus ought never to have called these plants spireas in the first place. Everybody can tell the difference between them at sight, for the plants here pictured are all herbs with compound foliage, while the true spireas are shrubs with simple foliage. But, of course, vegetative characters are worthless for deciding whether plants should be put in one genus or another; the important things are the structure of flower and fruit. In this case we ought to put all the herbaceous

"spireas" that have pyramidal clusters into the genus *Aruncus*, because their staminate and pistillate flowers are borne on separate plants; and all those with flat-clustered flowers ought to go into the genus *Ulmaria*, because both perfect and imperfect flowers are borne upon the same plants. This leaves nothing but shrubs in the genus *Spiraea* and practically all the true spireas have perfect flowers, i. e., no stamens or pistils lacking.



The true goatsbeard (*Aruncus sylvestris*) which is closely mimicked by the false goatsbeard (*Astilbe decandra*)

Thus we get a perfectly clear and consistent scheme which the next generation can understand without trouble, and (whether the nurserymen like it or not), it is the system that is bound to prevail.

We have two types of beauty in these so-called herbaceous spireas—the plummy and the flat-clustered. The most perfect example of the first type is the Easter pot plant that is the only thing the local florist

knows by the name of "spirea" (or else calls wrongly "*Spiraea Japonica*"); the finest example of the second type is the hardy border plant called in books though hardly in real life the "dropwort," and which every gardener knows as "*Spiraea Filipendula*."

MIMICRY AMONG PLANTS

But while there are only two types of beauty, there is a third genus to be reckoned with—*Astilbe*—and here enters what the botanist calls a "muddle" and I call one of the wonders of nature. For this *Astilbe* or "florist's spirea" has a double, which gives us as beautiful an example of mimicry as the famous monarch and viceroy butterflies. For *Astilbe Japonica* (a member of the saxifrage family) is so closely mimicked by *Aruncus astilboides* (a member of the rose family), that the Japanese nurserymen sometimes send us both plants under the same name. And in our American woods another case of mimicry fools the school-boy, for the true goatsbeard (*Aruncus sylvestris*) is mimicked by the false goatsbeard (*Astilbe decandra*).

There is nothing spectacular in this mimicry, for the only difference of importance between the rose and saxifrage families is that the seed of the former rarely contains any albumen (or endosperm), while in the saxifrage family the albumen is copious or fleshy. I admit that these examples of mimicry do not compare in interest with a "praying mantis" imitating a leaf, and I confess that I cannot explain why they exist, but are they any the less wonderful?

Consider how closely the florist's spirea and its "double" resemble each other. They both have feathery plumes of small white flowers (panicked spikes). Remember that both inhabit the woods; are the same height (1½ to 2 feet); bloom at the same time (June



Illustrating the two types of beauty in these "herbaceous spireas." The plummy *Astilbe Japonica* on the left; the flat clustered *Ulmaria Filipendula* on the right

outdoors and about Easter indoors); both have twice or thrice pinnate foliage and minute seeds borne in the peculiar kind of fruit called a follicle. There are only two ways in which you can surely tell them apart. *Astilbe* has only eight or ten stamens while *Aruncus* has many; *Aruncus* usually has three pistils; *Astilbe* only one, but this is three-lobed and it ripens into more or less separate follicles.

PLUMY OR PYRAMIDAL CLUSTERS

I would give a good deal for a glimpse of the new race of "pink spireas" originated by the genius of Lemoine, of Nancy, France, for I have the greatest curiosity to know where he got this pink color. Seven of these varieties he groups under the name of *Astilbe Lemoinei*. Nine others he calls, "hybrids of Lemoinei and *Chinensis*." Now *Chinensis* might be the origin of this pinkness for it has rosy lilac petals, but it also has blue stamens — a unique character, and, moreover, Lemoine specifically declares that the parents of *Astilbe Lemoinei* are *Astilbe Thunbergii* and *Aruncus astilboides* var. *floribunda*, neither of which normally have pink petals.

The only hint I have for explaining the pinkness in *Astilbe Lemoinei* is Nicholson's statement that the "flower stalks" of *Thunbergii* are reddish. But flower stalks is an



One of the *Ulmarias* (probably *U. pentapetala*), showing the characteristic flatness of cluster and their palmately lobed terminal leaflet

make our rude guess as to how Lemoine "got there."

THE THREE TALL KINDS

So far we have been dealing with plants that grow only one and a half to two and a half feet high. Now we turn to three six-footers, for though they may be only three feet high in the wild, they will attain four to seven feet in a good hardy border.

The sensational member of this trio is the rosy Chinese astilbe (*A. Davidii*), a new species which the catalogues have been booming as the "most beautiful spirea," simply because of its novel color. It has "rosy" petals and "mauve" stamens and blooms in August. The boomers claim that the flowering sprays are two or three feet long and say that the young leaves are very handsome in their bronzy state. I must confess that I have not seen it yet and my experience has taught me to be wary of investing in anything that the catalogues call "mauve."

The other two tall plummy species are the white-flowered American goatsbeard (*Aruncus sylvester*) and its mimic *Astilbe decandra*, which I shall venture to call the "false goatsbeard." Both bloom about June or July in the North and both are native to the United States. The former has an interesting variety *Kneiffi*, said to have the foliage divided so finely as to give a fern-like effect.

THOSE WITH FLATTISH CLUSTERS

The *ulmarias* are more refined than the true spireas that have flat clusters because their clusters are airier and freer, looser — not painfully precise. You cannot even say they are flat — only flattish. Everybody instinctively speaks of their flowers as "feathery" and their foliage as "fern-like." They are at the other ex-

treme from the hard-featured, purple-faced Anthony Waterer and other flat-clustered shrubby spireas that make so many lawns look hot, and apoplectic in July and August. They are full of billowy grace, and if you plant the white ones in sufficient quantity, your guests will be reminded of white caps and sea foam.

THE FERN-LEAVED MEADOWSWEET

The climax of beauty in this group is touched by the dropwort (*U. Filipendula*) one of the "forty-eleven natives of Europe" which people call "meadowsweet." It makes a perfect flat rosette of finely cut leaves from which arise half a dozen or more slender stalks. These, at the height of a foot or so, break out into an inflorescence of marvelous grace, which is intensified by the tender pink color of the buds. When quite open the flowers are white. I shall call this the "fern-leaved meadowsweet." There is a double-flowered form of it that is not objectionable because the individual flower has no distinctive form to be ruined by doubling and, of course, double flowers last longer.

It is no wonder that many people want to put the fern-leaved meadowsweet in a genus by itself, for it has tuberous roots, while the other *ulmarias* are fibrous-rooted; and its foliage is pinnately cut, while theirs is palmate (the former like a feather, the latter like the fingers of the hand); to say nothing of its being dwarfer and earlier than most of the others. It blooms in June, or about a month before the rest

While these other *ulmarias* have compound foliage, the side leaflets are few and



Mass effect of the "elm-leaved" meadowsweet (*Ulmaria pentapetala*), so called from the shape of the side leaflets

ambiguous expression and whether the pink color of *Thunbergii* resides in the pedicels I cannot say.

Again, Lemoinei has been specifically described as having pink *stamens*, but if this is so the mystery only deepens, for whence came they? And why does Lemoine give the impression (without saying so outright) that it is the *petals* that are pinkish.

I am well aware that in publishing rank speculation like this I violate every tradition of botany from Dioscorides and Linnæus to Gray and Britton, but I suspect that American flower-lovers will forgive me for telling the latest horticultural news, and I hope that some public-spirited American will import the complete collection of *Astilbe* so that we can see how beautiful these "pink spireas" are and



The American and false goatsbeard mimic each other so closely that no one can tell from a picture which is which

sometimes missing altogether, but even then the leaf is wholly unlike the commonplace leaf of the true spiræas. What makes the ulmarias so unforgettable is the way in which the terminal leaflet lords it over the others. It is always bigger, and like all other leaves that resemble the outstretched fingers of a hand, these terminal leaflets give a bold, almost eager look to a plant. Two of these ulmarias are white-flowered and two range from pink to crimson. All of them vary astonishingly in height — from two to six feet, depending largely, doubtless, upon the food and water supply.

TWO WHITE-FLOWERED ULMARIAS

I propose the name "elm-leaved meadowsweet" for *U. pentapetala*, which is known to gardeners as *Spiræa Ulmaria*. The name is not perfect, but it has two advantages. First, it recalls the fact that *Ulmaria* (meaning "elmlike") refers to the side leaflets, which roughly resemble the leaves of an elm. Second, it furnishes a practical way of distinguishing the three commonest meadowsweets of Europe, for we can call *U. Filipendula*, "fern-leaved meadowsweet" and *Spiræa salicifolia* "willow-leaved meadowsweet."

This elm-leaved meadowsweet grows wild throughout Europe and Asia and is also naturalized in the eastern United States. It has fragrant yellowish white flowers in July or August, and is often called "meadow-queen," or "honey-sweet." It generally grows two to four feet high.



The giant meadowsweet (*Ulmaria Camtschatica*), showing how the big palmately-lobed terminal leaflet lords it over the side leaflets in the genus *Ulmaria*.

The giant meadowsweet is the same sort of thing on a bigger scale. It usually attains six feet, sometimes ten, and is said to have immense flower clusters. It is known to the trade as *Spiræa gigantea*, and its correct name is *Ulmaria Camtschatica*.

The favorite pink-flowered plant which the gardeners call *Spiræa palmata* is *Ulmaria purpurea*, and I shall call it "purple-stemmed ulmaria" from its distinctive beauty. It is a Japanese plant with deep pink or carmine flowers and Rehder says it is "undoubtedly the finest of the genus." There is a white-flowered variety. The variety *elegans* is commonly described as "silvery pink"; an effect produced by its white petals and red stamens. The color of the latter is possibly peculiar in this genus and may be due to hybridity.

Since the purple-leaved meadowsweet is known to gardens as *Spiræa palmata*, some make the mistake of translating the name as *Ulmaria palmata*, but the *Ulmaria palmata* of the botanists is probably not in cultivation at all. Its flowers are pale pink at first, changing to white and its side leaflets are not ovate (like those of the three preceding species) but resemble those of the Queen-of-the-prairie.

The Queen-of-the-prairie (*Ulmaria rubra*, but known to gardeners as *Spiræa lobata*) has pink flowers. Since the deepest color is naturally the showiest in all these spirea-like plants, the favorite variety of it is the carmine var. *venusta* (generally catalogued as *Spiræa venusta*). What distinguishes the personality of this plant from the purple-stemmed meadowsweet is the side leaflets which spread out fingers in the same way as the terminal leaflet.

Ornamental Fruits of September — By Alfred Rehder, Massachusetts

FRUITING IS NOW THE ORDER OF NATURE, AND BY THE END OF SEPTEMBER YOUR GROUNDS SHOULD BE AS ATTRACTIVE AS IN SPRING — IF THEY ARE NOT, ACT NOW

[EDITOR'S NOTE.—This is the fourth article in the series on Ornamental Fruits for Every Month, begun in the June number. Mr. Rehder has had a cosmopolitan experience, but he writes these notes especially from the viewpoint of the needs of American gardens.]

IT IS impossible not to become enthusiastic about what you can do with berried shrubs at the time when your garden naturally begins to fail. Your annual and



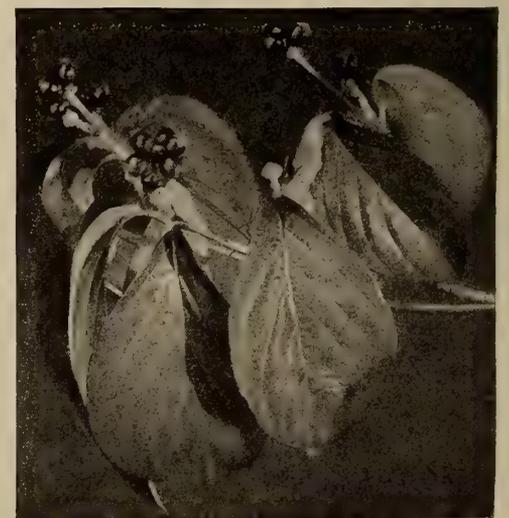
The dull red fruits of the cockspur thorn ripen late and often remain until spring

other flowers are bound to diminish as the cold nights come, and while it is possible to have more flowers outdoors, even after frost, than people commonly suppose, the garden is then totally eclipsed by nature's great show of autumn fruit and colors. We cannot compete with nature on autumn colors because we do not have her great scale of operations but we can beat nature at her own game by massing berried shrubs on our grounds. We can easily get a more brilliant show of these than we ordinarily see in nature, because we condense the picture and because cultivation produces more berries.

If you wish a most delightful outing, make a pilgrimage to one of the great botanical gardens, drive to a park where the shrubs are labeled or take an automobile ride to one of the nurseries that make a specialty of shrubs in extra large sizes. Take this article along as a guide to nature's great autumn show. Check off the best things as fast as you learn them and while your own needs are fresh in mind order for fall delivery what your place needs to make it more attractive in the autumn.

We are so eager for you to enjoy the berries

here described that we will gladly tell you where the best collections are in your vicinity, if you care to ask us. — EDITOR.



The flowering dogwood is now as attractive in fruit as it was in flower earlier in the year



Flowering apples are laden with a profusion of small fruits which also give an excellent jelly. *Pyrus floribunda*, having yellow fruits

Doubtless your grounds already contain some shrubs with attractive fruits, but it is worth while to ask yourself these questions: Would not my place be more attractive in autumn if I had a larger mass—say a dozen or two of my favorite berried shrub? Shall I not plant something this fall to attract rare migrant birds? What shall I plant this fall to make our home grounds cheery all winter?

I.—Tall Fruits of September

The mountain ash is one of the best trees you can plant for all the purposes above mentioned, provided you live pretty well north or in a hill country, for it thrives only in a cool climate. Its large nodding clusters of coral red berries will remain until mid-winter if not eaten by the birds as they usually are.

The handsome pinnate foliage turns yellow or orange in the autumn. The European mountain ash (*Sorbus Aucuparia*), of which there is also a variety with yellow berries, usually becomes a tree, while the native species (*S. Americana*) commonly remains shrubby and has smaller berries. Another though less common native species (*S. decora*) has berries as large as those of the European kind.

The different varieties and hybrids of the Siberian crab apple (*Pyrus baccata*) and allied species as *P. floribunda* and *P. Toringo*, are adorned in September with a profusion of ornamental fruits varying greatly in size and color. Those with deep red fruits are especially very handsome. Some keep their fruits, though in a shriveled state, all winter. Besides their ornamental fruits the crab-apples are exceedingly beautiful in spring with their wealth of white or pink flowers.

The tupelo or sour gum (*Nyssa sylvatica*)

is very handsome in September with its oblong bluish black fruits suspended on slender peduncles between the glossy deep green foliage. The fruits remain on the tree all winter if not carried away by the birds. The foliage turns in fall to bright scarlet suffused with orange yellow.

The flowering dogwood (*Cornus florida*) which is so beautiful in spring is also very ornamental in fall with its scarlet fruits and its deep red foliage. The closely related Cornelian cherry (*Cornus mas*), a small tree from Europe, bears in September and October similar but larger fruits and keeps its dark green glossy foliage unchanged until November.

THE HAWTHORNS AND THEIR KIN

The hawthorns are a very large and interesting group of small trees or large shrubs which are attractive both in flower and fruit. Most of them have flat clusters of white flowers in spring.



The Siberian crab has red fruit in September. There is a great range of both colors and size in the members of the apple family

The purple fruits of *Crataegus coccinioides* ripen in September and fall off gradually during October. Somewhat later the fruits of *Crataegus coccinea* assume their red color and remain on the branches until November.

Among the most beautiful hawthorns are *Crataegus macracantha* and *C. succulenta* which keep their brilliant scarlet fruits from September until almost midwinter.

Equally handsome is the Washington thorn (*Crataegus cordata*), with smaller but numerous bright orange red fruits which stay on the branches almost through the whole winter. The bright green lustrous foliage is handsome too, especially in fall when it turns scarlet and orange.

The cockspur-thorn (*Crataegus Crusgalli*) ripens very late its dull red fruits which hang on to the branches often until the following spring. All hawthorns are well adapted for planting on dry slopes and banks and are very fastidious as to the soil.

Two early fruiting hawthorns were

described in August. Allied to the hawthorns are the cotoneasters, *C. vulgaris* and *C. nummularia*, which begin to show their fruits the end of August and hold them until October, while the fruits of *C. tomentosa* ripen somewhat later and remain on the branches until midwinter.

II.—Bush Fruits of September

There are so many of these that it is necessary to classify them in some way if we are to think clearly about them and I have therefore arranged them as far as possible by the color of the fruit.

THE TWO BEST BERRIES

One of the best red-berried shrubs of September is the common barberry (*Berberis vulgaris*). This is a common wayside bush in New England. It is certainly beautiful when its gracefully arching branches bend down under the weight of drooping clusters of scarlet berries. Still more beautiful, however, is the Japanese *Berberis Thunbergii*, with its large oblong berries which keep their brilliant scarlet color unchanged throughout the whole winter and are not carried away by the birds or injured by the frost. The foliage, too, is handsome and changes to bright scarlet or orange in fall. Like other barberries it grows well in almost any soil and situation.

TWO-COLORED BERRIES

Most of the spindle-trees ripen their fruits during September. Only *Euonymus nana*, a low, often creeping shrub with narrow half-evergreen foliage opens its purple pods about the middle of August and discloses its orange red seeds.

A little later the European *Euonymus latifolius*, a tall spreading shrub, one of the most beautiful of all with its large foliage



The two-color effect of the spindle-trees is very striking. The flesh colored capsules burst, disclosing bright red seeds (*Euonymus Bungeanus*)

and pendulous clusters of winged purplish pods, shows its orange seeds.

The native burning bush or Wahoo (*Euonymus atropurpureus*) is very beautiful with its purple capsules and crimson seeds. The low running strawberry bush (*E. obovatus*) is attractive with its peculiar warty capsules and scarlet seeds.

Besides there are in cultivation a number of different Old World spindle-trees which are all ornamented with their showy fruits in autumn. Of the European spindle-tree there are varieties with the capsules varying in almost all shades from whitish to purple.

Very pretty is the Asiatic *Euonymus Bungeanus* with the profusion of pale pinkish pods it usually bears.

A desirable species is the Japanese *Euonymus alatus*. Though its capsules are rather small the seeds are bright scarlet and the foliage assumes a brilliant red color in fall, and even in winter the shrub is conspicuous on account of the broad corky wings of the branches.

ATTRACTIVE BOTH IN FLOWER AND FRUIT

One of the handsomest of the shrubby dogwoods is *Cornus paniculata* often called *C. candidissima*, with a profusion of white flower clusters in June followed toward the end of August by white berries borne in loose red-stemmed panicles which remain plump until the end of October when they begin to shrivel. This shrub is about six to ten feet high, of neat symmetrical habit and prefers somewhat moist situations.

The Kinnikinnik (*Cornus Amomum*), a broad spreading shrub about as high as the preceding, is conspicuous in September with its dark or pale blue berries borne in nodding



The black alder holds its orange-red Christmas berries longer than the other winter berries. Be sure to select fruiting specimens for planting



The black berries of the privets remain fresh until the spring and with the nearly evergreen foliage make these plants very desirable (*L. Ibot*)

clusters. The European dogwood (*Cornus sanguinea*), a tall shrub and often tree-like, is less ornamental with its black fruits, but a variety with greenish white berries and bright green branches is attractive in winter.

WINTERBERRIES OR DECIDUOUS HOLLIES

Among the most beautiful of the fruiting shrubs are the winterberries with their scarlet berries appearing in profusion along the branches. The berries remain almost through the whole winter and are scarcely touched by the birds.

The smooth-leaved winterberry (*Ilex laevigata*) ripens its fruit in the beginning of September and the foliage turns bright yellow before dropping, while in the black alder (*Ilex verticillata*) the foliage changes little and stays longer on the branches, the berries ripen somewhat later and remain on the branches a longer time. Of the latter there is a variety with yellow fruits which makes a very pleasing contrast if planted together with the red-berried kind. As the winterberries are polygamous it is essential to select fertile shrubs for planting. They prefer somewhat moist situations and grow seldom over six to ten feet high.

GOOD BLACK OR DARK BERRIES

The chief value of the privets as berried shrubs lies in the fact that they retain their fruits fresh until the following spring. The fruits of most species are of a shining black and there are some varieties of the common privet (*Ligustrum vulgare*) having whitish or greenish berries. *Ligustrum Ibot* has its berries covered with a glaucous bloom. Privets do well in unfavorable situations. Their white flower clusters appearing in June and their clean foliage which remains

green until late in fall make them very desirable shrubs.

TWO HIGHLY UNUSUAL COLORS

A very unusual color is that of the Japanese *Symplocos cratagoides*, a shrub six feet or more high and likely to become tree-like. In June it presents a handsome appearance with its numerous panicles of small white flowers followed in September by bright ultramarine blue berries. It has proved hardy as far north as Boston, but is still rare in gardens.

Extremely pretty is the sassafras tree in September when the upright clusters of its fruits begin to ripen. The dark blue color of the berries and the scarlet color of their stalks make a beautiful contrast thrown conspicuously into relief by the bright green foliage which turns later bright yellow and orange. Unfortunately the berries are usually carried away by the birds as soon as they are ripe.

The sea buckthorn (*Hippophaë rhamnoides*), a small tree or shrub from the Old World, presents a beautiful aspect when its branches are loaded down with a profusion of small orange yellow berries which stay on the branches almost all winter since they are but rarely touched by the birds. As the tree is dioecious like the groundsel-tree, both sexes are to be planted.

FRUITS THAT LOOK LIKE FLOWERS

An interesting shrub for seashore planting is the groundsel-tree (*Baccharis halimifolia*). When in fruit it looks as if covered with snowy white flowers, owing to the crown of silky hairs each seed bears on its top.

It will grow in almost any well-drained soil, provided it is given a sunny situation. There are about 250 species in cultivation in America, mostly in tropical regions, *halimifolia* being the hardiest.

[The next article will describe only a half dozen berries that ripen in October and are particularly fresh and welcome when all the leaves are falling.]



Early in the month the smooth leaved winter berry ripens its fruits of scarlet which show brightly against the yellow foliage

The Shellbark — the Best of Our Native Nuts — By J. W. Kerr, ^{Maryland}

PLANT A FEW NURSERY-GROWN TREES THIS FALL; ALSO SOW SELECTED NUTS AND TRY THE EXPERIMENT OF RAISING IMPROVED SEEDLINGS OF YOUR OWN

EVERY man who owns a piece of ground, be it farm or garden or suburban lot, should make it a matter of pride to have as many as possible of our native nuts growing and bearing for him. That this is also a matter of economy will naturally occur to those who have to buy nuts and pay the fancy



Plant nuts in nursery rows transplanting the better ones along the fences. They will be a good money investment. They bear in about twenty years

prices of the fancy grocer. Now let us take for granted the possession of the land and the desire to plant nut trees. What shall he plant who desires an all-round useful nut? There is a most satisfactory answer to be had in the better types of shellbark.

The shellbark or shagbark is often confounded with the hickory. It may clear up this confusion a bit to state that all shellbarks are hickories but not all hickories are shellbarks. The quality of the timber of the shellbark is not so tough nor so flexible as some of the other hickories, and therefore, is not so valuable.

The uncultivated native shellbark is found as far north as Massachusetts, and as far west as the Mississippi, but especially in that region from the southern third of New York state down through the Alleghany ranges to Tennessee. It is seldom found in the tidewater region of the Atlantic Coast, and favors — and can be grown in — any open, porous soil.

The shellbark tree is stately and strong, fine in foliage and when not crowded, regular and handsome in form. Its bark is its distinctive characteristic, since, as its name would imply, the outer layer of bark shells or splits off as the tree attains age. But the process is perfectly natural and in no way hurtful.

There has been little or nothing done for the improvement of the shellbark — indeed

so little attention has been paid to it that thousands of fine trees have been used for fuel and lumber with no thought even of the commercial value of the nuts. In a few isolated cases nuts have been selected and planted with a view to improvement, but in doing so the influence of pollination by inferior types was not considered, and consequently little of real value has been accomplished. This is not fair to the nut, for it would be capable of much improvement, — but it is a lifetime job, for it takes from twelve to fifteen years for a tree to come into bearing, and one man cannot hope to see more than two generations of improved species.

Propagation is rather a difficult matter, too, as the shellbark is far less easy to perpetuate than a fruit tree. The only successful methods in practice are annular budding and tongue grafting below the surface, and, since seedlings are not certain to keep the variety true, the finer varieties must be propagated in these two ways. Seedlings two or three years old, standing in nursery rows can be tongue-grafted with a fair degree of success by removing the soil about them to a depth of four or more inches, setting the grafts and carefully replacing the soil. Grafts should grow two years before being transplanted. The transplanting of nursery-grown trees at five years of age, when they are five to seven feet in height, is attended with much work, as it is not advisable to shorten severely the tap root characteristic of all seedling-grown hickories. By running the modern tree-digger under the young trees while in nursery rows at two years and again at three years of age we cause a division of the tap root. When first cut, two, three, or more new tap roots start. These, cut again, tend to increase the number and thereby lessen the labor of transplanting.

Shellbarks can be planted with safety



These pictures show the variation of form, size and relative meateness of nuts. Two named types, Waugh above, Roosevelt below, about $\frac{1}{2}$ size

either in the fall or spring, because of their sturdy root system, although south of 40 degrees fall is the better season. Prune in the spring and get the trees into good bearing shape and height after which little or no pruning is necessary. Any nut-bearing tree can be transplanted with as great a degree of certainty as to its living as are fruit trees, if properly treated in the nursery, (as described above) prior to removal therefrom. Any good and fertile soil, light or heavy, such as would produce a good crop of corn will grow a nut tree. If it is desired to raise shellbarks from seed, plant the nuts in the fall.



As an ornamental tree in more conventional places, the shellbark has dignity

The shellbarks that we see in market come from Pennsylvania and the Middle West and are mostly gathered from forest trees, for the nut is not grown as a commercial crop anywhere. It would, however, be a good paying crop on soil that is unsuited to fruit, and trees might be planted along drives or fence-rows. They are regular bearers, almost as much so as a grape-vine, for they bloom after all danger from late frosts is over. A bushel and a half is a good yield from a full grown tree.

My own experiments with shellbarks have been very interesting and will, I hope, be of value to other nut enthusiasts. I planted some very choice seedling nuts, gathered in York County, Pennsylvania, in 1887, and let the seedlings grow in nursery rows until five years old. From these the most promising were selected and transplanted and ten or twelve years later they came into

bearing. Among fifty or more trees that have borne nuts, there are about twenty varieties that show superior qualities. Marked improvement in size and quality of nut and productiveness of tree have been secured, and the trees of that experiment which show no gain in any respect, will be removed to prevent injury by pollination to the others.

Finally, I should like to urge the planting of shellbarks. It is the best nut we have. It is delicious in flavor, and can be used in almost as many ways as all the rest of our nuts put together. The cook can use it in place of walnuts, almonds, pecans and filberts. The children like it best of all, and for them the gathering of the nuts will mean a wholesome way to earn pocket-money. There are so many stray corners of the farm where a few shellbark trees can be planted that there is no excuse to be without them. Plant shellbarks — plant them *now*.

Hickory Nut Grafting

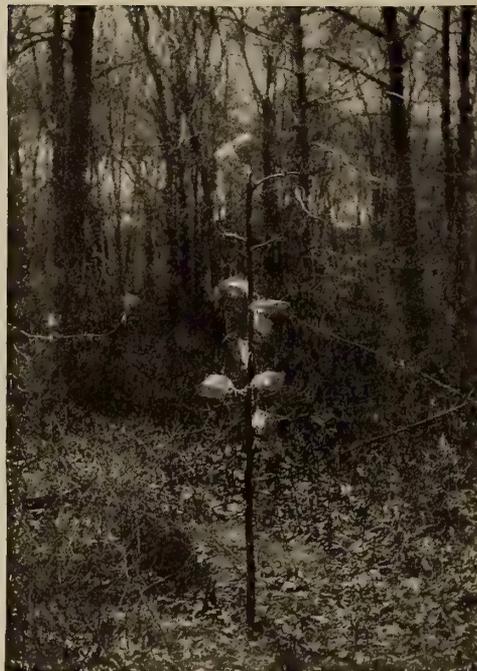
C. O. DRAKE, New Jersey

MY EXPERIENCE in grafting hickory nut trees has been anything but satisfactory. I obtained cions both from Mr. Hales, the owner of the famous Hales Paper Shell hickory nut tree, and also from some mature trees on my own place. These I grafted in March of this year, trying whip, cleft, and root grafts, and using as the parent stock pig-nut saplings that had sprung up on my farm. I have failed to make a single graft take. In every case the graft simply remained dormant, only to be eventually crowded out and smothered by the growth of the trees upon which they were grafted.

Dr. Robert T. Morris has had remarkable success in grafting hickory nuts on his farm in Connecticut. He now has about 100 acres set out in nut trees, and by the time his grafted trees are transplanted in November he will have a 200-acre nut orchard under way. Dr. Morris advocates grafting on pecan stock instead of on hickory nut stock.

I planted some hickory nuts this spring for grafting stock, first soaking them in cold water for three or four days before planting and then in lukewarm water for three or four hours. They have failed to come up, however. Dr. Morris advises against growing hickory nut trees from seed and says it takes from seventeen to twenty-five years for a seedling shellbark to come into bearing and that by grafting on pecans we may have bearing grafts in from two to ten years. Most of the grafted pecans, he says, begin to bear in the fourth to sixth year. Dr. Morris advises against transplanting hickories for grafting stock on account of their enormous tap roots.

In my experiments with grafted hickories I used grafting wax and in order to keep the cions from drying out, tied them up in paper bags. This, however, did not accomplish its purpose, and on July 1st when I opened the bags I found most of them fairly ready to burst with a growth of leaves that had



Grafting on the hickory is not easy. The cions must be kept warm and moist. Better raise seedlings and select the best

taken place inside of the bag, but none of this growth was from the cions. I am still hopeful that some of the cions remaining dormant this year may start into growth next year, but the chances are decidedly against it.

I have been very successful in grafting apple and pear trees and therefore approached the task of grafting hickory trees with perhaps a little more confidence than was justified in the light of subsequent events. My opinion is that unless one makes a special study of the conditions, it will not pay an amateur gardener to attempt the culture of hickory nuts by grafting. Better buy grafted stock from some reliable nursery where they know more about it than you do.

Little Jobs Worth Doing

DIVIDE perennials any time from now till the middle of October. Transplant peonies this month so as to relieve work in October. Make arrangements for tile drainage of wet or cold lands. It will make them warmer and earlier. Sow all late seed on ridges not in furrows. Lift up rhubarb and asparagus for forcing and put them in a convenient place where they may be brought in as wanted. Dig the potatoes, and don't let them lie in the sun; if the tubers are damp when taken indoors, scatter a little lime over them. Cultivate around growing crops but not in the orchard. Gather up the wind fall apples for cider and vinegar. Cut over and burn the tops of the asparagus beds. In making bulb beds remember this: have the surface rounded to give drainage as well as to display the centre mass. Buy at once before end of August fall blooming crocuses — more about the different kinds and how to use them was published in THE GARDEN MAGAZINE for September, 1907, page 74.

Early Fall in Southern Gardens

THOUGH the routine gardening work will keep you very busy during September the vegetable and flower garden cannot be neglected if it is to supply the family with fresh vegetables and flowers during every month in the year. Only a few hours devoted to it each week are really necessary however. Do not allow the weeds and grass to grow under any circumstances for they will afford protection to the insects during the winter.

During the early part of the month sow the seed of early sweet peas in trenches which have been made six inches deep, covering the seed with one inch of soil. Flowers will be had from these plants both before and during the Christmas season.

Candytuft, pansy, sweet alyssum, petunia, verbena, and China pink seed may be sown any time during the month. They will come into flower in the late fall and will continue to blossom for a very long time if, when the cold weather comes, the plants are given a light covering of straw to protect them from the frost.

If you forgot to order any peonies last month, do not wait until planting time — after the middle of the month — but order them immediately. Plant in a rich loam that does not dry out very rapidly and where the plants can be conveniently watered during the very hot, dry weather.

In order to be sure of getting the best bulbs make your selection now and send your order to the seedsman. Purchase only the highest priced bulbs; cheap, small bulbs are like cheap seeds and will not usually give good results.

Give the collards two or three liberal dressings of nitrate of soda during the month to induce a larger and more tender leaf growth. Sow seed of lettuce and kale for use in late fall.

Early in the month sow seed of early bush beans. Stringless Green Pod and Brittle Wax are the best sorts for this late sowing; they will be ready for use the last of next month.

Before the 15th sow turnip, beet, radish, carrot, parsnip, and salsify seed in drills made from twelve to twenty-four inches apart. Give constant cultivation. During the latter half of the month these same vegetables may be sown broadcast. Cultivation will not then be necessary, as the season is so far advanced that weeds and grass will not grow very rapidly.

Seed of early cabbage and cauliflower can be sown now for early spring or late winter use.

Sow grass seed now for pasture and hay, and rye and crimson clover for late fall, winter, and early spring cattle pasture. Dwarf Essex rape may also be sown now for fall and winter hog pasture.

The cowpea vines will make good hay if harvested now before many of the leaves have dropped.

Georgia.

THOMAS J. STEED.

The Flower Beautiful



A Garden Like This Is Yours In June—every June—if you act now—this fall

I'VE a story to tell you about Peonies—the modern Peony—the most wonderful flower of our day.

Conceive of a flower as hardy as an oak, as easy to grow as a sunflower; free of insect pests and diseases; one that increases itself annually—and you have **The Peony**.

Conceive of a flower up to four feet and more in height—up to eleven inches across, yet as delicate as a rose—

Conceive of a flower with a range and combination of colors that the brush of a master would despair of imitating—with a rich and varied perfume that a Gallet, a Colgate would envy—and you have the modern Peony—**The Peony of Today**.

What wonder then that hundreds of people who come here annually to see Roses, stay to worship **The Peony** as they behold the marvelous creations of Crousse, Calot, Mechin.

Why continue to spend money annually on flowers that pass away with the winter's breath, simply because they *seem* cheap. A peony once purchased, need never be duplicated, it will duplicate itself annually as long as you live—and longer.

I want you to know not only of the merit of the Peony, but of this business which is the outgrowth of years of passionate amateur devotion to the Peony and the Rose until, today, it stands supreme—without a peer for quality and reliability.

Let me send you "**The Flower Beautiful**" for 1908. It tells you the whole story, with prices, and is a gem of the printer's art. Beautifully illustrated in half-tone from my own flowers.

Write for it now—today. It's mailed on request.

GEORGE H. PETERSON

BOX 55

Rose and Peony Specialist

FAIR LAWN, N. J.

TRY the following, my "Royal" set, and you will then see why so many people are today "raving" over the Peony.

	One year since division	Two years since division
Festiva Maxima.....	\$0.60	\$1.00
Jeanne d'Arc .....	.60	1.00
Duchess de Nemours..	.75	1.25
Marechal MacMahon .75		1.25
Modele de Perfection..	.75	1.25
Couronne d'Or	1.00	1.60
Mad. Crousse.....	1.00	1.60
Mad. Ducl	1.00	1.60
Marie Lemoine.....	1.25	2.00
Livingstone.....	1.50	3.00
	\$9.20	\$15.55
The set for (special)	\$7.50	\$12.50

If, at the end of three years, you have not yet become enthusiastic over your purchase, I will buy back the sets, with all their increase, for \$12.00 and \$20.00 respectively.

Miamisburg, Ohio, June 3, 1908.
Peonies purchased from you have done splendidly and all prove true to name, which is a great satisfaction to me, I assure you.
At this moment I have half a dozen Marie Lemoine on my desk, which are enough to put life and cheer in the most desolate spot on earth or wherever placed.
You certainly have my best wishes, and if you keep sending the grade of stock you sent me, you will soon have no need of advertising, as you will have an army of customers doing it gratis.
I enclose order for five dozen of your best varieties for a friend.
S. E. WATERS.



Two Very Hardy Shrubs

IN OUR small garden there are two shrubs which form a splendid contrast when in bloom and can be relied upon to renew their beauty year after year. They are the red rugosa rose and the mock orange (Philadelphus). A bush of the former has been growing in the same place for over twenty years, standing unharmed by the winters, which are often very severe in this section of the country. This shrub commends itself particularly to the amateur gardener as it is beautiful in leaf, free from insect pests, and has a perfume like the wild rose. After the bewildering blossoming of June it will give flowers all the season if properly nourished, and in autumn, when the leaves turn brown and red, it will cover itself with hips which resemble small red crab apples. It is particularly adapted to exposed situations.

A large bush of the mock orange grows very near the rugosa rose. This bush has not been pruned down for years, but has had only the dead wood cut out, and although it stands at a very exposed, wind-swept corner of the garden, it never fails to give an abundance of bloom. It has attained a height of about twenty feet, and so ancient is its appearance that I was once asked if it was not a hundred years old, the inquirer being rather nonplussed by the

reply that it had grown from a small twig which I myself had planted.

The only care given these shrubs is in autumn, when we scatter a little manure over the grass. This gives nourishment to the plants and helps to keep out the frost. The ground, however, around the roots is kept clean.

P. Q., Canada.

ANNIE L. JACK.

The Advantage of Buying Good Seed

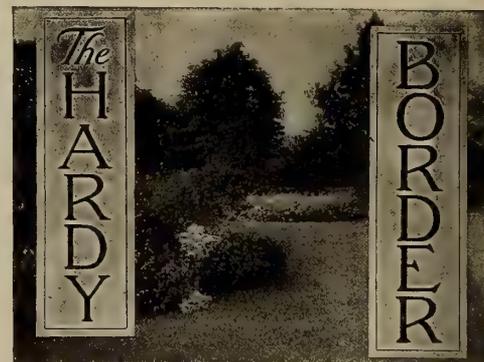
DON'T buy your garden seeds from local stores. Buy only from firms of national reputation." This is clearly the moral to be drawn from a bulletin of the United States Department of Agriculture which bears the innocent title of "The Germination of Vegetable Seeds." But, of course, no Government "dast" speak right out in meeting as clearly as that.

However, the department shows that "commission" sales are 25 per cent. worse even than the seeds which Congressmen give away as a part of their graft. ("Commission" seeds are the ones in fancy packets which you find in every general store in the country. They are so called because the store-keepers sell them on commission for certain big seedsmen who make a specialty of this business.) We have every confidence in the house that originated this type of seed-selling, but there are now twenty-six other firms in this special business and it is clear that some of them are dishonest.

The department of Agriculture tried 2,778 packets of seeds from commission houses and only 62 per cent. germinated. The Department politely remarks that "many seedsmen rely more on the striking appearance of the colored packets than on the quality of their contents." Our own rude opinion is that anyone who has n't sense enough to buy his seeds per catalogue from a seedsman of national reputation deserves to buy all his vegetables and eat them stale.

New York.

W. M.



Thimble Flowers in the North and West

THE thimble-flower was a favorite of the lamented young horticulturist, J. H. Cowen, of Colorado, who wrote an exceptionally interesting account of it for the "Cyclopedia of American Horticulture," part of which is here reprinted from the article "Lepachys" with the permission of the publishers:

"The Lepachys grows two to three feet high, has elegantly cut foliage, and bears flowers something like a brown-eyed Susan, but the disk is finally cylindrical, and more than an inch high, with six or seven oval, reflexed rays hanging from the base. In a fine specimen these rays are one and one-half inches long and nearly one inch broad.

There are five inches or more of naked wiry stem between foliage and flower. Typically, the rays are yellow, but perhaps the most attractive form is var. *pulcherrima*, which has a large brown or brown-purple area toward the base of each ray.

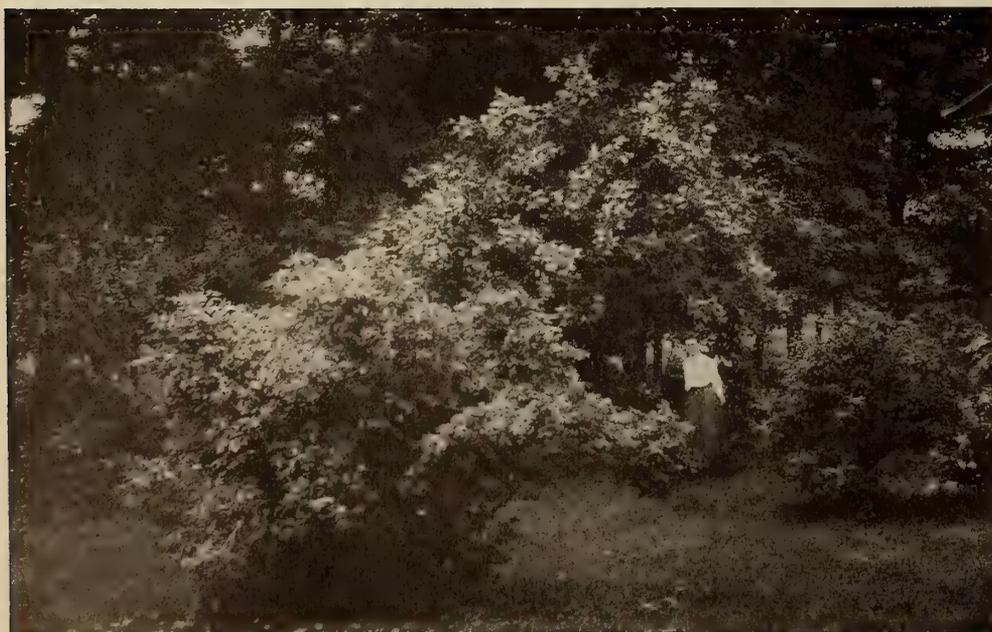
Like the majority of our native Western flowers that are cultivated in the Eastern states, the plants have reached our gardens from European cultivators. Meehan says it is perfectly hardy in our Northern borders, but the English do not regard it as entirely safe without some winter protection. Moreover, it is one of the easiest herbaceous perennials to raise from seed, flowering the first year, and it is chiefly treated in the Old World as an annual bedding plant, the seeds being known to the trade at *Obeliscaria pulcherrima*.

For bedding, the seeds are sown in early spring in a hotbed, the seedlings pricked off into boxes, hardened off, and finally transplanted to the open, only slight care being necessary to obtain compact bushes about two feet high. Under such circumstances the plants flower from June to September, and the season may also be somewhat prolonged by a later sowing in the open.

This plant deserves trial in our Northern borders, where seed can probably be thinly sown in the open where the plants are to stand, with a fair chance of autumnal bloom, the same year. The flowers last well in water and should be cut with long stems to get the benefit of the delicately cut foliage."

New York.

W. M.



The rugosa rose and mock orange are two of the hardiest and most effective shrubs

Plant Peonies in September



PEONIES can be and are planted at any time during the spring and fall, but September is the very best time for transplanting them, and if planted then they will bloom the following June; if large undivided clumps are planted a splendid display of bloom can be had. Peonies are one of our great specialties, and our list of varieties is the most comprehensive in America. We have now over fifty thousand plants to offer.

SPECIMEN PLANTS

Of many varieties we can furnish large undivided clumps at three to five times the price quoted below or in our catalogue. Immediate effects can be obtained by planting these large clumps in September. List of these furnished on application. The finer varieties of

Peonies surpass the finest roses in coloring, form and size. They are absolutely hardy and of the easiest culture. They should be planted in deep, rich soil, three to four feet apart. Below we offer a small selection of extra fine and good varieties, but our catalogue contains descriptions of over three hundred sorts. Our price list, the most comprehensive catalogue of Hardy Plants, Trees, Shrubs and Bulbs published, may be had for the asking. Write for catalogue or make order on order blank below.

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(J. WILKINSON ELLIOTT, Pres.)

Quantity Wanted	PEONIES	Each	Per doz.
....	Arthemise. Large flowers; lovely soft rose and salmon; very beautiful.....	\$1.00	\$....
....	Agida. Brilliant red; very free flowering	.35	3.50
....	Asa Gray. Large, full flower, imbricated, beautiful form; carnation salmon, powdered with carmine-lilac. One of the best.....	1.50	....
....	Buyckil. Large, globular flower; lovely rose, center salmon-rose with silver reflex; extra fine.....	.75	....
....	Couroane d'Or (Golden Crown). Large, imbricated white flower, yellow reflex with stripes of carmine and golden stamens; extra fine.....	.75	8.00
....	Curiosity. Large petals of clear violet-red, those of the center transformed into golden ligules; very distinct and pretty variety.....	.50	5.00
....	Delachil. Large, cup-shaped flower, deep amaranth, late-flowering; fine.....	.35	3.50
....	Dr. Bretonneau (Verdier). Large, globular flower; large rose petals and clear white; beautiful.....	.40	4.00
....	Dugueslin. Rosy carmine.....	.40	4.00
....	Duchesse de Nemours (Verdier). Rose pink; very large, double, sweet; one of the best.....	.75	7.50
....	Dorchester. Cream color, tinged pink; very double; fragrant.....	1.00	....
....	Edulis superba. Very large flower of perfect shape; beautiful brilliant tinted violet, mixed with whitish ligules silver reflex.....	.40	4.00
....	Festiva. Dwarf, pure white, center carmine-spotted.....	.30	3.00
....	Festiva Maxima. Very large, pure white flower, with some blood-red stains in center; tall stalks, beautiful foliage, and very free-flowering. One of the best white Peonies in cultivation. Strong plants. \$50.00 per 100	.75	8.00
....	Undivided clumps.....	2.00	20.00

Quantity Wanted	PEONIES	Each	Per doz.
....	Grandiflora rosea. Very large, full, convex flower, rose and salmon mixed; beautiful.....	\$0.40	\$4.00
....	Humei rosea. A splendid old sort, with deep rose flowers; one of the latest to bloom.....	.30	3.00
....	La Tulipe. Very large, globular flower, rosy white center, outside of the flower lively carmine, center striped deep carmine; extra fine.....	.75	8.00
....	Louis Van Houtte. Large flower of lively violet-red; very brilliant; a very beautiful variety.....	.40	4.00
....	Maria Lemoine (Lemoine). Extra large, free-flowering, ivory white.....	1.00	....
....	Mme. de Verneville. Very pretty anemone flowers, very full; collar of large petals, those of the center very close; carnation-white and sulphur, sometimes carmine; extra.....	1.00	10.00
....	Officinalis rosea. (Old Double Rose). Rich, bright shining rose; very early.....	.35	3.50
....	Old Double Crimson. This fine old Peony is very effective when planted in masses; one of the earliest to bloom. Per 100, \$20.00	.35	3.00
....	Prince de Salm Dyck. Lovely lilac, chamois center, tufted lilac.....	.50	5.00
....	Rubra superba (Richardson). Grand globe-shaped flower; purplish crimson; very late. One of the finest reds in cultivation.....	1.00	10.00
....	Tenuifolia. Same as following variety, but with beautiful single flowers.....	.40	4.00

Prices (6 at the dozen rate, 50 at the 100 rate)

Quantity Wanted	PEONIES	Each	Per doz.
....	Tenuifolia flore pleno. Deeply cut fringe-like foliage; flowers bright scarlet crimson; rare and fine.....	\$0.50	\$5.00
....	Triomphe de l'Exposition de Lille. Large imbricated flowers, soft, carnation-pink, with white reflex, carmine center; very fresh coloring.....	1.00	10.00
....	Whitleyl. White, large and sweet.....	.35	3.50

KELWAY VARIETIES

Quantity Wanted	PEONIES	Each	Per doz.
....	Lady Carrington. Flesh very fine, sweet smelling. First-class Certificate, R. H. S.....	\$1.25	....
....	Cyclops. Purple-crimson. First-class Certificate, R. B. S.....	.40	....
....	Duchess of Teck. An excellent variety, large and of good form, attractively colored, creamy white and bright pink. First-class Certificate, R. B. S.; Award of Merit, R. H. S.....	2.00	....
....	Duke of Cambridge. A very handsome bright crimson flower; a superb variety; the very best of its color.....	1.50	....
....	Duke of Clarence. Cream, slightly flushed pink. First-class Certificate, R. B. S.....	2.00
....	Summer Day. Creamy white. Certificate of Merit, R. B. S.....	1.50

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Quantity Wanted	PEONIES	Each	Per doz.	Per 100
....	Double and Semi-Double. These are really very choice and distinct from varieties grown in this country, and will give the greatest satisfaction.....	\$0.60	\$6.00	\$45.00
....	Single. The finest Single Peonies undoubtedly come from Japan. They are equal or superior to single sorts coming from Europe costing three times as much.....	.70	7.50	55.00

Signed.....
Address.....

5 per cent. may be deducted if cash is sent with order



Selling the Surplus Products

A MOST perplexing problem to many who are raising poultry, fruits, and vegetables in only a small way is how to advantageously dispose of the surplus. The average man has little knowledge of market requirements, styles of packages, or methods of grading and packing, and has little time to learn these things.

We have had for several years a considerable surplus of sweet corn, and many of the residents in the village would have been glad to purchase it at full retail prices. But this method of disposal was not practicable as we had no horse with which to make deliveries. The grocer was willing to take it, however, at wholesale prices. Before we bought a cow, our milk bill was reduced by disposing of the corn stalks to the milkman.

We had one or two trees of early apples which gave more fruit than we could use. Several baskets of these apples were sold to the grocer, who did the carting, and assorted and graded them to suit himself.

Our large asparagus bed yielded far more than we and our neighbors could use. A new grocer in town was appreciative of the fine quality of our produce and offered a price something above that paid for the "imported grass."

If the season is favorable, we often have a surplus supply of tomatoes even after

canning enough for winter use. The grocer sometimes takes these, and one year a huckster was glad to get all we had to spare.

When our large blackberry patch yields abundantly, there are far more berries than we can use and many quarts are sold to the grocer at fair prices.

Poultry products are usually more readily disposed of. If one has pure-bred birds, there is often the chance to sell a few settings of eggs or a surplus cockerel. The poultry supply houses which sell chick feed and other supplies can often use these. Then there is always a sale for fresh eggs. In most localities, one's neighbors are glad to get reliably fresh eggs. Grocers will also take the eggs, but most of them want to fix the price as low as crate eggs are bringing in the general market. Strictly fresh eggs are worth much more. Put them in boxes holding a dozen, and establish a reputation by having a seal showing what the eggs are and their origin. Be sure the eggs are fresh and clean.

If one is limited as to space, it is generally better to sell the surplus cockerels as small broilers. The marketmen will probably take them alive.

New Jersey.

F. H. VALENTINE.

Wild Plants for Shaded Places

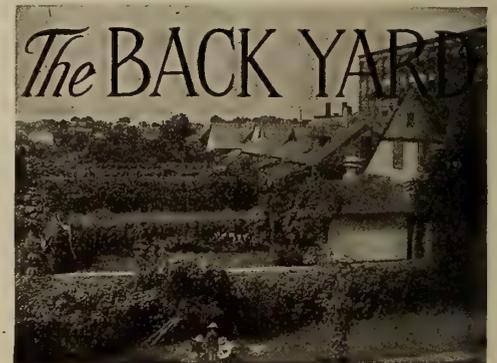
IT IS always more or less of a problem to know just what plants will succeed in a shaded corner, but we have had considerable success for several years with plants which we brought from the woods and fields, a few at a time. They were carefully dug up with good balls of earth, and watered thoroughly when set out. Without any further care the plants flourished and bloomed profusely in spite of the fact that the soil was very poor and had never been fertilized. The bed is on the northwest side of the house and all the sun it gets is a very little in the late afternoon.

The background for the low-growing plants is of common tall meadow rue

and the flowering raspberry. Dwarf meadow rue, crane's bill, herb Robert, Indian turnip, Solomon's seal, false Solomon's seal, several ferns, black-eyed Susan, and wild New England asters (which make a splendid show in autumn), form the bed. We planted the common wild clematis so that it would clamber up the porch pillar. This bed gives a most pleasing effect and is considered by many the prettiest spot in the garden, notwithstanding the fact that the plants cost absolutely nothing.

Massachusetts.

ELLA M. BEALS.



Disposing of Surplus Plants

AT THE end of September and in October every amateur gardener finds it necessary to divide the plants in at least a part of the garden and to fertilize the soil. It occurred to me last fall to save the little plants that seemed hardly worth replanting, also those that had grown too large and the sturdy varieties which threatened to crowd out their neighbors, and to sell them all, devoting the proceeds to a charity in which I was interested.

The potted plants brought twenty-five cents apiece and a flat containing two dozen hardy forget-me-nots sold for fifty cents. The larger plants were divided into good-sized clumps and wrapped in paper. Hardy bulbs were also bought at wholesale, and when prettily done up in fancy packages of a dozen bulbs, sold for twenty-five cents.

The tall light blue larkspur (*Delphinium elatum*) which many find so hard to raise from seed was in great demand. As soon as the seeds ripened in July I had immediately sown them in a rich, shaded soil, and in two months I had strong little plants. These were potted in very small pots. Before being sold all the plants were labeled carefully with height, color, and time of bloom.

Plants that may be advantageously thinned out, the seedlings or divisions to be sold in small pots or flats, are: Larkspur, forget-me-not, columbine, evening primrose, foxglove, and hollyhock.

The following plants may be divided into clumps and sold: Pyrethrum, German and Japanese iris, *Hemerocallis flava*, *Funkia subcordata*, pink spirea, monarda, English daisy, hardy pink, gypsophila, *Phlox subulata* and tall perennial phlox.

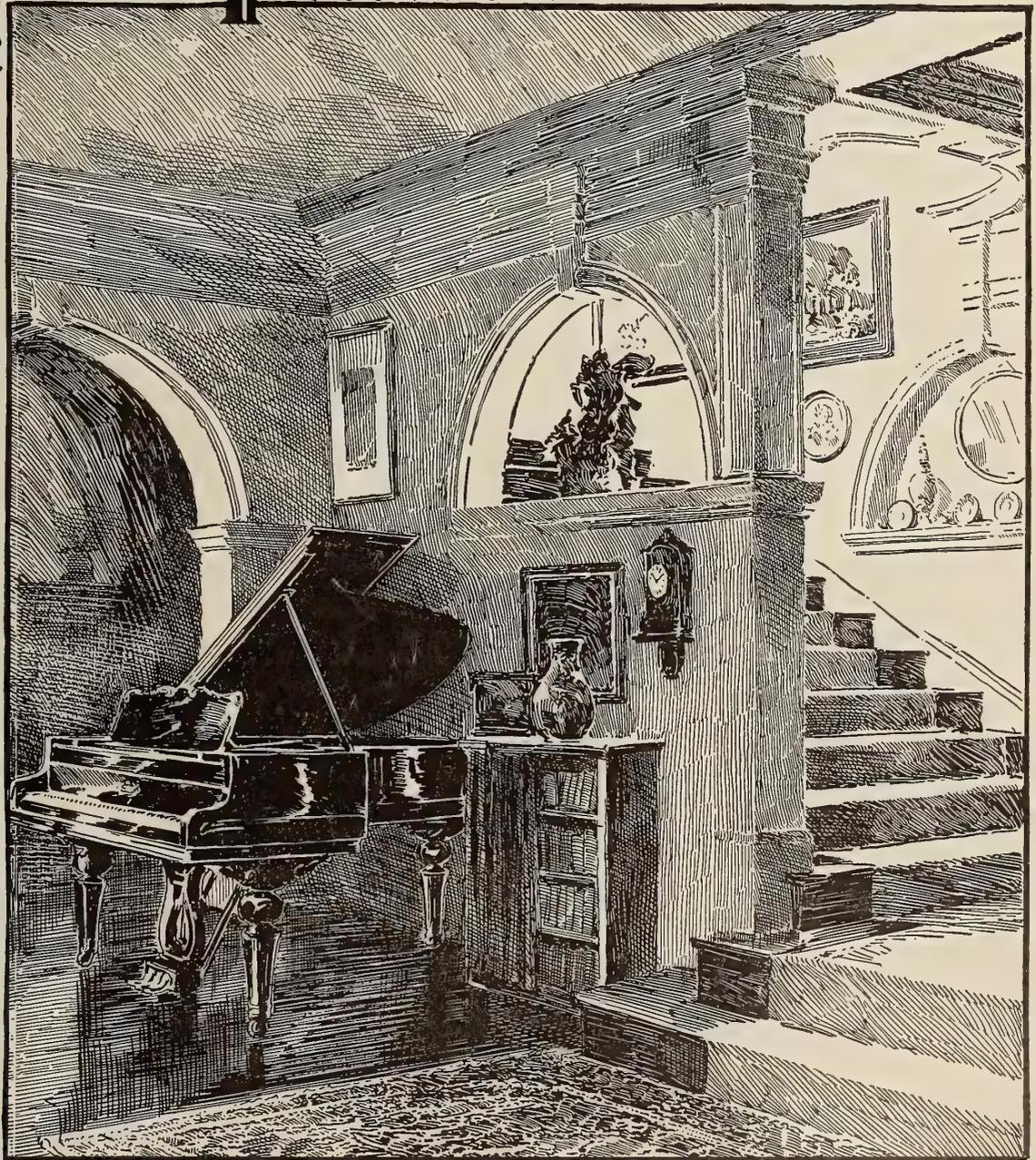
New Jersey.

ANNA GILMAN HILL.



The problem of what to plant in this shaded corner was solved by using wild flowers

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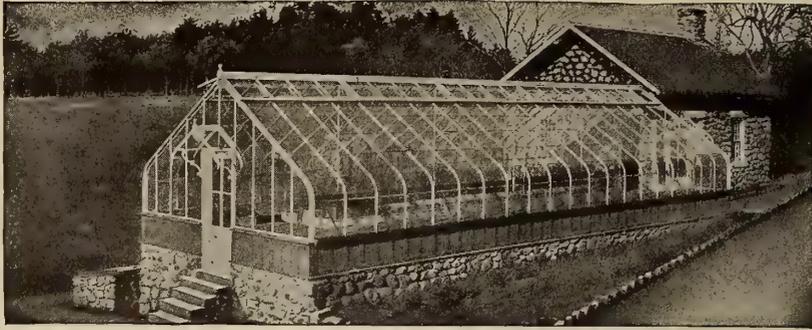
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The Oldest Flowers in Cultivation

VI.—The Mourning Iris

THE extraordinary iris here pictured is, I suppose, the mourning iris (*Iris Susiana*). It belongs to the oncyclus group or cushion irises, so-called because their leaves are short and make a little mat of foliage upon the ground. These and the bearded irises (regalia) are the most fascinating to the amateur because they are the most difficult to grow. Most



The mourning iris (*Iris Susiana*) as depicted in 1613 in the "Hortus Eystettensis"



BEEZER BROS., PITTSBURG, Architects

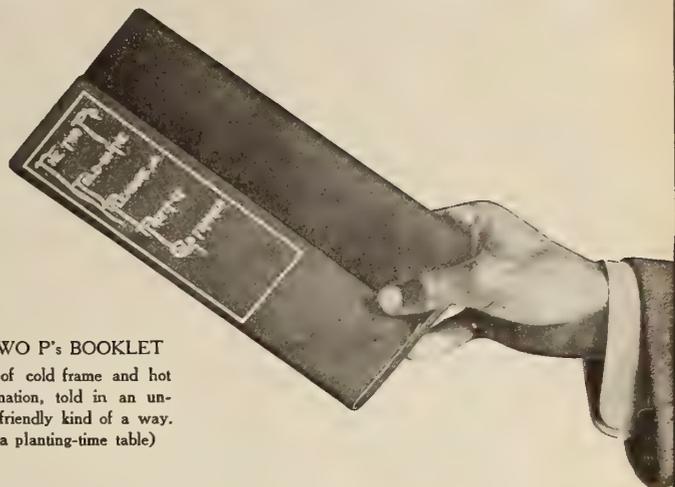
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This Booklet Tells How To Make Your Garden Last Two Months Longer

How you can plant now, lettuce, spinach, radishes, and a goodly number of other vegetables, and have them right through to Thanksgiving Day.

How you can start the more difficult annuals so they will bloom early next year instead of the year following.

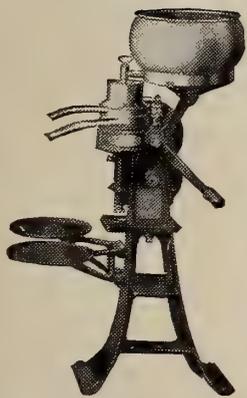
How to have bulbs in bloom, with the least trouble, every day after the middle of October, and from then on.

How to have violets all winter, and pansies blossoming the first March days.

And it is not so difficult either—no really hard work about it—but the booklet tells the whole story—tells what it will cost and all that sort of thing.

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is a phrase often used to mean the command of everything that makes life enjoyable. All inventions and appliances which, in any way, conduce to the comfort or convenience of domestic life are thoroughly investigated and most carefully compared with others of their kind, and the best article for any special purpose is, in this way, selected for use in the King's household. Its choice means the survival of the fittest. When, therefore, after a test of all forms and methods of supplying water, King Edward VII installed in his favorite palace, at Sandringham, the little HOT-AIR PUMP shown in this announcement, by such selection it was proven to be, beyond all possibility of doubt, the *best available source of*

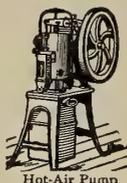
domestic water supply. Thus, so far as water is concerned, you may easily be "as happy as a king."

Remember that a HOT-AIR PUMP lasts a lifetime, that over 40,000 are now in successful use; that the users include the best-known names in America and Europe, and that the cost need not exceed \$100.

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There is no corner so shady but that certain ferns and plants will thrive there. There is no soil so light and sandy but that some of our hardy wild ferns will beautify it. For 25 years we have been growing these hardy ferns and flowers and know what is suited to each condition. We can supply ferns for the dark corner by the porch, or ferns and flowers, including our native orchids, in quantity, to make beautiful country estates. Wet and swampy spots, rocky hillsides, dry woods, each may be made beautiful by plants especially adapted to them. Nothing adds greater charm to the home grounds than clumps of thrifty ferns. We also grow the hardy flowers which require open sunlight—primroses, campanulas, digitalis, violets, etc.

Write for my descriptive catalogue. It tells about this class of plants.

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It is an Investment when you do receive full value. All paints can be classed in this manner. Some are simply Expense. Others are an Investment. Some fall short of requirements. Others more than fulfill all requirements.

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"High Standard" Liquid Paint

is an Investment paint. It more than fulfills all requirements. With 35 years of experience in paint-making Lowe Brothers produce a paint that has a *better covering capacity* and will cover more square feet to the gallon than any other paint. Every can of "High Standard" Liquid Paint is full U. S. Standard measurement. All the ingredients used in "High Standard" Paint are the *best quality* obtainable. All the ingenuity, all the skill,

all the best mechanical appliances are employed to make "High Standard" Liquid Paint the best that money or brains can produce.

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of them come from the Holy Land where they have a rainless summer with intense heat. In this country, they start to grow too early in the spring and are caught by frosts. The theory is, therefore, that they must be kept in coldframes all summer or otherwise protected from rain during the summer and allowed to bake in the hot sun.

The mourning iris may not be the most gorgeous of the cushion irises, but it seems to be the commonest. Apparently, people have beginners' luck with this species more than with any other, as it is commonly offered in bulb catalogues and people often succeed in growing it for a year or two under ordinary garden conditions without ever knowing it requires special treatment.

The accompanying picture is taken from a book published in 1613, called the "Hortus Eystettensis," which describes the flowers in the garden of the Prince of Eystadt. There is only one hand colored copy of this work in America, and this is in the library of Cornell University, which paid \$800 for it, on the strength of a letter from Asa Gray saying that he considered the coloring to be ancient. However, Miss Vail, formerly librarian of the New York Botanical Garden, assured me that artists did not begin to sign or initial their work until long after the seventeenth century, and she therefore regards the initials and date which appear on the pictures as a sure sign of forgery.

Whether the color is ancient or not, it would seem that the colors had been made from Latin descriptions and not direct from Nature by a person who deliberately made them better than they really are, for he has given us carnations, poppies, and tulips of colors which do not exist to-day.

New Jersey. THOMAS McADAM.

[The next article will show a very remarkable form of the Crown Imperial, a most majestic and interesting plant.]

A Nasturtium Plant Five Feet Across

THE accompanying picture shows (greatly reduced) a nasturtium plant that was actually five feet across. It was a freak and not the result of high feeding. The plant ran to leaves and produced practically no flowers until the 5th of October, when this picture was taken. It was not until the 20th of October that the plant was in full bloom and a week later it was cut off by frost.

New Jersey. J. E. WILSON.



A freak nasturtium plant which did not produce flowers until October 5th

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Every root guaranteed true to name—We send you what you pay for—not something more or less like it, under the name.

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These important features are dwelt upon at greater length in **OUR HANDSOME ANNUAL FALL CATALOG—JUST READY.** It is really a Peony manual, and its list of varieties a "standard of excellence." It contains much new matter this year, and—if you're really interested—a revelation or two worth your knowing.

Remember also that fall is the ONLY time to plant Peonies. Most growers will ship in the spring also—if you insist. We do not—for your own sake.

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Most of the lily bulbs sold in this country are from stores, having been dug, dried, and roots removed before shipping from Europe or Japan, which reduces vitality. Fresh bulbs right from the beds they have been grown in, with roots and firm outside scales, give better results first year.

Horsford's Autumn Supplement enables you to get your bulbs all planted long before the imported bulbs are in, Tulips, Daffodils, Crocuses, &c., give better returns when planted early in the North than with late planting. They have time to make their root growth before cold weather. Orders filled from fresh bulbs as long as stocks last. Send for free Supplement.

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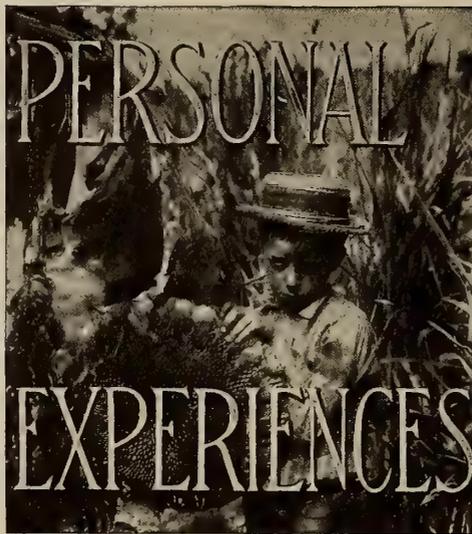


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THE HOME CORRESPONDENCE SCHOOL
Dept 8, Springfield, Mass.



Kieffer Pears in December

DELICIOUS pears from our own garden as late as the 16th of December were a luxury we never expected to enjoy, and the discovery that we could have them was a delightful one.

Heretofore we have grown pears chiefly for the beauty of the trees. They are in this climate the aristocrats among fruit trees. Apples—except Siberian crabs—and cherries do not thrive here and peaches are not sufficiently long-lived to attain dignity of size, so it is left to the pear trees alone to tower high above the garden wall and fling great masses of snowy bloom against the background of the clear spring sky. And indeed they are worth while for the glory of their autumn foliage alone, rivaling as they do the sumach in wealth of color. The Le Conte leaves turn a clear pale yellow, but the Kieffers take on all the splendors of rose and red and gold.

As for the fruit, it has greeted us every fall in long rows of glass jars on the pantry shelves—preserves and sweet pickles—industriously put up during our summer absence by an economical Swedish cook. The preserves are made by a recipe from Georgia. The fruit is cut crosswise like Saratoga chips into slices about half an inch thick and cooked until transparent in a syrup made of white sugar with a little water and flavored with slices of lemon and pieces of ginger. The sweet pickles are made like peach sweet pickles, and are very good indeed.

Last summer our dozen pear trees were weighted down by an unusual load of fruit. They never fail to bear a good crop even when other people's trees have none, and we attribute their unusual fruitfulness to the fact that the two varieties are planted in an alternating row, close together, and, as they bloom at the same time, fertilize each other.

The Le Contes ripened as usual in August, and were of a good quality. But the Kieffers simply would not get ripe—we had heard that a Kieffer pear was never known to get ripe. We would gather bushels and bushels of them for other people to preserve, and the trees looked as full as ever. Finally, on the 23rd of October we gathered

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Peonies Phloxes Iris es

Are Unsurpassed in Variety and Quality

The Best Results are to be Obtained
by Planting in September

Illustrated booklet with descriptions and
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beautiful, practical, entertaining. Annual Homebuilders' Number in October. \$4.00 a year.

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telling how to make things grow. Beautifully illustrated. \$1.00 a year.

COUNTRY LIFE IN AMERICA THE WORLD'S WORK THE GARDEN MAGAZINE
DOUBLEDAY PAGE & CO. NEW YORK



JOHN D. ROCKEFELLER AT THE AGE OF 18
 (It was just at this time, as Mr. Rockefeller relates, that he built a brick house for his father, taking entire charge of the plans, contracts, construction, etc. The house remained in possession of the family till last year.)

John D. Rockefeller's Reminiscences

begin in the October issue of *The World's Work*

Mr. Rockefeller has finished his reminiscences and they will appear in *The World's Work* during the fall and winter. His narrative would be of prime interest even from an unknown man. As it is, the story will be a revelation to the reading public.

Mr. Rockefeller fully and freely discusses the Standard Oil Company and the aspects so much in the public eye. He tells of his business career, his pleasures, his ideas about forestry, golf, and kindred subjects, of his wonderful experiences in the ore trade, when he made a large fortune out of a plan where he faced great loss. He tells of his early friends and struggles to get capital, of the beginnings and building up of the oil trade. Mr. Rockefeller in no instance writes a defense, he relates simply and directly what happened, and the reader is left to draw his own conclusions. The pictures will add greatly to the interest of the story. In many cases they are historical.

The first chapter will include these subjects:

The Reason for Preparing the Reminiscences.
 The Standard Oil Company.
 How the Business Has Been and Is Conducted.
 The Facts about the "Oppression" Stories.
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 is the most interesting magazine in America for the active minded. It is made for optimistic people.

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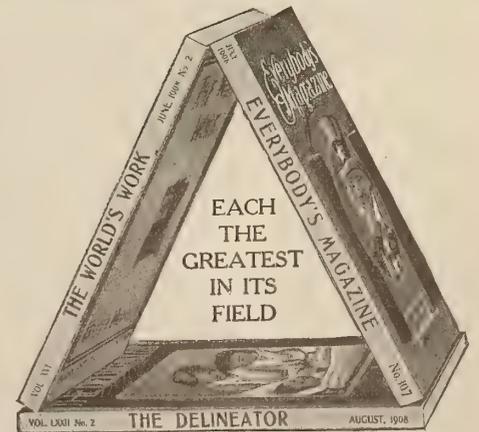


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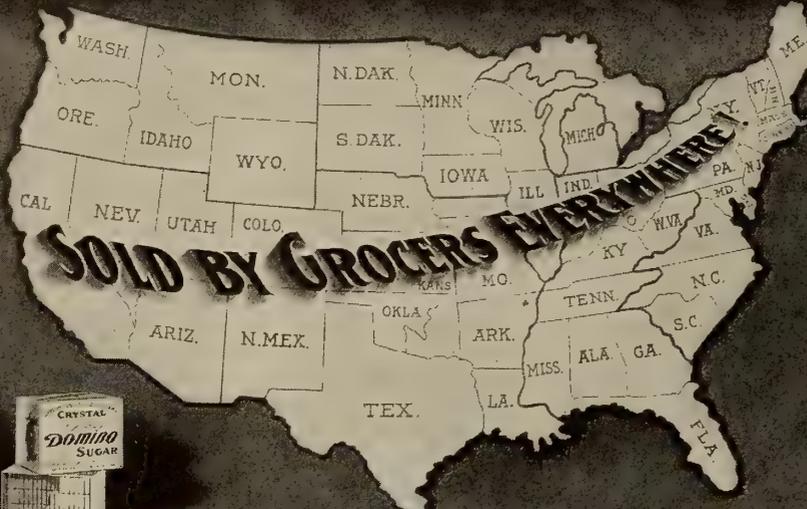
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all that were left and put them away in the attic as an experiment. On the 10th of November we found some of them ripe and mellow, and of a very delicious flavor. We continued to enjoy them until the 16th of December, and I believe we could have kept them until Christmas. They were the



Kieffer pears, gathered in October are fully ripened and quite luscious by December

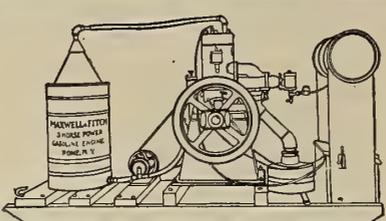
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finest pears I have ever eaten anywhere, and everyone who has tasted them expressed the same opinion.

The Kieffer pear has long been valued for the size and keeping qualities of the fruit and for the blight-resisting quality of the trees, but the fruit has been used only for cooking. It is of partly Japanese origin, and does not need to be wrapped in paper when it is put away, like the European pears.

I wish to emphasize the fact that we gathered our pears late in October, after they had fully matured. I think they would lose in quality if gathered earlier.

Texas.

ANITA M. MILLER.

Ruddy Harvester Oil



The farmer's needs demand a heavy oil for loose bearings, one that will work freely, will not run, is not affected by heat or cold, will not gum or grow rancid, that has no acids to injure the bearings and is at the same time economical to use. **RUDDY HARVESTER OIL** answers all of these requirements and lightens the work of the horses, saving their time and strength. It works perfectly under all conditions and in any weather, and is just as good for all sorts of farm implements as for harvesting machinery. In one gallon and five gallon cans, half-barrels and barrels.

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A "Nature Garden" mixture so selected as to produce a luxuriant field of bloom for six weeks duration.

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1,000 " "	7.50
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Jerseys and Guernseys are the two breeds that are notable for the high percentage of butter-fat in their milk. A famous Guernsey cow in Illinois produced a thousand pounds of butter in a year, but this is exceptional.

There is a time-honored controversy between the breeders of the heavy milk yielding breeds and the breeds that produce the richest milk, which often causes hard feeling. A Jersey breeder and a Holstein breeder were discussing the relative merits of their favorite breeds one day, and the Jersey breeder said, "I can take a silver dollar and drop it in a pail of milk taken from a Holstein and see the dollar in the bottom of the pail." "Well," replied the Holstein enthusiast, "I could n't try that experiment with a Jersey because I could not get enough milk from her to cover the dollar."

The cost of a thoroughbred Jersey will probably be prohibitive to a man of small means but high grades can sometimes be bought as low as sixty dollars and a cow of indifferent breeding will bring fifty dollars. The high grade is worth the difference.
New Jersey. C. O. MORRIS.

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SO you think melon culture is essentially a lottery and even the experts fail in cold, wet seasons? That's because you don't know the simple secret of melon culture. Cold, wet weather is bound to ruin melons. Even in dry weather, a few nights at ripening time that are considerably cooler than those preceding, will entirely destroy the aroma and flavor of the finest varieties. The only thing you can do about it is to ripen them indoors, keeping them in a warm room during cool weather and a cool place in hot weather. Too much work? Very well, then, you can't have good melons in hot weather. I am willing to pay the price, because we can't control the weather and we can't make a tropical plant enjoy cold, wet weather.

Of course, the easiest and cheapest way to produce melons by the carload is to grow them on warm, sandy soil, but mark you! The finer orange- and salmon-fleshed varieties such as Emerald Gem, Miller's Cream and Paul Rose, when grown on warm, sandy soil, crack badly and their flesh is too soft! Moreover, on warm, sandy soil, the vines are much more subject to leaf-blight and sunscald, while those grown in cooler locations are more robust, because a cool and rather heavy soil holds moisture better during dry spells.

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It is the *only* rat killer which can be safely used by the householder—harmless to human beings if accidentally taken in small quantities, and containing no phosphorus or other inflammable. Made in form of squash seeds—the rat's favorite food. The rats do not die in the walls, but rush for open air and water. Keeps perfectly in all climates, and is absolutely safe to handle. Will not poison dogs or cats. 20 cents at your druggists, or sent prepaid on receipt of 25 cents.

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Lilium Candidum

While most of the Spring flowering bulbs may be planted any time up to the closing of the ground by frost there are some sorts which to do well

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Included is the beautiful and much admired Madonna Lily. The bulbs should be planted with but 2 inches of soil over them. They send up their leaves this Fall and bloom in May.

	Each	Doz.	Per 100
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Extra large bulbs	0.15	1.25	8.00
Mammoth bulbs	0.20	1.50	10.00

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Autumn Catalogue

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Our collection of hundreds of specimens are well known, having been admired by thousands of visitors from all parts of the country.

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will KILL THE WEEDS absolutely without disfiguring the lawn and in addition it acts AS A FERTILIZER to the grass, enriching the soil, promoting the growth of a fine, thick, grassy sward. The most impoverished and weedy lawn will show a remarkable improvement with only one application.

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Likewise strong, sturdy wheat repels the attack of rust—the enemy that dwarfs the growth, shrivels the grain, lowers the profits.

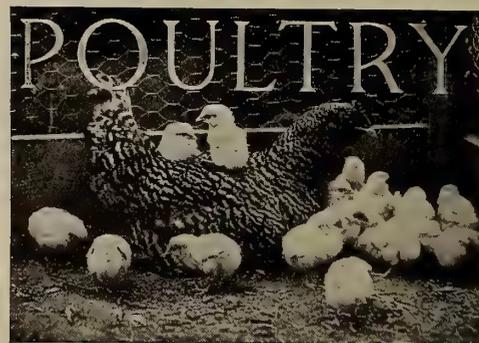
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Potash is profit. Buy the Potash first.

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ALL poultry is healthier for exercise and the Light Brahmas especially must have it on account of their proneness to take on fat. During cold and stormy weather, we open the doors of the hen houses at half past six o'clock in the morning and let the chickens out into their scratching sheds, where by experience they know that wheat awaits them in the straw. We scatter in each shed a 4-quart measure of wheat, and this is sufficient for the hens we keep, which number from sixty to seventy-five. At eleven o'clock several handfuls of oats are thrown into each shed, which is more to keep them hunting and working than to feed them. At this time the eggs are gathered.

At four o'clock in the afternoon the chickens are given two 12-quart pails of mash. This is prepared in the morning after breakfast, when there is comparatively little being cooked. We pack one of the pails with alfalfa meal three-quarters full, and pour in sufficient water to cover it, allowing the pail to remain on the stove until steam comes from it. It is then removed and the meal divided into three equal parts, one part being put into each pail. We add a tablespoonful of ground charcoal and three teaspoonfuls of salt to each pail, and fill them three-quarters full with milk or water. We generally use milk and as it has been run through the separator it does not produce fat. We stiffen the mash with crushed oats and bran, more of the former being added than the latter. The bran makes it of a crumbly quality. Never give sloppy food. While the chickens are eating, the eggs are gathered for the second time.

The drinking fountains or buckets are turned upside down after the chickens have gone to roost, which in summer insures fresh water and on winter mornings prevents the added work of chopping out the ice. Every Saturday afternoon fresh meat bones are purchased from the butcher and ground in the bone cutter. A pan holding five quarts is divided among the chickens on Sunday mornings. See that they get about a heaping tablespoonful apiece. When the chickens begin to moult, we often slightly hurry it by giving them whole corn at one feed during the day. Meat drippings can also be added to their mash.

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Strong, healthy plants from selected stock of choicest fruiting varieties, sure to give satisfaction and

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Some of the finest berry patches in America owe success to our vigorous stock. Pot-grown plants have been our specialty for many years. If you want fruit next season, order NOW. We also have a full line of **Fruit and Ornamental Trees, Plants, Vines, etc.**, for fall planting, all grown on our home grounds and guaranteed healthy and true to name.

We also do landscape gardening in all its branches. Catalogue free.

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The American Flower Garden

By NLTJE BLANCHAN

Author of "Nature's Garden," "Bird Neighbors," Etc.

AFTER several years of preparation the date for the publication of "The American Flower Garden" has been set for late in the autumn of 1908.

There is no other work of this kind on gardening in America and it is the aim of the book to do for the United States what Robinson's "English Flower Garden" has done for England. It treats of the theory and practice, and also the history of this interesting subject. A glance at the chapter headings will show the comprehensive character of the volume.

- I. Introductory. The Partnership of Nature and Art
- II. Situation and Design
- III. Formal Gardens
- IV. The Old-fashioned Garden
- V. The Naturalistic Garden
- VI. The Wild Garden
- VII. The Rock Garden
- VIII. The Water Garden
- IX. Evergreens, Flowering, and Other Decorative Trees
- X. Shrubs
- XI. Hardy Perennials
- XII. Annuals
- XIII. Vines
- XIV. Bulbs and Tuberos-rooted Plants
- XV. The Rose Garden
- XVI. The Lawn
- XVII. Garden Furniture



The edition will be limited to 1050 numbered copies and each subscriber will be notified of the number assigned to him immediately upon receipt of his order.

The make-up of the volume is one of the most sumptuous we have ever planned. The paper will be watermarked and is being made especially for this book. There will be special lining papers printed in half-tone. The type to be used is a Caslon old style. The cover design has been drawn by Mr. T. B. Hapgood. It is a full size conventional floral design for the side and back and will be stamped in full gold. The size of the volume will be 8½ x 12 inches and there will be about 450 pages.

The illustrations will be the best examples of the photographers' and engravers' art that can be produced. They will be printed on inserted plates and there will be ten in full color and ninety-six others of sufficient size to treat adequately the subject presented.

A folder has been prepared giving more complete information with a sample color plate and half-tone. This we will be glad to send you as noted in the attached blank.

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not blow them around. They come apart easily. On the side of each, where the mother hen cannot get in, is a little lean-to with a glass roof. In this is a hopper holding pinhead oatmeal and millet seed and a little pan for water securely placed. The chicks come in here to eat and sun themselves. There is another opening in the lean-to for the hen's grain.

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SUGGESTIONS

Farm Problems in the Tropics

REPLYING to several questions that have been asked in relation to the behavior of crops in the tropics, this communication from Professor L. C. Corbett will undoubtedly be of some help toward a solution of some of the peculiar problems that present themselves:

"The condition in the tropics is that of a continuous summer, so that practically all the plants of our climate thrive vegetatively; but the difficulty rests in the consequent indefinite continuous growth of those which have a definite period of ripening with us. Consequently, many of the plants which are annuals as ordinarily treated practically become perennials under tropical conditions. For instance, onions, instead of having a determinate growth and ripening, will have several successive periods of growth and at no time do certain varieties form satisfactory bulbs. Onions which have been planted eighteen months or two years may be still growing without any development of the bulbs.

"The difficulty is not so much the question as to whether or not anything will grow, but whether it will prove a commercial success or will bloom satisfactorily. I think that there is comparatively little difficulty in regard to the blooming of roses and other flowering plants. The chief difficulty is with plants, such as above noted, that should have a definite period of development. Peas and tomatoes are not always satisfactory although sometimes a crop of tomatoes will come to perfection. But at other times, about the time fruit production comes on, the plant weakens and dies quickly, thus preventing a satisfactory harvest.

"I make mention of these facts as I have learned them through Professor M. J. Iorns, in charge of the horticultural work at the agricultural experiment station at Porto Rico."

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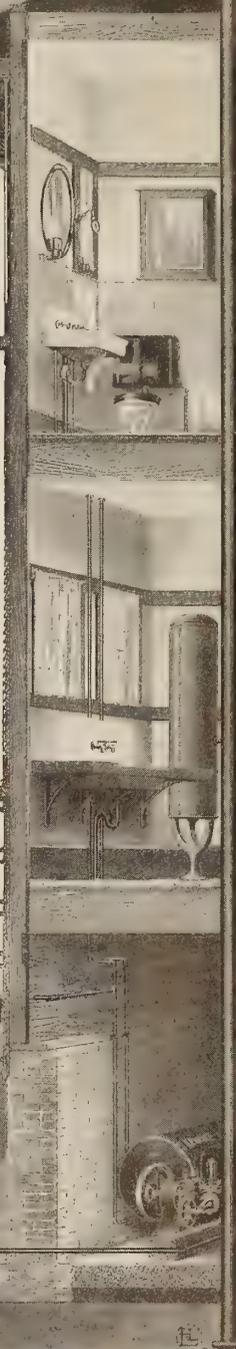
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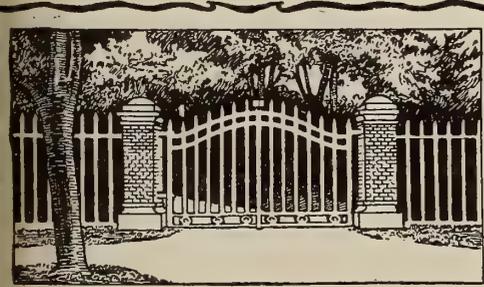
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Hardy Plants for Northern Michigan

THE only plants which may be depended upon not to die during the severe winters of Northern Michigan, where the thermometer often reaches 40 degrees below zero, are those which are known to be of the first degree of hardiness. The following is a list of a number of such plants which have been culled from the lists of hardy trees and shrubs reported by the Central Experimental Farm of Ottawa, and includes kinds that are known to be hardy in that section, and which would undoubtedly thrive in Northern Michigan:

SHRUBS

- | | |
|---------------------------|-----------------------|
| Alder, speckled | Juneberry, dwarf |
| Arrowwood, tooth-leaved | Lilac, common |
| Barberry, common | " Persian |
| " Thunberg's | Meadowsweet |
| Buffalo berry | Mock orange |
| Button bush | Ninebark |
| Cranberry, high bush | Privet, Amoor |
| Currant, flowering | Rosa blanda |
| Dogwood, alternate-leaved | " lucida |
| " red-branched | " rugosa |
| " red osier | Smoke tree |
| " Siberian | Smooth Sumach |
| Elder, American | Spiraea, birch-leaved |
| Hackberry | " hypericifolia |
| Hardhack | " three-lobed |
| Haw, black | " Thunberg's |
| Honeysuckle, fly | " Van Houtte's |
| " scarlet trumpet | Thorn, cockspear |
| " Tartarian | " dotted |
| Hydrangea, panicle | " scarlet |

TREES

- | | |
|------------------------|--------------------------------------|
| Arbortvitæ, common | Maple, red, |
| Ash, dwarf American | mountain " white |
| " white | Oak, red |
| Basswood, American | " white |
| Beech, American | Pea-tree, Siberian |
| Birch, European | white |
| " paper | Plum, common (<i>P. Americana</i>) |
| Chestnut, horse | " wild Canada (<i>P. nigra</i>) |
| Elm, American | Poplar, black |
| " English | " white or silver |
| Fir, balsam | Spruce, black |
| " Nordmann's | " blue |
| Hickory, shagbark | " Douglas |
| Hornbeam or blue beech | " Norway |
| Larch, European | " white |
| Locust, honey | Willow, osier |
| Maple, Norway | " shining |
| | Yellow-wood |

CLIMBERS

- | | |
|-------------|------------------|
| Bittersweet | Virginia creeper |
| Fox grape | Virginia's bower |
| | River grape |
| | S. W. FLETCHER. |

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A QUESTION of vital interest to many small farmers and poultrymen is whether they can profitably grow grain on their land. There are small areas in Pennsylvania, New Jersey, New York and New England where it can be grown to good advantage. But the same land that will produce twenty-five bushels of wheat per acre ought to produce, with not much more labor, 150 to 200 bushels of potatoes. The large farmer who is far from markets can best grow wheat and other grains; but the small farmer, located near large markets, with the possibilities there open to him, cannot afford to grow grain on his few acres; he must devote his time to truck gardening.



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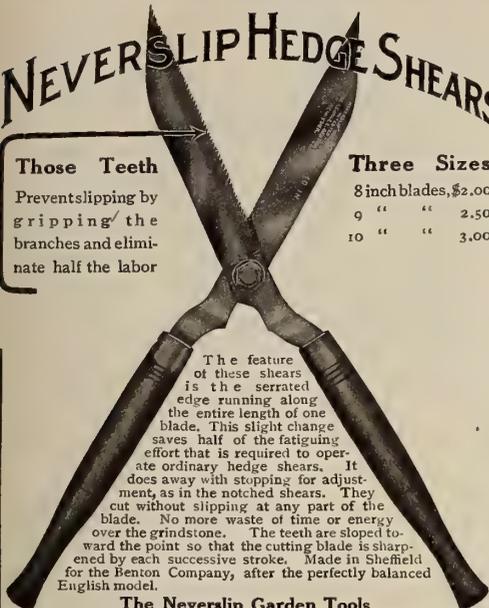
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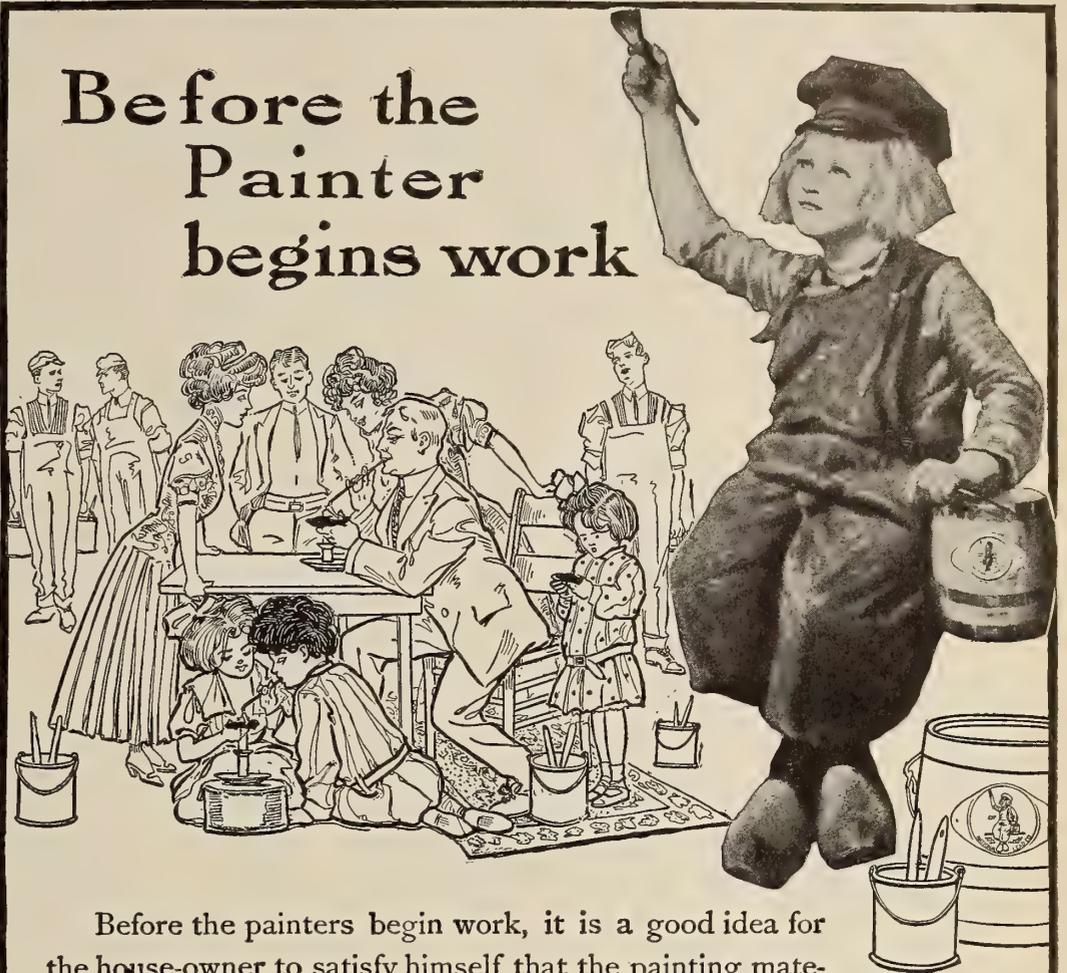
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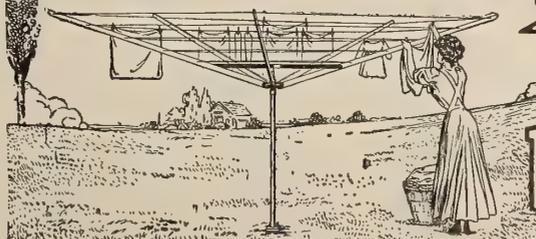
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Rather than bother with raising grain, the poultryman with only a few acres finds more profit in growing alfalfa on a small part of his land, sowing crimson clover wherever possible among his garden crops, and Dwarf Essex rape early in spring, some mangels later and still later Pearl millet and cabbage. Each one should be able to figure out his most profitable course, taking into account location and markets, character of soil and prices of products.

There have been cases where wheat has yielded nearly sixty bushels per acre, and oats more than a hundred; but these yields could hardly be approached on average farm land. The highest average wheat yield of the whole United States in any one year from 1866 to 1905, was 15.3 bushels in 1898, and the lowest, 9.9 bushels in 1866. The average for the forty years was approximately 12.5 bushels. Only one of the Eastern states grew enough wheat in 1905, according to the United States Department of Agriculture, to rank very high as a wheat growing state, and that was Pennsylvania. The average yield in that state from 1896 to 1905 was 15.8 bushels. The highest average yield of any New England state was 19.5 bushels, in Maine, probably on account of the virgin soil of its newer settled counties. But the acreage in the New England states is very small. New York ranks fair as a wheat growing state, having an average yield of approximately 17.5 bushels, but wheat is grown in a comparatively small part of the state. New Jersey is of minor importance as a wheat producing state, and the average yield is approximately 16 bushels.

TRUCK FARMING

Most of the farmers in this locality are engaged in truck or fruit growing, poultry raising, or milk production for local sale. Land is held at \$400 per acre, without buildings, but considering it at \$200, with interest at \$12, and high taxes, even with a yield of twenty-five bushels (which it would not produce), the wheat would cost much more than \$1.17 per bushel. Team labor here is \$5 per day, and the day is a short one at that. A good day laborer cannot be had for less than \$1.50. Any one raising grain would need to go back to first principles, and do most of the work in primitive fashion. I do not know of a grain drill, a reaper, or a threshing machine anywhere in this neighborhood, farmers having learned that they can make more money from crops that do not require their use.

Most truckers plan to grow two crops each year on at least a part of their land. One grows large quantities of celery, and from two crops on the same land last year, was said to have received in the neighborhood of \$2,000 per acre. Of course, this was exceptional, the crop being heavy, the quality choice, and the price high. Another man with a large area planted to cantaloupe realized hundreds of dollars per acre. Peas and beans, tomatoes, sweet corn, Limas, squashes, cucumbers and other vegetables prove profitable to those having suitable land.

New Jersey.

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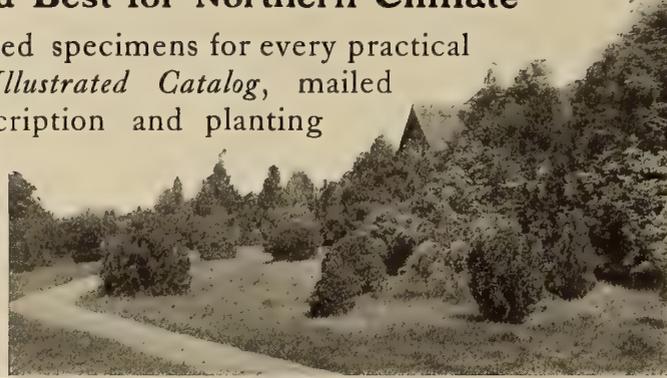
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Sanitary Milk vs. the Family Cow

NOTHING is gained by ignoring facts, and it is a fact that a cow kept under the conditions existing in a small place cannot be depended upon to give milk as pure as that obtained from modern certified milk plants. In these latter the most scrupulous care is exercised to have everything not only clean but sterilized and germ-proof. Even the milkers wear antiseptic suits of white duck and close fitting caps, so that the dust that may settle in their hair will not contaminate the milk. New York State allows a dairyman to call his output certified, provided there are less than ten thousand germs in a cubic centimetre (a quarter of a teaspoonful). Under the worst dairy conditions of dust and filth, the number of germs may be a hundred million in the same quantity of milk. If you keep a cow your milk production will fall somewhere between these two extreme limits.

The question is, since we cannot possibly compete with the certified milk producers, shall we keep a cow?

The answer is yes, if you are in the position to do so, because while the certified milk is purer than that which you will obtain, the chances are that you will obtain purer milk than you are now getting, as the quantity of this certified milk is limited.

If we eliminate the cost of labor in keeping a cow, there is a real economy in it because she will produce from twelve to twenty quarts of milk a day or sufficient to supply five or six families. The surplus which you will not need for yourself will either find a ready market in your neighborhood, or can be churned into butter. A good Jersey or Guernsey cow should supply an ordinary family with all the milk and butter they need. Of course, it is much simpler to go to the grocery store for a bottle of milk and a print of butter than to carry out all the operations incident to the care of a cow.

Even on a comparatively small place it is possible to keep a family cow because in the absence of pasturage one can practice intensive dairying and raise fodder crops. It is estimated by this method one can keep five times as many head of cattle on the same acreage as on ordinary pasturage.

A cow is at her best usually when she is seven years old. After she is twelve it is doubtful if she pays for her keep. In buying a cow select one in which Jersey or Guernsey blood prevails. Do not buy a nondescript or a mongrel, and do not buy a cow with horns. A polled cow is the only safe kind where there are children.

No one should keep a cow unless some member of the family knows how to milk. In these days when it is so difficult to secure good servants, it is extremely risky to depend entirely on the whims of the gardener or stable man to care for the cow. If he should leave suddenly the whole family would be thrown into a panic, unless some one knew how to milk. It is perhaps too well known to be worth mentioning that a cow must be milked regularly night and morning, no matter what other work is left undone.

Delaware.

JOHN HARRISON.

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with shrubbery and hardy plants that bloom from early spring until after frost; the kind that do not require annual replacing but grow more beautiful every year and with which the modest little home lawn or the most elaborate and extensive estate can be made charming and attractive.

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This is not a *Fairy Tale* but a **FACT**

The above picture represents the plant in bloom taken from a photo. **This bulb blooms without either SOIL or water.** Kept in the dark the flowers are retarded, but, as soon as brought to light, in its season of bloom (late autumn and winter) the flowers appear. Such exquisite, rosy tinted blossoms, shading to a pearly white in the calyx ornamented with silvery stamens. Nothing excels the plant in bloom as room or table decoration. As an unique and dainty living bouquet it has NO equal. The perfume exhaled by it is delicate and refreshing. Bulbs are simply placed in a bowl or dish. As soon as any flower withers cut it off close to the bulb when a new one comes forth, each strong bulb bearing from 9 to 12 flowers. When through flowering the bulbs can be potted or planted out, when they develop a beautiful dark broad undulated foliage. During midsummer give a rest when the bulb will be ready for flowering the next season.

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sown in the open ground during August up to September, will winter safely out doors, and make your garden a **Glorious Bloom** in early spring and summer long before your neighbor's who has neglected to provide.

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THE MOST durable in existence. Indispensable for tying up Lilies, Roses, Gladioli, Chrysanthemums, Tomato Plants, etc.
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\$1.00 \$2.25 \$3.75 \$5.00

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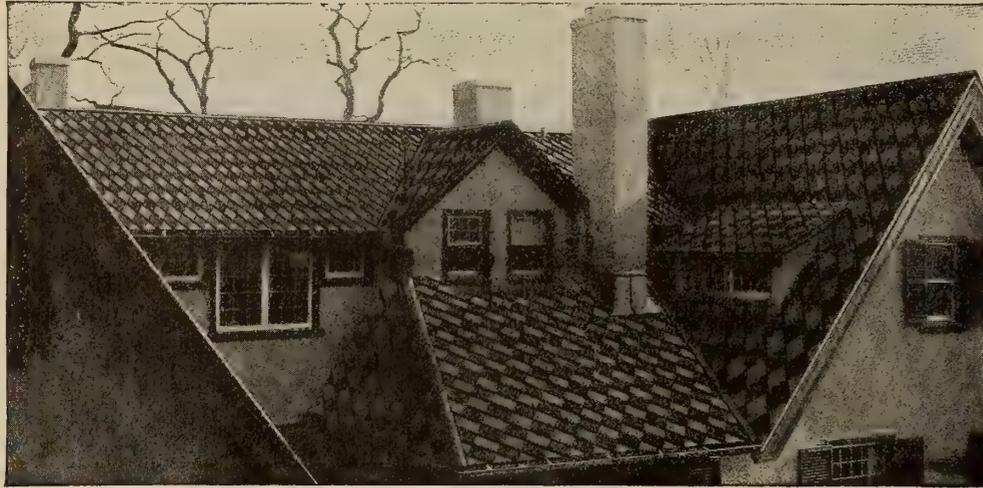
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Enclosed find \$1.00 for 6 Byzantine Wonder Lily Bulbs.

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IMAGINE a roof of diamond tiles, slightly variegated in tone; a red roof, deep and positive in color, but harmonious—an Indian red—warm, rich and with the quality of permanently pleasing. This is Zolium—the instant you see it you concede its beauty.

But, after all, it's the tightness of a roof that's important. Zolium is tight because we have entirely gotten away from the old idea of merely shedding the rain water. Shedding does very well until a green shingle warps, exposing one of the cracks of which there are thousands on an old style roof. Then you have a leak—and pay for new ceilings or wall papers—new furniture—new draperies.

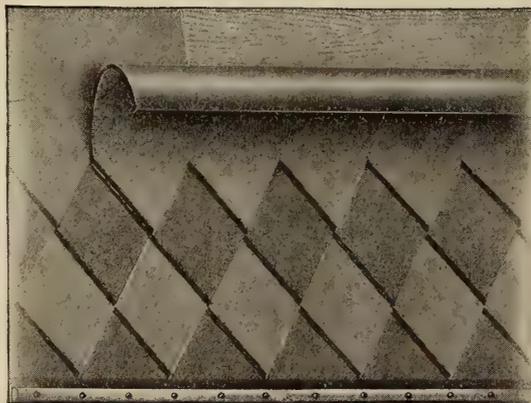
Zolium does away with treacherous cracks. Each Zolium tile is an integral part of a pliable, impenetrable sheet of bonded fibre, extending practically from gable to gable. These tiles are lapped three deep. The rain is not only shed, it is forever excluded.

Zolium will not catch fire from sparks, it is very durable, needs no painting, and is economical. It can be laid over old shingles. There is no other roof like it. An interesting booklet tells all about Zolium. May we send it to you without charge?

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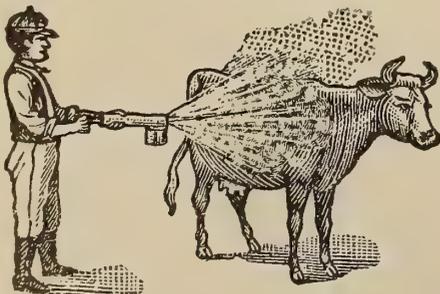


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No Cow can thrive when tormented by flies

Cattle Comfort is an unctuous preparation detrimental to *Flies* and *Gnats* that afflict domestic animals. Apply it to the base of the horns, along the back to the root of the tail, and on the neck and forequarters. It will relieve Horses, Mules, Cattle, Dogs, and Fowls from the noxious effect of *Horn Flies*, *Gnats* and *Mosquitoes*, and it is healing to any sore. Applied to the perches in the hennery it prevents the spread of lice; put on the heads of fowls it destroys head lice; applied to many dogs it affords relief and effects a cure.

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For pamphlet on Bugs and Blights write to

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Nankeen Lily Seeds at Last

FOR sixty years," writes Mr. E. Huftelen of LeRoy, N. Y., "European specialists have been trying to get the nankeen lily (*L. testaceum* or *excelsum*) to produce seed. I have at last succeeded in getting some seedlings and am watching them with great interest."

The significance of this statement is two-fold. It gives the hope of getting a better yellow lily of the Turk's cap type and it renews speculation about the desirability and scarcity of lily hybrids.

The new Golden Gleam lily described in THE GARDEN MAGAZINE for September, 1908, on page 61 sounds like the only true yellow lily with strongly revolute segments, excepting possibly *L. pomponium*, var. *Pyrenaicum*, which has an objectionable odor. We have a pale yellow in *L. Maximowiczii* (better known to gardeners as *L. Leichtlinii*), but that is thickly spotted with black; also in *L. monadelphum* (commonly catalogued as *S. Szovitzianum*), but this is tinged purple at base and tip. Moreover, these are costlier than the nankeen lily.

The nankeen lily has long been considered the only hybrid lily of the first importance in cultivation. It is not known in the wild state and is supposed to be a hybrid between the madonna lily and the scarlet Turk's cap (*L. candidum* and *L. Chalcedonicum*). It resembles the former in ease of culture and foliage; the latter in having strongly revolute petals, scarlet stamens, and taller growth. The pale yellow color may also have come from *Chalcedonicum*, for Professor Waugh says there is a yellow variety of it. This yellow form, however, I have not yet found offered in any of the Old World catalogues.

New Jersey.

T. McADAM.



Improving Boiled Potatoes

Potatoes Delmonico are made by mixing in a frying pan four good-sized boiled and finely hashed potatoes with one and a half gills cold milk, half gill cream, two saltspoons salt, saltspoon white pepper, saltspoon grated nutmeg. Cook ten minutes, stirring occasionally. Stir in tablespoon grated Parmesan cheese and transfer the whole into a gratin dish, sprinkling another tablespoon grated Parmesan cheese over the surface. Set in the oven to bake for six minutes.

END YOUR
ROOF TROUBLES
WITH

Amatite ROOFING

A Roof that Really Protects



THE more carefully you study the subject of Ready Roofings the more you will be convinced of the great superiority of AMATITE.

The average buyer sends to a few advertisers for

the time it is laid or afterward. Once it is on you have no further bother or expense.

Then again, AMATITE has wonderful durability:—

First, because it has a mineral surface. Doesn't it seem reasonable to believe that a top covering of crushed stone will resist the wear of storms better than a roofing with a smooth or unprotected surface?

Second, it contains solid layers of Coal Tar Pitch—the material which is used by the best engineers for waterproofing deep cellars, tunnels, etc.



ONE OF THE BELLEMEADE FARM BUILDINGS ROOFED WITH AMATITE

samples, picks out one that looks tough, and sends in his order to the nearest dealer.

If the dealer doesn't keep the kind selected, some other kind which he has is generally bought instead.

That is a good way to get a leaky roof.

The careful buyer is more particular. He knows that any roofing will last for a little while without attention, but he wants to postpone the time and cost of renewal as long as possible.

He is figuring next year's cost as well as this year's cost. He thinks of the money he will have to spend after a few years for a new roof if this one won't last any longer. If he can get a better roofing at equal cost that will last longer, he is so much the gainer.

That kind of calculation is called thrift. The thrifty buyer sees important differences between AMATITE and the other roofings.

The other roofings either require a coating with a special liquid every year or two, or periodical painting. Right there is a future expense to be counted by the thrifty buyer. His judgment swings toward AMATITE, because it needs no painting either at

Doesn't it seem reasonable to suppose that this offers better protection against water than materials which are never used for such severe service?

One more argument. Weight for weight. AMATITE is the lowest in price of any mineral surfaced Ready Roofing.

These, then, are some of the reasons why thrifty people buy AMATITE—It costs nothing to maintain, it has remarkable durability, and its first cost is very low.

The experience of careful purchasers with AMATITE is illustrated by the following letter from Bellemeade Farm:

BELLEMEADE FARM
BEDFORD, MASS.

March 7, 1908.

Gentlemen:—It is now nearly three years since we put your Amatite Roofing on our new 300-foot buildings. This roofing is now in its third winter and has gone through without a leak, and there is every indication that it will be good for many years. The buildings with this light, sparkling Roofing and the red trimmings as painted, are very attractive in appearance, and altogether we are much pleased with your Amatite Roofing. We are contemplating the construction of some further buildings for our Shetland ponies, and mean to use more of your Roofing.

Yours Truly, S. B. ELLIOTT, M. D.

Sample Free.

There are more arguments for AMATITE than these. Our Booklet tells them. Sent with Free Sample for a postal to nearest office.



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To the average poultry man that would seem impossible, and when we tell you that we have actually done a \$500.00 poultry business with 20 hens on a corner in a city garden 30 feet wide by 40 feet long, we are simply stating facts.

It would not be possible to get such returns by any of the systems of poultry keeping recommended and practised by the American people; still it is an easy matter when the new PHILO SYSTEM is adopted.

Two-Pound Broilers in Eight Weeks

are raised in a space of less than a square foot to the broiler without any loss, and the broilers are of the very best quality, bringing here three cents per pound above the highest market price.

The New System Covers All Branches of the Work Necessary for Success

from selecting the breeders to marketing the product. It tells how to get eggs that will hatch, how to hatch nearly every egg and how to raise nearly all the chicks hatched. It gives complete plans in detail how to make everything necessary to run the business and at less than half the cost required to handle the poultry business in any other manner. There is nothing complicated about the work, and any man or woman that can handle a saw and a hammer can do the work.

Our Six Months' Old Pullets Are Laying at the Rate of 24 Eggs Each Per Month

in a space of two square feet for each bird. No green cut bone of any description is fed, and the food used is inexpensive as compared with food others are using.

Our new book, the PHILO SYSTEM OF PROGRESSIVE POULTRY KEEPING, gives full particulars regarding these wonderful discoveries with simple, easy-to-understand directions that are right to the point, and 15 pages of illustrations showing all branches of the work from start to finish.

Don't Let the Chickens Die in the Shell

One of our secrets of success is to save all the chickens that are fully developed at hatching time, whether they can crack the shell or not. It is a simple trick, and believed to be the secret of the ancient Egyptians and Chinese which enabled them to sell the chicks at ten cents a dozen.

Chickens Feed at 15 Cents a Bushel

Our book tells how to make the best green food with but little trouble and have a good supply any day in the year, winter or summer. It is just as impossible to get a large egg yield without green food as to keep a cow without hay or fodder.

Our New Brooder Saves 2 Cents on Each Chicken

No lamp required. No danger of chilling, over-heating or burning up the chickens as with brooders using lamps or any kind of fire. They also keep all lice off the chickens automatically or kill any that may be on when placed in the brooder.

Our book gives full plans and the right to make and use them. One can easily be made in an hour at a cost of 25 to 50 cents.



Three-pound white Orpington rooster, 10 weeks old, raised by the Philo System

The Philo System Is Unlike All Other Ways of Keeping Poultry

and in many respects is just the reverse, accomplishing things in poultry work that have always been considered impossible, and getting unheard-of results that are hard to believe without seeing. However, the facts remain the same; we can prove to you every word of the above statement.

Hard to Believe the Results Accomplished by the Philo System

VALLEY FALLS, N. Y., Sept. 5, 1907.
It was my privilege to spend a week in Elmira during August, during which time I saw the practical working of the Philo System of Poultry Keeping, and was surprised at the results accomplished in a small corner of a city yard. "Seeing is believing," they say, and if I had not seen, it would have been hard to believe that such results could have followed so small an outlay of space, time and money.

(Rev.) W. W. COX.

The Quality of the Large Flock Raised in a City Lot Is the Best Evidence.

Your system of poultry keeping should appeal to all poultrymen. The advantages of your system are many, and the quality of the large flock of poultry you have raised on your city lot is the best evidence of its success.

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GEO. L. HARDING.

It Is Beyond Doubt the Best Thing of Its Kind

ABINGTON, MASS., Nov. 15, 1907.
The Philo System Book received to-day. It is beyond doubt the best thing of its kind that I have ever seen. There are one or two single items that I consider worth the full price of the book. I will begin tomorrow to remodel my plant to follow the lines laid down in your book as nearly as possible, and next fall I hope to have the business reduced to your exact methods to keep a flock of about 150 fowls.

M. R. BOND.

Is Anxious to Spread the Good News as Far as He Can

JACOB'S CREEK, PA., Nov. 25, 1907.
I received the Philo System Book mailed to my home address, Beechtree, Pa. I am highly pleased with it, and am anxious to spread the good news as far as I can. I am a preacher of the Gospel, engaged by the Baptist Ass'n to do evangelistic work. I am very much interested in the hen and will do all I can to help the fellow to know HOW, and to spread the good tidings received in the Philo System.

(Rev.) F. B. WILLIAMS.

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\$1 By special arrangement \$1
we are able to send you

- 1.—The Philo System Book with right to use all plans.
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- 3.—One year's subscription to the American Poultry Advocate.

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American Poultry Advocate
234 Hogan Block - - - Syracuse, N. Y.

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AMERICAN POULTRY ADVOCATE, 234 Hogan Block, Syracuse, N. Y.

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GENTLEMEN:—I enclose herewith \$1. in acceptance of your offer to send 1.—Philo System, 2.—One year's subscription to Poultry Review, 3.—One year's subscription to the American Poultry Advocate all for \$1.00. Please enter my subscription for the two periodicals and send me the book at once.

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Town.....

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OCTOBER

1908

Vol. VIII. No. 3

Fall Planting Number

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Number

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COUNTRY LIFE
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133-137 EAST 16th STREET, NEW YORK



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In Six Months From 20 Hens

To the average poultry man that would seem impossible, and when we tell you that we have actually done a \$500.00 poultry business with 20 hens on a corner in a city garden 30 feet wide by 40 feet long, we are simply stating facts.

It would not be possible to get such returns by any of the systems of poultry keeping recommended and practised by the American people; still it is an easy matter when the new PHILO SYSTEM is adopted.

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are raised in a space of less than a square foot to the broiler without any loss, and the broilers are of the very best quality, bringing here three cents per pound above the highest market price.

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from selecting the breeders to marketing the product. It tells how to get eggs that will hatch, how to hatch nearly every egg and how to raise nearly all the chicks hatched. It gives complete plans in detail how to make everything necessary to run the business and at less than half the cost required to handle the poultry business in any other manner. There is nothing complicated about the work, and any man or woman that can handle a saw and a hammer can do the work.

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in a space of two square feet for each bird. No green cut bone of any description is fed, and the food used is inexpensive as compared with food others are using.

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and in many respects is just the reverse, accomplishing things in poultry work that have always been considered impossible, and getting unheard-of results that are hard to believe without seeing. However, the facts remain the same; we can prove to you every word of the above statement.

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VALLEY FALLS, N. Y., Sept. 5, 1907. It was my privilege to spend a week in Elmira during August, during which time I saw the practical working of the Philo System of Poultry Keeping, and was surprised at the results accomplished in a small corner of a city yard. "Seeing is believing," they say, and if I had not seen, it would have been hard to believe that such results could have followed so small an outlay of space, time and money.

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It Is Beyond Doubt the Best Thing of Its Kind

ABINGTON, MASS., Nov. 15, 1907. The Philo System Book received to-day. It is beyond doubt the best thing of its kind that I have ever seen. There are one or two single items that I consider worth the full price of the book. I will begin tomorrow to remodel my plant to follow the lines laid down in your book as nearly as possible, and next fall I hope to have the business reduced to your exact methods to keep a flock of about 150 fowls.

M. R. BOND.

Is Anxious to Spread the Good News as Far as He Can

JACOB'S CREEK, PA., Nov. 25, 1907. I received the Philo System Book mailed to my home address, Beechtree, Pa. I am highly pleased with it, and am anxious to spread the good news as far as I can. I am a preacher of the Gospel, engaged by the Baptist Ass'n to do evangelistic work. I am very much interested in the hen and will do all I can to help the fellow to know HOW, and to spread the good tidings received in the Philo System.

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Winter Bloom in the South

HERE on this peninsula, near the mouth of the Patuxent River, near Chesapeake Bay, quite a number of shrubs which are of a tender nature seem to thrive. I have never seen winter temperature go very low, the reason for which may be partly explained by the latitude (we are about sixty-five miles southeast of Washington, D. C.), but it may be caused more by the large bodies of salt water in the immediate vicinity and the only slight elevation of the land above tidewater.

It is delightful to be able to step out of doors in wintertime and find various shrubs in bloom, some of them sweet-scented, such as the *Lonicera Standishi* and *Calycanthus præcox*, often called *Chimonanthus fragrans*. These, however, would probably be called hardy. They and the plants mentioned later will usually bloom here in winter, but if the season is severe they may possibly be delayed till spring. The *Calycanthus* is prone to begin its blooming period some time in December and continue to bloom through the month of January; it is a beautiful sight when covered with fragrant yellow blossoms, readily detected at some distance. It blooms on the leafless branches. *Lonicera Standishi* blooms while almost denuded of leaves, but that shrub appears to be somewhat of a semi-evergreen and some few leaves may be found near its base. The *Jasminum nudiflorum* (as its name would indicate) and the *Jasminum fruticans* open their beautiful flowers on the nude branches, and are a glorious sight in winter when in bloom.

The foregoing are of a semi-upright nature and partake somewhat of the characteristics of a vine, but of all the winter bloomers I can imagine none more interesting than the laurustinus (*Viburnum Tinus*), a beautiful broad-leaved evergreen shrub with its many bunches of highly ornamental buds which burst into attractive white flowers by degrees.

It is an indefatigable bloomer, starting to flower about the first part of August and blooming more or less till about the middle of the following April. A prominent Washington horticulturist told me that he thought I could not make it flower here; but I have! Still, I do not know of any other place, outside of St. Mary's County, Md., in the same latitude, where the laurustinus has flowered when treated otherwise than as a greenhouse shrub.

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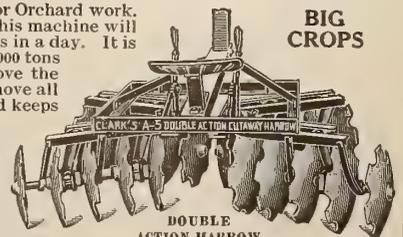
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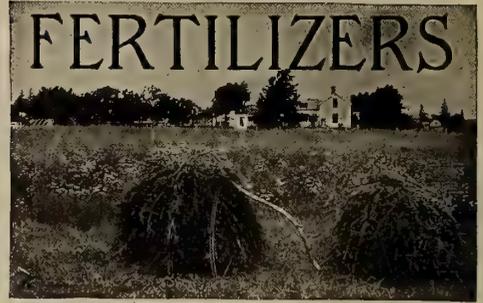
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When buying a brand, look only at the figures referring to these three items—all others are reiterations and of no service whatever.

The ideal all-round fertilizer for lasting effect is one having the ratio of nitrogen, 2; phosphoric acid, 4; potash, 5. This can be modified according to one's desires and the crop to be grown. For instance, in the early spring, for growing spinach, nitrate of soda, which gives nitrogen only, is perfectly satisfactory on most soils, so that there would be no need of giving extra potash or phosphoric acid.

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E. M. S.



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PLANTS grown on a window-sill will very often become one-sided, the leaves all turning toward the light. If the pot is twisted every day so that a different side of the plant faces the sun, the leaves and flowers will stand erect, and the plant will not become ungainly. When watering, do not moisten the top soil only, but give the plant a thorough soaking, and if occasionally a little ammonia is added to the water—just a few drops—the results will be surprising. Never allow the earth in the flower pot to become thoroughly dry and caked.

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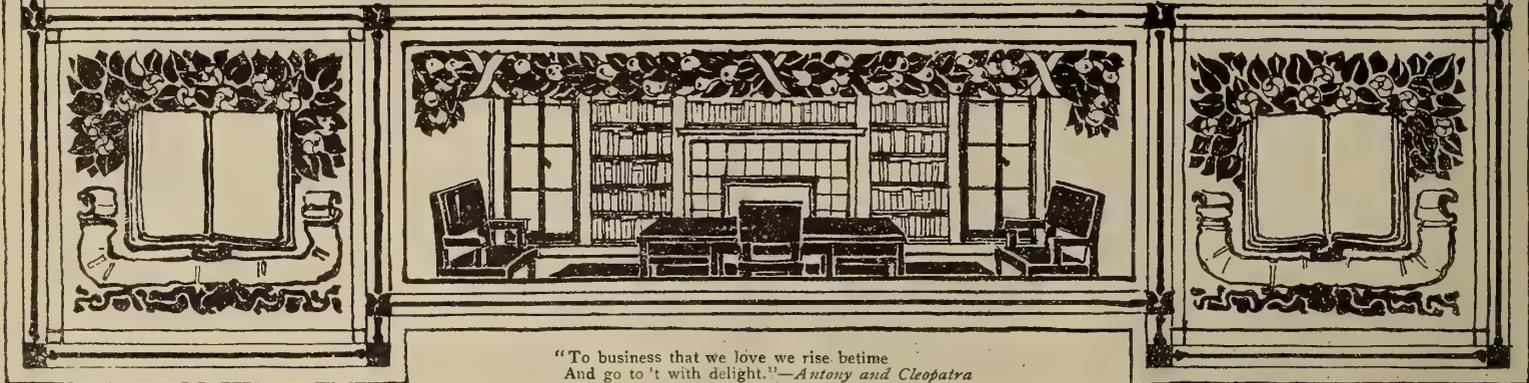
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Some years ago we began a department for encouraging people to act as our representatives in securing subscriptions for Doubleday, Page & Company's magazines. The results of all this work are now beginning to show in a fine way. Here are three stories:

I. There is an eighty-four year old lady out in Kansas (she does n't mind our telling tales out of school), who has been a very large factor in her community for many years. She began to take a few magazine subscriptions and now has a large business that is all cash down. She has simply made use of her knowledge of people to get subscriptions.

III. Not long ago a young man came in to see us and get information as to how to begin work. He is now, after a few months experience, supporting his family from this work alone.

It is n't hard to go in business for yourself. The first plunge, perhaps, looks difficult, but it is easier than one thinks. If you will write us, we will gladly send detailed information and a copy of some useful "Hints." You will be interested in them for yourself, maybe, or for someone you want to help.

MR. ROCKEFELLER'S REMINISCENCES

This month we begin in *The World's Work* the publication of the most important magazine serial that has been offered for many years. There will be at least six parts, and there is not a dull line in any of them. Mr. Rockefeller's story concerns a life that has been full of wonderful incidents. It has the saving grace of humor, and is told in the simple and straightforward manner of one who has real things to say. The first chapter will include these subjects:

- The Reason for Preparing the Reminiscences.
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- The Responsibilities of the Business Man.

THE BUILDING MANUAL — COUNTRY LIFE IN AMERICA

Color photography has actually come. Our photographic expert is making color plates in the open every week, and one of them is reproduced in the October issue of *Country Life in America*.

So far as we know this is the first instance of the use of this process as an actual illustration — to illustrate — not merely a specimen of color photography.

The Annual Building Number is full of real building information. As we have said before, a person who is intending to build can probably get ideas to save hundreds if not thousands of dollars by studying this manual of building

information. The most important feature is the subject of economical building.

Now is the time to build statistics indicate. If you contemplate building a home much money can be saved by doing it now, when labor and material are from 10 to 30 per cent. cheaper than they were a year ago. The cost of building in practically every section of the country has not been so low for several years as it is to-day and this is one of the facts that will be strongly put forth in the Annual Building Manual of *Country Life in America* — the October number.

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A YEAR

THE WORLD'S WORK

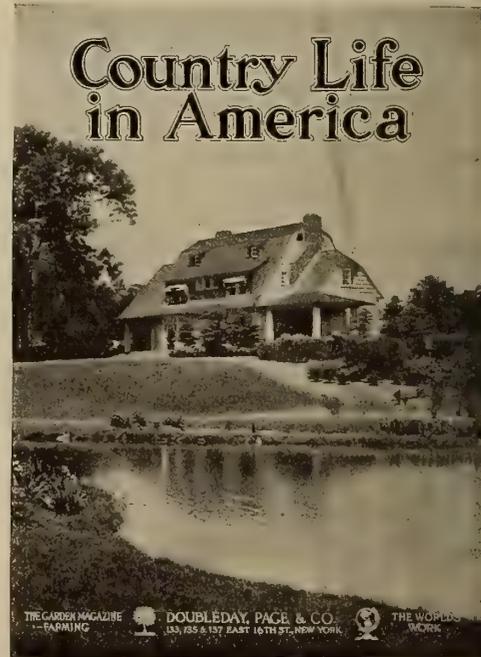
THE REMINISCENCES OF
JOHN D. ROCKEFELLER



DOUBLEDAY, PAGE & COMPANY, NEW YORK
WILLIAM HEINEMANN, LONDON

Cover of October Number

II. A woman in Orange, New Jersey, picked up over four hundred yearly subscriptions for one of our magazines in two months and it was her first attempt! She selected her people — that was the whole secret of her success. As she smilingly says: "The magazine sells itself if I just show it to the right people."



Cover of October Number

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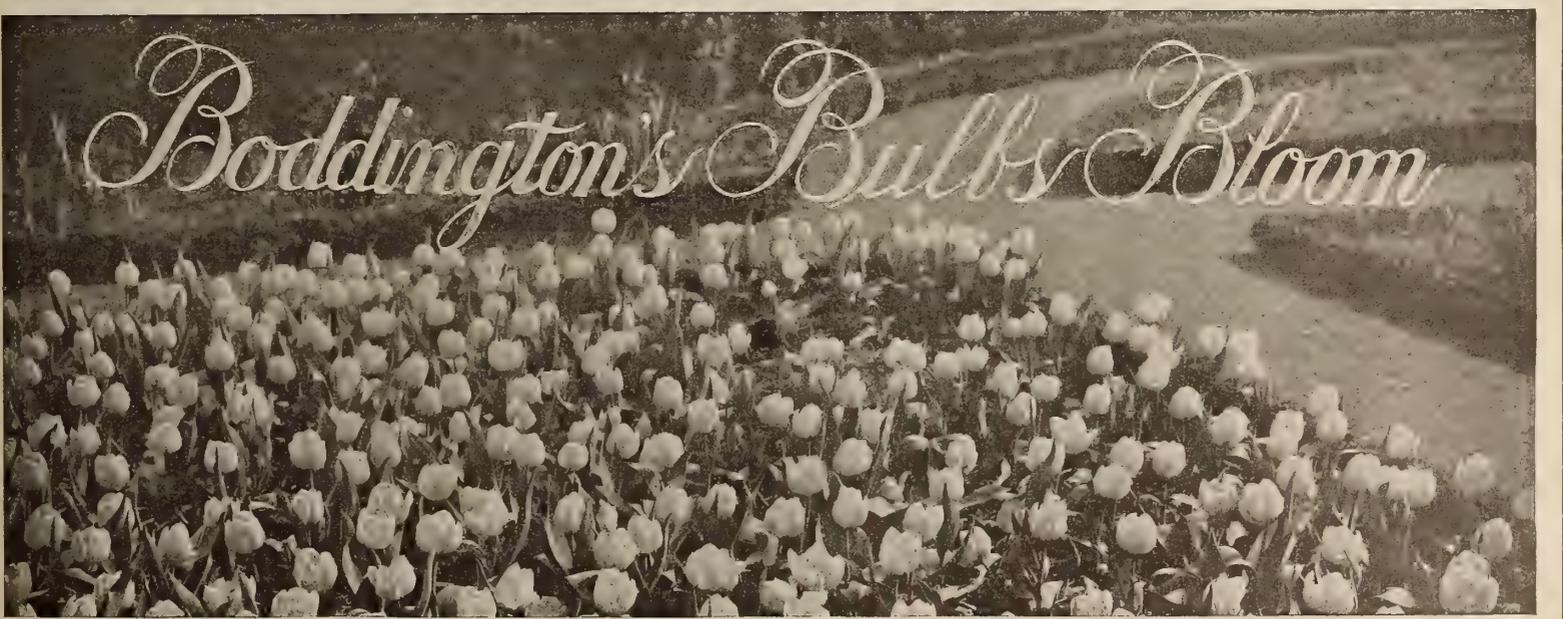
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The Garden Magazine

VOL. VIII—No. 3
PUBLISHED MONTHLY

OCTOBER, 1908

ONE DOLLAR A YEAR
TWENTY-FIVE CENTS A COPY



[For the purpose of reckoning dates, New York is generally taken as a standard. Allow six days' difference for every hundred miles of latitude.]

Plant Your Garden Now

THERE are at least three good reasons why you should do fall planting:

1. There is plenty of time now.
2. Nearly a year is gained.
3. No time in the spring.

There is only one thing to remember: do the planting so as to take advantage of the late fall rains.

Remember that transplanting anything causes some injury, and the remedy is an encouragement of root growth. Early fall planting as soon as the leaves begin to ripen is more likely to be successful than late spring planting. The chances are 90 per cent. in favor of the present time.

Do not delay in planting bulbs. Get your supplies early and pot up at once all that are wanted for winter flowering. Light rich compost will do for all. Just cover the tops of hyacinths. Tulips and narcissus should be an inch below. The Cape bulbs, ixias, sparaxis, etc., are worth trying; they are not so showy as the Dutch bulbs. They must be kept rather dry and in a cool, light place.

Plant hyacinths before frost comes; they will not stand the frost. Other Dutch bulbs may be delayed. Do not omit this opportunity of planning and planting the herbaceous border. This is the best time of year for the work. Transplanting and remaking of shrubberies is best done now because you can see what things you want to modify. Begin as soon as the leaves mature and you can continue planting as long as the ground keeps open. There is no difference between fall planting and spring planting except that you do not see the growth above ground, but the roots need just as much care. Expose them as little as possible and give them water.

The only exceptions to the advantage of

fall planting are in the extreme north where cold weather supervenes too soon, or in the arid western regions where the air is so dry that the plant is dried out before the roots can supply the demands of moisture. In all other sections, however, it is a wise insurance. Mulch heavily after planting.

THE FRUIT GARDEN

Just give a little thought over the results of your garden this year. Have there been any gaps in the succession? Now that the harvest season is about ended you will be able to recall what has happened. Perhaps there are some varieties not quite good enough. Better decide now to discard them and order new trees for immediate planting. If the condemned trees are vigorous and healthy, cut them back and graft them in the spring. Always plan to have a little more fruit than you really want.

Burn over the strawberry beds and the asparagus patch. If the land is sour, remember lime will correct it. The recommended ratio is 1,000 lbs. of fresh air slaked lime per acre of ground. Spread on as a top dressing any time during October or November. Coast land is particularly benefited by lime and even if the soil is not sour, but has been heavily manured for years, you will be surprised at its increased fertility next spring.

If the wood on the grape vines remains green at the end of the month, you can help things along by vigorously shaking the trellises and knocking off the leaves to let in more sun.

See that the fruit picking was a perfect job. Do not leave a single specimen on the trees, good or bad. The good ones you want for use; the bad ones may spread disease if they are not removed.

One caution about transplanting. Do not transplant too deeply. There are but few trees that can stand it. The best way is to lay a rod across the hole when setting the trees and so ascertain exactly where the fill will reach. Never plant more than one-inch deeper than it was.

If you have any fruit trees in pots, look over them during this month preparatory to beginning growth in November. Repot them at the end of the month. This is necessary even if they go back into the same pots. Reduce the old ball and fill in with new rich soil.

VEGETABLES

Transplant lettuce into coldframes at the beginning of the month and make your plans for salads until February. Full grown plants in the garden can be lifted just before heavy frost with a good ball of roots and will keep

three or four weeks in the cellar. See that they are quite dry when moved.

Any backward crops can be pushed along by sheltering with sash. Merely tilt them on boards laid up so that they are a few inches above the plants and put a covering on the cold side. The mere covering, however, will help on spinach, lettuce, etc.

Any corn stalks that are caught by the frost still bearing ears should be cut and put in a shock. The ears will develop better than if pulled off.

Begin to earth up celery about the middle of the month. The results are better when the landing is done by degrees. Give liquid manure to backward crops before pulling the soil up. Avoid rust by handling in dry weather.

No need to hurry over storing the celery. It does not mind a little frost. Besides if a warm spell comes after it is put into storage, rot quickly ensues.

Take the squash into the corn crib, and remember that frost is ruination.

Protect any globe artichokes before frost sets in. After the first touch trim the leaves and cover with ashes.

Make new asparagus beds. Deep plow and cultivate the soil and turn in an abundance of manure and ground bone. If you do the work properly, you can cut asparagus for the next quarter century.

IN THE GREENHOUSE

There is no more beautiful flower than the nerine. Try a few bulbs this year. Potted now they will flower next October, although some of them will give blooms this year. Keep them growing in a cool place all winter and let them rest dried off in summer. Keep in small pots and feed well.

Spread tobacco stems around the plants in the greenhouse in order to keep down green fly.

After the middle of October violets may be put into coldframes for flowers in winter.

If you are growing carnations put the first support on during this month.

Chrysanthemums will need close watching from now on because of the likelihood of a cold night coming suddenly. Maintain an even temperature—50 degrees should be the minimum. Early in the month is your opportunity to feed the plants in order to increase the size of bloom and the doses can be given stronger and more often than at any other time. Give nitrate of soda and sulphate of ammonia in solution alternately twice a week or liquid manure all the time. Stop as soon as the flower is half way developed.

Why not try a few calceolarias? Seed may be sown at the beginning of the month in pans and germinated in the window garden.

Your Opportunities in

SET OUT HARDY STOCK NOW FOR SPRING FLOWERS
DECIDUOUS TREES, AND ANYTHING THAT CAN AFFORD

THERE is a distinct advantage in planting in the fall all kinds of trees and shrubs (other than evergreens) and herbaceous perennials. Of course, everybody plants bulbs because everybody understands that, as they burst into flower so early in the spring, they have to make their root growth in the fall or early winter. This is equally true of deciduous and herbaceous plants that flower early, but with this exception, that whereas the bulb is bound to make its growth, the other kinds of plants will only make their growth when a growing season immediately follows the planting time. All the failures in fall planting are due to planting out stock under conditions which prevent its taking a new root hold in its new location; i e., early frost or too dry soil.

In the extreme North there are few nurseries and nearly all the stock to be planted has to be procured from more southerly and warmer regions. The reason, therefore, that fall planting does not always succeed in such cases, is that the stock is not sufficiently ripened before it is moved, and it experiences such a radical change from its previous environment that it is unable to make growth before the winter arrives.

I. THE PROBLEM OF THE REGION

Not all parts of the country afford equal opportunities for fall planting. Wherever there is a long open fall, the practice is successful and in the warmer sections work can be continued all the winter. This is sometimes possible on the Atlantic Coast. There is no hard and fast rule; everything depends on conditions.

IN THE EAST the months of October and September are usually good planting times and the advantage of doing work now is the time gained for other work in the spring. South of Boston fall planting is possible except in the cases noted below. If the summer has been hot and dry, mulch heavily and see that the plants do not suffer for moisture during the winter.

IN THE MIDDLE WEST states and arid regions generally fall planting is not practised except in the case of bulbs. In all other cases, it is advised to defer planting till the spring. The fall season in the West is so short that plants set out now are killed before they can become established. This is due to the frequent absence of snow with strong cold winds.

IN THE SOUTH, fall and winter is the heaven-appointed time for the planter. Although vegetation above ground may be inactive in this region during the winter, yet the production of new roots continues. Trees heeled in the fall, when lifted for planting in the spring will have developed a great number of roots. Evergreens may be safely lifted in the early fall period following a sharp frost lasting until December, the work being resumed by the end of January. Broad-leaved evergreen trees may be shifted with equal safety after they are defoliated.

IN THE EXTREME SOUTH (Florida), all deciduous fruits are planted during the fall and winter. Spring and fall merge so gradually into the other seasons that they are of no importance. Do orchard planting as soon as deciduous trees drop their leaves. Plant citrus trees at any time.

II. FOREST AND SHADE TREES

It is a good opportunity to plant trees at this time on large tracts for shelter or screen purposes because the work can be done at leisure without the anxiety that attends spring planting in order that everything may be rushed through before the summer arrives. All large trees, however, moved now need heavy mulching to insure success. They may succeed without it, but it is better to be on the safe side. The loss of moisture from recently disturbed soil which is not covered by snow is great.

EXCEPTIONS: Beeches, birches, and other kinds with thin barks, magnolias, sweet gums, and other kinds with thick, spongy roots; these must be planted in the spring; also oaks, thorns and dogwood in the North.



All kinds of herbaceous plants except anemones are best fall planted except in the extreme north and colder climates



Put out rhubarb roots for use next spring



You can plant asparagus on already prepared soil



Currants are best fall planted they begin growth early



So are gooseberries and all small fruits



Plant some crocuses in the lawn. They will increase naturally



All lilies should be fall planted. Place them deeply

Fall Planting—By Leonard Barron, ^{New York}

NOT ONLY BULBS BUT HERBACEOUS PLANTS, SHRUBS AND TO LOSE THE PART THAT IS ABOVE THE GROUND

III. FLOWERING SHRUBS AND HARDY ROSES

The only roses that can be planted safely in the fall are the hardiest kinds, rugosa and its hybrids; all others should be deferred till the spring. If procured now, heel them in a frost-proof cellar to plant next year.

Throughout the east coast plant out all early flowering shrubs or trees that do not flower on the terminal.

EXAMPLES: Forsythias, *Spiraea Van Houttei*, *Spiraea arguta*, deutzias, lilac, etc.

IV. EVERGREENS

Only in the South may coniferous evergreens be handled in any way during fall and winter; broad-leaved evergreens are risky, except in the warmer regions and even then should have their leaves stripped off.

EXCEPTION: *Rhododendron maximum* is sometimes successfully planted in the fall if given winter protection from sun and a supply of moisture.

V. IN THE FRUIT GARDEN

Plant everything but the stone fruits, even including strawberries. Procure stock from your own latitude or north of it rather than go far south, unless the fall is long and warm. Strawberries, even layer plants, can be lifted into beds the early part of October and will fruit next spring under high cultivation. Surely set out those named below:

GOOSEBERRIES, CURRANTS, GRAPE VINES, RASPBERRIES, BLACKBERRIES.

VI. IN THE VEGETABLE GARDEN

As most of the vegetable crops are raised from seed each year, there is very little opportunity for fall planting in the garden. Some of the hardiest seeds may be put out on the chance of an early crop. Such are lettuce, round peas, corn salad.

ASPARAGUS: Set out new beds now from old roots. You will gain a year.

RHUBARB: Put out roots now. They may be forced for early crops next spring by covering with a barrel.

VII. PERENNIAL BORDERS

Now is the time to buy from the nurseries all perennials in large clumps before they are divided up for spring planting. Do not plant anemones.

EXAMPLES: Delphiniums, hollyhocks, achilleas, golden glow, irises, and all hardy roots.

VIII. BULBS FOR SPRING FLOWERS

These must be planted in the fall and at no other time. Buy your supply of Dutch bulbs as soon as possible and plant immediately upon receipt. The earlier they are in the ground the better the roots they will make. Hyacinths will not endure frost.

EXAMPLES: Hyacinths, tulips, daffodils, crocuses, snowdrops, lilies. All hardy tubers and roots that have finished their growth in the summer including irises of all kinds.



Prepare for new lawns now even if you do not seed until later. Buy and heel in shrubbery too



Set out spring flowering shrubs and gain a year



Irises and other dormant roots are reasonably safe



Only plant rugosa roses at this time



The old-fashioned lilac can be transplanted now



Put some grape vines on the arbor, spring or fall



Plant vines. If they lose their tops it does not matter

The Best Bulb for Winter Forcing — By C. W. Patterson, New York

BY ALL MEANS GROW TULIPS THIS WINTER — THEY HAVE THE GREATEST RANGE OF BRIGHT COLORS AND A VARIETY OF FORMS — HOW TO ENSURE LONG STEMS AND LARGE FLOWERS IN SUCCESSION TILL SPRING

OF ALL the bulbs for present planting to give flowers during winter, the tulips are by far the best. They have a greater diversity of bright colors than any other winter flower, and they have all the important essentials of a good cut flower, being good shippers and excellent keepers. Any one with any sort of a greenhouse or light window can force tulips. They require very little space, which is important, as it increases the possibilities of the output of a small greenhouse, since other crops such as vegetables can be grown; and in this way a small greenhouse can be made to serve a double purpose. But still more

as pot plants for decorative work. When growing them for cut flowers, boxes are cheaper and answer the purpose better than pots or pans as they economize space and are more easily handled. A good box can be made from rough spruce, 5 x 1/2 in. Make it 2 x 1 ft., and when putting in the bottom leave a space of about three-fourths of an inch between the pieces put on crosswise; five boards will do for this. Eleven linear feet will make one such box, costing but a few cents.

The best kind of soil is one that was prepared in spring and let stand all summer, turning the heap several times so that the ingredients became thoroughly incorporated. A good mixture is made thus: to every three barrows of soil (get soil that drains well, not a stiff clayey soil) add one of well rotted farm yard manure and three shovelfuls of bone meal. Put the heap up in an oblong stack packing it firmly as you build it up. If you have not something of this sort, use the best soil available.

Drainage of some kind must be provided — that is one of the secrets of success. A

about nine inches deep. If the location is low, and there is some accumulation of surface water, place a few inches of cinders in the bottom of the trench to insure drainage. The bulbs will now require no further attention until cold weather sets in. After the ground freezes on top, place a heavy mulch of stable manure, litter, or leaves over the bulbs; this is not to protect the bulbs, but to prevent their being frozen solid, as they are then very difficult to get out.

Tulips can be forced early after a little experience, but the beginner had better be patient and wait until there is absolutely no chance of a failure. A safe date for a beginner to start forcing is after December 15th, but January 1st is better still. Bring in a few boxes at a time according to requirements.

A temperature of 55 degrees is best for the forcing, but a few degrees deviation won't matter. A temperature of 50 degrees is best for foliage, but gives very short stemmed flowers; 55 degrees is best for flowers; 60 degrees gives the best stem, but at this heat the foliage will be soft and flabby.

When the boxes or pots containing the bulbs are first brought in they should be placed under the bench and shaded with a curtain of some kind to exclude the light, which will also increase the length of the stem. But don't allow the stem to draw up too much; just as soon as the small buds show, bring the box into full air and light to finish up.

In watering remember that bulbs will take up a liberal supply at all times when forcing but during the rooting period keep



Flat of tulip bulbs showing how the drainage is provided for

important to the beginner is the fact that they force very easily and the veriest amateur can handle them with impunity. The flower is in the bulb, and our task is merely to make it develop perfectly. Although you can to some degree increase the size of the flower by high cultivation it may be accepted as a working rule that the flower usually corresponds to the size of the bulb. If you buy a small bulb you will have small flowers. Get good hard ones that are heavy for their size and clean looking: never buy tulips that have rusty spots on the skin, for that indicates a disease that will surely affect the flowers; buy early: don't wait until every one else has picked over the stock and you get a 10 per cent. reduction.

Either pots or boxes can be used; and there is also a special bulb pan which is very satisfactory, when the plants are wanted



Bulbs planted and all ready to be placed outside. The covering of the bulbs has been removed for better photographing

depth of about three-fourths inch of broken flower pots, sifted cinders, clam shells or anything that is rough enough to allow the free passage of water will do. Then place a little moss or cocoanut fibre over the drainage to keep the soil from washing through; put about one inch of soil over this and place the bulbs on this layer of soil. Each bulb should have about six or seven square inches of space, so forty or forty-five bulbs can be accommodated in the box, according to the variety. The beginner who does not know the various varieties, had better plant only forty to the box. After placing the bulbs press them down firmly in the soil, then fill up the box with soil and firm gently with your fingers, until just firm enough for the water to drain off nicely. Do not get the soil packed hard.

The planted boxes being all ready they may be stood outdoors in a shaded place to make roots. Some people put the boxes into coldframes, others place them on the ground and cover them with dirt or ashes. The best method is to bury them in a trench,



Bulbs in position before the soil is filled in. They are placed on a shallow layer of soil over the drainage and pressed down firmly

them dry, as otherwise they are subject to rot. As soon as they are well rooted never let them suffer for water. After the flowers are developed the entire box can be placed in a cool dark cellar or some like place where if given water occasionally the flowers will keep in perfect condition for several weeks. The idea that tulips must be cut as soon as open is erroneous.

Tulips can also be grown in glasses of water the same as other bulbs; special glasses for the purpose can be bought at the seed stores and as they are not expensive I advise getting them. Fill the glass with



Make flats 2 x 1 ft. to hold forty bulbs. Note the ample drainage space



Single tulips are best for forcing. Box of Thomas Moore, eighteen inches high

water up to the place where the bottom of the bulb rests, place the bulb in the glass and set it in a dark room for a couple of weeks to root. When the glass is full of roots bring it into the air and light. A continuous supply of flowers can be had in this way by succession plantings. When the water in the glass becomes rank-smelling or sour-looking it had better be changed, using water of about the same temperature to refill the glass.

The single tulips are the best forcers and of these I recommend Belle Alliance and Maes as the best scarlets and Yellow Prince and Chrysolora in yellows. My one great favorite, however, is Proserpine, a beautiful satiny pink, and a grand forcer; in fact I think it is the best available variety of all the tulips. Pink Beauty is also a good pink variety. Thomas Moore is a good long stemmed variety; the color is mixed but orange predominates; the grand form and beautiful snow-white color of Joost Van Vondel make it the best white, but White Hawk is a close second.

The small flowered Duc Van Tholl type can be had in yellow, scarlet, white, pink and mixed, and although you don't get such large flowers, they are good varieties for beginners because they are so easily forced.

In mixed colors the best sorts I know are, Von Vondel red and white; Keizerskroon, a beautifully high colored sort, being a fiery scarlet with orange yellow border; Duchess De Parma is grand in old rose and bright satiny pink; and Fabiola is a good purple and white variety.

Double tulips are also admired by many,



Double tulips are later than singles but they last longer. Alba Roseum

but they have never appealed to me as strongly as the singles; they are a trifle later than the singles, and are not so easily forced, but if any one desires to try them I recommend Alba Maxima as the best white, and Couronne D'Or as the best yellow; in scarlet Emperor Rubrorum; and for pink Murillo. The beautiful orange colored Tournesol is the best of all the double sorts, however. If you want something really fancy although a trifle later than the early singles, try a few of the Darwins.

Flower Seeds for Present Sowing — By W. C. McCollom, Long Island

SAVE A YEAR'S TIME BY SOWING PERENNIALS IN COLD FRAMES DURING SEPTEMBER AND OCTOBER READY FOR PLANTING OUT NEXT SPRING, AND ALSO PROVIDE AN ABUNDANCE OF FLOWERS FOR CUTTING

TO BE sure, raising plants from seed in your own garden is not as easy as buying them from the nursery, but to most people there is a sense of satisfaction

in having something all one's own, and in raising plants from seed there is a feeling of expectancy, which is not cured until the plant has matured. And really it is quite easy to grow first class plants from seed. The reason why failures occur, as they often do, is a too slavish following of the so-called "cultural directions" printed on the showy seed packet. These packages are prepared by a printing house, not by a gardener, and you will notice that they are nearly all the same generalizing type, reading like this: "Sow in open ground after danger from frost is past; for early flowers sow inside during March and April." I am going to tell you of another way of handling a whole host of plants, including all of the most desirable old favorites.

There are special advantages in sowing perennials in the fall: you avoid some of

the rush of spring work and the results of your efforts are had the first season. Although cold frames or boxes of some kind are



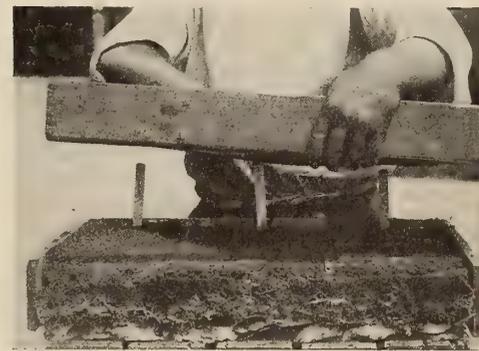
Fill the boxes with soil and distribute it evenly by working with the hands



Learn to sow seeds direct from the paper packet. This avoids loss, and errors in names



Two or three kinds can be sown in one flat. Separate them by strips of bamboo



Cover lightly by sifting fine soil evenly over the surface. Hold the sieve six inches above



After sowing the seed make the surface firm by pressing with a seed board



Germinate the seeds in boxes in a coldframe. Transplant into rows when they have four leaves



Transplant into rows six inches apart. Seedlings will remain here all winter ready for the second shift in the spring

necessary, yet considering the better returns I think the extra labor is well repaid. Most perennials can be sown in spring with good results, and they will flower the second season, but this means a year's loss of time as the plants must be set out in permanent quarters during the summer; and again a



Never let the boxes get dry. Also shade them from direct sun

deal of work comes while the spring rush is on.

Seed may be sown any time from the middle of August up to the first week in October, in boxes, not in the open ground. These boxes or flats are then placed in a frame, and the frame covered with sash (which should be whitewashed to exclude the sun). Better still is sash made from cheesecloth which is very inexpensive and gives better shade, quite enough light penetrating the cheesecloth for the young seedlings. If shaded glass sash are used the sash must be removed after the seeds have germinated, or the young seedlings will become considerably "drawn."

THE ART OF SEED-SOWING

It is much easier to sow the seeds properly than any other way. There are a few general rules however, that must be observed. Use only boxes or pots that have holes or open spaces in the bottom to allow the superfluous water to escape (except when

sowing aquatics). Cover the bottom of the box with about 1½ inches of broken pots, stones, oyster shells, or anything through which water will run easily. Cover this with a fine layer of sphagnum moss, cocoanut fibre or anything of a like nature which will allow water to pass through but which will exclude dirt (this prevents the soil from washing down and filling up the drainage). Now fill the box with soil which preferably contains no manure; if there be manure pick out the lumps and place them in the bottom of the box.

Fill the box or pot loosely, even with the sides and with the fingers bent at right angles and just using the two upper joints, press the soil until it is firm but not packed. Smooth over the whole surface and then sift on fine soil, about ¼ inch deep, for the seed to rest in. Make sure that the box is perfectly level, and firm with a seed board, as shown in the illustrations.

Always sow the seeds from the packet in place of using the fingers. It may take a little time to become adept at this but it is by far the best method and you should acquire the knack.

After sowing the seeds press over them gently with the seed board and they will be ready for covering. This is the most impor-



You can have a garden like this next summer from seed sown now

tant item in seed sowing. Seed should be covered about twice their thickness, not more; and to insure even germination must be covered evenly. The best way to do this is to make a sieve of some mosquito netting, hold the sieve about six inches above the seeds, and taking a handful of soil rub it through the sieve, starting at one end of the box and working along gradually until the entire surface is covered. When finished gently



For cut flowers let some plants remain in the frames and they will flower earlier than the transplanted ones

press again with seed board, label the box, and water immediately with a sprinkling pot, having a fine rose. If you have only a few seeds of different kinds not sufficient for a box alone, several may be put in one box, separating the different varieties with pieces of bamboo stick pressed down into the soil firmly but gently, so as not to interfere with the seeds themselves.

CARE IN WATERING

Do not let the boxes get dry, but water with a fine rose on the sprinkling can; and as the evaporation of moisture is very rapid at this season of the year, look over them carefully every morning and evening, and dampen the ground around the boxes even though the boxes themselves are not dry. This will keep the atmosphere moist, and seeds germinate more quickly under such conditions.

FIRST TRANSPLANTING

After the seedlings have three or four leaves they will require transplanting. This



It is the herbaceous perennials that give the richest effects and the best colors in the garden. Make your selection now for next year's display

is best done in rows right in the frame where they are to remain all winter, the ground being first prepared by spading under a liberal allowance of good manure and trampled a trifle to firm the soil. On no account leave the soil soft and spongy as it then gets sloppy when watered, a condition that is not conducive to healthy growth.

Mark off the bed of a frame in lines, six inches apart. This gives the plants quite enough room for winter quarters, as they do not grow much during winter and by the time growth starts in spring they can be set out in permanent quarters. A sharp stick is useful for dibbing, and the amateur will no doubt like to use some aid—a pointed label is good—but the professional gardener will use his finger and work much faster.

Insert the seedling up to the seed leaves and after planting water the plants with a watering pot to settle the soil around the roots, shade them for several days, watching carefully to move the shade as soon as growth starts. If this is not done the plants will get spindly.

ATTENTION IN WINTER

An occasional watering is the only thing needed until the cold weather sets in, when some kind of protection must be given. It is well to have this provided for well in advance of the actual need. Of course, sash make the best protection but they cost a good deal; if you can't afford sash get some ordinary boards. In the depth of winter when it freezes hard salt hay or stable litter should be piled upon the frames, whether you use sash or boards, to keep out the heavy frosts.

But the plants need light, and the more they get the better they will be. Therefore uncover the frames whenever possible on mild days, but I have had frames full of

perennials which were covered for a couple of weeks and no harm resulted. I do not advise you to try this, however, because you may not be so fortunate as I was.

Forty-five Perennials for Fall Sowing—Arranged According to Season of Bloom

COMMON NAME	STANDARD NAME	HEIGHT (in feet)	COLOR	SEASON
Birdseye	<i>Adonis vernalis</i>	1	yellow	April and May
Bugle	<i>Ajuga reptans</i>	creeper	white	May
Rock cress	<i>Arabis alba</i>	creeper	white	May
Leopard's bane	<i>Doronicum plantagine'm</i>	2	yellow	May
Marsh marigold	<i>Caltha palustris</i>	1	bright yellow	May
Columbine	<i>Aquilegia cœrulea</i>	2	blue and white	May and June
English daisy	<i>Bellis perennis</i>	½	pink, white	May and June
Giant daisy	<i>Chrysanthemum roseum</i>	2	red to white	May and June
Oriental poppy	<i>Papaver Orientale</i>	2	scarlet	May and June
St. Bruno's lily	<i>Paradisea liliastrum</i>	2	white	May and June
Forget-me-not	<i>Myosotis alpestris</i>	2	blue	May to July
Baneberry	<i>Actæa alba</i>	2	white	June
Foxglove	<i>Digitalis purpurea</i>	6	purple to white	June
Thrift	<i>Armeria maritima</i>	½	rose	June
Canterbury bells	<i>Campanula Medium</i>	3	blue, white, pink	June and July
Day lily	<i>Heemerocallis flava</i>	3	lemon	June and July
Gas plant	<i>Dictamnus Fraxinella</i>	2	pink, white	June and July
Gold tuft	<i>Alyssum saxatile</i>	1	yellow	June and July
Rose campion	<i>Lychnis Coronaria</i>	2	crimson	June and July
Baby's-breath	<i>Gypsophila paniculata</i>	3	white	June to Aug.
Cornflower	<i>Rudbeckia hirta</i>	3 to 6	golden yellow	June to Sept.
Meadow sage	<i>Salvia pratensis</i>	2	blue	June to Sept.
Monkshood	<i>Aconitum Napellus</i>	3	blue	June to Sept.
Blanket flower	<i>Gaillardia aristata</i>	2	yellow	June to fall
Tickseed	<i>Coreopsis tinctoria</i>	3	yellow	June to fall
Golden marguerite	<i>Anthemis tinctoria</i>	1	golden yellow	June to fall
Hardy larkspur	<i>Delphinium formosum</i>	3 to 6	blue and white	June to fall
Lupin	<i>Lupinus hirsutus</i>	3	blue	June to fall
Shrubby clematis	<i>Clematis Davidiana</i>	3	blue	June to fall
Yarrow	<i>Achillea Ptarmica</i>	2	white	June to fall
False dragon head	<i>Physostegia Virginiana</i>	4	purple to white	July and Aug.
Hollyhock	<i>Althæa rosea</i>	6	rose to wh., yellow, madder brown	July and Aug.
Gay feather	<i>Liatrix pycnostachia</i>	4	crimson	July to Sept.
Common sunflower	<i>Helianthus annuus</i>	3 to 8	yellow	July to Oct.
Stoke's aster	<i>Stokesia cyanea</i>	2	blue	July to Oct.
Beard tongue	<i>Penstemon barbatus</i>	3	light pink to carmine	July to fall
Evening primrose	<i>Oenothera biennis</i>	1½	bright yellow	July to fall
Hardy phlox	<i>Phlox paniculata</i>	4	pink-purple to white	July to fall
Knapweed	<i>Centaurea nigra</i>	2	purple	July to fall
Bear's breech	<i>Acanthus mollis</i>	3	white	August
False chamomile	<i>Boltonia latisquama</i>	2 to 7	bluish white	Aug. to Oct.
Windflower	<i>Anemone Japonica</i>	2 to 3	white	Aug. to Nov.
Snakeroot	<i>Cimicifuga simplex</i>	3	white	Sept. and Oct.
Starworts	<i>Aster Nova-angliæ</i> , etc.	2	blue, white to rose	Sept. and Oct.
Moonpenny daisy	<i>Chrysanthemum maxi'm</i>	2 to 3	white, yellow, centre	Oct. and Nov.

Toward March plenty of mild weather is due and the frames can be uncovered more frequently, and, even though their contents may have suffered a trifle during the winter, they will soon pick up when the spring days come.

THE SECOND TRANSPLANTING

The young plants will be ready for the second transplanting into their permanent quarters some time during April or May. They must be moved now to their flowering quarters if they are to be planted for garden effect. If, however, they are raised solely for cutting it will be better to leave them in the frame, but in that case more room will have to be afforded the plants when planting in fall. I plant closely and then in spring take out every other plant for shifting to the garden, keeping the others in the frame for cutting. Lift the plants by means of a trowel with a ball of earth and after planting in the garden give a good watering.

Before beginning to plant it will be worth while to plan the garden a trifle. Avoid planting everything in straight rows; get the different colors in clumps; bring the taller plants to the rear. Try to work your colors so they don't clash, putting the blue flowers in one place and reds in another, dividing with white; don't bring together two such colors as pink and blue, or red and yellow.

Avenue and Shade Trees for North and South—By P. J. Berckmans, Georgia

THE TWENTY-FIVE EVERGREEN AND DECIDUOUS TREES THAT THE VETERAN HORTICULTURIST HAS SELECTED AS THE BEST ANSWERING TO THIS PECULIAR COMBINATION OF ORNAMENT AND UTILITY

OUT of the large number of cultivated trees there are comparatively but very few available for shade purposes in streets or about the home, and fewer still for planting in avenues. We have to consider not only the soil, locality, and climate, but more particularly the individual requirements and adaptations of particular trees to the special purposes; and again, particularly in the case of avenue effects, there is also the harmony of the outline of the foliage and mass of the trees with the architectural character of the building to which the approach leads.

In dealing with a particular tree there are the questions of the individual beauty of form, foliage, and period and profusion of its flower. Generally the flowering features of avenue and shade trees are not of very great importance, but they may be made to add very



The grandest of all evergreen trees for the South. *Magnolia grandiflora*. Note how it is furnished right to the ground because of ample space to develop

greatly to the beauty of the home at certain seasons of the year, and this is particularly true in the case of places that are designed for occasional occupancy, where an effort should be made to select trees that are looking their very best at the time when the place is in use.

The ideal shade tree is one that makes a fairly dense mass of leafage early in the spring and holds it late. It should also be adaptable to a great range of variety of soils, perfectly hardy, and should also grow freely in the early years of its life, so that the desired effect may not be too long delayed. The ultimate height and spread of a tree designed for avenues should be considered in relation to the width of the street. Deciduous trees are generally better than evergreen trees, because the shedding of the foliage in the winter time permits a better drying of the roadway as well as of the adjacent buildings, besides admitting light more freely to the latter.

Trees should be selected with great care because they are permanent features of the landscape and after they have become established, changes in the scheme are very costly and seldom satisfactory. The greatest error in avenue planting is overcrowding. Plant always with the future effect in view. If young trees are spaced at a distance which seems proper for them at the time of planting,

it will only be a very few years before serious trouble is encountered, unless rigorous thinning is done. Somehow very few people can summon up courage to cut down a healthy and handsome tree, even though the sacrifice will add to the beauty and dignity of the survivors. Large, spreading trees for avenue effects should not stand closer than fifty feet, and in no case is a less space than thirty feet to be considered with the trees named in this article.

In selecting the trees described below I have been guided by my own appreciation of beauty and utility combined, particularly having consideration to the trees that may be relied upon to suc-

ceed under a variety of conditions. In the Middle and Lower Southern states there is a richer list for selection than in the Northern states and it is useless to endeavor to grow the more tender trees in the extreme north, for which reason I have indicated in



The most beautiful evergreen shade tree of the South is the live oak. In moist regions it becomes covered with Spanish moss



The most columnar avenue tree is the Lombardy poplar, but valueless for shade

each case the sections where the various trees may be relied upon to flourish.

DECIDUOUS TREES FOR AVENUES

The maidenhair tree (*Salisburia adian-tijolia*) has an erect, compact and pyramidal habit and is peculiarly suited for a formal avenue such as that in the grounds of the Agricultural Department at Washington, D. C., but it should not be used for very long avenues because the rigid straight lines then become monotonous. The maidenhair tree varies in habit from seed, and should therefore be carefully selected in the nursery rows so that an avenue may consist of similarly habited trees. The denser, erect-growing ones are generally best suited for avenue purposes, and the spreading, more open-growing forms may be planted as single specimens or in groups for shade effects on the lawn. The foliage of this tree is a pleasing rich green, wedge-shaped and turns golden yellow in the fall. Perfectly hardy as far north as New England and attains a height of fifty feet.

The Lombardy poplar (*Populus nigra* var. *Italica*), extensively used along public highways in many parts of Europe, is the most columnar tree we have and ranks next to the maidenhair tree as a very formal avenue tree on account of its very erect habit. It has no value for shade but is a valuable tree for planting in a very restricted area where another tree with long lateral branches would be unavailable. Height seventy-five to eighty feet; hardy in New England.

The sweet gum (*Liquidambar styraciflua*) while of an upright and usually symmetrical growth, makes a much more desirable avenue of less formal appearance and is especially showy in autumn when its foliage assumes a golden tint in some trees and in others a deep scarlet or purple. Hardy to New York. Farther north, some specimens of this tree assume a spreading top and are exceedingly valuable for shade. It attains a height of sixty to seventy-five feet. This tree needs careful transplanting with considerable pruning of the top at that time.

The silver, white, or soft maple (*Acer saccharinum*, often called *A. dasycarpum*) owing to its being a host tree for the cottony scale, which is rapidly spreading in all Northern states, has become less valuable than formerly. But in regions free from attacks of this insect it is very desirable if a rapid growing tree is wanted either for avenues or shade. In other respects, however, it is not an ideal tree, as the wood is brittle and apt to be broken by wind. Height, fifty feet; hardy everywhere.

The Norway maple (*Acer platanoides*) is a better tree if a slower growing one can be used. It is free from insect depredations, has bright green foliage, and a regular habit of growth, forming a dense head. For sections above the Middle South no more desirable tree could be planted for either purpose. Ultimate height, forty to fifty feet; and when given good soil is of rapid growth. Further south its growth is less rapid and habit more compact.



Throughout the entire northern regions and especially New England, the native or white elm (*Ulmus Americana*) is the most dignified of all shade trees

The scarlet or hard maple (*Acer rubrum*) is indigenous to the Southern states, where it is found in almost all soils, but attains its greatest height (120 feet) in low, rich, bottom lands. It will thrive north to Boston. It is one of our earliest spring-blooming trees and exceedingly showy when covered with its bright, scarlet flowers and still more so when its foliage assumes a brilliant red tint in autumn. The wood is tougher than that of the silver maple and is less subject to being broken by heavy winds. Owing to its somewhat irregular growth, it is not a very desirable tree in the South for avenue planting but is most desirable as a shade tree and should be given a body of not over ten feet high, when a spreading head results. Unfortunately, this tree is subject to the

attack of borers; these should be cut out with a knife and a few drops of bisulphide of carbon injected into the hole, afterward sealing with wax.

The ash-leaved maple (*Acer Negundo*), a valuable tree for the South, is less so North, where it is short lived. But for the Western prairies it is one of the fastest growing of the maples, withstanding cold and drought to a wonderful degree.

The popular cucumber tree (*Magnolia acuminata*), common in gardens of the Atlantic coast from New York southward, is best liked in its compact form. Others have spreading heads, the difference appearing early in the seed beds. As a flowering shade tree it is one of the very best. Its flowers, which open in April, are of an



The ideal shade tree for lawns and gardens all through the South is the Texas umbrella tree

inconspicuous, greenish yellow. They are succeeded by cone-like fruits, whence its popular name. Like all magnolias its fleshy roots spread to a great distance and when planted in rich soil the growth is very rapid. It must not be planted in the fall. It can be used to good effect for avenues as can also the tulip tree or poplar (*Liriodendron tulipifera*) of the Southern states. This tree attains a great height and though soft wooded lives very long. Its tulip-like yellow-green flowers are very pretty in the mass. Both these trees are hardy throughout New England and are very desirable shade trees, being also equally suitable for wide avenues of considerable length.

TREES WITH SPREADING HEADS

The trees named below are especially suited for wide avenues in open landscape and for long stretches where generous shade and variety of mass form are most wanted. Of these the hackberry or sugarberry (*Celtis occidentalis*) is perhaps the most valuable because of its freedom from insect deprivations, but is not always successful in the New England sections. Its height South is often a hundred feet.

It is my experience that the American white ash (*Fraxinus Americana*) is to be preferred of all trees for rapid growth, and it is especially adapted to rich, deep soils. The autumn tint of the foliage is of a deep brown or purplish shade. As a shade tree it must be given ample room as its roots spread to a great distance. The tree is very variable and has several marked forms. Though liable to the attacks of a number of insects, it does not seem to suffer much injury from them. It grows 100 feet or more high all over the Eastern United States from Canada to Texas.

A tree somewhat rarely seen, although long in cultivation, is the Chinese golden rain tree (*Koelreuteria paniculata*), which grows

to a height of thirty feet in the South but seldom beyond half that size in New England, where it is, however, perfectly hardy except that a branch may be killed back occasionally. Its great beauty consists in its long terminal panicles of bright yellow flowers, which open in May and entirely envelop the whole head of the tree and last three weeks. The pinnate foliage and flat, spreading head gives this tree a peculiarly pleasing appearance. It may be used for short avenues or where taller growing trees surround it.

Characteristic of the Southern states is the *Melia*, which cannot thrive north of the Piedmont region, being sometimes injured even there. Although a native of Persia and India, it has become naturalized all over the Southern states owing to its profuse crops of berries which being carried by birds start new colonies which are often found in secluded woods. It grows with great rapidity in any good soil, although I have seen somewhat dwarfed trees along the Southern Pacific Railroad in the arid lands of Arizona; there it seems to be the only tree found near some of the station houses. It is well named Indian lilac, because of its numerous lilac colored flowers which are produced during April and have the delightful fragrance of the violet. The wood is brittle and when trees grow old they are apt to have their tops broken. However, no tree can be better recommended for very rapid growth and excellent shade.

The umbrella form (*Melia Azederach* var. *umbraculiformis*), commonly known in the South as the umbrella, China or Texas umbrella tree, is most unique in appearance. The first trees which came to my notice were sent from San Jacinto, Texas, about 1870. No record of its introduction there could be found and owing to the peculiar round shaped head and drooping foliage I sent specimens to the late Dr. Asa Gray, who endorsed my suggestion of *umbraculiformis* for a name. This is now one of the most favorite ornamental trees of the South; of rapid growth, and in early spring, producing an abundance of fragrant flowers. No insects have so far as I know ever infested it. Planted for a short avenue and given great distance, no tree gives a more characteristic effect. It seldom exceeds twenty feet in height, but the top spreads in the course of time to the same width. Not hardy north of the Middle-South, and the trees are apt to split when reaching a great age, as the branches radiate from a low stem. As a shade tree for our Southern gardens it is unrivaled, and the North has no counterpart.

In *Hovenia dulcis* we have another Asiatic tree of medium height, twenty to twenty-five feet, quite hardy, that has marked characteristics. The long petioled leaves; greenish, inconspicuous flowers, followed by small globular fruit with fleshy and edible peduncles, make it an interesting tree. Its handsome shining foliage and regular symmetrical head, perfect freedom from insects, and ability



The Empress tree with its blue flowers is unique, thrives from New York south

to stand a temperature of near zero, combine to make it a very desirable small tree as a single specimen or for a short avenue, where a comparatively small, neat tree is desired.

Because of its violet flowers, which are very rare in large trees, the Japanese empress tree (*Paulownia imperialis*) is valued. In 1852, while in Europe, I purchased four small plants in Belgium, where they had then just been introduced, and planted three at Plainfield, N. J., the other was presented to the late William Reid of Elizabeth. These small plants made a most rapid growth and their unusually large leaves attracted much attention. The fragrant, violet colored flowers which are produced in early spring before the leaves appear, add much to the tree's value; but they are sometimes overlooked, appearing only against the blue sky. It has sometimes been planted for avenues, but its brittle branches, which are frequently broken by high winds, make it less desirable for that purpose than for single specimens. Planted in good soil the first year's growth is very rapid, but when the tree begins to branch out it is only moderate and the size of the leaves diminishes. Height seven feet; hardy in New England.

Easily recognized by its bark, of a nearly white color and scaling off in plates, is the sycamore or buttonwood, a stately tree, often attaining the height of 100 feet and hardy throughout the whole United States. It is used both for avenues and shade, is of rapid growth, but in some localities is injured by fungus diseases.

Some twenty to thirty years ago nearly every tree South of the native *Platanus occidentalis* was more or less the victim of this trouble which caused many to die, and their importance for street planting diminished. Of late years this defect has greatly lessened and most trees are again in a healthy condition. But as the European or Eastern species (*P. orientalis*) is free



The tulip tree is one of the largest shade trees and thrives North and South

from fungus trouble it is better both for planting avenues or in streets where tall trees are required. The two are much alike, and in the nursery rows are almost indistinguishable. The Eastern species is the more symmetrical in large specimens, and is hardy as far north as Massachusetts.

The most beautiful of all our Western trees for shade and flower is *Catalpa speciosa*, of very rapid growth and giving timber of lasting quality. It is hardier farther north than *C. bignonioides*, and blooms a little later. The only drawback with these trees is that they become infested during summer with hordes of caterpillars which defoliate them, and while these are undesirable for keeping the trees in good appearance the angler finds these caterpillars the most appetizing bait for his fish-hook.

For northern sections there is unquestionably no better tree than the pin oak (*Quercus palustris*) where it grows very rapidly, but the rate of growth gradually diminishes southward. As it attains age the branches gradually assume a drooping form and this, added to the deep green and finely cut foliage, is the reason for its being so largely planted for streets and avenues. A handsome instance is seen in Fairmount Park, Philadelphia, where this tree seems to have been first largely planted. The foliage turns bright red in the fall and a great advantage is that its root system, being compact and fibrous, allows it to transplant readily.

The American white elm (*Ulmus Americana*) is the best general purpose deciduous avenue or shade tree, growing over the widest area, and is used more largely than all other native trees combined. It is hardy from the extreme northern sections to the Lower South. Usually it has a large head and slightly pendulous branches. The elm is of rapid growth and transplants with great facility, but as its roots are far spreading they frequently encroach upon garden spots if planted too near them. There are many forms found in our forests, some seldom attaining a satisfactory growth and often of straggling habit. Nurserymen who cater to the highest class of trade usually select the most rapid and perfect forms and graft these, as that is the only method by which trees of uniform shape and habit can be depended upon.

The Japanese parasol tree (*Sterculia plataniifolia*) is also known South as the Japan varnish tree, owing to the green, smooth bark. But this is incorrect as the true Japan varnish tree is *Rhus succodanea* or lac sumach, a shrub. The parasol tree is a remarkably strong grower, round topped, with very large palmate leaves, and is covered in June with large clusters of pale yellowish flowers, whose sweet fragrance attracts multitudes of honey bees. Therefore, many apiculturists value and plant this tree for bee pasture. It is not hardy above the Middle South, where it is sometimes used



One of the beauties of the sweet gum is its showy golden and scarlet autumn leaves

for street planting or shade. Ultimate height, thirty to forty feet.

THE CHOICEST OF EVERGREENS

I have already stated why evergreens are the less useful, generally, as avenue trees, but for shade alone there can be no question of the service rendered by a

perpetual mantle of foliage. They are not less littering in the shedding of their leaves, of course. As a group, the evergreen oaks are the most rugged and generally useful for all purposes and situations, demanding less in the way of soil, etc., than other trees. There are several semi-evergreen species that may be grown in the South, such as Spanish oak (*Q. jalcata*), water oak (*Q. nigra*), willow oak (*Q. Phellos*), etc., which often retain their foliage until January, but for the Middle and Lower South the live oak (*Q. Virginiana* or *virens*) surpasses them all for the beauty of outline. Many Northern tourists who have seldom seen this noble tree without an abundant growth of long Spanish moss do not fancy the funereal look which these trees then assume; this is usually the case along the sections of the sea coast. But in the upper districts its green and glossy foliage is free from moss and retained throughout the year. The top is wide and spreading. As young specimens transplant with great facility this tree is therefore of great value to the planter. The early colonists who made their abodes in the Lower South saw the beauty of this tree and used it extensively for avenue planting. Many of these stately reminiscences of the prosperous era of the early settlements are found along the Lower South belt and remain an evidence of the broad ideas and æsthetic taste of the men of a past generation. The largest of the Southern native trees are live oaks, attaining a height of seventy feet. It is not hardy above Washington. Other evergreen trees are discussed on page 142.



Maidenhair tree is peculiarly suited for formal avenues of not too great length. Select trees of one type



All the bulbs shown in this photograph, made on February 10th, were grown in the window garden. They are all the later blooming kinds, crocuses, jonquils, Dutch hyacinths, daffodils and freesias. Pot in October and let roots develop before they are brought into light and warmth

Flowers All Winter for \$2.00—By J. H. Spencer, Iowa

BUY A COLLECTION OF BULBS IN VARIETY AND MAKE YOUR HOME BRIGHT WHEN THE SNOW IS OUT-DOORS—AN AMATEUR'S EXPERIENCE IN THE WEST—WHAT VARIETIES DO BEST IN SOIL OR WATER

IN ORDER to have beautiful flowers during the winter it is not necessary to be the rich man with his greenhouses and gardener, nor even the moderately rich man, who patronizes the local florists and buys flowering plants at the height of their bloom after they have been brought to maturity in a commercial greenhouse.

I have supplied my home with flowers from fall until spring simply by growing bulbs in a sunny window. I have found that the Holland bulbs and one or two other varieties, unlike most house plants, require no coddling — all they need is half a chance and plenty of water and they will bring bloom and joy into your house from fall until spring. Insects do not bother them, and after the roots begin to grow there is no danger of over-watering. They can stand

a range of temperature between 45 degrees and 70 degrees; but if you forget to water them every day or if the heat becomes excessive they will surely die.

There are two secrets of success, however, in growing these bulbs. First, they must be allowed to root in a cool, dark place for six to ten weeks, being watered at intervals of about ten days. Second, after they are properly rooted they must be placed in a window, with or without sunshine, where the temperature keeps within the above limits.

There are many varieties of bulbs on the market, but I have found only a few suitable for the window garden.

GROW THESE IN WATER

The kinds to grow in water are: paper-white narcissus and Chinese lilies for early

flowers; and Dutch hyacinths, daffodils, and crocuses for late flowers. All thrive perfectly in a jardinière or deep lily bowl of water partly filled with sand or pebbles. The bulbs should be held firmly in position by stones at the top. Nourishment of course comes from the water, but after the roots grow, sand or pebbles give the plants stability. The flowers will be larger and finer if a little plant food is added to the water when the flower spikes begin to grow. Most seed stores now offer soluble tablets of plant food that are very convenient to use.

THE BEST OF ALL

For early flowers I consider the paper-white narcissus the most satisfactory of all bulbs. The large fragrant clusters are extremely grateful. A single bulb will



It pays to buy large bulbs. This is the result of one bulb with three noses, six large flowers for six cents

sometimes produce two flower spikes, with about thirty blossoms in all. Three or more planted together make a fine display. They bloom by Thanksgiving when planted early, but may be kept back until Christmas or even later.

Chinese lilies do not last nearly so long as the paper-white, nor is their fragrance so delicate; but they have a delightful habit of coming double and are well worth growing. One to three in a deep bowl are sufficient.

A dozen or more crocuses in a small bowl make an excellent display. Usually they will not bloom, however, unless allowed to grow in a room without direct heat.

CHIMNEYS FOR HYACINTHS

In growing Dutch hyacinths after they are thoroughly rooted in the cellar and placed in the garden window, I cover with

a "chimney," or paper cone, about a foot high. The top of the cone must have an opening about the size of a half dollar. Leaves and flower spike will be quickly drawn out of the bulb by this method. When they are several inches high the cone should be removed. It is best to plant each bulb singly in a five-inch pot or jardinière. Gertrude, deep rose; Norma, pink; and Czar Peter, porcelain blue, are among the dozens of good varieties.

Jonquils are golden yellow and delightfully fragrant. They should be planted six or more in a bowl and allowed to remain in the dark at least ten weeks. Rugulosus with the crumpled crown is the best variety and it is very fine. For late flowers it is my choice of all bulbs.

THE KINDS TO GROW IN SOIL ONLY

All the varieties which thrive in water also do well in rich garden soil mixed with about one-quarter sand. But daffodils, freesias, Roman hyacinths, and tulips should be grown in soil only.

Some people choose daffodils in preference to other varieties of the narcissus family because they are not fragrant. One bulb in a five-inch or three in a six-inch pot is about right. Empress, Horsfieldii, Princes, Trumpet Major, and Van Sion are all excellent varieties; and there are many others.

Freesias are often extravagantly praised, and with excellent reason. The flowers are white, with a yellow blotch at the throat, and are perhaps more delightfully fragrant than any other flowers grown from bulbs. They require a sunny location and will bloom with a fair degree of freedom in January and February if planted early in the fall. Eight bulbs in a five-inch pot are none too many. It is not necessary to start them in the dark, indeed they don't like it. They are "Cape bulbs," and Cape bulbs differ from the Dutch bulbs in that detail.

Roman hyacinths are fine for early flowers, each bulb sending up several graceful spikes of fragrant flowers. Unlike Dutch hya-



Freesias. Eight bulbs in a five-inch pot, planted September 10th, in bloom February 3rd. Flowers white with yellow throat; fragrant

cinths the bulbs will rot in water. Plant three bulbs in a five-inch pot.

I have never considered tulips very desirable for forcing in the house. Nevertheless, some of the varieties may be easily grown by those who think otherwise. The interested reader will find full information on tulips elsewhere in this number.

None of the flowers or plants shown in the photographs are "greenhouse specimens." The bulbs were rooted in a cool but frost-proof cellar, where they were protected from mice. Except the crocuses all were then grown in a sitting-room heated by a warm air furnace, the temperature during the day averaging slightly under 70 degrees. The crocuses were grown in an unheated spare bedroom.

There was not a day from November 1st



Bowl of jonquils just after being brought into the light. The same one that is shown opposite. The stones prevent the bulbs from pushing out the sand



This shows the pot is full of roots. A Dutch hyacinth after ten weeks in the dark. Forcing may begin now



Crocus planted in September, blooming the end of February. They are the hardest bulbs to force out of season. Grown in sand and water



An ideal Dutch hyacinth. Started November 2nd, in bloom February 25th. Always try for root development like this

to April 10th when some of the plants were not in bloom. And during the holidays we were able to spare for friends many beautiful blooming plants. All this was from an expenditure for bulbs of about two dollars.

HOW TO BUY

Most of the reliable seedmen offer collections of bulbs for winter flowering. A collection that I should recommend that

should not cost over \$2.00 would contain the following:

- 6 White Roman hyacinths
- 6 Fine named Dutch hyacinths.
- 6 Fine mixed Dutch hyacinths.
- 6 Fine mixed single tulips.
- 6 Fine mixed double tulips.
- 30 Named crocus
- 12 Paper-white narcissus.
- 6 Trumpet narcissus Princeps
- 6 Double narcissus Van Sion
- 12 Capernelle jonquils
- 6 *Scilla Sibirica*.
- 6 Freesia refracta alba.

For a smaller collection costing about fifty cents these will be satisfactory:

- 12 Jonquils, Capernelle.
- 3 Hyacinths, 3 colors.
- 3 White Roman hyacinths.
- 4 Tulips, single scarlet.
- 4 Tulips, double white.
- 3 Narcissus paper-white.
- 3 Narcissus Trumpet Major.
- 6 Oxalis Buttercup.
- 12 Freesia refracta alba.

If one prefers a number of colors in a single variety a collection of hyacinths will give good results but, of course, a shorter season of bloom, in both the single and double varieties, the colors range from pure white through blue, rose, pink and yellow to dark red and will cost from five to twenty cents each.

There really is not much to learn about the cultural directions of these bulbs for indoor bloom. Under the unnatural conditions of an artificially heated house they require an excess of moisture and they also need light and air.

It is possible to secure uninterrupted bloom from Christmas to Easter with six pots of bulbs. One combination which will accomplish this (and which would cost about seventy-five cents) are Chinese lilies, double Roman narcissus, Grand Soleil d'Or narcissus, crocuses, Van Sion narcissus and Princess Marianne tulips.



The paper-white narcissus is as easily forced as a Roman hyacinth. May be had in flower in twelve weeks

There are some general directions that apply to almost all the bulbs grown in the house. One thing is to avoid fresh stable manure. If it is not well rotted, use bone meal in the proportion of one part to fifty of soil, in the case of the plants that are grown in soil.

It is a pretty safe rule to follow that the strongest looking bulbs will give the best results.

Hazelnuts for the Home Garden — By J. W. Kerr, Maryland

PLANT A FEW BUSHES OF THE IMPROVED VARIETIES THIS FALL AND HAVE INCREASING CROPS IN THE YEARS TO COME, WITHOUT ANY SPECIAL CARE—SOME REASONS WHY THIS CROP IS NEGLECTED

OF ALL nutbearing trees, the hazel, filbert, or cobnut is the one best suited to grow in a garden or where space is limited. These three names are used indiscriminately by the layman, and it makes no great difference, since pomologists are not agreed as to the distinctions between them. Of course, if you wish to be scien-

tific, you can say "the various species of the genus *Corylus*" but then no one but a few botanists and pomologists will know what you mean, so, for the sake of comprehension, let us call the nut "hazel" or "filbert," which are the two names by which it is most generally known in this country.

To return, now, to the question of garden culture, the reason for its especial adaptability to limited space is that under ordinary conditions the hazel takes the form of a good-sized bush or shrub, seldom over twelve to fifteen feet high. It grows in attractive and symmetrical shape and the foliage is of a good color. All species are uni-sexual, but it sometimes happens that the pistillate blossoms bloom later than the staminate ones, and no pollination can then take place, and therefore no nuts are borne. If you find this condition existing among your hazels, plant among them a hazel of some other variety which produces pollen at the proper time.

We have some native hazels, growing principally on the Pacific Coast, through the Mississippi Valley, then north through New York and the New England states. Of these, the California species is perhaps the best, but it does not seem entirely hardy in the East. No systematic effort has yet



The short, broad type of nut which is easily shelled. Imperatrice Eugenie



The long type, De Brunswick, one of the best of all the filberts



The short, round nut of Louise, a prolific bearer and very popular

been made to improve the native hazels, doubtless because the foreign varieties which have been introduced are so decidedly superior. Certainly, with but few exceptions, all the varieties cultivated in this country are of foreign parentage, for in England and on the Continent the hazelnut is a paying crop, and has had many years of careful selection and cultivation.

Choose a soil that is not too sandy and light. They succeed well in rather moist soil, though they do not like a stiff clay, and a soil that is too strong produces too great a growth of wood at the expense of the crop of nuts. The nuts can be grown readily from seed, but in this way it is uncertain that the varieties will be perpetuated. The only way to propagate and keep varieties true is by root-grafting or layering, though it may be done with a moderate degree of

success by cuttings. Bushes at one, two, or three years of age may readily be transplanted and are as certain to live as a grapevine. This transplanting may be done either in the fall or spring, and the plants should be set not closer than sixteen feet each way, while eighteen feet is a better measure. Cultivate the ground well for three or four years or until they come into bearing. They will grow practically anywhere in the United States. A little pruning—merely to thin out superfluous and crowded branches—will keep the bushes in good shape.

Concerning varieties, as I have said, all those in general cultivation are foreign. Some of these are more dwarf in habit of growth and less thrifty and less generally hardy, and the planter must consider these points when he purchases. At the present day there is considerable confusion in the nomenclature of the hazel, the same varieties obtained from different sources being found to be of different names. Of course, if their cultivation were generally successful—and it is not, for reasons stated farther on—this annoying condition would soon be corrected by the more general interest which would naturally follow. Among the finer, larger, more prolific varieties are Garibaldi, Imperial, Louise, Imperatrice Eugénie, the true English, De Brunswick, and Merveille de Bollwiller.

The nuts are borne in clusters, each nut in a separate thin husk which opens at the outer end with something of the effect of a flower corolla. As the nuts mature and turn brown, the husk dries, and in August, usually, the nuts begin to drop from the husks. Just here an important difference in varieties is manifest, for some fall from the husks easily and freely, while other varieties have to be picked out by hand. The custom which obtains in certain parts of England of marketing the nuts in the husk is not prevalent here, so that those which separate most freely from the husk are the best for our purposes.

As to the quality and desirability of the nut, there is no question. Its outer shell is easily cracked, as every country boy with a good set of teeth will testify. Since there are no internal shells or divisions it makes an ideal dessert nut with its single plump kernel. It has a distinctive flavor, and a mighty good one, whether eaten just from the shell, salted like the almond or made up in confections. Though it is not so rich as the shellbark or walnut it is very nutritious. It is one of the standard "trade" nuts, large quantities being constantly used by confectioners, and in the winter it is a staple of all high-grade groceries. It commands, therefore, a fair price all the time.

Now with this list of virtues to its credit, easy growth, attractive appearance, small size, bush, good nuts borne freely, and always in demand, it seems as if we ought to have hazel orchards almost everywhere and count it as one of our paying crops. Unfortunately—and now we come to the sad ending of this pleasant story—most unfortunately, indeed, the hazel has a seemingly inherent



De Brunswick, a very large nut borne in great profusion. Compare with illustration of single nuts on the opposite page

disposition to blight. This blight, which closely resembles in appearance the well-known pear-blight, has greatly discouraged the cultivation of the hazel east of the Mississippi River. Of course, the Government has experts working at the disease, and in time an effective remedy may be found. Likewise, no one can say definitely that his particular hazeltrees are going to blight. However, conditions are not such at present that any large plantings of hazels could be considered a sure investment. But—if you are very fond of them, and the children like them—you might plant a tree or so in a favorable location and trust to an almost certain luck.



The best use of the purple leaved hazel is as an ornamental shrub



Grosse Longue is remarkable for the large number of nuts in the cluster. The husks have been opened to show the nuts in all these pictures



For geometrical effects make a level surface and plant each bulb exactly in its proper place by measure—no guesswork. On wet or heavy soils plant on sand and cover with good soil



Choose bulbs of even size and plant them at exactly uniform depths; otherwise they will not flower simultaneously and produce the finished effect seen in this picture

Four Ways of Planting Bulbs—By Leslie Hudson, New Jersey

MAKE UP YOUR MIND AS TO THE KIND OF PICTURE YOU WANT TO PRODUCE IN YOUR GARDEN NEXT SPRING AND PLANT ACCORDINGLY — IT IS THE ATTENTION TO DETAILS NOW THAT ENSURES RESULTS

THE beauty of planting bulbs now is that you are so sure of the results in spring. Remember, you cannot now grow the flower; that has already been done in the formation of the bulb. Your problem is to produce that flower in the greatest perfection. But there is a good deal of difference in the way in which a bulb will behave, depending upon the treatment that is given to it. Bulbs can be used for formal effects or they can be planted to give natural effects. This series of pictures shows you exactly how to do the work in either case.

I.—FORMAL DESIGNS IN BEDS. For beds

where uniformity of color and simultaneous flowering are essential particular care must be taken that the bulbs used are of a uniform quality and size. Always buy the best for such purposes. Make the bed ready by digging over the soil and if it is not a good rich soil to start with, turn in a dressing of thoroughly decayed manure. It is absolutely necessary that the manure be thoroughly decayed. Fresh or green manure will result in injury to the plants. Smooth over the surface with a rake, making it evenly rounded, higher in the centre than at the sides, and on this place each bulb carefully exactly where it

is to grow. You may use a measuring stick if you like, but some people prefer to cover the surface with clean white sand, placing the bulbs on it and judging the distance by the eye. This can be seen much better on the sand than on the brown earth. Having done this, plant each bulb at a uniform depth by making a plunge with a trowel and inserting the bulb. Then cover with soil and make all quite firm.

The final result of uniformity can only be obtained by care to these details when planting.

II.—NATURAL EFFECTS IN BORDERS. For natural effects along the shrubbery



Natural planting in the shrubbery border. Rake the surface smooth so that the bulbs will not roll and drop them onto the ground haphazard, planting them exactly where they fall

After the first fall of snow, spread a mulch over the bulb beds



Use a piece of broken pot or clam shell to keep the drainage open



Over this put some coarse rubbish to act as drainage material



Fill in slightly with coarse soil that will let in water and air



Now, fill up with the potting soil, leaving room at the top for water

borders, proceed quite differently, avoiding every method that would tend toward regularity or formality. Having dug over the ground, make the surface smooth by means of a rake, removing all coarse rubbish and stones. Now take the bag containing

the bulbs and walking along the border, drop them in handfuls as you walk. Then retracing your steps, plant each bulb just where it has fallen and do not be too particular about the depth. By these means you will insure the irregularity of distribution and longer season of bloom in succession that is half the charm of "natural planting."

III.—PLANTING IN THE GRASS. For naturalizing in the grass, scatter the bulbs in the same way and plant as they fall. Drive a hole in the ground by means of a pointed stick and drop into the bottom a little fine soil or sand so that the bulb will be in touch with it when it starts to grow. Avoid hanging the bulb high in the ground. If you want uniform results use a measuring stick when making the holes and plant uniformly.

All the hardy Dutch bulbs can be used in this way, but daffodils and crocuses are the most pleasing.

IV.—HOW TO POT A BULB. For pot planting, the method of cultivation is exactly the same as that used when forcing in flats (see elsewhere in this number for details). Hyacinths and tulips are excel-



Plant the bulbs just below the surface and press the soil firmly around them

lent subjects for pot cultivation. After planting, bury the pots in earth, ashes, or anything where they will be free from frost, and leave them to make roots. Bring them indoors in early spring to start the flower development.



Planting in the grass. Make a hole in the ground by means of a pointed stick. Place a little sand in the bottom so the bulb won't hang, then insert the bulb, covering it with a handful of good soil and press firmly on the top

A New Idea for Trimmed Hedges—By Aldred Scott Warthin, ^{Michi-}gan

THE MATRIMONY VINE IS HARDIER THAN THE PRIVET, RICHER GREEN, AND BEARS BRILLIANT SCARLET FRUITS IN WINTER. AFTER A FEW YEARS OF PRUNING AND TRAINING IT IS SELF-SUPPORTING

NEVER have I seen any mention of the especial adaptability to hedge-purposes of the matrimony vine. A generation ago matrimony vine was largely planted throughout Michigan as a vine for fences and screens; and on many old places at the present times there may be found fences covered with a dense shrubby growth answering more to the description of *L. barbarum* than to that of *L. halimifolium* in so far as its character of shrubbiness is concerned, although otherwise corresponding closely to the plant now sold under the latter name (or *L. vulgare* of the trade).

On one of the older streets of Ann Arbor, old plants of matrimony vine had been growing for many years in a straggling manner over an old fence, swaying out over the sidewalk so luxuriantly, as finally to be condemned by the city authorities as a nuisance, the property having been practically abandoned for several years. On its passing into the hands of a lover of flowers and neatness, the old fence was removed, supporting wires put in, the straggling branches severely trimmed and the root runners grubbed out.

The hedge is about five feet high, and is as

dense as trimmed privet. The leaves are a better green and keep their color well through November. Throughout the summer there is a profusion of inconspicuous purplish flowers followed by bright red berries the majority of which are about half an inch long, that also persist well into the winter. The leaves appear earlier in the spring than do those of privet. The plant stands trimming excellently, the foliage and flowers being greatly increased thereby. With age and repeated trimming the hedge becomes converted into a dense shrubby growth no longer requiring support. The main branches and trunks have as great a diameter as those of the ordinary privet hedge—three-quarters to one and a half inches. This plant is usually classed among the vines or trailing shrubs and three names are offered in the nursery catalogues, *Lycium barbarum*, *Chinense* and *halimifolium* or *vulgare*. The first is described as a shrub with long, slender, trailing branches bearing green leaves that retain their color until late in the fall and contrast well with the abundant red fruit. It is probably the real *L. Chinense*. The last is the common matrimony vine and is a luxuriant trailing species from

China, bearing a profusion of scarlet-red berries.

The plants that I have seen put out under the name of *L. Chinense* cannot be distinguished from *L. vulgare* and are probably the same as the latter, which is native in the Mediterranean region and was introduced into this country from Europe, and now grows wild in many places where it has escaped from cultivation.

[The "Cyclopedia of American Horticulture" gives *L. vulgare* as a synonym of *L. halimifolium*, and states that *L. Chinense* is of more vigorous growth with branches 12 feet long; leaves ovate instead of wedge shaped; bright green, instead of grayish-green; and up to 3 inches in length, whereas those of *halimifolium* do not exceed 2 inches. The fruit of *halimifolium* is given as being sometimes yellow, half an inch long, while that of *Chinense* is bright orange to scarlet and an inch long. Probably the plants commonly in the trade are not *Chinense* at all.—EDITOR.]

The chief advantages of the plant for hedge purposes lie in the fact that it is absolutely hardy in a climate where privet has twice within three years been killed to the ground, and in its great vitality of growth. It will apparently stand all extremes of exposure and conditions. If it has any bad quality it is that of excessive vigor of growth in suckering and layering. In the case of a neglected hedge sprouts may be found twenty feet away from the main plants. With a small amount of attention the runners which are very superficial can be easily disposed of once a year, the early spring being the best time for this. The vitality of these is surprising. A pail of these runners was left for several months under a tree, the only supply of moisture being that derived from occasional very heavy rains. At the close of the summer these neglected roots were still alive and sprouting. It seems almost impossible to kill them. This excess of vitality is, moreover, one of the most comforting things about the plant. It is certainly gratifying to find a plant of vigorous growth and resistance to unfavorable conditions that will grow by itself, without coddling or coaxing.

It grows most rapidly and luxuriantly in a dark sandy loam. It is easily propagated by cuttings or layering, but most easily by transplanting root runners and suckers. The best time to do this is in the spring, just before the leaf-buds open, if quick results are desired. It is possible, however, to transplant these runners when they are in full leaf, and it may be done now. Set the plants close together, along a supporting fence of posts and wire and as the trailing branches develop they must be twisted about the wires. Trimming is begun during the second year. With selective cultivation its tendency to shrubbiness might be increased.



Hedge of the matrimony vine (*Lycium halimifolium*). Hardier than privet and bears scarlet fruits

Udo, A New Winter Salad — By Charles A. Sidman, Washington, D. C.

AN EASILY GROWN CROP THAT MAY BE FORCED IN THE OPEN LIKE ASPARAGUS OR RHUBARB—GIVES CRISP STALKS LIKE CELERY, WITH A PINE-LIKE FLAVOR—A POSSIBLE SUBSTITUTE FOR LETTUCE AND ENDIVE FROM OCTOBER TO MARCH

A FEW years ago, through the Department of Agriculture, a few plants of a new salad plant, udo, were brought over from Japan. This has now been fairly tried in several sections and although it can never rival good hothouse lettuce or endive as a winter salad, yet it is regarded by some as a welcome change. Udo has a peculiar flavor, suggestive of pineapple.

The tenderest young shoots of celery are not more brittle than these blanched stems of udo, and they have a crisp freshness like that of the midrib of a lettuce leaf.

As served in Oriental style, udo is a mass of thick, white shavings, two to three inches long by half an inch wide, having a brilliant, silky lustre. In the tea houses all over Japan it is served either fresh or boiled with a Soy sauce. It would not be likely to attract attention eaten as it is served by the Japanese, unless one were in search of peculiar dishes. The slices are crisper than celery and have none of the objectionable stringy fibres often found in that.

The best method of preparing the udo for the American table is to cut the shoots into long, thin shavings, allow them to stand in ice water for several hours, then putting them into a salad bowl and pouring on a dressing, prepared in the usual way.

There are two varieties of udo, called respectively, "kan udo" and "moyashi udo," and these, though of similar appearance as they are placed on the market, are quite different as regards their cultivation; but either one is easily handled and should be given a trial by those who like something different from what other people have.

Moyashi udo is the better suited to our American conditions, for it yields throughout the winter, while the kan udo only



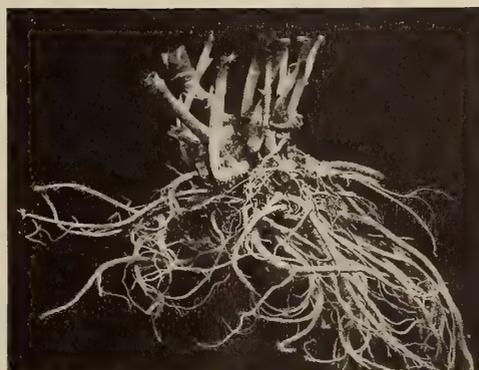
Blanched shoot of udo ready for cooking just like asparagus or can be used for salad

produces in October and November or in the early spring. It has been grown as far north as Nova Scotia, and as far south as the Gulf of Mexico.

The moyashi or forcing udo is grown from root cuttings, which have been cut from large plants the year before, being dug in November and kept all winter packed in straw. In the spring the cuttings are laid lengthwise in a shallow trench about four inches apart, and in the space between them a small quantity of rich manure is placed. They are then covered with an inch or so of soil. As the leaves appear, the trench is gradually filled about their bases, cultivation is carried on to keep



One year old udo plant grown from seed. It is six feet tall



This is what a udo plant looks like in the spring. Note the young blanched shoots

down the weeds, and the plants are allowed to grow until the end of October, or until frost.

These two-year plants are then dug, the dead stems removed, and the plants packed away in a dry place until wanted for the forcing bed which may be in a cellar, or under the greenhouse bench, just as for rhubarb or asparagus. They can be kept in this dry condition for several months without injury.

When forcing begins the dry sets are packed as closely together as they can stand in the bottom of the trench, which is filled in and heaped up with a light garden soil. In about fifty days the first shoots appear above the mound and are cut, like asparagus, by digging down to the base or by running a long knife into the mound.

By preparing a series of forcing trenches and planting them at different times, fresh shoots can be had all winter long, from November until the following May.

The kan udo is grown from seed, which is broadcast in seed beds, prepared of rich garden earth in the month of March or April, and is allowed to grow for one year. The following spring the individual seedlings are transplanted from this seed bed, after the tops, which have died during the winter, have been removed, and they are then set in rows two feet apart and ten inches from each other in the rows. In these rows they are cultivated until September, when the leaves begin to turn brown. The stems are then cut back close to the root and the earth piled over them in a mound two feet high. In about forty days the new shoots, which begin to form as soon as the old ones have been cut back, appear above the surface of the mound. They are then ready for cutting, and the mound is opened. Each rootstock produces about five of these



Udo plants in a Virginian garden. These were raised from seed sown in the open

blanched shoots, three of which are probably fit for use at the first cutting, early in October. The remaining small shoot are covered up again and allowed to grow for a second cutting a week or so later. Cut close to the base of the shoot, leaving no stub, to ensure the rapid growth of the remaining young shoots.

Generally only two crops of shoots are

secured of the kan udo, but occasionally there are three. After the removal of the last crop the rootstocks are buried and allowed to remain over winter. In the spring the mounds are opened and rich manure is applied in trenches running on both sides of the plants. Throughout the summer free growth is encouraged, the plants being again cut down in the fall

and treated in a similar way to that just described. This can be profitably continued for ten years, when it is better to start a new stock.

Botanically the plant is *Aralia cordata*, and has been recognized as an ornamental plant on account of its large sharply lobed leaves. It is also used as a salad by the Chinese, when its name is tu-tang-kuei.

Why Everyone Should Buy Darwin Tulips Now—By Wilhelm Miller, ^{New York}

THEY HAVE A NEW SET OF COLORS, STEMS THREE FEET LONG, AND WILL LAST FOR YEARS WITHOUT THE BOTHER OF REPLANTING ANNUALLY—THE MOST INTERESTING NEW RACE OF BULBS

I WANT every reader of the GARDEN MAGAZINE to try some Darwin tulips this fall. Never before have I made such a request, because, up to this time, I have never seen any flower or plant which I thought would please everybody. The bulbs are now cheap enough for every purse and we have colors enough to suit every taste, for there are now more than one hundred and fifty varieties of this new race.

Heaven knows I do not urge this simply because Darwin tulips are now the centre of interest among hardy bulbs and are bound to be "fashionable" this fall. I will never turn a finger to encourage any "fad" in American floriculture, because we can never make America a garden as England is until we stop chasing everything that is cheap, quick, and showy and settle down to making beautiful home pictures with permanent or long-lived materials, even if they cost more and involve a long wait. It is true that Darwin tulips are cheap, quick, and showy, but the important point is that they will last indefinitely and multiply without the bother of lifting the bulbs every year, curing them in a cellar and replanting every autumn as people do with bedding tulips, which are merely for a brief show in a conspicuous formal bed.

Of course, this longevity is not peculiar to Darwins. All late or May-blooming tulips can be left in the ground from year to year. The distinguishing feature of Darwin's is their long stems, which are often two and a half to three feet in length, while those of the old May-blooming tulips average about sixteen

inches. This great length of stem is one of two reasons why Darwin tulips are especially adapted to American conditions. For Americans put more stress on long-stemmed cut flowers than any other people, an example being the florist's carnation, which is essentially an American product. In the garden also these long-

stemmed Darwins are most effective, giving a robustness of growth that we have never had before among bulbs.

The other reason why Darwin tulips ought to appeal so powerfully to a democratic people is that their colors represent a revolt against the hard-and-fast standards set up in aristocratic countries. The whole course

of the tulip's evolution has been a struggle to purify and intensify a few popular colors. The intermediate shades have hitherto been suppressed, and rightly too, in the case of the early or bedding tulips where the object is frankly show. But in late or garden tulips, which are made to be loved, we want no artificial standards. We want at least a chance to see every intermediate color and every combination of colors that nature or man can produce. And the distinguishing feature of Darwin tulips is that they give a host of such colors, which we can get in no other class of tulips.

I must confess that I was sceptical on this point, especially after reading the contemptuous comments of some English gardeners of the old school who declared that these colors were too often "muddy" and "uncertain." So I got about fifty varieties of Darwins last year and tested them with about a hundred other kinds. The result was a perfect revelation. Everybody who visited my garden liked the Darwins best and declared that the colors were beyond anything they had ever seen in any kind of flower. It suddenly became as clear as day why these colors are so lovely, why they are so indescribable and why some of the old-timers hate them so.



Darwin tulips have stems two feet high, flowers as large as your fist and subtly blended colors. The striped flower on the right is a Rembrandt

Their supreme loveliness is due to a certain glaucous or bluish cast which is comparable to the "bloom" on a grape or plum. Sometimes this "bloom" is pinkish or purplish, sometimes it is gray, but always its effect is to soften the main color and to give that precious quality we call "atmosphere." It is this glaucous cast that makes Darwin tulips look so mysterious and appealing, especially at twilight or in the early morning, when they suggest a soul dawning into consciousness. And a practical advantage of this peculiar cast is that you can group many varieties of these mellow-tinted Darwins in a single vase without color discord, which you cannot do with the ordinary or vivid tulips.

This same cast also explains why the old-time English tulip fancier (now painfully reduced in numbers) does not like the Darwins. His whole life has been spent in enlarging the flower, rounding the petals, sharpening the markings and above all in purifying the colors, for in all ages the greatest reward must fall to the man who perfects the few, strong, simple colors. Against any cloudiness or uncertainty of color he has always fought and the tender haze which half reveals the gorgeous possibilities of a Darwin tulip is to him merely an obstruction. But the mood of our people, I am persuaded, is against technical perfection and in favor of these intangible and iridescent colors because of their spirit and suggestion.

But while this subtlety of color is the joy of the artist, it is also his despair. I need hardly say that photography can give no hint of these glories. Possibly the Lumière process of color photography will be able to catch some of this evanescent beauty and *Country Life in America* hopes to achieve this next May in a colored cover. Meanwhile, the selection of varieties becomes more than ever a matter of taste and my practical advice comes down to a few words.

Darwins require no different culture from other late tulips and the best catalogues contain the few simple directions that are necessary. The best time to buy the bulbs is in September and the best time to plant them is October. I rarely advise buying a few each of many varieties, but in this case I do, for the pleasure of having a large collection is very great. The best way to grow a collection is in rectangular beds of unit size in some secluded place where the numerous labels will not spoil the lawn or garden picture. The great advantage of having a few each of fifty or more varieties is that it is the best way to select two or three varieties for extensive planting which will give your garden personality and success.

If, however, you want some strong mass effects next year you would better plant fifty each of a few varieties, selecting the vividest colors. Not all Darwins, by any means, are intermediate or glaucous. Many of them have strong and simple colors, and while I like the other kind better, I am bound to say that in ten years most of these



All sorts of tulips. The conspicuous flower with long stem in the centre is a Darwin tulip

delicately shaded varieties will probably be ousted by stronger colored sorts, for that is the way with flowers. This is an additional reason why I urge readers of *THE GARDEN MAGAZINE* to try Darwin tulips now while the indescribable colors can still be secured.

Shall we naturalize Darwins? The temptation to say "yes" is very great because people will try it anyhow since the bulbs are cheap enough to be bought by the thousand and they will doubtless last several years in rather open woodlands, sunny meadows, or grassy home orchards. But on this point I reserve my decision. The supreme test, I believe, is fitness and I am afraid that they will not look like wild flowers. The spirit of wildness is certainly possessed by the native and run-wild tulips of Europe and in my opinion the most promising list for naturalizing is the one recommended in *THE GARDEN MAGAZINE* for September, 1908, at page 58.

Oh, one thing more! There is a right and a wrong way to economize on bulbs. Every beginner is tempted to buy second size bulbs from little known local dealers, because he can get more for the money. But he is sure to be disappointed because the size of a flower is chiefly determined by the size of the bulb; and the heaviest and healthiest bulbs can be had only from dealers who have a national reputation to uphold. Buy fewer bulbs but better ones, and remember that you can buy fifty at the rate per hundred, thus saving 17 per cent. over the rate per dozen. Also, if you want to see whether Darwins will naturalize, 500 is a good unit, because you can get 500 at the rate per 1,000.

House Temperature for Bulbs

The leading authorities on bulb culture agree that the best temperatures for various stages of growth are as follows: for roots, 40 degrees; for the stems and foliage, 50 degrees; for the best flowers, 60 degrees; for the quickest flowers, 70 degrees. This range of temperature gives one sufficient latitude to grow them under almost any conditions in the average house.

Lifting Power of a Bean

WHILE walking along some rows of beans that were just fissuring the earth by sprouting, my attention was called to a clod of earth, perfectly circular in outline, which had been lifted about three quarters of an inch above the grade of the surrounding soil. Becoming interested, I carefully inserted my finger just outside of this clod, and lifted the caked earth; I found that it was resting upon a round cover of tinned iron, such as is used for jelly glasses, which had been bodily raised by the sprouting bean. The mass of earth was about an inch and a quarter thick, and nearly three inches in diameter, and weighed very close to ten ounces. The stem of the young bean, the arch and the cotyledons were not in any way bent or crippled, but perfectly normal, showing that no injury to the plant resulted from the enormous strain that it must have had to bear.

New York.

H. W. MERKEL.

Registration of Plant Names

WHO has not at some time or other been the victim of the loose methods now in vogue in the naming of garden plants? The principle of the botanists that the name should be sacred, and that, once given, it should never be changed under any consideration, although it may be relegated as a synonym in the light of later discoveries, has never thoroughly penetrated into the minds of the horticulturists. The only factor that at present has any weight is the force of public opinion. It has usually been found pretty poor policy to wilfully confuse nomenclature although the step has been taken at various times, when, to satisfy some commercial instinct, the risk has been considered worth the game. The fact that matters are as good as they are is really a cause for a good deal of self-congratulation among plant raisers and plant growers, but horticulture is becoming more and more exact in its methods and the question of nomenclature is a live issue.

It is gratifying to know that for two or three years past the officials of the Department of Agriculture have been considering the possibilities of systematizing the nomenclature of garden varieties, and while as yet nothing definite is mooted a great deal has been accomplished in preliminary investigations and the necessity of some decisive step is pretty well realized. Naturally, a Government department can accomplish this work in a way that no individual or outside organization could ever expect to do. The Government can do it impartially and perpetually. The probabilities are that if the horticulturists themselves show a sufficiently keen interest in stimulating the movement, we shall very soon have an office of plant registry in connection with the Department of Agriculture, an office run on impartial lines, the work of which will serve, in some degree, to protect to the originator the fruit of his labors. Let us all do our part to help along the good work. L. B.



How to Raise Cyclamen from Seed

WHEN a visitor exclaimed with surprise at the fifty thumb-pots of cyclamens on my windowsill I suddenly realized how few amateur gardeners raise cyclamen from seed. Yet the process is easy to accomplish in an ordinary house and so much cheaper than buying either corms or plants that one may have half a hundred cyclamen plants for the cost of two or three of the ordinary florists' products.

The one essential point in the successful cultivation of cyclamens is to avoid any sudden change. I am more and more convinced that the chief secrets in the culture of this plant are uniform warmth, uniform moisture and uniform light, which also means uniform care-taking. In winter the little plants must be given all the light possible, and toward summer they must be somewhat shaded. They will flower in any ordinary window and so plentifully that you will not lack for Christmas gifts.

Pay the highest price for the seed and you will then be sure of getting the best that is on the market. The "giant-flowered" strains, though very beautiful, bear fewer blooms. I have found the best mixed Persica varieties the most satisfactory, and while the flowers are not of very large size they are borne in much greater profusion.

The quality of the soil used for starting the seeds is of great importance. Cyclamens remain for several months in their seed box and must be able to get sufficient nourishment during that time and yet not be overstimulated. Soil that is rich to begin with, made light by the addition of leafmold and sand, will be the best. A perfect soil for the purpose is one composed of half loam and half decayed wood taken from the heart of old trees, which is so entirely rotted that it looks like soil in the hand. This affords no nourishment to the plants, but holds moisture for a long time. Whatever the soil, it is wise to roast it for a couple of hours before



Seedling cyclamens before transplanting. The corm begins to develop at this stage

using it, so as to destroy all possible animal life.

Plant the seeds in boxes of this sterilized soil, setting each seed half an inch deep and one inch from its neighbors each way, so that after germinating each plant may grow on and finally be lifted without disturbing the rest.

October is the very best month to plant seeds in the house. This will give flowering plants the following autumn and early winter, and at Christmas, when they are most wanted, the plants will be in the best condition. Moreover, the culture of the large plants just before flowering is most easily accomplished out of doors and during the summer. However, seed may be sown any month; the plants will flower a year from the sowing of the seed and will continue to give masses of beautiful, and in many strains, sweet-scented bloom for months thereafter. I have had good success with those brought on regularly from February to February.

After sowing always keep the soil slightly moist and, if possible, cover the box with glass which will save constant watering. Put the box in a warm, dark corner of the living room in a temperature of from 65 to 70 degrees. Not many seedlings will appear in less than a month, twenty-one days being the shortest germinating record with me. When they do appear, the little plants are



One year old cyclamen raised from seed in the window garden. Start in October for flowers at Christmas of the next year

quite irresistible with their tiny bright varnished leaves, crimson stems and absurd little corms just beginning to form.

When the seedlings have two leaves I pot them up into thumb pots, and transfer them to larger pots as they require more space, always keeping the top of the corm a little above the surface of the soil. Early in June I place the pots in an old coldframe, which is uncovered save for some narrow slats running north and south laid across the top, so that

as the sun moves the shade may be thrown across all the plants in turn. Kept thus, and never allowed to get dry, they are by autumn magnificent stocky plants crowded with leaves. By July they will need the final 5-inch pot in which they will flower the following winter.

A few applications of very weak liquid manure just as the buds begin to show, will add the final touch to success. Bring the pots into the house before there is any danger of frost.

New York.

L. S. B. S



What Must Be Done This Month

DO NOT plant mixed bulbs unless you intend to plant but a very few. Keep the named varieties separate, and label each variety with its proper name and the name of the seedsman from whom the bulbs were purchased. In this way you will know which varieties succeed best with you and which seedsman keeps the most reliable bulbs. Prepare the soil and plant the bulbs carefully, and when using fertilizer be sure to distribute it evenly.

Sweet peas sown during the month will flower much earlier next spring than if sown in January or February. During the winter protect them from hard freezes by placing oat straw or old leaves around the roots. Then, even if the vines are killed, the roots will still be alive in the spring.

Prepare the soil now for planting out strawberries the last of the month and the first of next month.

Harvest rutabagas and sweet potatoes any time during the month when the weather is dry. Store them in a cool, dry, frost-proof place and discard all bruised and damaged tubers, for they will soon rot and spread decay.

Sow a mixture of oats, wheat, and rye now for chicken greens. By feeding this during the winter and spring you will be surprised at the increase in the number of eggs.

Clear off the asparagus beds and burn the old tops. Store the pumpkins and winter squashes any time before frost.

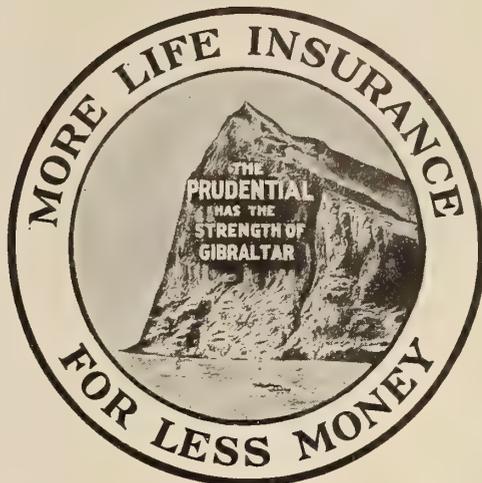
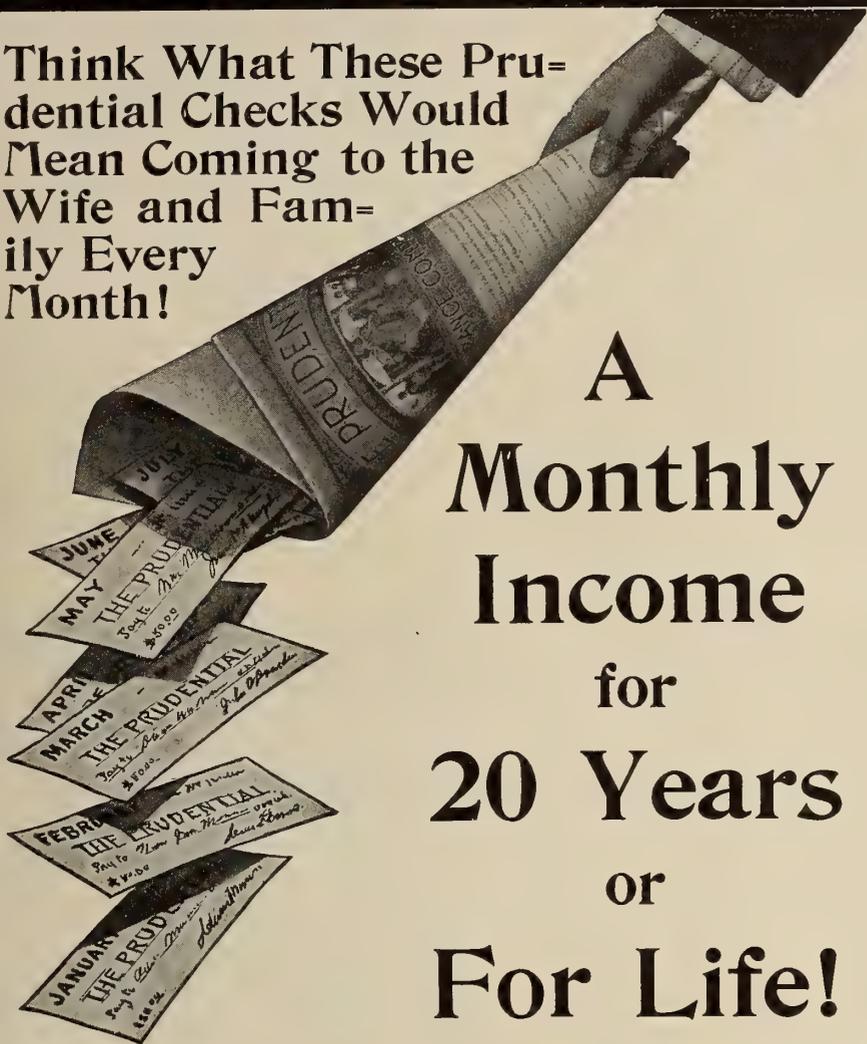
Trees that have had the ground around them kept free from weeds and trash are usually free from scale and other insects, so be sure to clear the ground around the fruit trees and burn all refuse.

Give a good cultivation to turnips sown last month in the drills and thin out to one every three inches. If necessary pull out the weeds from amongst the turnips sown broadcast.

Georgia.

THOMAS J. STEED.

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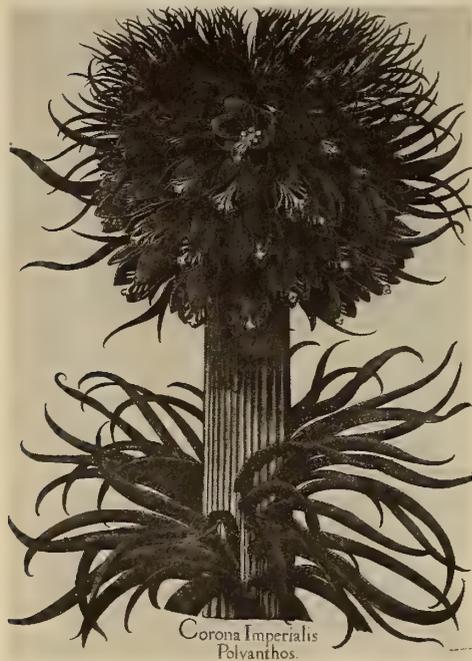
JOHN F. DRYDEN, President

Home Office, Newark, N. J.



The Oldest Flower in Cultivation VII.—The Crown Imperial

THE crown imperial (*Fritillaria imperialis*) is surely an imperial plant, for its stem is as stately as a Greek column and its huge blossoms are regal in size and coloring. Moreover, it is one of the earliest flowers in



The old Crown Imperial as it was portrayed in "Hortus Eystettensis" 1613. Much admired by the ancients

the garden, often blooming by the end of March, and long before this its shoots burst through the ground tumultuously, heaving the earth in all directions. Children are always fascinated by the six pearly drops which stand like tears in the eye of each flower but never drop.

The only drawback to this plant is the skunk-like odor of its foliage, which makes it impossible to use the plant indoors as a cut flower. Outdoors, the odor is not noticeable unless the foliage is bruised or one comes too close to the flower.

The accompanying picture is reduced from an elephant folio published in 1613 and, aside from its immense size, the plant is noteworthy for the extraordinary number of flowers, about thirty of which can be counted in the picture.

It is not commonly known that there are a dozen varieties of the crown imperial that can be procured from American bulb dealers. They make a very interesting collection.

There are single and double forms in yellow and red, and kinds with foliage striped white or golden.

Among the named varieties are Aurora, Maximus, and William Rex, red; Sulphureus, sulphur yellow; and Crown upon Crown. Some American dealers add Couronne Orange and Red Slagwaard.

The secret of success in growing the crown imperials is deep planting of the bulb—with a layer of well rotted manure below. New Jersey. THOMAS MCADAM.

[So much interest has been awakened in the "Hortus Eystettensis" from which the previous pictures in this series have been published that a full account of the book will be given in the next article.]

Ornamental Fruits of October

[The fifth article in the series describing the fruits of each month.]

MOST of the berries mentioned in September are still attractive by the middle of the month; but when hard frosts come many drop off, others shrivel or decay, while the birds pick off a good many more. By the end of the month many trees have shed their leaves. Consequently the following species which do not ripen their fruits until October are all the more welcome, as they add new life and color to the dying year.

The red choke-berry (*Aronia arbutifolia*) has bright red fruits that last all winter. The berries though not of a disagreeable flavor are rarely eaten by the birds.

The Japanese *Photinia villosa*, which grows into a tall shrub, has bright red fruits very similar to those of the red choke-berry. They ripen about October and last until November.

The Chinese *Ribes jasciculatum* (*Ribes Japonicum* of some nurseries) is prettier than the Alpine currant (mentioned in August). It has larger berries which hang on to the branches, plump and fresh, until the middle of November. Care should be taken to select fertile shrubs for planting since both species are polygamous.



The white balls of the snowberry are the most characteristic fruits of October

The black haw (*Viburnum prunifolium*), a shrub or small tree with spreading, rather rigid branches, does not usually ripen its bluish black berries until October and they stay on the branches through the winter. In bloom it is one of the handsomest of the viburnums.

The Indian currant or coral-berry (*Symphoricarpos orbiculatus*) is most showy during October and November when the slender branches are covered with short clusters of small red berries. It is a low shrub scarcely more than five feet high, like the closely related snowberry (*Symphoricarpos racemosus*) which has its slender branches often weighed down by masses of large snowy white berries.

Mass.

ALFRED REHDER.

[The next article will be remarkably interesting because it describes some berried shrubs that have the further attraction of being provided with evergreen foliage.—EDITOR.]



Plant in the fall snowdrops in boxes, and bury the whole thing over winter, they will flower in March

Snowdrops in a Veranda Box in March

A MOST unusual and very interesting experiment which seems well worth trying because veranda boxes are usually empty in March and April is illustrated in the accompanying picture. If these boxes are permanent they might as well be filled with flowers in April as not and Mr. H. H. Pepper of Providence, R. I., has found out how this may be done.

It is quite impossible to raise crocuses, hyacinths, and other bulbs in veranda boxes unless the whole box containing the bulbs is put under ground in the fall and kept there until March. Many people have planted hardy bulbs in veranda boxes and left them exposed to outdoor air all winter, but I have never heard of any result but failure.

The only objection I know of to Mr. Pepper's method is that the boxes are very heavy to lift, but this may be obviated by potting the bulbs.

Conn.

HENRY MAXWELL.



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Results from Forcing Crocuses

IT HAS been my experience that no time is gained, while much in the way of results may be lost, by attempting to force crocuses which have had less than ten weeks for root development.

On October 16th I potted crocus bulbs of the following varieties: Baron Bruno (blue), Mont Blanc (white), Sir Walter Scott (striped blue and white), and Giant Yellow. I buried the pots and left the bulbs to make roots, bringing in for forcing some of each variety after intervals of six, eight, and ten weeks.

The ten-weeks lot was in bloom before any of the others and seemed to force perfectly, thus admirably demonstrating the importance of securing a good root development before attempting to force.

Of the eight-weeks lot, the Giant Yellow produced a large growth of leaves but no blossoms. On the other hand, Mont Blanc produced almost a normal crop of blossoms but these had shorter stems and tubes than normal and some of them were deformed. Sir Walter Scott produced only a few blossoms, while a single bulb of Baron Bruno sent up a couple of small deformed blooms.

None of the six-weeks lot made a normal growth of leaves. Mont Blanc bloomed freely but was even more dwarfed than in the

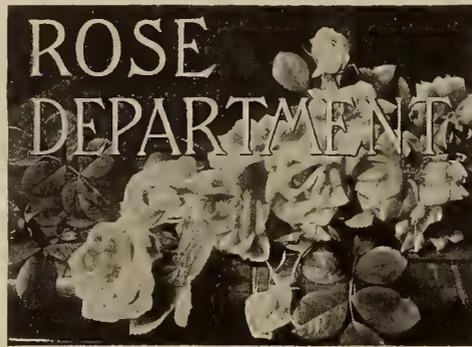


Baron von Bruno Crocus produces the largest flowers but is the least profuse

eight-weeks lot. Sir Walter Scott produced a few blooms; the other varieties were complete failures.

As to varieties, all appeared to force equally well, but the Giant Yellow was in bloom first. It seems to me that this crocus might more properly be called Prolific Yellow, as it is a very free bloomer, while with me the blossoms were rather smaller than those of the other varieties. Mont Blanc and Sir Walter Scott are also free-flowering varieties. Baron Bruno produced fewer blossoms to the bulb but made up in for this lack in quantity by the size of flower.

Washington, D. C. W. J. YOUNG.



Protecting Roses from Winter Cold

THE intense cold of the winters in this part of the country is often very trying to plants, and particularly to rose bushes. In order to have bushes through the past winter without injury, last October I had several wheelbarrow loads of earth brought in from the land where corn fodder had been grown, and after the bushes had been well dressed with rotted cow manure, I heaped this earth around the roots as one would hill up potatoes. There was comparatively little snow during the winter, and with the exception of Killarney, which was not on its own roots, my bushes came through unharmed.

The following spring, the ashes from a big bonfire were sifted and after they had been slightly moistened by rain, were spread around the bushes with a small hoe. The soil was kept stirred and after the bushes were in bud, liquid cow manure, diluted to one-fourth its full strength, was used. Chimney soot was also spread around the bushes. Later applications of hellebore for thrips and slugs, and kerosene emulsion for aphids, proved beneficial to the plants.

New Hampshire. HARRIET E. TILTON.

Propagating Roses at Home

MY FIRST attempt at raising roses from cuttings was made last fall and it was very successful. In October I had a bed made in the usual way, i.e., by digging out the soil to the depth of about eighteen inches and filling in first with about six inches of fresh manure and then with the earth that was taken out mixed with well-rotted manure. The soil is a medium loam and the exposure of the rose bed southeast.

I got fifty cuttings of twenty varieties of roses, teas, hybrids, etc., being careful to have two or three buds on a cutting. These I stuck in the bed, leaving one bud well above ground. A common glass jar was placed firmly over each cutting and there it remained until the weather was warm and settled in May. In the late fall when other plants were mulched I had the jars surrounded with manure about halfway up.

Out of the fifty cuttings not more than six failed to root and grow. They have grown wonderfully the past summer and many have produced fine blooms but it is best to keep the buds pinched off. Most of the bushes are now two feet high and as bushy, vigorous roses as one could wish for. The Maman Cochet roses are the finest of the bed. I have cut handsome blooms from them and from the Safranos every few days.

Clarke Co., Va. ANNA K. CUMMINS.

Success with Tree Peonies

THE tree peony is a very valuable addition to the garden, flowering as it does in May and June right after the lilies. I have had plants of tree peonies growing in my garden for twelve years on the north side of a high board fence and immediately underneath cherry trees. They well repay



The flowers of the tree peonies are large, of lustrous, satiny surface, and in great range of colors

by their profusion of bloom and beauty of flower the trouble that has been taken with them.

Every fall I pile manure about one foot deep around the plants, and over that place dry leaves which are held in place by staves taken from barrels. On top of these I put a board about two feet square which keeps the rain from the top of the plant. An air passage is made by running a stick through the leaves.

The plants are left in this way until late in the spring and as the weather becomes warmer, the leaves are taken away from the lower part of the plants the tops being left covered until all danger of frost is past. By removing the leaves from the lower part of the plant, a vigorous growth is induced, so that sometimes when the upper leaves are removed, it is found that the buds have formed.

Ontario.

A. DRUMMOND.

A Bird's Eye View



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Perhaps you have lifted the lid of your great-grandmother's cedar chest. The dainty linen breathes out a perfume—even the fleecy blankets show no touch of age. The genuine Southern Red Cedar of which our many styles of chests are made is absolute protection against moths, dust and dampness. The Old Colonial Chests are trimmed with copper bands—studded with old-fashioned, flat-headed, copper nails. Such chests are gifts of sentiment and usefulness for Birthdays, Weddings and Christmas. Send for catalog. After you select a chest we prepay transportation. If it is not satisfactory we prepay return charges. Piedmont Red Cedar Chest Co., Dept. R, Statesville, N. C.

Cedar Chest



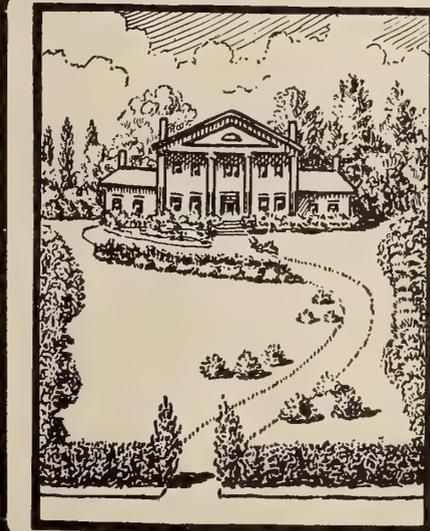
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For Dark, Shady Places

There is no corner so shady but that certain ferns and plants will thrive there. There is no soil so light and sandy but that some of our hardy wild ferns will beautify it. For 25 years we have been growing these hardy ferns and flowers and know what is suited to each condition. We can supply ferns for the dark corner by the porch, or ferns and flowers, including our native orchids, in quantity, to make beautiful country estates. Wet and swampy spots, rocky hillsides, dry woods, each may be made beautiful by plants especially adapted to them. Nothing adds greater charm to the home grounds than clumps of thrifty ferns. We also grow the hardy flowers which require open sunlight—primroses, campanulas, digitalis, violets, etc.

Write for my descriptive catalogue. It tells about this class of plants.

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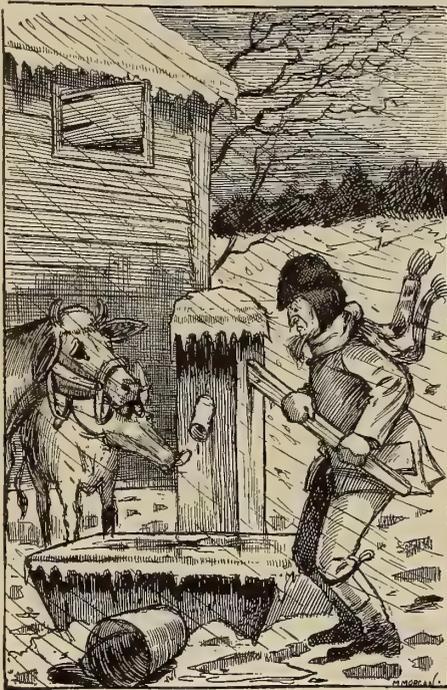
BY PLANTING IN THE FALL A YEAR IN EFFECT IS GAINED.

We prepare planting plans free to our customers. Write for our fall booklet, it describes all the most desirable plants, bulbs and trees for creating fine landscape effects. Our landscape gardeners go everywhere to plant or prepare plans. Write us today.

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When the pump is frozen tight,
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These winter hardships to forestall.
Don't let your stock go dry.

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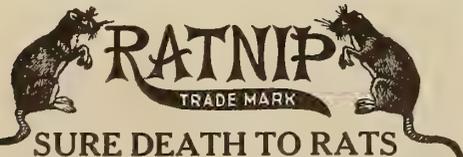
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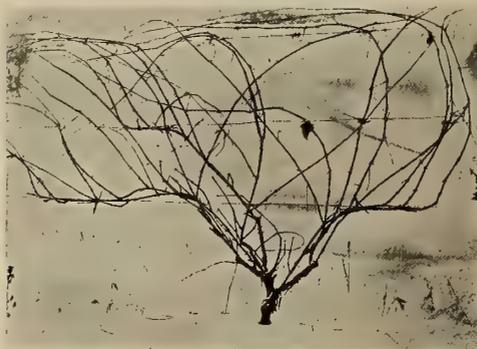
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THE 'fan system' of grape training," writes Professor John Craig, "is used most freely when vines are protected in the autumn by laying them down and covering them with soil. The canes are carried up from the ground in a divergent manner, in the form of a fan. The old



Before pruning. Fan system

canes are cut out and removed from time to time as they grow too rigid to allow of easy bending. At the close of the growing season, after the leaves have fallen, the greater number of the canes are cut back to the last bud. A few of the strongest are left, in order to carry the fruit to a greater height upon the trellis."

New Jersey.

T. McA.



After pruning. At the close of the growing season, after the leaves have fallen, the greater number of canes are cut back to the last bud. A few of the stronger are left, in order to carry the fruit to a greater height upon the trellis

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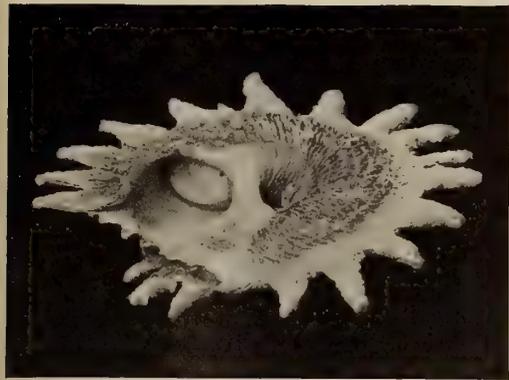
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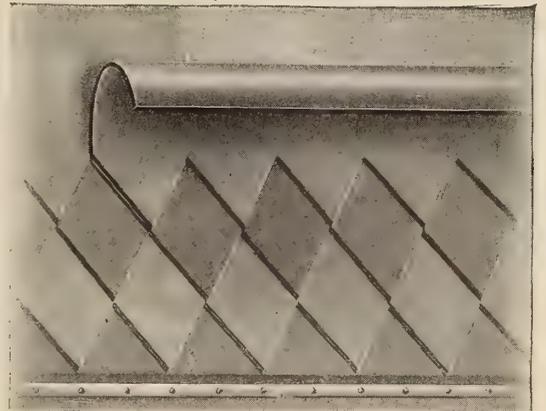
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Lets in the light always. Never has to be covered or uncovered; no boards or mats needed. Retains the heat, excludes the cold. Saves three-fourths of the labor and expense and makes stronger and earlier plants than single glass sash. Ask for catalog "G." It tells all about it.

ROSES TO PLANT THIS FALL



While the soil is rich with summer's accumulated fertility, giving strength to start the plants into continued growth early next spring, are a Peter's specialty. Only simple and moderate protection is required during winter by properly grown roses planted in the fall, and every rose expert knows that except in the extreme North fall-planted roses give much better results than those planted in spring. While the latter are gathering nourishment for new growth the former are distributing energy in the form of thrifty blooming wood.

Strong, Field-Grown Plants

Grown by right methods under right soil and climate conditions—are required for successful fall-planting. Peter's have them—roses of highest quality, produced in the Southern Alleghenies, where eight months growing season and four months real winter combine to give all plants unusual vigor and hardiness. All the best kinds, new and old, and every rose in stock a hearty specimen.

Send for Special Fall Rose Offer;
also "Peter's Plants," the different catalog.

Peter's Nursery Co.

Box 308, Knoxville, Tenn.

*Roses that bloom with the
passing of winter's gloom*

Outdoor Opportunities in October

GET ALL frames in order and attend to winter protection before frost and snow arrive. Brick or wood frames should have at least a foot of leaves or manure boxed in around them. Paint up everything that will be outdoors in winter.

See that shutters and mats are ready for protecting the contents of the frames from frost. Very soon vegetables for the winter supply will have to be put into the cellar. Is it clean, dry and quite ready? If inclined to dampness and moldiness, ventilate now and dry out as much as possible and fumigate with formaldehyde candles.

Gather up the leaves and store them for use around the hotbeds. Used by themselves they give a gentle and lasting heat. Mixed with manure they moderate its heat and make it last longer.

Clear up and burn the rubbish and if you have any diseased crops burn them. Do not feed diseased vegetables to stock and pigs and then when the manure is carted back onto the ground, wonder why your garden is always the victim of disease.

Porch and window plants must soon be brought indoors and made snug for the winter. Remember that they must have a resting period and should not be excited by being brought into an unduly warm place. Start seeds of cyclamen and any other biennials or perennials, that will be wanted next year.

Hydrangeas in tubs or boxes must be kept well exposed during this month to ripen the wood, then remove to a dry cellar for winter. They will stand seven or eight degrees of frost.

Make new lawns now. This month is a splendid opportunity for all kinds of ground construction work, roads, walks, drives, and beds. Get everything done before winter and in the spring time the earth will be settled. New lawns can be seeded now and the seed that does not germinate immediately will be there ready for spring. Old lawns may be mulched after the frost settles down.

Take time by the forelock and having decided on the general plan of next year's vegetable garden, get the soil preparation under way. There are two big groups of vegetables. Those requiring only fairly rich land are beans, peas, tomatoes, melons, turnips, brussels sprouts. The much stronger growing kinds, requiring very rich land, are asparagus, beets, cabbage, cauliflower, corn, egg plant, lettuce, radishes, rhubarb, spinach, onions.

Those in the first division need fertilizers rich in phosphoric acid and potash. An excess of nitrogen (stable manure) will cause too much top development; bone dust and wood ashes are needed. Apply the bone dust now and wood ashes in the spring, five hundred to one thousand pounds of each per acre. Stable manure and bone dust should be spread all over the vegetable lot, then deeply plow and leave as rough as possible for weathering.

DINGEE Bulbs

Are not produced by chance any more than the famous Dingee Roses. The same knowledge, care and experience stand back of Dingee Bulbs and plants for fall and winter blooming. Write for free

New Guide to Rose Culture

and Bulb Growing—Autumn Edition. Describes almost every bulb worth growing indoors or outdoors—offers a complete list of miscellaneous plants, Roses, Shrubs, Fruits, Seed, etc., for Fall Planting. Established 1850. 70 Greenhouses.

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The chances are they'll be killed by San Jose Scale. Take time by the forelock—spray with SCALECIDE. It kills every insect it touches. Cheaper than Lime-Sulphur or any home-made mixture, and easier to apply. Non-corrosive, non clogging. 92 per cent oil—the largest amount with less water than is found in any spray yet discovered. We prove it. Order a fifty-gallon barrel at \$25. Makes 800 or 1000 gallons costing 3/8c to 3c at any station in the U. S. east of Mississippi and north of Ohio Rivers. There's nothing cheaper. Send now for free, special booklet I.

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John D. Rockefeller in 1866

JOHN D. ROCKEFELLER AND HIS PARTNERS

In the November issue of *The World's Work* Mr. Rockefeller tells about a number of his early associates:—Mr. Flagler, and his remarkable achievements; Mr. Archbold, to whom he was first attracted by seeing his name written in a hotel register in the oil country with the following slogan, "J. D. Archbold—\$4.00 a bbl."; and the other men who helped to build up Standard Oil. He also describes his interest in his country places—how he laid out the roads, planned the remarkable feats of tree removal and planting which have transformed the estates—all told in that quiet, straightforward, simple way which makes these "Reminiscences" such an absorbing and vital document. There are many more hitherto unpublished pictures which worthily illustrate the text. This is the second instalment of Mr. Rockefeller's series, "Some Random Reminiscences of Men and Events," begun in the October *World's Work*.

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25 CENTS**

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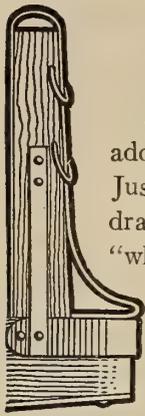
of the best reading in the year ahead you should get "The Big Four" among the magazines—

The only new club for next season, especially made to keep any home happy for the whole year.

The World's Work	- - -	\$3.00	} \$5.50
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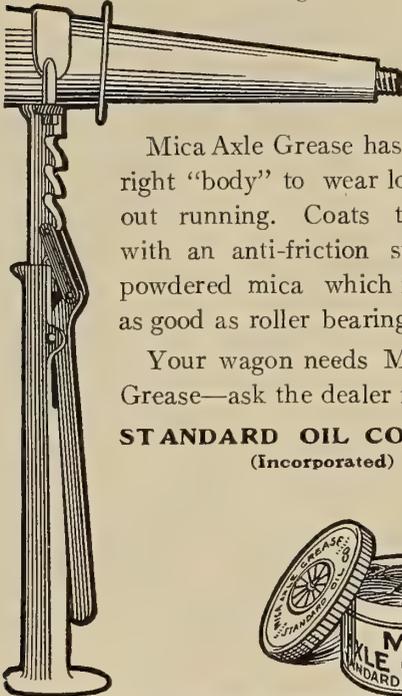
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506

Evergreen and Avenue Shade Trees

THE grandest of all Southern evergreen trees is *Magnolia grandiflora*, found growing naturally in lowlands and swamps in the Middle South, but excellent trees are in cultivation as far north as Washington City, beyond that latitude they seldom thrive, unless in some sheltered locality. Those which grow in the swamps always have high, naked bodies, but where they are not crowded by surrounding forest trees they retain their lower branches, and it is only when thus planted, singly or in avenues, that the great beauty of this magnificent tree can be fully appreciated. The foliage, as well as the flowers, varies considerably in size. Trees with broad leaves with bronzy undersides usually give the most perfect and heavy flowers. The size of the latter varies from four to twelve inches in diameter. Some trees bloom much earlier than others, and therefore expert nurserymen graft the best forms which give well-shaped trees, heavy foliage, and large flowers, with profusion and precocity of blooming.

It is strange that such a typically Southern tree as the cabbage palmetto (*Sabal Palmetto*) is not more appreciated for avenue planting. Those who have visited Palm Beach in Florida will remember the



Conifers make sombre effects and are much used in cemeteries. *Libocedrus decurrens*

beautiful avenue of palmettos which connects the Hotel Royal Poinciana with the Breakers. This avenue gives a tropical appearance to that locality and is a most remarkable feature of it. Palmettos will grow successfully all along the coast region from North Carolina to the Mexican Gulf, thriving best near the sea, but good specimens are occasionally seen many

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Plants 25c. each; \$1.80 doz; seeds, 25c. pkt.

BLUE PENTSTEMON (*P. cyananthus*) A species with luminous blue flowers in a compact spike, suitable for cutting. Blooms in May and June and gives a magnificent show of color in the garden.
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Collection of 8 different species of showy hardy pentstemon for \$1.00.

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Do You Care whether you really get the Peony you are paying for, or something else that looks more or less like it? If you do care, or if you are interested in Peonies anyway, our Annual Fall Catalog will explain to you just why the fact that

We Grow Peonies —Nothing Else

enables us to serve you honestly and well—better in fact than most others who grow "other things" besides Peonies. It will explain to you why. If you are a true blue Peony enthusiast you should

Purchase Your Peonies from Peony Specialists

We've got letters from people in Maine and in California—and most of the States between—speaking in the highest possible terms of the kind of stock we send out. For example, one gentleman in Tennessee writes:

"I must say that your roots are the largest I have ever received from any dealer for year-old plants. I have some from another party that yours would make two of them."

Remember we offer only the cream—the choicest and best, and the most distinct—of the many hundred varieties of Peonies in cultivation. Remember also that fall is the only time to plant. Most growers will ship in the spring too—if you insist. We do not—for your own sake.

May we have your name and address? Our catalog will do the rest.

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beautiful, practical, entertaining. Annual Homebuilders' Number in October. \$4.00 a year.

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interpreting to-day's history. John D. Rockefeller's Reminiscences begin in October. \$3.00 a year.

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Set out hardy plants early in the autumn—they will get started before winter and do finely for next summer.

Lilies, Tulips, Hyacinths, Daffodils and many other varieties for fall planting are described in *Horsford's Autumn Supplement*. Write early for free copy.

Home Grown Lilies

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Horsford's Autumn Supplement enables you to get your bulbs all planted long before the imported bulbs are in. Tulips, Daffodils, Crocuses, &c., give better returns when planted early in the North than with late planting. They have time to make their root growth before cold weather. Orders filled from fresh bulbs as long as stocks last. Send for free Supplement.

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Alabastine will give you an even, velvety surface which reflects the light instead of absorbing it, thus making your rooms brighter and more cheerful. Best results are obtained where the paper can be removed, for then Alabastine becomes a part of the wall. Alabastine is made from pure Alabaster rock, powdered. Simply mixed with cold water and applied with a flat brush, it adheres to the wall by its own cementing powers. You can do the work yourself, or employ an experienced decorator.

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The Greatest of All Flowers for Fall Planting



It is most unfortunate that so worthy, so noble a flower as the Peony, must appeal to the flower lover for its planting in the fall, when his gardening enthusiasm is at its lowest ebb.

It is true that, as yet, comparatively few people realize what the Peony of to-day really is. It is not until one has beheld the superb creations of Crousse and Calot that an enthusiasm is awakened only to grow with his flowers and the years. When flower lovers generally once realize that there is offered them for planting, a flower combining magnificent size, a fragrance, delicacy and range of coloring not surpassed by the rose—when they realize that this flower is as hardy as an oak, that it need not be moved from its original place of planting for many years—that it is almost absolutely free from disease and insect pests, and increases itself annually—then no grower will be able to begin to supply the demand.

Amateur planters in this country spend annually in fall several hundred thousand dollars for Hyacinths and Tulips which in a year or two are gone and must be replaced; in other words they peter out—die—while the Peony, without assistance, is increasing itself day in and day out—year after year.

That you may know more concerning this flower which is creating more interest than any other of our day, I have issued a booklet exclusively devoted to it. It tells you very interestingly all you would like to know, including the history of the evolution of this wonderful flower. It is beautifully illustrated in half-tone from actual photographs. It's free. Write for it to-day.

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Treasure Chest

miles inland. They need a sandy soil. Large trees transplant best during July and August. All the leaves should be removed and frequent waterings given, commencing from the top. This keeps the body moist and if thus treated the trees will soon recuperate. A few scattering



Hemlocks, firs, and spruces are the best evergreen avenue trees in the North, but will not thrive in the South

trees are sometimes seen in the coast belt cities. Why not use these more for street planting?

In the coniferous class of evergreens there are few that make real shade trees. The deodar (*Cedrus Deodara*) must always rank first for the Middle South. It does not succeed beyond Lower Virginia and there only outside the mountain regions, but farther south it attains very large proportions. The habit varies in seedlings; usually the branches spread and are more or less pendulous, and sometimes they are more erect, but all forms are exceptionally beautiful. Planted as avenues and given ample distance apart and the branches allowed to feather from the base, nothing is more striking. Unfortunately, many persons cut off the lower branches in order to make a shade tree and this mars the natural beauty of the specimen.

Among the cypress family many of the Asiatic species are uncommonly beautiful but none should ever be trimmed up so as to give a naked body. There are several cemetery avenues in Southern cities which are planted with various cypresses and *Libocedrus decurrens*, which are actually unsightly from the lack of lower limbs and with high, naked bodies.

Unfortunately the Norway spruce, hemlock, silver firs, and many other most desirable conifers so extensively planted in Northern states are seldom successful South, except in the mountain regions. I have already discussed the merits of the conifers in "The Best Conifers North and South" in THE GARDEN MAGAZINE for January and March, 1908, the reader is referred to that article for further information.

Georgia.

P. J. BERCKMANS.

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The American Flower Garden

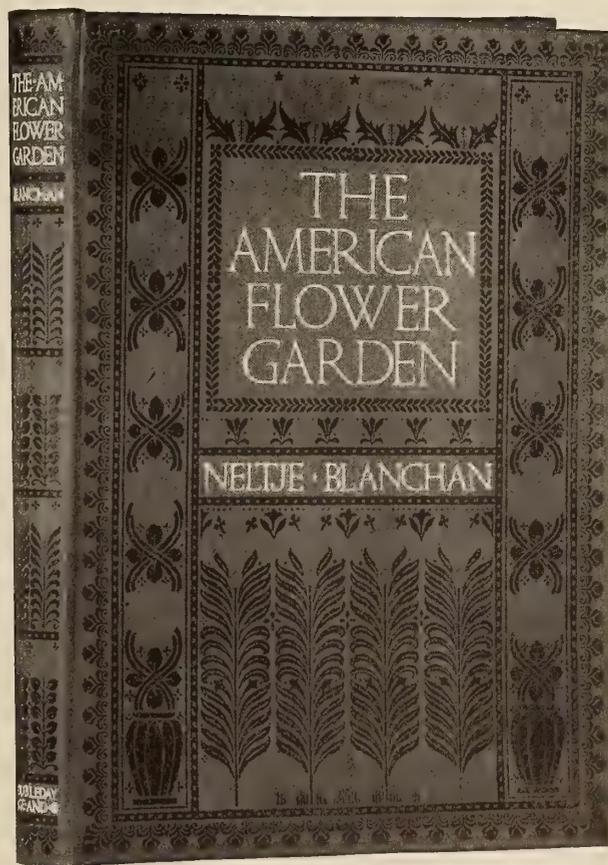
By NELTJE BLANCHAN

Author of "Nature's Garden," "Bird Neighbors," Etc.

AFTER several years of preparation the date for the publication of "The American Flower Garden" has been set for this winter.

There is no other work of this kind on gardening in America and it is the aim of the book to do for the United States what Robinson's "English Flower Garden" has done for England. It treats of the theory and practice, and also the history of this interesting subject. A glance at the chapter headings will show the comprehensive character of the volume.

- I. The Partnership between Nature and Art
- II. Situation and Design
- III. The Formal Garden
- IV. The Old-fashioned Garden
- V. The Naturalistic Garden
- VI. The Wild Garden
- VII. The Rock Garden
- VIII. The Water Garden
- IX. Trees
- X. Shrubs
- XI. Perennials
- XII. Annuals
- XIII. Bulbs and Tuberos-rooted Plants
- XIV. The Rose Garden
- XV. Vines
- XVI. Garden Furniture



The edition will be limited to 1,050 numbered copies and each subscriber will be notified of the number assigned to him immediately upon receipt of his order.

The make-up of the volume is one of the most sumptuous we have ever planned. The paper will be watermarked and is being made especially for this book. There will be special lining papers printed in half-tone. The type to be used is a Caslon old style. The cover design has been drawn by Mr. T. B. Hapgood. It is a full size conventional floral design for the side and back and will be stamped in full gold. The size of the volume will be 8½ x 12 inches and there will be about 450 pages.

The illustrations will be the best examples of the photographers' and engravers' art that can be produced. They will be printed on inserted plates and there will be ten in full color and ninety-six others of sufficient size to treat adequately the subject presented.

A folder has been prepared giving more complete information with a sample color plate and half-tone. This we will be glad to send you as noted in the attached blank.

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SUGGESTIONS

Treating Seed Oats for Smut

IT HAS been my misfortune to have my oat crop seriously damaged by smut. Where this has once obtained a foothold years may pass before it is entirely eliminated, for even after it has been killed in the seed, the spores may remain in the stubble or in the soil to contaminate the crop the following year. However, burning the stubble when it is perfectly dry (allowing the fire to penetrate thoroughly to the roots) and fall plowing may do away with this infection. I have found, however, that it is always best to treat the seed before planting to guard against any possibility of its carrying smut spores.

I have tried hot water, corrosive sublimate, and formalin methods of treating the seed for smut, all of which were efficacious, although I consider the formalin treatment the simplest, cheapest, and most practical. The hot-water treatment, except under unusually favorable conditions, must be applied almost immediately before placing the oats in the seeder; and then, unless every operation in the process is carefully and exactly carried out, the destruction of the spores is more or less uncertain.

The corrosive sublimate treatment while positive, carries with it an element of danger, not only to the operator, but in the possible destruction of the seed's germinating powers. It is a most dangerous poison and must be handled with exceeding care.

THE USE OF FORMALIN

Under ordinary conditions the formalin treatment is attended with no danger, either to the seed or the operator, and its application is very simple and easy. One great advantage of it is that the seed may be treated at any time. It is applied as follows:

Spread the seed oats on a clean floor to a depth of eight or ten inches, leaving paths through the "heap" so that all parts of it may be readily reached. Make a solution of one-half pound formalin to one barrel of water and, with an ordinary sprinkling pot, thoroughly wet the surface of the seed. Then immediately use a large scoop to turn the pile over, so as to place the moistened seed on the bottom, thus allowing the formalin gas in evaporation to escape upward and penetrate to each grain.

It is not absolutely necessary, however, that this solution come in actual contact with each individual grain, since the action of formalin is that of gas; but it is necessary in order to destroy the smut to have the gas penetrate the husk or shell of the kernel



For Liquor and Drug Using

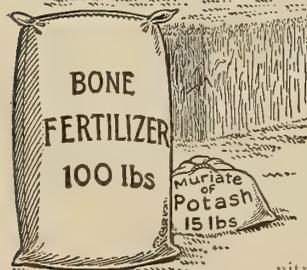
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POTASH



Good clover follows good wheat, but it takes Potash to set the clover.

Starved clover won't feed the crop that follows it. It needs a vigorous root and a sturdy growth for itself before it can gather nitrogen for you.

Give it a good start by enough Potash with your phosphates in this Fall's seeding of wheat or rye.

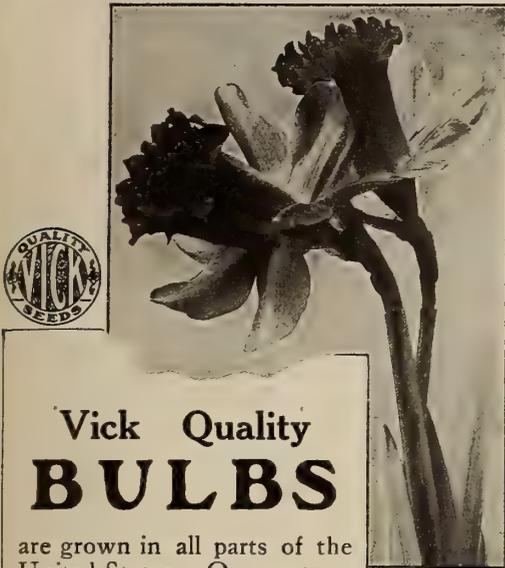
The clover will do the rest—you'll see when you cut the clover.

Clover, timothy, rye and oats, for turning under, or a crop in rotation—all need more Potash than most commercial mixtures afford.

Do not use fertilizers that contain less than 6 per cent Potash. If your dealer does not carry them, then mix 15 pounds of Muriate of Potash with each 100 pounds of your fertilizer, Potash is profit. Buy the Potash first.

Send for pamphlets containing facts about soil, crops, manures and fertilizers. Mailed free.

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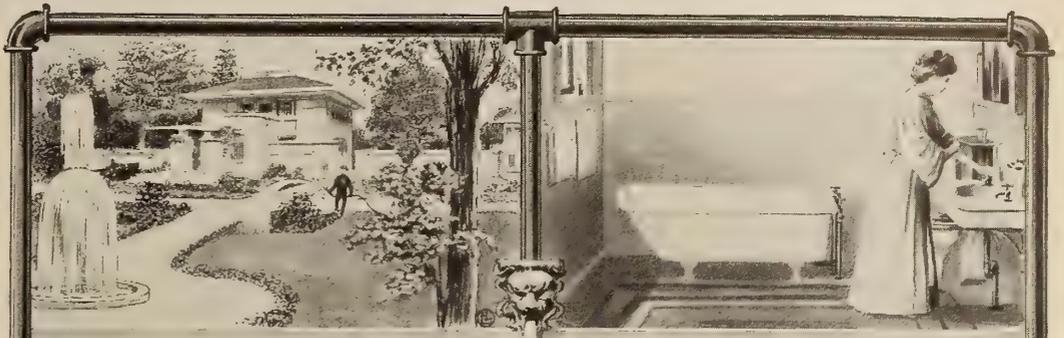
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PLANT THEM NOW**



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In my nursery I have the largest trees that are to be found in this country, that can be moved without injury

They are all beautiful specimen trees, that have been transplanted repeatedly to give a root system and to hold a ball of earth. Each tree is given space to grow in, to develop perfectly in branches and roots.

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where the smut spore lies. The seeds should remain under treatment at least over night to insure complete disinfection. If applied immediately before sowing it is only necessary to have the grain dry enough to run freely through the drill, allowing, if necessary, an increased amount of seed to provide for the swelling of the grain by moisture; if treated any length of time before seeding, it may be shovelled over until perfectly dry and placed in sacks or returned to the granary.

Formalin costs about fifty cents a pound, so the expense of treating a hundred or more bushels of seed is inconsiderable. Because of its volatile nature it must not be added to the water until immediately before using. Dipping the seed in this solution, as with the hot water and corrosive sublimate treatments, is not necessary, and this one item alone is sufficient to recommend it to the busy farmer.

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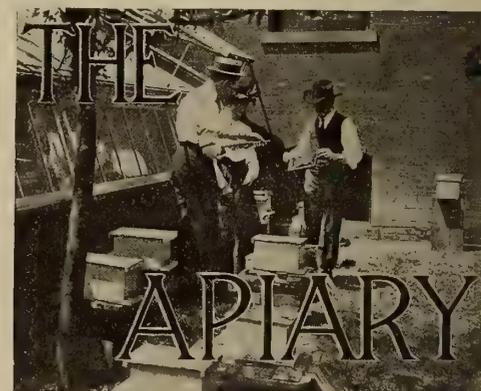


THE WORLD'S WORK



THE GARDEN MAGAZINE

DOUBLEDAY PAGE & CO. NEW YORK.



Diseases of Bees

IN THE state of Massachusetts there are over 2,000 men engaged in bee keeping and there is a continually increasing demand for honey. It is the general feeling, however, that the bee keeping industry is not progressing as rapidly as it should in comparison with the increase in population, and it is believed that one of the reasons for this is the prevalence of brood diseases. A most interesting and helpful bulletin on the subject, entitled "Bee Diseases in Massachusetts," by Burton N. Gates, has recently been issued by the Department of Agriculture. This describes the two known diseases of bees (American and European foul brood) which are contagious and can be carried from hive to hive, how they can be controlled and how exterminated.

Mr. Gates says: "There is one agent over which the bee keeper has no control, but which should cause him no anxiety if a considerable territory is freed of the disease. It is a well-known fact that under certain conditions, as, for instance, in storms and heavy winds, bees enter hives other than their own. Obviously, then, such bees in their interchange of hives may spread the infection. This only emphasizes the urgency of cleaning the disease out of a whole state, or better out of a block of states. Cooperation is the key to the situation."

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FRUITS, FLOWERS, TREES**

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Price of outfit, \$10.00. This includes Tools, Brass for six different shades, Patterns for six different shades, and instructions.

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8 " " " "	5.50
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Larger quantities subject to special arrangement

Price includes packing. Any varieties of pears or apples in list may be selected

Do you know that dwarf fruit trees bear bigger, better fruit, bear several years earlier, and produce more return for a given space than standard trees? This is all true and there are even more important points.

The low broad heads are within reach, so that apples or pears can be easily picked. The pests that are expected to destroy the majority of home fruit gardens within a few years (asserted by leading writers) are easily controlled on dwarf trees. You can plant your garden full of dwarf trees and still grow strawberries and most vegetables. The dense shade of standard trees prevents the use of the ground for other purposes.

Standard trees require ten years to come into full bearing; with dwarfs some varieties will bear the first year, all will produce a considerable crop the second year, and bear fully the fourth.

You can have forty trees, with a variety, in a space 20 feet square, save several years, get better fruit, and each tree should bear a bushel a year

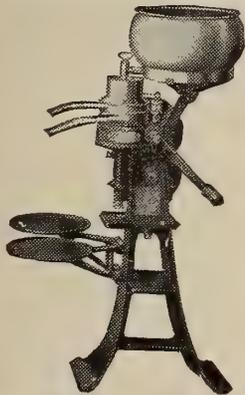
We offer the best stock ever produced in this country. Our apples are grafted on Paradise stock, and the pears on quince stock. They will succeed in many places where standard trees would fail. In a word, they are the kind of dwarf trees that will put their strength into fruit instead of wood.

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Note—With every order we will send an illustrated monograph on Dwarf Fruit Trees, written by an expert and giving complete instructions for planting, care, etc.



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SOLD ON 30 DAYS' FREE TRIAL

We let the APOLLO prove its value to you. Use it on lawns, walks, porches, garage and stable floors. It produces results. Ask your dealer or write to us for Illustrated Booklet showing the APOLLO at work on leaves. Find out about this machine. Write to-day.

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Why waste dollar after dollar's worth of fuel by throwing out the ashes unsifted—or fuss with awkward, dust-creating, back-breaking hand-shakers—get a handy, dandy

Hill's "Hustler" Ash Sifter

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Rotary sifter is enclosed, so there's no dust whatever—turned with a handle so easily a child can operate it—ash-dust sifts through into barrel, unburned coal rolls out clean into scuttle.

A day's ashes sifted in a minute's time.



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Another View of Roadside Gardening

[The article by Mr. McAdam in the July GARDEN MAGAZINE-FARMING entitled "Join the Roadside Gardening Club Now" has been read with considerable enthusiasm, and a large number of commendatory letters have been received. A rather different view is expressed in the communication given below. The moral is obvious "Don't sow seeds of plants that are likely to become noxious weeds; rather give encouragement to the best of the native flora." The letter follows.—EDITOR.]

While in sympathy with the general ideas of Thomas McAdam in his article on roadside gardening in the July GARDEN MAGAZINE-FARMING, I know that the practical agriculturist will take quite a different view.

In this part of California agriculture is carried to its extreme scientific possibilities. There are no fences or walls between adjoining properties or along the roadsides, everything being cultivated clean. I have always had a liking for goldenrod and finding a clump of the California variety near my home one autumn, I transplanted two or three of the roots to my yard. Under cultivation and irrigation they doubled in height and were a beautiful mass of gold the next season, in spite of the fact that the plants had been moved while in blossom. The following season, however, the underground runners had so well done their part that the plant was appearing between fence boards and along bed borders and if I had not utterly cast it out, root and branch, just when I did, I should have had trouble for years. This is to show that the indiscriminate sowing of "weeds" may do a harm that will pass beyond remedy.

Mr. McAdam says: "There is not a single weed that any first-class farmer need really fear." I am acquainted with many such men, one of whom uttered despairing words over the bindweed (*Convolvulus arvensis*), one of our most beautiful wild roadside covers; I have seen vineyards worth \$500 an acre hopelessly abandoned to Bermuda grass and turned into stock pastures, and others, despite most desperate efforts, ruined by Johnson grass. The latter, originally introduced as a supposedly valuable forage plant, has become such a detrimental "weed" that in this state it is a misdemeanor to permit it to mature seed on one's premises.

In one of the counties in this state the beautiful yellow-blossomed Spanish broom (*Spartium junceum*) was planted along the roadsides. In a few years it spread like a dense willow thicket and I am informed the supervisors have spent thousands of dollars trying to eradicate it, for it has clogged drainage and encroached on road and private property. When, in the spring, it is in bloom, it gives miles of beauty, but it has cost in sweat and pain more than it is probably worth. Beware, I say, how you sow broadcast unless you know well your plants!

If Mr. McAdam perhaps thinks the California farmer is not energetic enough, let him ride through rural New England and

Sold by the Seedsmen

Hammond's Original Copper Solution

A concentrated Liquid Fungicide for use in Greenhouses or Gardens.

For pamphlets on Bugs and Blights worth having write to

Hammond's Slug Shot Works

Fishkill-on-Hudson, N. Y.



DREER'S Reliable Narcissus or Daffodils

IN or out of doors Narcissus always do well. No other bulbs are more certain to give bountiful returns. Our list comprises only the good, reliable, distinct kinds and you can make no mistake in planting any of the sorts we offer. They are all fully described in our

AUTUMN CATALOGUE

which also contains a complete list of Hardy Plants and Seeds which can be planted in the Autumn.

Copies free on application

HENRY A. DREER 714 Chestnut St Philadelphia, Pa.



This picture shows a Hemlock Spruce hedge in Lancaster County, near my place, which was planted in 1867. I have a large stock of Hemlock Spruce, grown in the Lancaster valley that will give equally good results under proper care.

I Grow Hedge Plants Only

Giving personal attention to every detail. My stock of California Privet, Japanese Barberry, American Arbor Vitae and Hemlock Spruce is first-class and my prices as low as consistent with quality. I recommend early fall planting.

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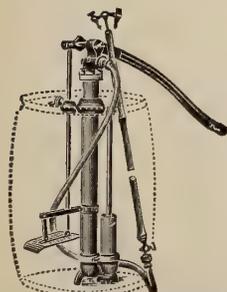
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GET THE BEST



A Good Spray Pump earns big profits and lasts for years.

THE ECLIPSE

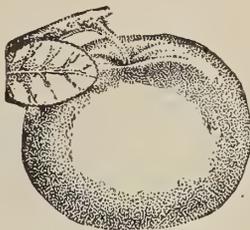
is a good pump. As practical fruit growers we were using the common sprayers in our own orchards—found their defects and then invented THE ECLIPSE. Its success practically forced us into manufacturing on a large scale. You take no chances. We have done all the experimenting.

Large fully illustrated Catalogue and Treatise on Spraying—FREE.

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\$2,000 to \$8,000 a Year Profit from ONLY 10 ACRES



Home of Famous "McINTOSH RED" Apples.

You have heard of the wonders of irrigation. How would you like to own ten acres of irrigated fruit land in the famous Bitter Root Valley, where apples yield a clear profit of from \$2,000 to \$8,000 on ten acres every year? Where Grains and Vegetables also are produced in such abundance that the profits are almost beyond belief? Here's your chance, if you have a little ready money—say \$300 to \$500.

The World's Greatest Irrigation Project

The Bitter Root Valley Canal—81 miles long—built at a cost of over \$1,500,000—is practically completed. It creates an opportunity for you to make a fortune in fruit. We are now offering for sale a portion of our 40,000-acre irrigated tract, at a mere fraction of its value as measured by that of adjoining land. We are making such easy terms that even the man of small means can afford to invest.

A FEW HUNDRED DOLLARS HOLD 10 ACRES OF THE FINEST FRUIT LAND IN THIS WONDERFUL IRRIGATED BITTER ROOT VALLEY OF MONTANA

Land and water sold outright—no "homesteading." Present prices of only \$100 to \$150 per acre, on easy terms, afford those interested in fruit growing an unusual opportunity.

This is the most attractive, prosperous and longest tried fruit valley in the Pacific Northwest. Nestled among the mountains, amid scenic beauties unsurpassed. Soil of exceeding depth and richness. The Land of Perfect Fruit! No insect fruit pests! 15,000 good neighbors! Rural Free Delivery—Farmers' Telephones—Fine schools and Churches. Good roads everywhere. Steam and electric railroads bring world's best markets to your door. Delightful place to live. The buyer of each tract of land will become a proportionate owner in the Canal, and thus obtain perpetual water rights.

THE ACREAGE IS LIMITED! THE OPPORTUNITY BOUNDLESS! PROMPT ACTION IS IMPERATIVE! POSTAL BRINGS MAGNIFICENT FREE BOOK!

The land is being sold off rapidly. Hundreds are making application. Investigate without delay. The Free Book and map give information that may be worth many thousands of dollars to you. Contains page after page of evidence, from unquestioned authorities, proving that \$2,000 to \$8,000 clear profit annually is being made on ten-acre tracts of Bitter Root Valley irrigated fruit land. Fortune awaits the man who buys now. Write quickly for Free Book, Maps and full information. We want a few reliable agents. Address Dept. AR.

BITTER ROOT VALLEY IRRIGATION CO., 110 Washington Street, CHICAGO



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Don't Let the Old Trees Die

Young trees may not equal the old ones in size and beauty during your life. Insecticides, fertilizers, bolting, pruning, tree surgery, and cavity-filling are only part of the practical means of restoring sick and dying trees to health and beauty. We examine estates, suggest improvements in planting new stock, and direct the work of saving diseased trees and shrubs. Trained assistants equipped with proper tools are furnished when desired. A booklet entitled "The Care of Trees" is sent on request.

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Landscape Foresters and Entomologists

Arlington, Mass.

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AFTER TREATMENT OF CAVITIES

HERBACEOUS PERENNIALS FOR THE HARDY GARDEN AND BORDER PLANTED IN SEPTEMBER GIVES THE BEST RESULTS

Illustrated catalogue containing everything for planting the Home Grounds free upon request
THE BAY STATE NURSERIES North Abington, Mass.

This Particular Greenhouse



has several points that tend to decrease its cost while in no way affecting its productiveness or durability. Send for booklet about it.

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GRAPES FOR EVERY GARDEN

We advise planting the following varieties as best for table use:

Black, Concord, Moores Early, Worden White, Niagara, Diamond, Pocklington Red, Brighton, Delaware, Agawam, Vergennes. We offer for October and November planting extra heavy, selected, three-year-vines—the largest and best grade we can grow that will bear fruit the quickest.

Price: One vine fifty cents, five vines two dollars, ten vines three dollars. Sent charges paid. Your selection of above varieties. Hand book of instructions with each order.

T. S. HUBBARD COMPANY
Grape Vine Specialists FREDONIA, N. Y.



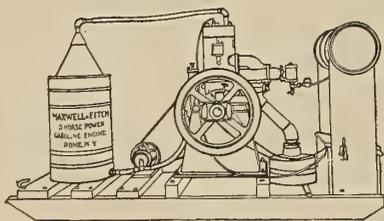
Hundreds of Trees For \$1.00

Upon receipt of \$1 we will send our special collection of several hundred seed consisting of our five best kinds from which you can grow hundreds of hardy shrubs and trees.

They are exceptionally hardy, therefore grow very fast.

State where the trees or shrubs are to be grown and we will send seed best suited for climate. Order now and get our handsomely illustrated and instructive catalogue of tree and shrub seeds. It contains valuable information.

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Semi-Portable Gas Engines

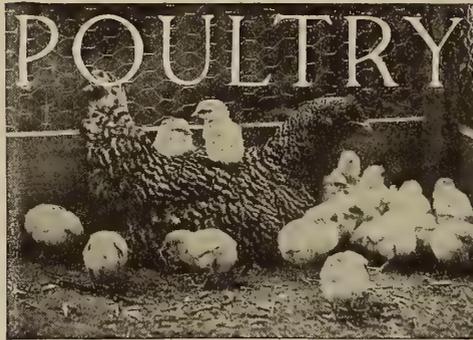
Two cycle engines that are as economical and easier to operate than four cycle engines. With Screen cooling tank that uses 1 to 2 gallons water per H. P. Less for short runs.

The most compact, durable, simple and efficient engines for spraying, silo filling, pumping, feed cutting, individual lighting plants, wood sawing, threshing, cream separators, etc. State your requirements. We furnish complete outfits. Send for catalog and price list.

The Maxwell & Fitch Company
518 Dominick St., Rome, N. Y.

estimate the shortage of hay on account of the invasion of the daisy. Should anyone attempt to sow daisy seed broadcast along the highways of Massachusetts I guarantee he would be either mobbed or arrested, and with perfect justice.

California. CHARLES ELMER JENNEY.



Keeping Hens Profitably

SUCCESS in keeping chickens is only in proportion to the amount of care the hens receive. During cold weather mine are housed in a part of the stable where the air is not too warm, which has been partitioned off from the rest of the building. In the summer they are at large in a strip of woods near the house. Their feed consists of oats, wheat, buckwheat and corn, given to them in a deep litter of forest leaves; and a mash of warm milk, corn meal or chopped bran and middlings, mixed to a crumbly consistency, to which a little salt has been added, is given three times a week. I have a bone grinder and also give the hens cut green bone three times a week. Be sure that the bones are perfectly fresh. Cabbage is used for greens and clover heads and leaves cut fine and steamed are also excellent.

My flock originally numbered twelve White and Barred Plymouth Rocks, but on the first of July I sold five. During the year I got the following number of eggs for which I received amounts as given below:

January	-	-	194 eggs,	\$4.85
February	-	-	126 "	3.15
March	-	-	267 "	6.70
April	-	-	188 "	3.92
May	-	-	150 "	2.75
June	-	-	98 "	1.61
July	-	-	126 "	2.10
August	-	-	54 "	.90
September	-	-	30 "	.62
October	-	-	31 "	.64
November	-	-	42 "	1.05
December	-	-	72 "	1.20

During the year I got 1,378 eggs, giving an average of 138 eggs per hen. I set 76 eggs, hatched 55 chicks, of which I successfully raised 48. I realized \$31.43 from the sale of fowls and \$30.09 from eggs, and the following year had 12 hens and 2 cockerels. Feed cost me \$9.35, and deducting all minor expenses my net profit was \$4.68½ per hen. But in order to have such a result from a small flock of hens, regular care must be given to them, and they must never be neglected in any way.

Pennsylvania. S. D. HAINLY.

Let Us Send You FREE
A Box of Assorted
EDUCATOR CRACKERS

Not to know about the various delightful kinds of Educator Crackers is to miss many treats. Educator Crackers are crisp, dainty crackers made from freshly stone-milled cereals containing all the nourishment that Nature put into the grain, and baked in ovens so equipped as to give them a unique crispness and digestibility.

Let us send you a sample box containing our most popular varieties. A postal card request will bring it to you, and our booklet, free. Please send the name of your grocer.

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Educator Crackers are sold by most good dealers.

This Pagoda Model \$3.00

VENETIAN, DUTCH ITALIAN & TURKISH LANTERNS

Made of Heavy Wrought Iron

with ruby, green, amber or white glass panels, which when lighted create an effect both artistic and beautiful. Fitted for oil ready to light, or can be adapted to gas or electricity. Absolutely unique for Porch, Hall, Den or Mission Room in the city or country home and for the Bungalow.

Height, 14 inches; with 10 inches of chain

Catalogue illustrates above; also Hanging Fixtures and Table Lamps for Library or Dining Room. Send stamp for catalogue and "Lamp Information"—knowledge acquired through years of experience.

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SPRAY

It will pay you to spray your Fruit Trees and Vines for protection from scale and all insect pests and fungus diseases. **FREE Instruction Book** shows the famous Garfield, Empire King, Orchard, Monarch, Leader and other sprayers; also gives a lot of formulas and other valuable information.

FIELD FORCE PUMP CO., No. 48 11th St., Elmira, N. Y.

Dutch Bulbs

from the Grower direct to the Planter

We have just received from our nurseries at Sussenheim, Holland, a supply of the very best bulbs of every description—Hyacinths, Tulips, Narcissus, Crocus, etc. Our stock is complete, although some varieties we have in limited quantity. We sell none but absolutely the best quality bulbs. Order early while we still have full stock. Catalogue sent upon request.

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DEERFIELD ILLINOIS



Norway and Silver Maples planted by us on the lawn of H. O. Havemeyer, Greenwich, Conn.

A WELL ORNAMENTED GROUND IS WHAT MAKES THE PLACE ATTRACTIVE

We have a large assortment of all kinds of Fruit and Ornamental Trees, such as the MAPLES, ELMS, BIRCHES, BEECHES, LINDENS, POPLARS, TULIPS, CATALPAS, JAPAN MAPLES and MAGNOLIAS, APPLE, PEAR, PEACH, PLUM, CHERRIES, etc.

Can furnish Dwarf Box; also the Box Trees, TREE ROSES, as well as the ROSE BUSHES, HARDY PHLOX, and PÆONIES, AZALEAS, JAPAN and GERMAN IRIS, ORNAMENTAL GRASSES and a full line of PERENNIALS. Also a large stock of SPRUCE, PINES, ARBOR VITÆS, and all the different varieties of Dwarf Retinosporas, which are the most ornamental of all Evergreens. All varieties of SHRUBBERY, and CALIFORNIA PRIVET for HEDGING. No matter what you want, write to us and see if we cannot supply you.

Our Landscape Architect can lay out your grounds to your perfect satisfaction. Let us hear from you. Will send Catalogue upon application. Address

STEPHEN HOYT'S SONS CO.

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NEW CANAAN, CT.



AMERICAN GROWN BULBS

No longer need you depend upon foreign importations for spring-blooming bulbs. Uncle Sam offers home-grown bulbs of better quality at prices which save you freight and tariff charges. Try American-grown bulbs this fall and you'll want them every year hereafter. Comparisons of quality will show you that in buying home-grown bulbs it pays to be patriotic.

12,000,000 Bulbs Ready

Narcissus—of which we make a specialty—Tulips, Iris, Gladioli, Callas, Scillas, etc. All fine large bulbs—equal in quality to any foreign grown stock. Awarded gold medal at the Jamestown Exposition. We are the largest American growers of bulbs and now have 80 acres under cultivation. Our parent concern, The Hubert Bulb Company, Ltd., of Guernsey, England, was established in 1823 and we have been growing bulbs in Virginia for more than five years.

Best for Naturalization

and also for forcing—American-grown bulbs have shown their superior merit for these purposes in repeated experiments. Home-grown Narcissus are especially adapted to naturalizing. They flower from five to ten days earlier than imported bulbs—a saving of time which means a great deal in forcing for early bloom.

Price List free—special figures on quantities.

Very Special—We have an unequalled mixture of Narcissus for naturalizing which we offer at these unprecedented prices: 100, 70c.; 1,000, \$6; 5,000, \$25.

GENERAL AGENTS

HUBERT BULB COMPANY
Lowenberg Building Norfolk, Virginia

By a new Canadian writer:

SOWING SEEDS IN DANNY

By

NELLIE L. McCLUNG



DANNY

MRS. McCLUNG is a new writer who has both humor and sentiment, and her account of the small Watsons and their neighbors—centring around small Danny and the Pink Lady—will surprise and delight all lovers of bright fiction. Frontispiece.

\$1.00

COUNTRY LIFE IN AMERICA THE WORLD'S WORK THE GARDEN MAGAZINE

DOUBLEDAY, PAGE & CO. NEW YORK.

I Grow Hardy Flowers Because I Love Them

They have always appealed to me as permanent features of the garden about which there is personality and a sense of companionship. Annuals and "bedding plants" are brilliantly showy for a short season, but pass away like the chance acquaintance of the rush-a-day world. The hardy perennials are tried and constant friends—a part of our old associations and home-life. The charm of the old-fashioned hardy garden is in its reminder of home, with all of its tender memories and associations.

Iris, Peonies, Phlox, Etc.

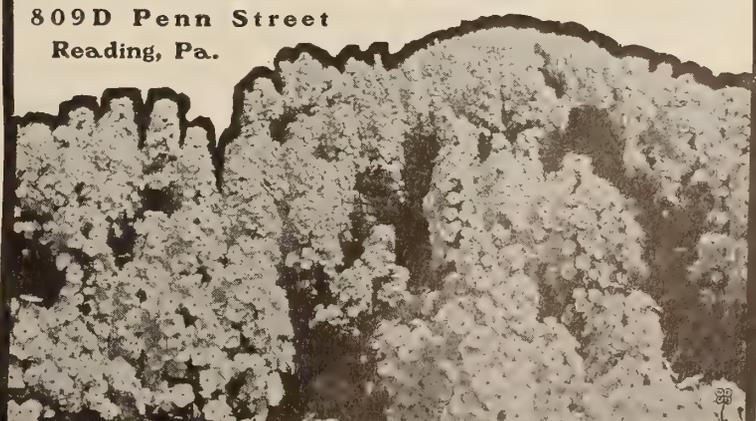
My stock of these flowers is most complete and absolutely true to name. I have grown the plants that have been of special interest to me—the tried and true things that are essentials in every hardy garden—with the view of offering complete collections of certain specialties. I find that my success during the eight years I have been developing my stock gives me the most varied and dependable assortment in the country. I have over a quarter million Iris and Peonies, in 420 kinds of the former and over 500 of the latter. My stock of Phlox is scarcely less complete.

Everything is described in my book, "Irises, Peonies, Phloxes and Hardy Plant Specialties," which my friends tell me is a catalogue that has human interest. I'll gladly send you a copy, free.

BERTRAND H. FARR

Wyomissing Nursery

809D Penn Street
Reading, Pa.





TWO DISTINCT PHASES OF THE GREENHOUSE QUESTION

For Profit

ARE you tired of the harassing, nerve racking business life of the city—tired of its grind, weary of catching trains every morning and night? Have you been casting about (on the quiet) for an opening that would take you out of the city and be an interesting, healthy kind of a bread and butter getter?

Had it occurred to you to look into farming under glass—having a greenhouse?

It is worth thinking about. It is not a project by which you will get rich quick, but there is undoubtedly a splendid living in it. The way greenhouse men increase their houses each year shows they are making money and believe in reinvesting it in more greenhouses. Just for instance, here is a case of one of our customers who started ten years ago with one of our Sectional Iron Frame houses 300 feet long and 30 wide, and now he has five acres under glass—think of it—five acres! Carnations, roses and asparagus ferns have done it.

As a suggestion let us give you the names of some of these "glass farmers" and then go and visit them. We will do all we can in getting you started right, and when you are ready to build can furnish you a house constructed so that you can obtain the highest possible growing results and be freest from repair expense.

As a starter send for information about our special house for beginners.

For Pleasure

OR perhaps the profit side is not of interest to you, but you want a garden enclosed in glass for the pleasure of it. A place where you can grow either the old fashioned flowers, roses and carnations, or vegetables in abundance, no matter how low the mercury goes?

You want an attractive, finely built greenhouse that is heated right, ventilated right, and arranged and benched for the best results at least cost of running? Then our Sectional Iron Frame greenhouse is the one.

We have a special house 10 feet wide and 25 long that has appealed to a good many GARDEN MAGAZINE readers. It is a house for comparatively little money too. Just the things you want to know about this house are told in circular No. 49, which we will gladly send you.

If, however, you have in mind a larger house, then our new 72 page book, "Greenhouses as We Build Them," is what you had better send for. We are entering orders every day for erecting houses during the fall and can put yours through with least possible delay.

Lord & Burnham Co.

Main Sales Office

1133 Broadway

New York

BOSTON
819 Tremont Bldg.

PHILADELPHIA
1215 Filbert St.

GARDEN AND FARM NEWS

Have you a piece of wet ground that you are taxed for which produces nothing? Why not look into basket willow culture? Ask the Forest Service, United States Department of Agriculture, Washington, D. C., for Bulletin No. 46.

"Clean-up Day" is the latest good idea contributed by the civic improvers. Detroit set apart April 24th for the purpose, and gave the children half a day to go home and fix up the back yard. The Department of Public Works promised to attend to the alleys.

The smaller the chestnut the sweeter the meat. The sweetest of all is the chinkapin, which can be grown in an ordinary shrubbery border in the north. The northernmost limit of this species, in the wild, is York, Pa., but in cultivation it is hardy on Long Island and probably farther north.

We wish that every farmer in the land might have a free copy of "Plant Breeding for Farmers" by Professor H. J. Webber. If farmers would only stop gaping at newspaper "rot" about Burbank and do the few, simple, practical things here explained, their profits on corn, wheat, and potatoes would steadily increase.

Portland, Oregon, has determined to be known as the "rose city." Roses bloom there the year round. Already miles of residence streets have grass between walk and curb. On Washington's Birthday this year, the school children set out 5,000 rose bushes "under a clear sky and June-like sun." Why should not every city on the Pacific Coast do something of the sort?

The problem of fertilizing land, destroying weeds and weed seed and ridding the ground of cutworms, etc., has recently been solved by an enterprising grower who covered his ground with about six inches of straw to which he set fire immediately before plowing. By turning under these ashes, he found he was able to accomplish the three operations at one time, and the plants grown on the land did not require hoeing until they had attained a good size.

"The evidence that many, if not most, characteristics of poultry have arisen suddenly without having been sought and laboriously built up by man, is convincing and there can hardly be any escape from the conclusion that here evolution has been largely, though not exclusively, by mutation." This is the conclusion reached by Professor C. B. Davenport, director of the Station for Experimental Evolution at Cold Spring Harbor, N. Y., in an elaborate work entitled "Inheritance in Poultry," and published by the Carnegie Institution. In other words, the old idea that "Nature does not make a leap" has exceptions after all, and the mutation theory will help us make new species and varieties of animals and plants quicker than in the past.

Ideas of a Plain Country Woman

By THE "COUNTRY CONTRIBUTOR"

THE remarkable success of these talks when some of them appeared in "The Ladies' Home Journal" and in "The Indianapolis News," has led to the preparation of this book, which contains many chapters not published serially. It is full of humorously sane and wholesome views on everyday affairs.

CONTENTS

- The Copy Book
- The Woman Who Wears the Halo
- By Way of Retrospect
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- Philosophies of a House-cleaning Day
- The Simple Life
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- Some Needs of Woman
- The Truth About Love
- Old Maids and Single Women
- A Chapter for Men to Read
- The Higher Education
- A Big Day
- The Good and Evil of Books as they Pertain to Women's Lives
- The Sin of Trying to Be too Good
- Reflections of a Grandmother

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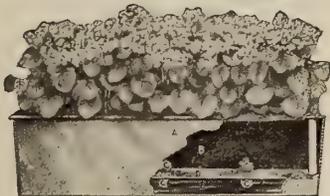
COUNTRY LIFE IN AMERICA THE WORLD'S WORK THE GARDEN MAGAZINE
DOUBLEDAY, PAGE & Co. NEW YORK.



New Hardy Plant Creation

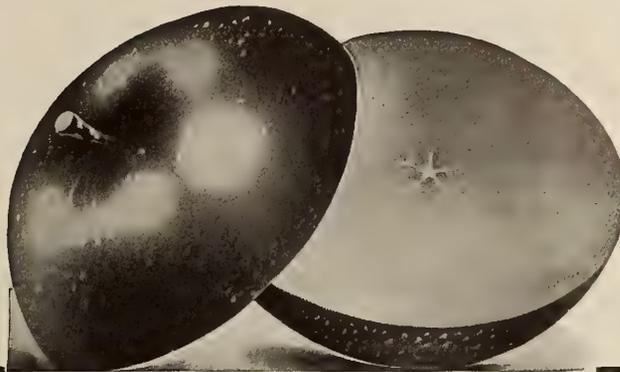
Rich, gorgeous flowers, 10 inches in diameter! This herbaceous perennial surpasses all others. For sale only by us. Send for

1-5 Actual Size
84-Page Garden Book FREE to G. M. readers
THOMAS MEEHAN & SONS, Inc.
Box 17, Germantown, Phila.



Illinois Self Watering Flower Boxes. For Indoor Use.

When planning your indoor garden for this fall and winter, specify flower boxes which need attention only once in two weeks. The "Illinois" box is made of the best galvanized metal (outliving many times the old style wooden box), rust proof, leak proof and beautifully finished so as to be an ornament to any room in the house. Made in any size or shape. The plants will flourish under the scientific method of watering by sub-irrigation. Write for our important treatise on the subject. It's free. Sold on 30 days free trial.
ILLINOIS HEATER & MANUFACTURING CO.,
3949 Wentworth Ave. Chicago.



The Seedless Apple

A NOVELTY FOR THE HOME FRUIT GARDEN

The seedless apple is the most remarkable novelty that has been developed since the introduction of the seedless orange.
THE FRUIT—A rich red colored fruit of firm, fine grained flesh; practically free from core or seed; compares favorably with the Baldwin in size, and keeps as well as the Ben Davis.
THE TREE—A prolific bearer, stands cold climates, covered with smooth bark, suffers little from early or late frosts, will thrive wherever standard varieties grow.
We are the first propagators from the original five trees. Our greatest difficulty since the seedless apple tree has been developed is the working up of sufficient strong healthy stock to give this novelty proper introduction. We now have ready for distribution a carefully cultivated lot of

100,000 two year old trees for fall planting

Six strong specimens will be sent, freight prepaid, for \$4.50. Smaller orders filled at 75 cents for each tree, freight unpaid. All goods securely packed and shipped immediately upon receipt of orders. Every tree guaranteed free from blemishes.

SEEDLESS APPLE TREE COMPANY 120 Broadway, New York

A letter from a great Horticultural and Magazine writer about

BONORA

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SHIOCTON, WIS., May 11th, 1908.

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J. T. F., New York. — When the young corn stalks become withered, stop growing, and the germ between the seed leaves dries up and adheres to the seed leaves, the corn seed maggot (*Pegomya fusciceps*) is undoubtedly present. The adult fly lays her eggs on the plants in the field. This insect will also attack peas and beans, and seed is often planted which contains the beetles in immature stages. Occasionally wireworms will do injury similar to that of the *Pegomya*, especially if the beans or peas be planted in ground which has recently been in grasses or corn.

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W. A. G., N. J. — After tulips are through blooming, plant forget-me-not and arabis to take their place. Geraniums will also prove very satisfactory. In fact, anything can be planted in a tulip bed (when the bulbs are to remain) provided it does not have large roots.

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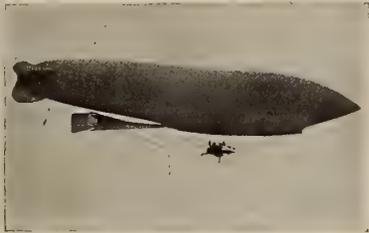
R. L., N. J. — It frequently happens that the rose bug will eat the flowers on grape vines. The best remedy is to keep the vines well covered with arsenate of lead, which is ordinarily used at the rate of four ounces of lead to five gallons of water. In extreme cases it may be used as strong as one pound to five gallons of water and the treatment can be continued until the fruit has set.

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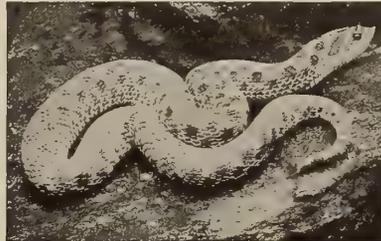
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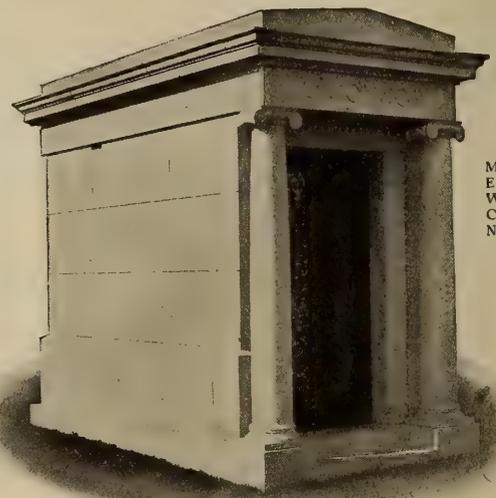
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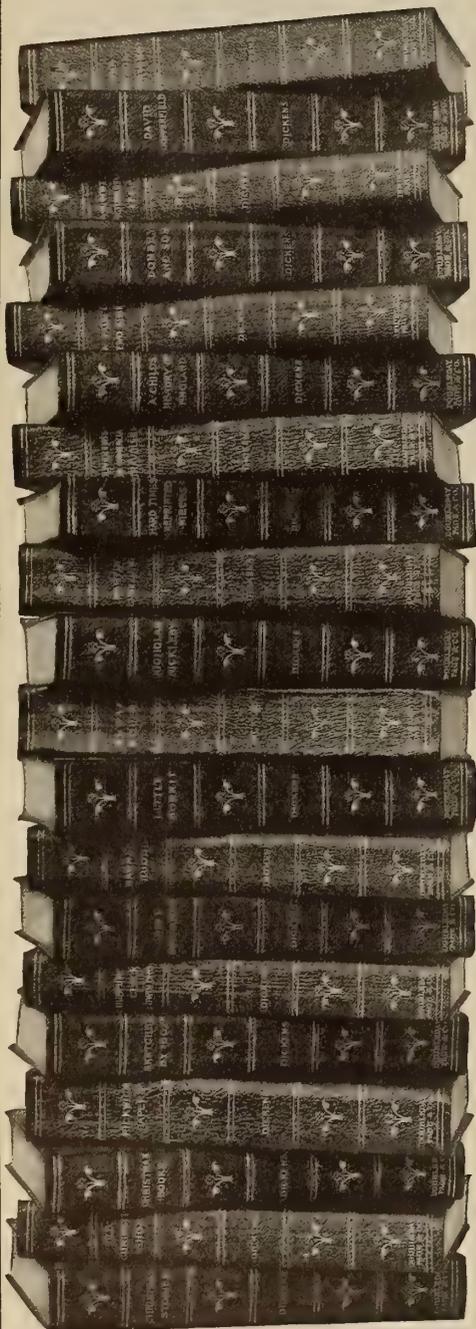
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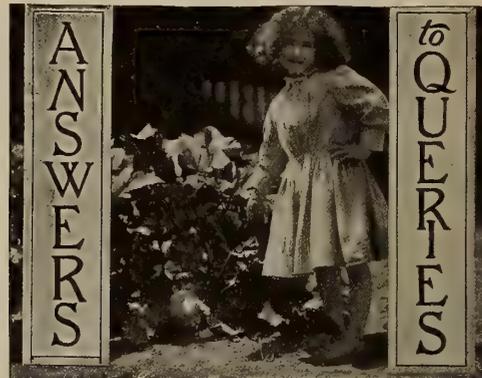
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G. M. 11-08

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NAME.....
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MOVING YEWS

S. H., New York.— There is really no very big problem offered in the planting of yews. Some enormous specimens have been moved— those at Columbia University for instance. The sun should not hurt them, and as they do not make a very big root system, the trees ought to succeed if surrounded by merely a few inches of soil. Very old yews have often been seen growing directly in the pavement.

HOOF CLIPPINGS AS A FERTILIZER

G. C. J., New York.— If hoof clippings are mixed with horse manure in any great quantity, do not take the trouble to haul it. If the horse manure is in excess, use the mixture simply for its manure value and ignore the presence of the clippings. Hoof clippings contain nitrogen, but yield it so slowly as not to be in any way comparable to the other nitrogen-bearing manures. Hoof clippings make such a low grade manure that many states absolutely prohibit their use in commercial fertilizers. No benefit would be derived from mixing wood ashes with the clippings as the ashes would not have the power to unlock the nitrogen in the clippings; therefore, you have only to consider the use of the horse manure and ashes alone or in combination.

KEEPING ARTICHOKE OVER WINTER

E. G. A., New Jersey.— Notwithstanding the fact that artichoke plants look well after several heavy frosts, they are not really hardy, although it is true that they stand a good deal of freezing. They are also hard to protect because they rot easily. Do not pot the plants but tie together the leaves of each plant separately and give protection against the frost by means of salt hay, leaves, or something of that sort. During the mild, wet weather, the plants must be opened up to prevent them from decaying at the crown. But they must be covered up again as soon as they dry out. A new and different method of wintering which is not yet in general practice is to cut off all the tops and cover the crown with an 18-inch pot, inverted. This must be covered later with leaves or salt hay.

A COLD GRAPERY BORDER

A. A. M., Nova Scotia.— Undoubtedly the soil in the border of the cold grapery needs renewing. This may be partially done by removing the soil down to the roots and replacing it with new soil, but a better way will be to entirely renew the soil. To do this the grapes must be ripened early (July) and then all the soil in the border removed and replaced by a good compost. Great care must be exercised not to injure the roots and as soon as they are laid bare cover with damp cloths until the new soil is put about them. If you do this by the end of July the roots will be able to take hold of the new soil and complete their growth before the end of the season. If the work is done at any other time of year, one season must pass without a crop. During the time that the roots are out of the soil the vine must be shaded and the atmosphere of the house completely saturated with moisture. Frequent syringing and a humid atmosphere must be maintained until the plants are established in the new soil which will take almost a month. The best soil for a border is well rotted sod taken from an old pasture. Chop sods into small pieces and to each five or six cubic yards add one yard of broken lime, rubbish (old plaster or mortar), some charcoal, wood ashes and about two hundred pounds of dried bones which have been broken up into pieces about one-half inch in diameter. This compost must be varied according to the soil; if light and sandy, less lime rubbish will be needed. On the other hand, a stiff heavy clay will need more.

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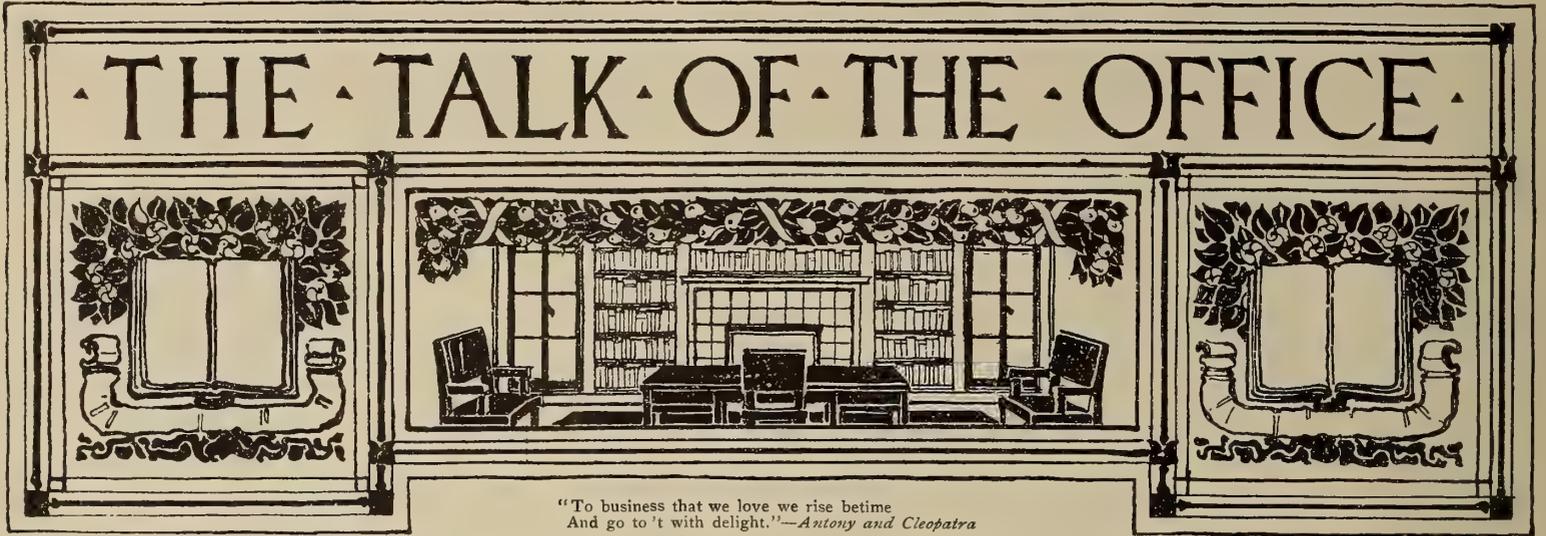
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MR. ROCKEFELLER'S SECOND ARTICLE

We believe that there has not been printed in many years an article so interesting, as Mr. John D. Rockefeller's second chapter in his Reminiscences in the November Number of *The World's Work*. It tells of some of his early friends. Mr. Rockefeller attributes the success that he made in early life to the fact that he had many stanch friends. He has much to say, also, of his recreations, and of forestry, of which he has been a practical student for thirty years or more. This article is the second in the series of Recollections which Mr. Rockefeller is contributing to *The World's Work*.

THE MAGAZINE LIBRARY AND COUNTRY LIFE IN AMERICA

As the season for subscribing to magazines is now just beginning, we hope that the readers of *The Garden Magazine* will be interested in a plan which we have just completed for a year's reading, covering what we consider to be four of the finest magazines in four distinct fields. The price has been made possible because the four periodicals entered into a partnership for securing subscriptions, and so reduced the expense proportionately. Here it is:

<i>Country Life in America</i>	4.00	} ALL FOR \$5.50
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<i>The Delineator</i>	1.00	
		\$9.50	

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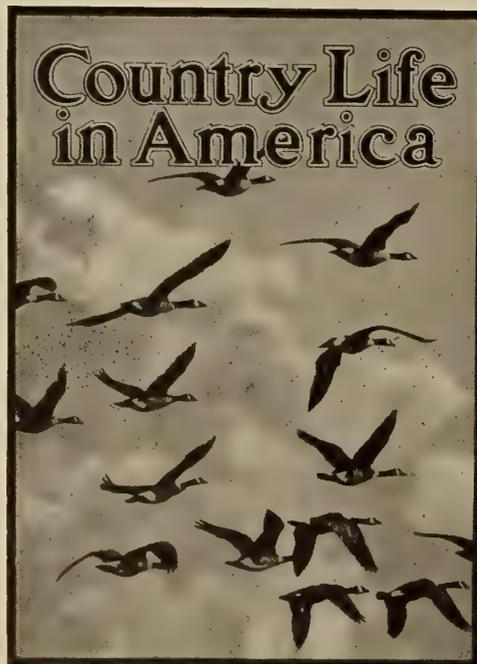
THE ADVERTISERS' ALMANAC

For some months we have been publishing a little monthly pamphlet under the above title, and sending it to our advertising friends. Greatly to our surprise and pleasure, we are receiving hundreds of letters of congratulation and appreciation, brought out by this pamphlet. We have tried to make it valuable and interesting to everybody who has to do with advertising, and should any reader of *The Garden Magazine* connected with or interested in advertising,

desire it we should be glad to send it with our compliments. It will not interest, and is not made for anyone who is not engaged or associated with the advertising business.

COUNTRY LIFE IN AMERICA FOR NOVEMBER

Perhaps we are not the best judges—and we should be more modest, yet we think that this magazine is increasingly beautiful, practi-



Cover for the November number

cal, and effective. Here are a few of the subjects discussed:

- Shooting Wild Ducks and Geese With the Camera. By A. Radclyffe Dugmore.
- Ten Berried Shrubs Worth Having Now. By Wilhelm Miller.
- The Best Horse for the Country Home. By N. Newnham-Davis.
- Guinea Pigs, Rabbits and Fancy Mice. By Claude H. Miller.
- Are We to Lose our Chestnut Forests? By E. A. Sterling, Forester of the Pennsylvania Railroad.
- Making a Hollow Tree, and What Came Into It. By Ernest Thompson Seton.
- Migratory Farming. By E. P. Powell.
- Weather Wisdom. By Mary Bronson Hartt.

- The Automobile on the Farm. By Roger B. Whitman.
- Winter Injury and How to Avoid It. By Frances Duncan.

LOOK AT THE ADVERTISEMENTS

It is no doubt superfluous to mention it, but perhaps our readers do not fully realize that in the advertising pages of our magazines, *The Garden Magazine*, *Country Life in America*, and *The World's Work*, one may do all (or almost all) one's Christmas shopping from one's desk. These magazines contain each month over a thousand separate announcements, including a most interesting array of articles—and many of them unique, and the merchants represented are reliable.

OCTOBER NEW PUBLICATIONS

Here is the list:

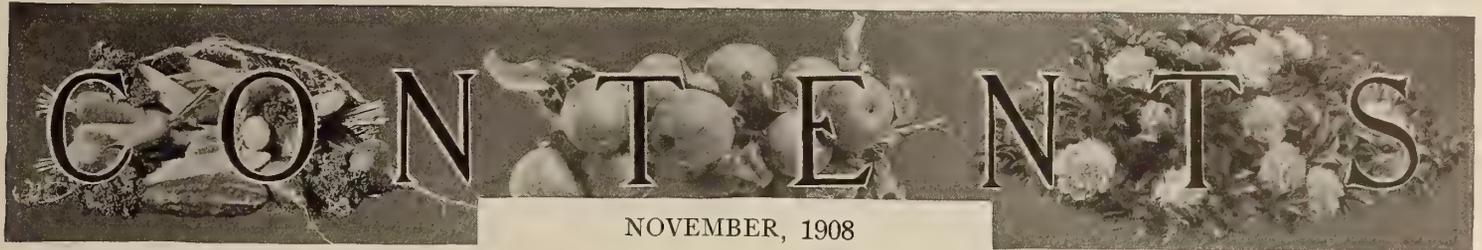
- "The Gorgeous Isle," by Gertrude Atherton.
- "The Immortal Moment," by May Sinclair.
- "Women of Florence," by Isidoro Del Lungo.
- "The Forewarners," by Giovanni Cena.
- "The Altar Stairs," by G. B. Lancaster.
- "Desire," by Una L. Silberrad.
- "Studies in the American Race Problem," by Alfred Holt Stone.
- "Following the Color Line," by Ray Stannard Baker.
- "Stories of Humor," by Thomas L. Masson.
- "Good Stories," by Hamilton Wright Mabie.
- "The Passer-by," by Prince Pierre Troubetzkoy.
- "Life's Handicap" (Leather Edition), by Kipling.
- "Christmas Day in the Morning," by Mrs. Grace S. Richmond.
- "A Midsummer Night's Dream," Illustrated by Arthur Rackham.
- "Shakspeare and His Forerunners" (New Edition), Sidney Lanier.
- "Furniture of Our Forefathers," (New Edition), Esther Singleton.

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- "The Light That Failed."
- "Life's Handicap."

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NOVEMBER, 1908

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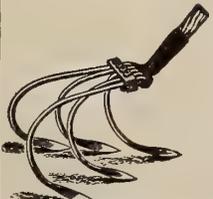
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 <p>The Adjustable Garden Cultivator will be sent for three yearly subscriptions. It is the most useful hand garden tool on the market. It will pull out weeds and pulverize the ground. It will work between the rows, or the centre shovel can be removed if desired. It weighs but three pounds complete with big handle. The blades are forged out of a solid steel rod. Ship ed collect.</p>	<p>here is the list: Poems, Prose, Stories, Hymns, Heroes, Heroines, Legends, Myths, Songs, Fairy Tales. The books are bound in full leather, in red with gilt tops, and are sold regularly at \$1.75. The book is sent prepaid.</p> <p>If you have never tried sending The Garden Magazine as a holiday remembrance, do it this year—there's nothing better.</p>			

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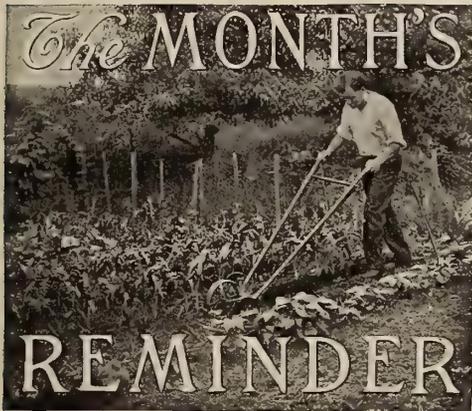


The Garden Magazine

VOL. VIII—No. 4
PUBLISHED MONTHLY

NOVEMBER, 1908

ONE DOLLAR A YEAR
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[For the purpose of reckoning dates, New York is generally taken as a standard. Allow six days' difference for every hundred miles of latitude.]

Act Now and Save a Year

YOU may lose a year in the development of your home grounds unless you decide before November 1st to accept the seven great opportunities for fall planting which are quickly passing.



1. Save a year on trees

True, it is possible to plant everything save bulbs next spring, but the chances are you *won't do it*, because vegetables and flowers must be sown then and those jobs are enough to keep anyone more than busy



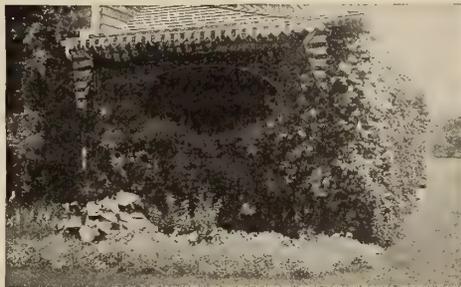
2. Save a year on shrubs

all spring. The first rule of gardening is: Do all you possibly can in the fall.

THE SEVEN GREAT OPPORTUNITIES

The pictures show at a glance the seven fleeting opportunities you now have for constructive work.

1. You may save a year on trees, by planting them any time between the fall of the leaf and the hard freezing of the ground. It is too late for evergreens.
2. You may save a year on shrubs, except roses and a few others.
3. You may save a year on all permanent or woody climbers or creepers.



3. Save a year on vines

4. You may save a year on all hardy fruits. Don't risk planting peaches or plums in the fall at the North.

5. Your house may not be full of flowers this winter unless you buy your bulbs before November 1st. After that they gradually deteriorate. You can have flowers every day from Christmas to Easter for about \$2.00.



4. Save a year on fruits

6. You will certainly lose a year on tulips, daffodils, hyacinths and crocuses for outdoor use unless you plant them now.

7. Lilies, in our opinion, ought always to be planted in fall. If you plant them in spring they may lie dormant or refuse to flower the first year. Many of the most important lilies do not reach here until November, but you can have unfrozen ground in which to plant them by heaping the



5. Bulbs for indoor bloom this winter must be planted now

proposed lily bed with manure before the ground freezes.

DON'T BE AFRAID

Don't worry about the exceptions. There is a full list of everything that cannot be safely planted in the fall in the October, 1908, number of *THE GARDEN MAGAZINE*, but you do not even have to consult that.



6. Bulbs for outdoor bloom must be planted now

Simply remind your nurseryman not to send you anything that cannot safely be planted this fall. Even this precaution is unnecessary, for no reliable nurseryman will send you anything that cannot safely be planted in the fall.

The Southern planting season begins in November and reaches its climax in January. The Southerner can plant almost everything in the fall which the Northerner dare not.



7. Lilies ought to be planted now, not in spring

All About Winter Protection — By W. C. McCollom, Long Island

YOUR LAWN NEEDS MANURING NOW, AND EVERY TREE, SHRUB, VINE, FRUIT OR BULB PLANTED THIS YEAR REQUIRES SPECIAL CARE THIS FALL—ALSO HOW TO STORE VEGETABLES FOR WINTER

ALL newly planted trees, shrubs, vines, and fruits, no matter how hardy, should have protection the first season or two. The best plan is to mulch the ground with half rotted manure. Don't be afraid of putting on too much as that is well nigh impossible, for the mulch tends to keep an even condition in the ground and also acts as a fertilizer. Before mulching see if any tree or shrub stands in a hole that is filled with water all winter; if so make a trench to drain away the surplus and raise a small mound to shed the water from the trunk.

CONIFERS AND OTHER EVERGREENS

Even the hardiest of our native evergreens are likely to suffer in one of three ways.

First, "blasting" (i.e., the browning of the foliage, which is often conspicuous in March) is caused by strong sunshine after several days of dull freezing weather.

Second, conifers are frequently spoiled by heavy snowstorms which weigh down the branches and often split them, causing them to die later in the season. Unhappily it is usually the grandest tree or most conspicuous branch that suffers this fate.

Third, evergreens as a class are naturally fibrous rather than tap rooters and in my experience they invariably root close to the surface, consequently they are susceptible to alternate freezing and thawing, which is more harmful than severe but steady cold.

To prevent the first trouble, blasting, we must decrease the light but not the air. Small evergreens such as Irish yew and juniper are commonly covered with straw or burlap, but in mild winters the plants will suffer for want of air. Box is particularly sensitive. Another bad feature of this

method is that the covering is likely to harbor mice and rabbits which will feed on the plants if they run short of rations.

I prefer burlap to straw as it admits more air and is not so likely to form a shelter for mice or rabbits.

The ideal way to protect rhododendrons is to make a superstructure of sticks and cover it with spruce boughs or prunings from old vines. Such an arrangement excludes strong sunlight and keeps the snow from breaking the plants and admits air. This is the best way to protect all kinds of evergreens, provided you have a few choice plants, but unfortunately it is too expensive for use on a large scale.

On great estates where rhododendrons are planted by the thousand the most economical plan is to cut young pine trees or any other conifers that can be had cheaply and stand them among the rhododendrons. Holes are made with crowbars and the pines are then stuck in so that they appear to be growing. The south side of every rhododendron should have the most protection. These cut pines will exclude sun, admit air and keep the snow from breaking down the plants. Also they are economical if you happen to live in the vicinity of a natural growth of pines, which is the case on Long Island.

Packing boxes will protect plants from snow, but they are unsightly and a better protector against the snow is simply to tie them with a straw rope firmly — not tightly — just enough to prevent the snow from pulling down the branches.

It is generally impossible to cover hedges, but when a hedge is in danger of being covered by drifting snow, a wire or two can be run lengthwise of the hedge and if this is shaken well it will usually cause most of

the snow to fall off. If this device cannot be used I would strongly advise going over the hedges after a snow-storm and knocking off the snow with a wooden rake.

All evergreens when newly planted should be protected at the roots for a season or two or until they show that they are established. A good heavy mulch of half rotted manure will do, but most people make the mistake of using manure that is too well rotted. Any material that gets very compact after a rain or two, is bad. The idea is to keep the mulch as loose as possible and thereby equalize as nearly as possible the moisture condition in the soil. A brick may dry out a hundred times as fast as a sponge, and a mulch that is too compact may shut off tree roots from sufficient moisture. I believe that more evergreens are lost from lack of moisture during winter than from any other cause. I would therefore advise giving the soil beneath young evergreens a thorough soaking in late fall, if there has been any scarcity of rain.

TREES, SHRUBS AND ROSES

Tender deciduous trees and shrubs are much easier to protect than evergreens, because they require no air during their resting period, therefore, you can straw them, cover them with leaves or even bury them without any bad results.

Indeed, I prefer the burying method. All that need be done is to loosen the roots on one side with a spade, bend the plant over gently, tie all the shoots together, put a mound under the side of the plant so that the stems will not have to bend at too acute an angle, and cover the plants with about a foot of earth. The mound tends to shed the water and after it has frozen a trifle on top the mound can be covered with



First step in protecting newly planted or tender evergreens. Make holes with a crowbar



Second, set stout poles in this fashion and tie them securely at the top



Third, cover the framework with burlap. It keeps out sunshine and admits enough air



Three other methods of protecting evergreens. Ivy can be burlapped where it stands. Young conifers can be wrapped with straw over a framework of poles. Or you can stand cut pines on the south side of plants that are to be sheltered from winter winds and sunshine

about six inches of rough stable litter or leaves.

In covering anything with leaves or litter to break the force of the frost, bear in mind the necessity of keeping the mulch loose at all times. If it mats down, loosen it with a fork during mild weather.

This plan has enabled me to winter such tender plants as the Marechal Niel rose and the Indian jessamine (*Jasminum officinale*) and flower them successfully out-of-doors.

Barrels are often used to protect tender shrubs, especially tea roses. Knock out the heads, place the barrel over the shrub and fill with dirt or leaves, covering the top with tar paper to keep out the water. This method is very good for tender hydrangeas, but it cannot be used for taller shrubs.

Another method I have tried with the tender varieties of the tea rose, is to lift them and winter them in a deep coldframe, covering the frame with boards and litter; but my experience has been that the shock of transplanting every season is to be avoided more than the killing back of the plants which will be slight if they are properly buried.

Strawing is satisfactory for the hardier hybrid roses, if your garden is not troubled by mice or rabbits.

Another good plan is to tie the stems together and cover them half way with dirt and then, after several good frosts, wrap the remainder in straw. This plan gives the mice and rabbits an opportunity to find winter quarters elsewhere before they find you so accommodating as to build them nice straw houses.

This reminds me of a friend who had invested in a lot of new roses, such as Killarney and Frau Karl Druschki and desiring to give them every chance, he planned extra good winter protection. The plants were half buried and the remainder strawed at my suggestion and I thought that quite enough; but after frost came the entire bed was covered with about two feet of meadow hay. Well, if you could have seen those roses when they were uncovered in

spring! I don't believe there was a square inch of bark left on any one plant. So you see that this thing can be overdone as well as neglected.

In positions exposed to strong winter winds it may be necessary to put pine boughs around certain deciduous trees and shrubs, especially magnolias, azaleas, cotoneasters and the groundsel tree (*Baccharis halimifolia*).

The so-called *Catalpa Bungei*, which is such a conspicuous cheap substitute for bay trees in formal gardens, needs mulching at the roots and the head should be wrapped in burlap.

PERENNIAL FLOWERS

In November, after all growth in the garden has ceased and the stems of all perennials are dried out, they should be cut off and burned. See that all the labels are in condition for the winter and replace any that have rotted. Then spade under about four inches of good manure. This will leave the ground in a good loose condition for the winter. Most people leave spading until the spring but that is a mistake. By doing this work in the fall you avoid the spring rush which is reason enough. Moreover, perennials start to root much earlier

in spring than most plants and the manure is then ready for them.

Next cover the bed or border of perennials with five or six inches of rough stable manure, but not until a crust has frozen on the ground. This will be quite enough protection for the general run of hardy perennials.

Torch lilies (*Kniphofia* or *Tritoma*), giant lilies (*Eremerus*), *Incarvillea Delavayi*, *Romneya Coulteri*, and other perennials that are not quite hardy, suffer mostly from excessive moisture in winter.

Some gardeners lift these plants, store them over winter and replant in spring, but I believe you can get better results if you will take packing cases, fill them with leaves and invert them over the plants. If the bottom of a case is not tight, cover it with tar paper, for if the water gets in it will keep the leaves soaked all winter and the damage will be greater than if you gave no protection at all.

Another good protection for the perennial garden is a good covering with pine boughs or hemlock branches, but I like best covering it with leaves. A poultry wire fence about eighteen inches high can be placed around a bed of hardy flowers and the bed piled with leaves. This makes an



Before protecting. Choice evergreens in front of a summer home on Long Island



After protecting with cut pines, which can be had here for little or nothing



If you have an evergreen hedge where heavy drifts accumulate go over them with a rake after every severe storm and knock off the snow

excellent protection, especially in wet, clayey soils, as it tends to exclude the water.

VINES

Nearly all vines should have some winter protection as they are usually trained out flat against a building where they have no opportunity to protect themselves but are swept all winter by fierce blasts and exposed occasionally to zero weather — after which the first burst of warm sunshine in February or March stimulates evaporation from the tops while the roots are still frozen. Such exposure would mean the death of a great many of our hardy shrubs. For instance, a weeping forsythia (*F. suspensa*) is perfectly hardy as a shrub, but requires a little protection when trained as a vine.

Plants that are not natural climbers, such as the rose, can be wrapped in straw, because the branches can be easily taken down, but very tender vines, such as the Indian jessamine or a climbing La France rose had better be taken down and buried as recommended for shrubs.

Vines that are perfectly hardy in general will sometimes suffer in particular locations. For example, drip is very hard on vines, especially the English ivy (*Hedera Helix*). To prevent such damage you can tack up some burlap or cheesecloth right over the vines. It does n't matter if you break a few leaves, as they can be easily swept off with a broom in spring. Of course this method is unsightly for a winter home but it should be commonly used at summer homes.

Some people take down their vines in autumn, wrap them in burlap and then put them back against the building (see picture of English ivy). I prefer to lay them on the ground and cover them with leaves or litter.

Evergreen vines must be protected from winter sunshine. English ivy and climbing euonymus are the most important. The latter can be wrapped in burlap, but cut pines will usually give enough shade. Hall's honeysuckle is semi-evergreen. In situations where it winter-kills, cover with cut branches of pine or spruce.

Madeira vine is very sensitive to wetness. Manure the roots, cover with a foot or two of leaves and then put on tar paper.

You can preserve kudzu vine tops with burlap or pine boughs. Give manure also.

Climbing hydrangea (*H. petiolaris*) should be strawed in. Or make a wire fence around it and fill with leaves.

BULBS

More bulbs rot from excessive moisture during winter than from all other causes combined. This danger can be overcome to some extent at the time of planting, by placing the bulbs in a sand bed, but if this precaution has not been taken there is still time to fence in the beds and protect with leaves as recommended for perennials. This plan, however, is suitable only for light soils, such as we have here on Long Island. In wet, clayey soils it is a good plan, particularly when setting out new bulbs, to raise a pointed mound of ashes or sand over the bulbs. This in turn should be covered with leaves after frost has caused a good crust to form. Old established bulb beds should be mulched with well rotted manure. This will help to exclude the frost and at the same time will furnish nutriment to the plants, as the spring rains will wash the best part of the manure down to the roots. This is important because you cannot very well dig manure into a bulb bed without disturbing the bulbs.

Newly set bulb beds should have a good heavy mulch of half rotted manure, provided the bulbs were planted at the proper

time and nothing but ironclad varieties used. If, however, you planted tender kinds or were late in planting hardy varieties, I would advise using the leaves as above suggested. Speaking of late planting, I had an instructive experience last winter with late planting. My tulip bulbs were not received until the last week in December and they were all Darwins, May-flowering, and Parrots. Yet I planted them, removing the frozen ground with a crowbar, put on a mulch of fairly good manure and then piled about two feet of leaves on top of this. The results were satisfactory.

THE LAWN

Don't think I am going to tell you how tender the grass is and that it may get frost-bitten; I am going to tell you that if you want a better greensward next season now is the time to put on a good covering of manure instead of waiting till next spring as many do. Don't imagine that this is wasting manure because every bit of it will find its way to the roots of the grass, and what a difference this will make to a lawn you cannot appreciate, unless you cover part of the lawn and leave the remainder for comparison. The most striking illustration of the value of winter manuring I have ever witnessed was last year. We were filling an ice house and to prevent the wheels and horses from cutting the lawn I covered a strip about eight feet wide with rough stable manure, and we can still distinctly see the track, for the grass is much darker, requires cutting oftener and has kept green during the dry spells. In this case the manure was put on in January and was allowed to stay until March.

November is also a good month for top-dressing a lawn. Mix some good fertilizer, bone-meal or wood ashes preferred, with some good turfy loam, using three shovels-full of loam to one of bone or wood ashes, and scatter this lightly over the lawn but do not roll your lawn in the autumn as that only makes the frost penetrate further.

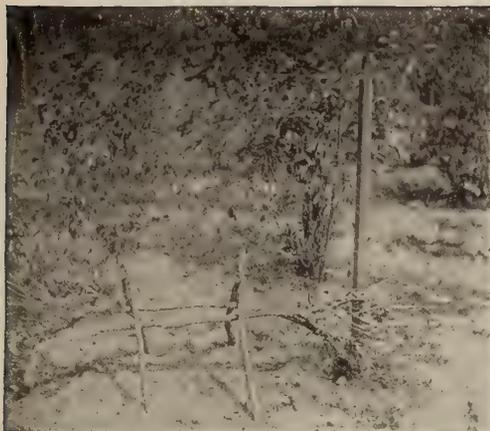
For soggy soils or low places in the lawn where water settles I would advise the use of air-slaked lime. This is a capital remedy for sour soils and indeed it is good for any soil. Air-slaked lime can be purchased very cheaply and you need not be afraid to put



First step in preparing a strawberry bed for the winter. Cover ground with manure



Second step. Cover plants with straw or hay to prevent alternate freezing and thawing



Standard roses laid down and ready to bury. The best method of protecting tender plants



Standard roses buried and covered with manure. Leaves will be put on later



To protect tea roses mulch heavily enough to keep out frost. Wrap stem in straw

on heavy quantities. I have used two tons to the acre in wet places.

Don't cut your grass too short in fall, or the roots may be harmed by the winter.

THE VEGETABLE GARDEN

Cut off the asparagus tops and burn them, then spade under a liberal quantity of good manure. (It is quite impossible to over-feed asparagus.) Then cover the bed with seaweed or half-rotted manure. This can be removed in spring.

If you have set a new bed of asparagus this fall give it an extra heavy covering and if the rows are ridged up to throw off the water it will be all the better.

All root crops such as beets, carrots, turnips, salsify, parsnip, and celeriac are better stored in trenches. Dig a trench about two feet deep and as broad and as long as necessary for your requirement. Put your beets in one end, carrots in another, salsify here, turnips there and so on, and then make a diagram of their position so that you will not have to uncover the whole trench when you want to get anything out. Throw some dirt in among the roots—cover with salt hay or straw, then put on another layer of dirt, then about a foot of hay, and finally about four inches of dirt for a cap or mound to turn off the water. When cold weather comes pile on about two feet of leaves and lay on sticks to prevent them blowing away. Roots wintered in this manner will keep in excellent condition until the middle of April. Then, of course, they start to grow and lose their value.

Celery is much better stored out of doors. In a cellar it dries out and gets stringy and tough. Dig a pit about three feet deep and lift the celery with the roots on and store the plants close together. Cover with dirt up to the top of the celery, then put about one foot of leaves on to keep out the moisture, then place boards in a conical mound over the trench and cover with leaves and dirt. Leave the ends so that they can be opened to admit air on mild days as the danger lies in the trench heating.

Cabbage and Brussels sprouts can also be stored in the celery trench. Set the cabbage heads upside down on some leaves.

Leeks can be lifted and stored like

root crops or simply covered with hay or leaves.

The whole artichoke plant must be protected from freezing. Place boards conically over plants and cover with about three feet of leaves. Keep water out at all times.

The cellar is the best place for storing pumpkins and squashes and also potatoes, if you have a cool dry compartment not exposed to furnace heat.

SMALL FRUITS

Whatever else happens, be sure to cover the strawberry bed with a mulch of well rotted manure, but take care that the manure does not come in contact with the plants, as it is apt to start decay. This mulch should be left on until rather late in spring, but if good manure is used it can be spaded under. After several good frosts have hardened the foliage you should cover the bed with salt hay or straw. On top of this put sticks of some kind to prevent the straw or hay from blowing away.

All bush fruits, such as raspberries, blackberries, currants, and gooseberries, should be well mulched with some good manure. Although they are quite hardy the mulch will improve them and it can be spaded under in spring.

I have seen raspberries winter-kill in very exposed situations, but only rarely. However if you are troubled with your raspberries winter-killing lay them down and cover

with pine boughs or leaves, but first try heavy mulching as raspberries are very shallow rooters and they suffer from severe freezing.

Don't get the garden fever in February and uncover things on the first fine day. More damage is done to all plants during March than at any other time of the year. Plants that have been protected all winter are not able to stand severe changes and they will surely suffer from the late frosts if uncovered too early. I would not advise uncovering anything in the latitude of New York before April 1st. Then the more hardy varieties may be uncovered, the tender ones being left a little later. But everything should be uncovered by April 15th.

PARTING ADVICE

In covering plants always bear in mind what you are protecting against—zero weather, alternate freezing and thawing, March sunshine, mice, rabbits, or wetness. Have everything ready beforehand; don't wait till the cold weather is on you. Always get oak leaves if possible as they do not mat down so quickly. Elm leaves are no good at all as they start to decompose before spring. Maple leaves are fairly good, but it is better to compost them for a year.

Frost-proof mats are invaluable for fall work and are useful for so many different purposes that I can hardly see how anyone gets along without them. If well cared for these mats will last for years. Straw mats are also good for protection, but they do not resist the water as well. If you cannot afford canvas mats use burlap and tar paper on top wherever water must be shed.

In mulching old established beds always use well rotted manure, as the fertilizing qualities soon find its way to the roots. The best manure for protecting plants contains straw that has been used for bedding. Along the seacoast salt hay can be secured cheaply. It is clean, does not mat down very easily, as it is very wiry, and is especially useful for covering strawberry beds. Save all the old barrels and boxes you get during the summer. They will all come in handy for protecting plants. When covering anything with barrels or boxes always mound up a little on the inside so as to prevent water from lodging inside.



To protect lawn from wheels and hoofs, cover temporary way with litter or manure



The simplest way to plant bulbs in grass. Make a dibble by pointing a piece of broom-handle and pound it in about four inches. Then put in good soil and the bulb. Then smooth over with back of rake so that dirt does not show. All you need in your wheelbarrow is mallet, dibble, rake, bag of bulbs, box of good soil, and burlap to protect the knees

How We Can Beat the World at Wild Gardening—By T. McAdam, ^{New Jersey}

THE UNRIVALED OPPORTUNITY WE HAVE OF TRANSFORMING WOODLANDS, MEADOWS AND ORCHARDS INTO VISIONS OF PERENNIAL BEAUTY BY PLANTING CHEAP, HARDY BULBS THAT NEED PRACTICALLY NO CARE AFTER PLANTING

FOR once I want to give myself the pleasure of writing solely for wealthy Americans who have country places. You gentlemen have an unrivaled opportunity right now. You can get results more splendid than any you have ever dreamed of and this too in less time and at less cost than by any other style of gardening. All you have to do is to plant this fall certain hardy bulbs that will require practically no care after planting.

For, if you plant them in woods, meadows or sodded orchards they will multiply until you have bluebells by the acre, daffodils by the million, and other wild flower pictures on a gigantic scale such as Nature used to paint before man spoiled the landscape. In summer you can take off a crop of hay from these places without harming the flowers

in the least, for by June the bulbs will have ripened and their leaves will have disappeared until the following spring.

“But,” you may exclaim, “is n’t this just what English country gentlemen do to perfection? How and why can we excel them in wild gardening?”

In the first place we have vastly more land; our great estates, as a rule, are larger than theirs; we have a bigger canvas to paint on. Second, we have a greater variety of plants suitable for this specific purpose. True, we cannot fill our woods with primroses, but they can never fill theirs with trilliums, adder’s tongues and bloodroot. For every flower they can naturalize by the acre I will undertake to name two of equal merit that we can grow.

Moreover, you can soon convince yourself that bulbs suitable for wild gardening will give you permanent results more quickly and cheaply than any other style of gardening. Annuals, even if they self-sow, are too inconstant and cost more to maintain. Shrubs and vines will not attain luxuriance before the third year. Trees involve a still longer wait. Perennials cost considerably more and most of the summer and autumn-bloomers are debarred because they will not flower freely in woods after the trees leaf out, or they interfere with the hay crop in meadows. Clearly bulbs are the best for both situations. You plant them now and they bloom next spring; the kinds I mention are reasonably permanent; and most of them cost a cent and a half each or less when bought by the thousand.

Whether the results are new and beautiful you can perhaps judge from the picture on page 174. But if you have any doubt on this point you can have a private view of the best collection of wild gardening photographs in America. I have portraits and mass pictures of practically every flower here recommended and I will gladly show them to anyone who contemplates planting a thousand or more bulbs this fall, provided he will write for an appointment in New York. I will even loan some of these pictures to readers of THE GARDEN MAGAZINE in any part of the country. I make this unusual offer because, next to the campaign for winter comfort and beauty, I believe this wild gardening movement offers better results for American gardening than any other horticultural proposition I know.

WHICH ARE BEST, AND WHY

About three hundred kinds of bulbs are recommended by dealers and writers as suitable for wild gardening, but at the present



The showiest spring wild flower of the American woods, *Trillium grandiflorum*. We can always beat the English on this. We should buy nursery grown bulbs and fill our woodlands

time I am willing to recommend less than thirty. I hate anything that sounds like "boom talk" or extravagance and in any new movement I think THE GARDEN MAGAZINE ought always to take a conservative point of view, for the people who have things to sell are always optimistic enough. I have reduced their claims therefore by the following methods:

In the first place I rule out all double flowers and all flowers profoundly modified by man, as being contrary to the spirit of wild gardening. This principle excludes Van Sion daffodils and garden tulips, which are cheap enough but can never look like wild flowers.

Second, I reject all those which are a success in Europe, but not in America, such as the Grecian and Apennine windflowers (*Anemone blanda* and *Apennina*) and many others that have not yet proved that they can form permanent, self-supporting colonies in America.

Finally, I am convinced that even rich men have no æsthetic right to scatter costly bulbs in wood or meadow. You cannot make hyacinths look like wild flowers. It is a common practice to put tulips and Easter lily bulbs after forcing into woods or meadows, but they never fit. The only places for them are the reserve garden and the mixed border. You cannot use costly material in wild gardening effects without ostentation because you violate the law of fitness. Bulbs for wild gardening must be cheap.

By "cheap," I mean bulbs that cost \$15 a thousand or less, which is at the rate of a cent and a half each. These are the only ones I advise planting by the thousand.

The only exception I am willing to make is for a group of half a dozen species, like *Lilium superbum*, most of which have larger individual flowers but are thoroughly wild. The proper scale for planting these is by the hundred. Even here I advise nothing that costs more than \$10 a hundred. And since a hundred bulbs of one of these larger-flowered species may give an effect equal, roughly speaking, to a thousand bulbs of a small-flowered species, the exception is only apparent — not real.

The best way of classifying these bulbs for your particular needs is by the season of bloom, for if you do not go to your country home until the middle of April you need not waste money on the March-bloomers.

THE MARCH-BLOOMERS

The first flowers of spring are white. The earliest is the snowdrop, *Galanthus nivalis*, which often blooms in February amid the snow. The giant snowdrop (*Galanthus Elwesii*) is about twice as large and a fortnight or so later. It costs a trifle more but makes a much better show. Both are daintily pendulous and exquisitely marked with green.

The only yellow flower of March I can recommend is the winter aconite (*Eranthis hyemalis*) and this only for experiment. It belongs to the buttercup family and has a solitary flower about an inch across. The

plant grows about five inches high. Not less than 500 bulbs are needed to make a cheery sheet of vivid yellow. Try a sheltered position, free from the drip of trees. I know a patch of 500 at Tuxedo that failed, yet some people have grown it for years without special care, and it even runs wild in a few places in America.

There are four blue flowers in March. First comes *Scilla bijolia*, purplish blue, then *Scilla Sibirica*, a rich deep blue, and then glory of the snow which is cheaper even than the scillas. *Chionodoxa Luciliae* has sky-blue flowers with a prominent white eye and these are the largest blue flowers of March. *Chionodoxa Sardensis* has smaller flowers but more on a stem and of a deeper blue.

You must not expect these March-bloomers to make a big show, because they are smaller than the April flowers. The charm and wonder of them is their earliness. They are harbingers of spring, bravely enduring late snow-storms. If you want a good show of them you must plant more than a thousand. They will thrive either in full sun or partial shade.

THE APRIL-BLOOMERS

The best April flower for carpeting a forest floor is the adder's tongue or dog tooth lily (*Erythronium Americanum*). The best time to collect it is in August when the bulbs are ripe, but the bulbs are deep, hard to dig and many of them are too small to flower. You can buy large bulbs by the thousand from any good dealer. And this is true of every wild flower mentioned here.

The best white flower of April for lining a mile or so of shaded driveway is bloodroot (*Sanguinaria Canadensis*). The English are always trying to grow this on a big scale and failing. The root seems to bleed badly on a long journey. This and the preceding



The Siberian squill, *Scilla Sibirica*, one of the best four blue flowers of March for naturalizing in the grass

species are shade-demanders; the other April flowers will thrive either in sun or partial shade.

The earliest spring flowers that make a good show and offer a wide range of colors are crocuses. They are also the cheapest of all bulbs, the mixed kinds costing only \$3 a thousand. They are not permanent in a lawn, but in a garden they multiply. Even if they should not hold their own in woods, they are so cheap that you can afford to



Lily-of-the-valley naturalized under pines at South Lancaster, Mass., estate of Mr. E. V. R. Thayer, showing what a good ground cover it makes even when not in flower

renew them every three or four years. The main colors are purple, white, and yellow.

The prettiest blue flower of April for naturalizing is the grape hyacinth (*Muscari botryoides*).

If you want a purple one try the camass (*Camassia esculenta*).

But the best bulbs of any kind or season for naturalizing are daffodils. They are more permanent and give more for the money than any others. The only ones I know that cost \$15 a thousand or less are as follows:

The only trumpet daffodils are Trumpet Major, yellow, and Princeps, sulphur.

Of the cup-shaped daffodils, you can get either Stella, Figaro, or Cynosure, all of the incomparabilis type. The showiest is Sir Watkin, but it costs more than I allow. You can also have Barrii conspicuus and Leedsii.

Of the saucer-shaped narcissus the only April-bloomer you can have is the single jonquil (*Narcissus Jonquilla*) and the giant jonquil (Campernelle or Rugulosus.)

The poet's narcissus is the cheapest and surest species of the genus. It blooms in May.

THE MAY-BLOOMERS

The poet's narcissus is the only May-bloomer which an estate owner cares to plant by the ton, but there are two others that are unbeatable in their respective styles.

Large clumps of lily-of-the-valley suitable for naturalizing cost about \$3 a dozen, but as you can doubtless get a thousand

pips for \$15 or less I believe I am justified in including this.

The English have bluebells by the acre. You can find these in every catalogue under *Scilla nutans*. They ought to be called wood hyacinths.

Bluebells and lily-of-the-valley demand partial shade. Poet's narcissus will thrive either in sun or partial shade.

THE JUNE-BLOOMERS

The best cheap June blooming bulb for wild gardening that I know is the common star of Bethlehem (*Ornithogalum umbellatum*) which has run wild in this country. It is a starry white flower with a green back. I have seen it carpeting several acres of woods with fine effect on Long Island.

I wish some one would try Allium Moly in a meadow. If I remember rightly the foliage does not have any objectionable odor. It has a large flat cluster of small yellow flowers. The bulbs cost \$6 a thousand.

THE COSTLIER BULBS

The only March-bloomer of this group is the crown imperial (*Fritillaria imperialis*).

The favorite April-bloomers are Emperor and Empress daffodils, which are certainly less gardenesque than many others, but even these seem too gardenesque for this purpose.

There can be no question as to which is the showiest spring flower in America up to the middle of May. It is the wood lily (*Trillium grandiflorum*) which has flowers three or

four inches across. The English import endless quantities of it but we can always beat them on trillium effects, because trillium will not multiply there as here.

The showiest exotic flowers of May suitable for wild gardening are the wild and run-wild tulips of Europe, which were fully described in THE GARDEN MAGAZINE for September, 1908. They are *Tulipa Gesneriana*, var. *major*, scarlet; var. *rosea*, pinkish; *T. Didieri*, red, with blue eye; *T. Didieri*, var. *alba*, pure white; and *T. Billietiana*, yellow. Garden tulips will not hold their own in grass. Darwins are so cheap that many people will be tempted to plant them by the thousand, but in my opinion they are too gardenesque because they have rounded petals. Only sharp-petalled tulips look like wild flowers.

The checkered lily (*Fritillaria Meleagris*) multiplies wonderfully in English meadows. I wish some American would try it in wet and dry meadows and let us know the results.

The loveliest plant of the Solomon's seal type for May bloom in woods is *Polygonatum giganteum*.

The best June-bloomers in this class are lemon lily (*Hemerocallis flava*) and the Canada wood lily (*Lilium Canadense*) a bell-shaped flower in yellow or red.

The best July-bloomer is the American turk's cap lily (*Lilium superbum*). This lily and the previous one demand woods, or else peat and partial shade. The roots like to be in water but the bulbs must be well drained.



More than a million daffodils have been planted in this orchard at Greystone, Yonkers, N. Y., the estate of Mr. Samuel Untermyer

How to Lift, Cure and Store Summer Bulbs—By William Scott, ^{Tarrytown} N. Y.

UNLESS YOU KNOW AND PRACTICE THESE DIRECTIONS, YOUR CANNAS, DAHLIAS, GLADIOLI, TUBEROSES, MONTBRETIAS AND TUBEROUS BEGONIAS WILL ROT OR SHRIVEL THIS WINTER

BEFORE the frost comes and while the flowers are at their best go over the labels carefully to make sure that they are correct, and renew any labels that are indistinct, broken or decayed. Remember that in the case of summer bulbs you cannot depend upon a planting plan, and the labels are the only guide for future planting. Take notes of the color and height so that you can arrange them better next year.

DAHLIAS

A frost strong enough to spoil the foliage and flowers will not injure the roots. However, no time should be lost in getting them up and stored after the foliage is killed, as the next frost may be strong enough to do irreparable damage.

Cut the stems to within about three inches of the roots. Use a strong sharp knife so as to make a straight, clean cut. Attach the labels firmly to the stems with cord or fine wire. Before attempting to



Gladiolus corms. Husk on at right; all off in centre; partially removed at left

lift a clump loosen the soil well all around the roots, and then work the spade as far under the roots as possible. Then press the handle of the spade downward, and the roots will be raised well out of the ground without any serious breakage. A careless workman will try to pull up the roots by the stem when the soil is only half loosened, and many of the larger divisions of the tuber are thus broken off just where they adhere to the stem, or at the only point where they can make a growth next season.

Work the soil from the roots with the hands, but do not shake the clumps roughly. It is not necessary to remove all the soil, as the rest will fall off later when dry.

Water will accumulate in the soft, hollow stems if they stand erect. Lay the roots so that water will have a chance to drain off; otherwise, crown rot may develop.

The best place for curing roots is a cool, dry shed. Lay the roots on boards or benches and turn them occasionally so that they will dry out evenly. After about a week's drying they can be removed to their winter quarters.

The best place to winter them is a frost-proof cellar. The remaining soil, being now dry, can be shaken off. Unless the cellar is very dry and has a board floor it is well to have the boards on which the

roots are laid raised above the floor so as to allow a current of air to pass under and prevent damping. If you must use a rather damp cellar, a sprinkling of air-slaked lime under the boards will help to keep the air sweet and prevent damp. The best temperature is about 40 degrees. Cover slightly with fine dry sand.

CANNAS

Unlike dahlias these need little or no curing, but can be lifted and stored at once. When lifting cut the stems off short. The roots keep best if left with their natural covering of soil. We lift the clumps with as much soil adhering as possible and set them close together in the same cellar where we store dahlias, but put them in the warm end of the cellar.

For the method of raising them from the ground and for the use of air-slaked lime, see directions for dahlias. Each variety should be distinctly labeled and carefully kept by itself, using boards as a division between the kinds.

TUBEROUS BEGONIAS

Unlike the foregoing subjects, the stems of these should not be cut but the plants lifted intact. The ideal place for drying these is part of a greenhouse bench. Lacking this you can utilize a frame to advantage. The bottom of the frame should be covered with boards and the plants laid on these in rows with the roots facing the sun. Place them so that the top of each row will lie free and not overlap any other. Turn them every day for a few days so that they will dry out evenly; then occasionally, for about two weeks in all. By this time the stems will be sufficiently dried so that they will part readily from the bulbs. During the operation the frame should be covered with a sash, but this should be raised both at top and bottom during the day to admit of free circulation of air. At night a little top ventilation should be given to prevent condensation.

When the bulbs are thoroughly dry they can be put in boxes and stored in any dry place where the temperature will not fall below 40 degrees. These bulbs are rather tender and should by all means be kept from frost during winter. Also they should be lifted after the first light frost. We always make it a point to lift the begonias first.

GLADIOLI

These, like begonias, should be lifted with the stems attached, but there is not so much trouble in drying them. The earlier planted lots generally have the stems pretty well dried before the advent of frost, but even if green they can be lifted and tied in bundles and hung up (bulbs downward) from the roof of a shed or barn, or in any

light, airy place where they will not be frozen. When thoroughly dry the bulbs can be removed from the stems and stored as recommended for begonias. However, they must not be placed where they will be affected by the heat from any stove or heating pipes. If the air be too dry the bulbs will shrivel before planting time and lose much of their vitality.

MONTBRETIAS

These require treatment similar to the gladioli as regards lifting, drying and storing. Some gardeners claim that they will stand the winter in the ground if well mulched, but our experience is that it is safer to lift them in the colder sections of the country.

TUBEROSES

Though these are usually pretty well ripened before frost comes there is no need of lifting them before the other bulbs.

Lift the plants with tops attached and either spread them out or hang them up to dry. After they have become thoroughly dried, cut the stems off close to the bulb. The scaly covering of these bulbs renders them less susceptible to injury from severe drying, but it is better not to hurry the drying process.

ELEPHANT'S EAR OR CALADIUM

This large plant with succulent foliage should not be cut down hard at lifting time.



If you want large flowered gladioli and many of them, store bulbs as directed here



It is a nice job to cure begonia tubers. Frost must never touch them

Simply remove larger or outside leaves so that the plant will be handled easier and occupy less space during the drying process. As the leaves dry off they can be removed

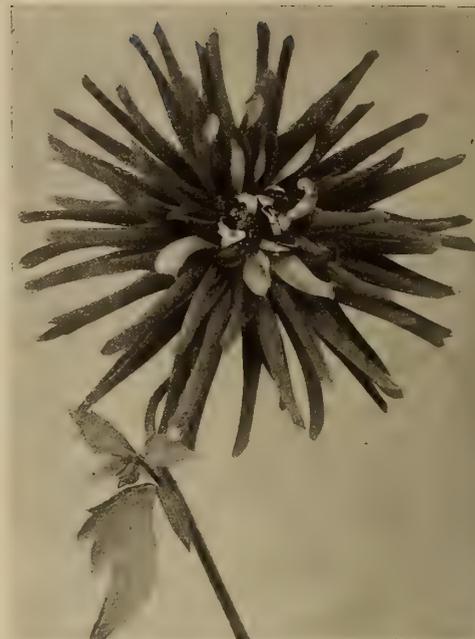
one by one; but the stems should not be cut near the bulb, as it is better to leave the point of growth protruding from the bulb uncut.

The cellar is probably the best place for these along with dahlias and cannas, though some think they need a warmer place. I have not found them hard to keep. Being large and fleshy, the bulb is not liable to shrivel.

Any of the above named subjects are liable to rot or other disease, and therefore it is good policy to turn them over and examine them now and again. In case of rot, remove the affected bulbs from the others so that the disease will not spread. Remove all diseased matter from the affected parts and rub or dust the surface with air-slaked lime. Should the bulbs as a whole appear damp to the touch dust them with lime. This will dry up excessive moisture and prevent spread of the disease. Flowers of sulphur are also a good dusting material.

Should the bulbs be drying too fast, cover them lightly with dry, clean sand which will keep the bulbs plump and firm.

In a climate of such extremes as ours, it is hardly possible always to maintain perfect conditions, and the only way to counterbalance adverse conditions is to keep



It is easy to store dahlia roots but they must be lifted carefully

a sharp eye on the bulbs and roots, and use the necessary remedies on the first appearance of trouble.

Make Your Yard Attractive All Winter—By Evelyn Prince Cahoon, Kansas City, Mo.

THE FIRST OF A SERIES OF ARTICLES ON "CIVIC IMPROVEMENT WITHOUT THE RED TAPE," SHOWING WHAT YOU CAN DO FOR YOUR OWN YARD AND NEIGHBORHOOD WITH LITTLE OR NO EXPENSE

THERE is not the slightest excuse in the world for allowing home grounds to be comfortless and colorless five-twelfths of the year. If you have plenty of time, room,

and money you can plant rhododendrons and other evergreens. But even if you do not have one cent to spare this fall you can do much by following this simple, practical programme. There is no need of waiting for the city to do anything, or for a balky committee. You do not even need to join a civic improvement society, though you ought to.

Civic improvement, like charity, begins at home. Judge your home grounds by the simple standard of this article. Have you any of these plants? If not, you can add greatly to the pleasure of your home life by taking quick action now. Every plant can be gotten from a nurseryman and if you can afford to buy them, do so.

If your place really comes up to the standard implied by your article, won't you plant some of these vines on the nearest ruins or eyesore or set some of these wild shrubs along the roadside where you can enjoy them every day this winter?—EDITOR].

Just to show what wonders can be accomplished even in the most crowded cities by people who are willing to work but have literally not one cent to waste, I have made a planting plan for a back yard, which is only ten by twenty feet.

It is a sort of unit plan. For example, if you have twice the number of square feet you will need twice as many plants. But no matter what the size of your lot I hope the plan will be useful to you, because it shows

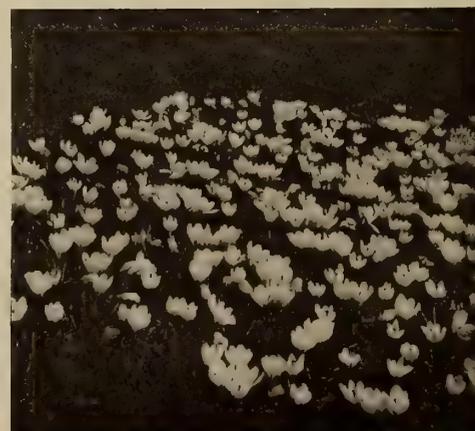
the five great classes of plants for winter effect that you can collect from the wild or buy at the cheapest rate from the nurserymen, viz., vines, berries, shrubs with brightly colored bark, perennials and bulbs.

VINES TO PLANT THIS FALL

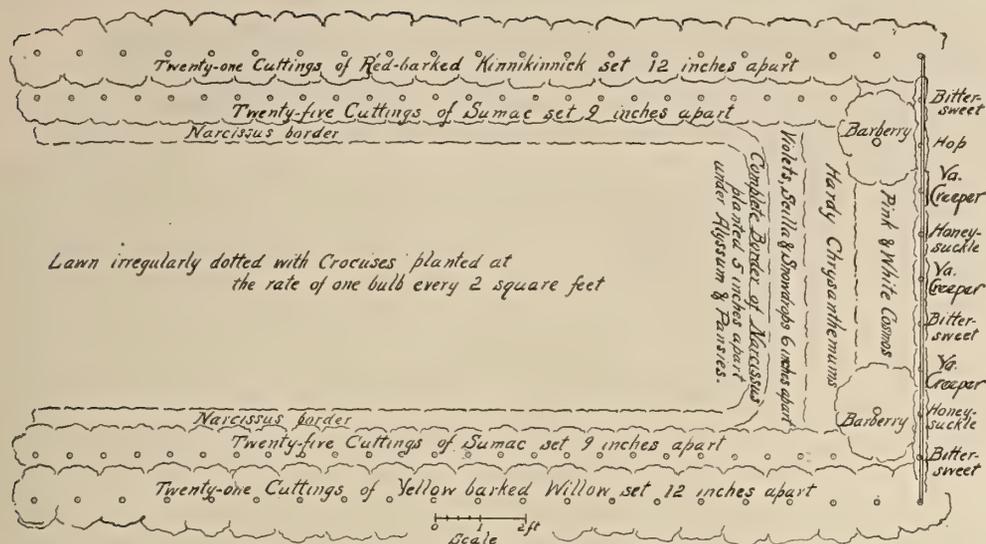
The first thing is to screen unsightly objects, such as neighboring buildings or a high board fence. Therefore, I would plant Virginia creeper, a permanent vine which gives splendid reds in autumn. Set three of these at intervals across the back end as shown. You can find these growing wild in the woods near by.



The common barberry (*Berberis vulgaris*) has clusters of bright red berries that are attractive all winter



Why not have crocuses in your lawn? This is too dense for a small garden



Ingenious plan for a 10 x 20 ft. garden that will be attractive all winter. Everything but the bulbs can be gotten from the wild or by exchange with neighbors

The cheeriest color in winter is red and bittersweet berries last all winter. Therefore I would plant three bittersweet vines on the back fence.

The ideal evergreen vine for winter effect is the climbing euonymus, which also has red berries that last all winter, but if you cannot afford this get some of Hall's honeysuckle, which may stay green only till Christmas but has fragrant flowers more or less all summer.

To support these vines I should set a stout post deep and strong, at the two back corners of the garden, or make use of neighboring buildings, and string from place to place clothes line wire—three strands at a height of three, five and seven feet respectively.

Along the two sides of the yard I should have a blaze of autumn scarlet by bringing in from the edge of town suckers from sumac bushes. With your pocket knife you can cut up, say fifty suckers, each six or eight inches long and set them as shown.

Never let these grow long and leggy. Cut them down to the ground every year at the end of March and you will have tropical luxuriance of foliage and neat, compact habit.

SHRUBS TO PLANT THIS FALL

Every yard ought to contain some shrubs with berries that are attractive all winter. Try first to find barberries or high bush cranberries growing wild near you, because they are red and last all winter. If you can't get them, take a drive into the country now and dig up wahoo or strawberry bushes (two species of euonymus), or the black alder which is often called winterberry. Berried shrubs should give a fair effect the second winter and a really splendid show the third.

The quickest and cheapest way to get winter color in the city yard is to plant shrubs with brightly colored bark. Near a swamp edge you can find red-twigged dogwood, or the purple-barked kinnikinnick (*Cornus Amomum*). If you cannot find any plants

small enough to move, take cuttings about ten inches long of these and the yellow barked willow and put them in sand and water until they root. Then plant them in soil.

BULBS TO PLANT THIS FALL

The quickest and surest way to have flowers is to plant hardy bulbs now, for they will bloom next March and April and for many years thereafter if you take good care of them.

You can count on snowdrops for March and usually crocuses and scillas. Daffodils will not bloom before April, but they will flower before the trees leaf out.

The prettiest way to plant the small bulbs is to scatter them in the lawn because they look like wild flowers. Every yard should have a central lawn without flower beds.

To "naturalize" crocuses, scillas, and snowdrops make a dibble by pointing a broomstick.

Make about a hundred little holes irregularly over your lawn, each four inches deep. Drop into each a good teaspoonful of sand, then set in, root side down, the little bulbs. Rake the ground over them. Scatter grass seed over the holes, and step on the seed.

SEEDS AND PLANTS FOR NEXT SPRING

If you can afford it you ought to have three crops of flowers on the same ground. This you can do by planting bulbs everywhere between the shrubs and covering these with a carpet of shallow-rooting plants that will bloom at a different time from the bushes and make a pretty cushion through which the bulbs can easily force their way.

For example, you can buy two dozen pansy plants next March, at twenty-five cents a dozen, and set these at intervals of two feet over the daffodils. Violets would be still more permanent.

You can sow sweet alyssum either in fall or spring. It will bloom twenty weeks if not allowed to form seed until the fall. Then let it do so and it will self-sow and hide all the dirt.

The best annual I know for October and November bloom is cosmos, provided you are willing to cover the tall plants with burlap on frosty nights. I have indicated a row of the pink and white varieties in front of the back fence.

Since all permanent vines require two years or more to make a tall growth, I should intersperse some annual vines. Therefore, I would plant next spring a hop vine of sufficient size to give a glow of yellow in the autumn.

The most reliable plants for November are hardy pompon chrysanthemums which will sometimes supply flowers until Thanksgiving. In the spring you can get some plants from neighbors for they multiply rapidly.



Showing how the shrubs with brightly colored bark or berries can be bordered with permanent bulbs like daffodils. These beds, covered with violets or pansies, will give a good succession of bloom and practically three crops of flowers

Four Plans for a 75 x 150 Ft. Lot—By F. C. Leible, New York

THE NINTH OF A SERIES OF ARTICLES ON THE "CHEAPEST GARDENS FOR THE SMALLEST LOTS," EACH OF WHICH GIVES FOUR SOLUTIONS COSTING \$25, \$50, \$75, AND \$100, RESPECTIVELY

THE 75 x 150 ft. lot is a common unit in America, and in my opinion it is about the ideal size for a family of five to eight having an income of about \$1,200 a year. It is about right for a man who cannot afford to spend more than four or five thousand dollars on house and lot altogether. The area of such a lot is about one-fourth of an acre. If two members of a family can give an average of two hours a day during the growing season to the care of the outdoor features, the garden ought to be fully as productive and beautiful as anything of the kind in the Old World. Experience has shown that one-eighth of an acre is all that one man can care for in his leisure time, even in a climate that has a long twilight, without hiring extra labor.

If you have a fourth of an acre, you can have a vegetable garden large enough to supply practically all the fresh vegetables needed by a family of five or six from May to September. You can also have enough room for children to play in and for the family to enjoy some kind of private home life out-of-doors.

In each of the four plans here given, I have, as usual, indicated the same house in the same position, but in only two of them have I provided vegetable gardens.

I. THE CHEAPEST SOLUTION — \$25

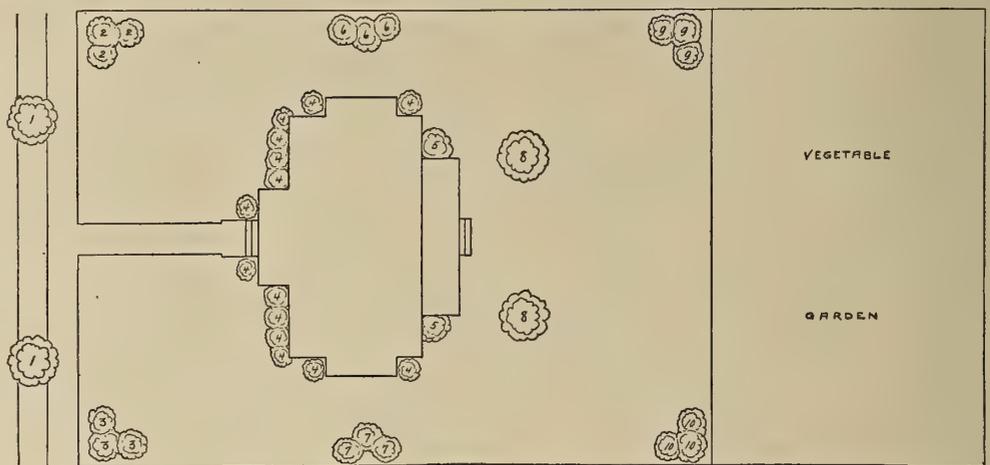
The only value of the first plan is that it shows how little you can get in the way of permanent trees and shrubs for \$25. The magazine writers who talk airily about "inexpensive effects in gardening" are really "yellow journalists," for the hard but important fact is that gardening is an

expensive business. True, it is possible to buy three times as many trees and shrubs as are indicated in this plan, but in all the plans that have been presented in this series of articles I have specified only first-class plants of perfect form and considerable size. There is nothing so maddening as to have your place look raw for several years simply because diminutive plants have been sent you and they have either entirely failed to grow or have cheated you out of a year or two in the development of your place.

In other words, it is a total mistake to buy a lot of shrubs at bargain rates and dot them about a place. You will never get

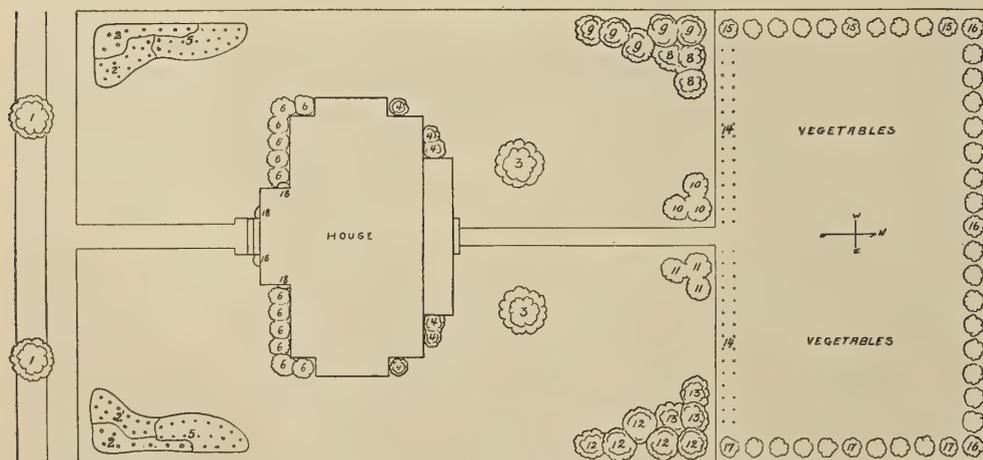
anything but a spotted effect if you do this, and when you learn better there will be a deal of trouble and expense in shifting the bushes about in order to make a harmonious home picture. The thing to do is to have a plan to start with and hold right to it, buying what you can this year and gradually filling in the picture.

For example, this first plan would be much better if there were a continuous row of shrubbery on both sides of the lot and across the back, so as to screen the vegetable garden. Such a scheme would involve fifty dollars' worth of planting. You could buy half of the plants this year and set them in the manner indicated in the plan, and next



1. Two tree of heaven (*Ailanthus glandulosa*).
2. Three golden bell (*Forsythia suspensa*).
3. Three weigela (*Diervilla florida*).
4. Fourteen Japan barberry (*Berberis Thunbergii*).
5. Two bush honeysuckle (*Lonicera Morrowii*).
6. Three silver bell (*Halesia tetraptera*).
7. Three mock orange (*Philadelphus grandiflorus*).
8. Two Weir's cut leaved maple (*Acer saccharinum*, var. *Weirii*).
9. Three elder (*Sambucus Canadensis*).
10. Three Siberian red twiggled dogwood (*Cornus alba*).

Permanent trees and shrubs that may be planted for \$25



1. Two tulip tree (*Liriodendron Tulipifera*).
2. Sixteen hollyhock (*Althea rosea*).
3. Twenty-four larkspur (*Delphinium formosum*).
4. Two yellow-wood (*Cladrasis tinctoria*).
5. Six Japan barberry (*Berberis Thunbergii*).
6. Thirty-four hybrid tea and hybrid perpetual roses.
7. Twelve hardy hydrangea (*Hydrangea paniculata*, var. *grandiflora*).
8. Three snowdrop tree (*Halesia tetraptera*).
9. Five Persian lilac (*Syringa Persica*).
10. Three pearl bush (*Exochorda grandiflora*).
11. Three kerria (*Kerria Japonica*).
12. Five March blooming honeysuckle (*Lonicera fragrantissima*).
13. Three rose of Sharon (*Hibiscus Syriacus*).
14. Sixty strawberries (30 Sharpless and 30 Gandy).
15. Ten red raspberries (Marlboro or Cuthbert).
16. Eighteen blackberries (Wilson's Early and Kittatinny).
17. Ten yellow raspberries, Yellow Queen.
18. Four honeysuckle (*Lonicera Japonica*, var. *Halliana*).

A garden where shrubbery and bush fruits predominate, costing \$50

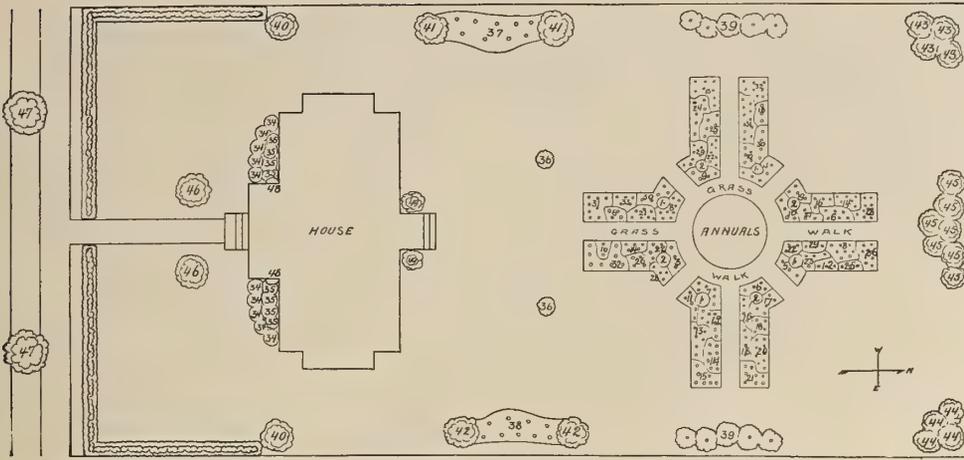
year fill in so as to get a continuous shrubbery border on each side of the house and a considerable luxuriance at the back corners.

2. SHRUBBERY AND FRUIT FOR \$50

The most practical kind of fruit growing on a lot of this size or smaller in America is the cultivation of bush fruits instead of fruit trees, and I have therefore surrounded the vegetable garden in plan No. 2 with rows of raspberries, blackberries and strawberries.

The ornamental features are particularly designed for a family that likes showy flowers lasting a long season, but requiring a minimum of care. For example, the porch vines are Hall's honeysuckle, and the bushes in front of the house are hardy hydrangeas.

The two flower beds in the front gardens, however, involve a good deal of personal care. If you are a beginner, you ought not to have them in such a conspicuous place. It would be better to move them



1. Four double perennial sunflower (*Helianthus decapetalus*).
2. Four hollyhock (*Althaea rosea*).
3. Three white pompon chrysanthemum (*Chrysanthemum Indicum*).
4. Five red pompon chrysanthemum (*Chrysanthemum Indicum*).
5. Three pink pompon chrysanthemum (*Chrysanthemum Indicum*).
6. Five Japan iris (*Iris laevigata*).
7. Six foxglove (*Digitalis purpurea*).
8. Six Japan anemone (*Anemone Japonica*).
9. Four heliopsis (*Heliopsis laevis*, var. *Pilcheriana*).
10. Four perennial phlox (*Phlox paniculata*, var. *Marie Stewart*).
11. Five baby's breath (*Gypsophila paniculata*).
12. Eight perennial flax (*Linum perenne*).
13. Six lupine (*Lupinus perennis*).
14. Eight German iris (*Iris Germanica*).
15. Seven tickseed (*Coreopsis lanceolata*).
16. Five horsemint (*Monarda didyma*).
17. Five loose-strife (*Lysimachia clethroides*).
18. Five day lily (*Hemerocallis fulva*, var. *Kwanso*).
19. Four bleeding heart (*Dicentra spectabilis*).
20. Nine blanket flower (*Gaillardia aristata*).
21. Eight Shasta daisy (*Chrysanthemum maximum*).
22. Four larkspur (*Delphinium formosum*).
23. Four blazing star (*Liatris pycnostachya*).
24. Three columbine (*Aquilegia vulgaris*).
25. Three peach-leaved bellflower (*Campanula persicifolia*).
26. Eight perennial phlox (*Phlox paniculata*, var. "Lothair").
27. Three false dragon head (*Physostegia Virginica*).
28. Nine Stoke's aster (*Stokesia cyanea*).
29. Seven perennial phlox (*Phlox paniculata*).
30. Five torch lily (*Kniphofia Pflzerii*).
31. Eleven subseisile veronica (*Veronica longifolia*, var. *subseisilis*).
32. Eight Japanese spireas (*Spiraea Japonica*).
33. Five double sneezewort (*Achillea Ptarmica*, var. *The Pearl*).
34. Ten herbaceous peony (*Paeonia Mt. Blanc*).
35. Eight herbaceous peony (*Paeonia A. Verschaffelt*).
36. Two peony (*Paeonia festiva maxima*).
37. Two Adam's needle (*Yucca filamentosa*).
38. Nine false chamomile (*Boltonia asteroides*).
39. Nine sneezewort (*Helium autumnale*).
40. Two pearl bush (*Exochorda grandiflora*).
41. Two Tartarian honeysuckle (*Lonicera Tatarica*).
42. Two deutzias (*Deutzia scabra*, var. *crenata*).
43. Four lilac (*Syringa vulgaris*).
44. Four Persian lilac (*Syringa Persica*).
45. Seven purple fringe (*Rhus Cotinus*).
46. Two Japan barberry (*Berberis Thunbergii*).
47. Two American elm (*Ulmus Americana*).
48. Two Japan virgin's bower (*Clematis paniculata*).
49. Two Regel's privet (*Ligustrum Ibolta*, var. *Regelianum*).

An old-fashioned garden of perennials which will provide a good succession of flowers for \$75

to the back of the lawn and put them in front of the shrubbery masses where they will have a good background of green foliage to set off the brilliancy of the flowers.

It would require \$100 to furnish a lot of this size with flowering shrubs in sufficient quantity and variety to line three sides of the lot and give attractive flowers and berries throughout the year. Moreover, a single line of shrubs would not be artistic. It would be thin and formal. It is essential that the shrubbery should be three or four rows deep at the corners and at one or two other places, in order to give an irregular outline to the shrubbery border.

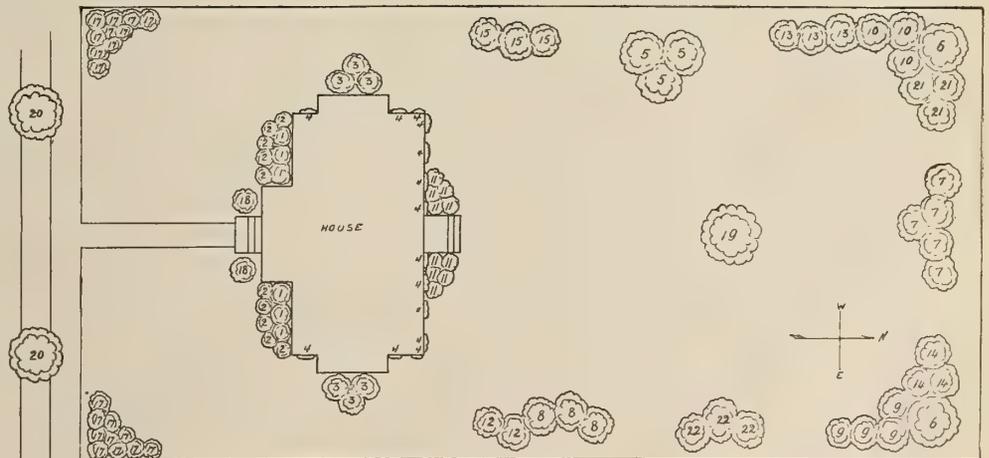
However, if you can afford only \$50 this year for shrubbery, plan No. 2 may be a good one for you if your interest is chiefly in vegetables and fruit, and your feeling toward the ornamental part of the grounds is simply a desire to maintain a good lawn and a general air of neatness with a minimum of expense.

3. A PERENNIAL GARDEN FOR \$75

Plan No. 3 is adapted only to a flower lover who has had considerable experience and is willing to spend an average of two hours a day, or else an hour a day and hire \$50 worth of help during the year. It is particularly designed for someone who demands a formal garden composed chiefly of hardy perennial flowers and even the cost of a hedge in the front yard is not included.

The ideal arrangement would be to put this hedge in the backyard and compress

the flower beds at the sides and back so as to form a continuous stretch of flowers. This would give a seclusion to the garden and make all of the floral features part of an organic scheme. In all these plans I like to indicate two methods of using the same material, showing the common or thoughtless way of scattering things and the more refined and artistic method, which



1. Six Japanese evergreen euonymus (*Euonymus Japonicus*).
2. Ten dwarf euonymus (*Euonymus nanus*).
3. Six winged euonymus (*Euonymus alatus*).
4. Fourteen climbing euonymus (*Euonymus radicans*).
5. Three common burning bush (*Euonymus atropurpureus*).
6. Two spindle tree (*Euonymus Europaeus*).
7. Five Bunge's euonymus (*Euonymus Bungeanus*).
8. Three Hamilton's euonymus (*Euonymus Hamiltonianus*).
9. Four strawberry bush (*Euonymus Americanus*).
10. Three Siebold's euonymus (*Euonymus Sieboldianus*).
11. Ten running strawberry bush (*Euonymus obovatus*).
12. Two warty-branched euonymus (*Euonymus verrucosus*).
13. Three Japan snowball (*Viburnum plicatum*).
14. Three golden bell (*Forsythia suspensa*).
15. Three purple fringe (*Rhus cotinus*).
17. Twenty Japan barberry (*Berberis Thunbergii*).
18. Two tree peony (*Paeonia Moutan*).
19. One Schwedler maple (*Acer platanoides*, var. *Schwedleri*).
20. Two pin oak (*Quercus palustris*).
21. Three weigela (*Diervilla hybrida*, var. *Mad. Lemoine*).
22. Three red twigged dogwood (*Cornus alba*).

A complete collection of hardy Euonymus for \$100

tries to make all the planting part of an organic scheme.

I have given a good deal of thought to this old-fashioned garden in order to provide a good succession of flowers and to avoid any bad color discords. Of course, the ideal thing would be to edge all these walks with dwarf box in order to reproduce the spirit of Colonial gardens. But this would add perhaps \$25 more to the expense.

4. A COLLECTOR'S GARDEN FOR \$100

At first thought nothing would seem to be more ridiculous than specializing to such a degree as is indicated by plan No. 4, which provides for a complete collection of hardy euonymus; yet I am convinced that the place would not look at all freaky and that the ordinary passer-by would never imagine that so small a lot contained a complete collection of a rare and interesting group of plants. The great practical value of this plan is that it provides an abundance of showy berries and bright color during the winter months when nearly all American homes look bleak and cheerless.

The genus *Euonymus* presents an astonishing variety of hardy bushes — some tall, some medium, and some so dwarf as to be merely ground covers. It also includes a species which is a climbing evergreen vine, considerably harder than the English ivy and better than it for all practical purposes in the North, or wherever English ivy will not thrive. This variety is *Euonymus radicans*, which will grow from fifteen to twenty feet high.

A garden with such a collection of berried shrubs will furnish masses of foliage throughout the growing season, and during the cold weather the bright orange-scarlet fruits give life and beauty to a landscape which is otherwise dull and bleak.

A "Little Monograph" on euonymus was published in the January, 1907, *GARDEN MAGAZINE-FARMING*, on page 285, describing fully all the different species worth growing.

A New Way to Use White and Blue Day Lilies—By W. E. Pendleton, Pennsylvania

THE FUNKIAS HAVE LONG BEEN FAVORITES FOR LAWN SPECIMENS AND EDGING PATHS. SOME OF THEM CAN NOW BE USED FOR WILD GARDEN EFFECTS ON A GREAT SCALE

DAY lilies are splendid hardy perennial flowers which derive their common name from the fact that the individual flowers last only a day. The mass effect, however, does not suffer, as there is a good succession of flowers. The yellow and orange day lilies belong to the genus *Hemerocallis*; the blue and white ones to the genus *Funkia*. It may save you some money to remember this, for many people simply order "day lilies" and get the color they don't want.

There is no need of wasting your money in trying to get a big collection of funkias for, though there are about twenty names, there are only five species worth growing.

The grandest of all the funkias is the white day lily (*F. subcordata*), because it has the longest flowers, purest color and an orange-like odor. This is the one that bears in September chaste, waxy white flowers five or six inches long. This the only one that has ascending flowers; the others are nodding and bloom in summer, being generally at best through August. The most desirable form of it is the variety *grandiflora*.

The other funkias vary from lilac to purple, for their blue is not very pure, and therefore

it is impossible to distinguish them by color, but they can easily be told by the color and shape of the leaf.

The showiest day lilies in foliage effect are the two with glaucous or bluish white leaves—Siebold's and Fortune's. Every catalogue offers *F. Sieboldiana*, but the true Siebold's day lily is probably not in cultivation and is certainly inferior to Fortune's, because the flowers are hidden beneath the leaves. It is probable that most of the plants cultivated under the name of *Sieboldiana* are really *F. Fortunei*, the flowers of which stand well above the leaves. They are normally pale lilac.

The green-leaved day lilies are the ovate and lance-leaved lilies. These names indicate how *F. ovata* and *lancifolia* may be distinguished even when not in flower, for the former has a broad leaf (two and a half to five inches), while the latter has a narrow one (two inches or less). The flower of the ovate-leaved day lily is normally deep blue and of the lance-leaved pale lilac. But a surer test lies in the form of the flower. The flower of *ovata* has a short slender tube and then suddenly expands into the shape of a bell, while the tube of *lancifolia* enlarges gradually.

The names of day lilies are frightfully mixed in the trade, but here is a simple key to all the difficulty.

The white day lily is *F. subcordata*, but you will find it called *alba*, *liliiiflora*, *Japonica*, *cordata*, *grandiflora* and *macrantha*.

The true Siebold's day lily (*F. Sieboldiana*) is probably not in cultivation.

Fortune's day lily is *F. Fortunei*, but it is catalogued as *Sieboldii*, *glauca*, *Sinensis*, *cucullata*, *glaucescens* and *cordata*.

The ovate-leaved day lily is *F. ovata*, but it is often called *cærulea* or *lanceolata*.

The lance-leaved day lily (*F. lancifolia*) is sometimes catalogued as *Japonica*, *albo-marginata*, and *undulata*. The two last named are varieties with variegated leaves which are altogether too giddy for my taste. I would not have them at any price.

Funkias make wonderfully symmetrical clumps of foliage. It is astonishing how they can bear so many perfect leaves. The first two are the favorites for lawn specimens; the latter for edging paths.

The accompanying picture shows a new use for the day lilies that "self sow," viz., wild gardening effects on a grand scale.



Part of a big colony of the ovate-leaved day lily at Croton, N. Y., where it has "self-sowed" for many years

The Gorgeous Newly Discovered Tulips—By Wilhelm Miller, ^{New York}

A GROUP OF SURPASSING INTEREST TO COLLECTORS, BECAUSE THEIR HUGE FLOWERS MAY PUT NEW VIRILITY INTO THE HIGH-BRED GARDEN TULIPS, AND CERTAINLY ARE WORTH GROWING FOR THEIR OWN SAKES

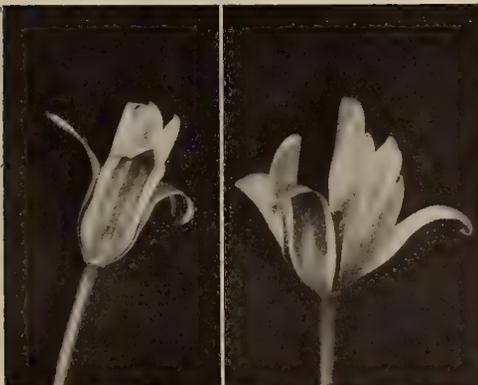
JUST when the distinguished Kew botanist, Mr. J. G. Baker, had nicely rounded off his monograph of the genus *Tulipa*, his work was upset by the discovery of a whole nest of new species in Turkestan. The bulb-loving world was electrified in 1873 by the news of a big red tulip called Greigi which has the unique distinction of having its leaves beautifully blotched with brown. In 1877 came the sensational Kaufmanniana, which is by far the largest of the early tulips, blooming a week before the common herd and having longer stems than the celebrated Duc van Thol. Many other promising new species followed, all from the same region, but by the end of the nineteenth century the general opinion seemed to be that the only new species of great popular interest were the two above named.

But John Hoog's expedition to Bokhara at the beginning of the new century brought back some big red fellows that have fired the blood of collectors and fanciers the world over. For this news comes at the same time with a lot of talk about the decaying stamina of the high-bred garden tulips. There are a good many complaints of failures with tulips, especially from beginners who have bought the cheapest bulbs, and it seems that the Dutchmen have been trying to keep from us the fact of a new and somewhat threatening disease. Consequently every amateur plant breeder who is "up to snuff" wants to get hold of these in the hope of putting new virility into the garden tulips.

Moreover, all the owners of country estates who like to buy novelties before the people can afford them are equally eager to see these red tulips that spread out to seven or eight inches when wide open, for there is great "fun" in growing bigger tulips than the other fellow and in satisfying yourself as to the real kind and quality of these various shades of red.

TWO NEW EXTRA-EARLY TULIPS

It gives me the greatest pleasure to announce that anybody can now afford



Kaufmann's tulip, which blooms a fortnight ahead of other early tulips, or with the hyacinths

a dozen bulbs of *Tulipa Kaufmanniana*, for I am convinced that this species is far better than the Duc van Thols which have been for more than a century the only extra-early tulips, blooming in early April or with the hyacinths. The Ducs sacrifice everything save color to earliness. The flowers are smallish, rather commonplace as to form, and their stems are so short that they are worthless for cutting. Indeed, they have a squat look that ill comports with the dignity of a tulip.

Kaufmanniana has a stem long enough for cutting, a larger flower than that of the Ducs and an exquisite bud like that of a water lily or magnolia. Whether it is really earlier than the Ducs, as Krelage claims, is to be determined after hearing reports from amateurs in all parts of the United States. In my own garden I found it a week or two earlier than the common bedding tulips.

As to color, I expect Kaufmanniana to produce during the next quarter-century all the important shades. Indeed, when it first came there were white, yellow, orange, purple and crimson, though not perfectly separated. Mixed varieties of it can now be had in this country for less than a dollar a dozen. The orange, however, costs thirty-one cents a bulb on the other side of the ocean and the scarlet \$1.50, so we may have to wait ten years before the public can touch these without the aid of a long purse. The flowers ought to be at least two and a half inches long and if you buy big bulbs and give them a perfect bed you should have some three-inch flowers.

The only rival of Kaufmanniana is the big scarlet or vermilion tulip known as *T. præstans* which, at fifty cents a bulb, is certainly cheaper than any red Kaufmanniana you can buy. Moreover, the flower is figured three and a quarter inches long in the *Gardeners' Chronicle*. They claim that præstans is as early as Kaufmanniana, but even if it should be no earlier than the bedding tulips it should be worth having. Don't confuse this with another præstans which is listed in most of the Dutch catalogues. The latter is a small orange-red tulip that is supposed to bear three to five flowers on a stem.

THE BEST NEW EARLY TULIP

While *Tulipa Greigi* is the oldest of the "new" species of tulips it is also the best and cheapest for general cultivation. It is practically unique in having the foliage spotted and blotched with brown. I must confess that I feared this would make it rather gaudy, but everyone who saw it in my garden last spring considered it as far better than a mere curiosity. Even if the leaves were not prettily spotted, Greigi would be treasured for its distinct shade of

red—an orange-scarlet that is at once soft and vivid.

The petals of *T. Greigi* are all rounded, while those of the two preceding species are sharp.

LATE OR MAY-BLOOMING SPECIES

All the following tulips are May bloomers so far as I know, and therefore the bulbs need not be lifted and stored every summer. It is to be hoped that they can be left in the ground indefinitely and that they will multiply gradually without special care, like other late tulips. All but the last are big red tulips, each of which has also some other point of special interest.

ONE WITH ROUNDED PETALS

Tulipa Eichleri has deep scarlet flowers three or four inches long, which resemble



Greigi's tulip, a big red tulip that is also remarkable for its blotched leaves

the garden tulips in having all the petals rounded. Its chief botanical difference is its pubescent flower stalk. Each petal has a big black blotch surrounded by a narrow yellow ring. I fear we must abandon hope of its putting new life into the garden tulips and after thirty years of cultivation it is still too costly for naturalizing.

TWO WITH SHARP PETALS

At the other extreme from the round-petalled tulips which make the showiest and most symmetrical flowers for garden cultivation are the sharp-petalled tulips which show more or less daylight between the petals when the flower opens fully. The

latter are nearly always bold, black-eyed beauties with such a wild grace that in August I urged our readers to try the cheaper sorts on a large scale for naturalizing in long grass.

The most promising of this type is *T. Tubergeniana*, which is said to be the largest of all known tulips. The petals are claimed to be four and a half inches long. This would make the flower nine inches across at its moment of greatest expansion. It is described as orange-crimson, with a black blotch. Last year the bulbs of this newest giant cost \$2.25 each on the other side.

This enormous flower seems to eclipse *T. Wilsoniana*, which was the sensation of 1901. It is a blood red flower two and three-quarters inches long, but it has never been adequately described.

THREE WITH INTERMEDIATE PETALS

Tulips are either all sharp-petalled, or all round-petalled, or else the outer petals are sharp and the inner ones round. To this last class belong three huge red-flowered species *T. Micheliiana*, *Fosteriana* and *ingens*.

The first of these (*Micheliiana*) can be told at once from all other tulips by the brown stripes on the leaves which gradually disappear as the leaves mature. The petals become three inches long. There is a black lanceolate blotch at the base of each petal, with either a broad border of yellow or only a faint trace of the latter color. The bulbs would cost about \$2 a dozen here.

The cheapest of these very new tulips is *T. Fosteriana*, said to have a four-inch petal of dazzling scarlet. The centre may be either yellow or maroon. It cost only \$9.50 a hundred on the other side last year.

Another big red flower is *T. ingens*, scarlet-vermilion with a black blotch which sometimes fills the base of each petal and sometimes is reduced to a spatulate blotch, but is never bordered with yellow. A peculiarity of this flower is the broad soft yellowish band on the outside of the flower. The petals are said to be four inches long.

THE NEWEST LATE YELLOW SPECIES

No late yellow-flowered tulip of importance has been discovered since 1889, when



Foster's tulip, a red flower said to have petals four inches long

T. Batalini, from Bucharica, was described. It is a pale yellow blossom with an orange eye, and is said to attain four and a half inches in length. But the trade seems to know nothing of so large a flower. It regards *Batalini* as a species for the rock garden which more than makes up for the smallness of its flowers by its freedom of bloom. It is said to grow only eight inches high and could be imported for about \$1.50 a dozen.

I can see no reason why we Americans should part with our hard-earned money for any other species of tulips discovered since 1873. Time seems to have declared against *T. Kolpakowskiana* and *Ostrowskiana*. Judging from the colored plates, the only one I should be sorry to lose is *T. Alberti*, a red flower only two inches long, but having a dark blotch of unique shape. All the other blotched tulips I know, carry their dark color down to the base of the petal, but this one is yellow at the base and the yellow is bordered by a reddish brown deeply indented blotch. The total effect is indescribable; one must see the *Botanical Magazine*, plate 6761. This unique tulip I suppose can hardly be had for love or money. I have searched catalogues without end for a price on it.



Unique marking of Albert's tulip

An Ever-blooming Yellow Calla

By HENRY MAXWELL, Conn.

THERE was great interest in the world of floriculture about fifteen years ago when the first good yellow calla was introduced, and small bulbs sold for twenty-five dollars each. Prior to the introduction of the golden calla, there existed a so-called "yellow" calla (*Richardia hastata*), but the color was only a greenish yellow, while that of *Richardia Elliottiana* maintains a rich, lustrous yellow for two weeks before the flower becomes greenish with age. These flowers are often four to five inches across.

Bulbs of the golden calla can now be bought for from fifty cents to a dollar and a quarter each, depending upon the size. The first bulbs that reached this country were about as big as marbles, but it is now possible to obtain bulbs four inches in diameter.

The bulbs of the golden calla are offered in both fall and spring catalogues. If you wish to grow them as house plants, procure them in late fall, pot them and keep them rather dry until the roots develop. When the pots are all filled with roots, the tops will suddenly start into growth and will bloom in ten or twelve weeks, or about the middle of April.

The following notes are contributed by Mr. Joseph Tailby, of Wellesley, Mass.:

"The golden calla makes a good house plant. A strong, well-ripened bulb should produce two or three flowers, the second flowers appearing as the first ones are fading. It flowers but once in a season, but will retain its foliage until the middle of August. From early ripened bulbs it could be brought to flower by January, if grown in a night temperature of about 60 degrees. As it roots from the top of the bulb, it should be placed deep in pot. The soil should be of good maiden loam with a little sand and one-third well-decomposed manure and plenty of drainage.

"For outside culture, I plant the bulbs the same time as potatoes, at the end of April or the first of May, setting them six inches deep. The main object is to get them well rooted before the hot weather sets in. I leave them in the ground until the tops are cut down by the frost, digging them about the last of October. I dry them well before storing in a cellar of a temperature not lower than 40 degrees—45 degrees is better. I was the first to flower this plant in the United States, paying ten guineas for two bulbs, and was awarded a silver medal by the Massachusetts Horticultural Society about seventeen years ago.

"I have some very fine seedlings of my own breeding. They are larger in flower and stronger in constitution. They vary in color from deep yellow to white. The Mrs. Roosevelt was my first hybrid. It was raised from *alba macalata* crossed with *Elliottiana*."



The flowers of the golden calla last two or three weeks, and are often five inches across

House Plants That Flourish in Low Temperatures—By C. B. Hornor

WHAT CAN BE GROWN IN A ROOM WITHOUT DIRECT HEAT, WHERE THE THERMOMETER NEVER GOES ABOVE SIXTY DEGREES AND SOMETIMES DROPS TO THIRTY-FIVE

THAT house plants can be successfully grown in a cool room where during the daytime the average temperature is 55 degrees and at night about 42 degrees, I have proved with such plants as coleus, geraniums, freesias, begonias, ferns, cacti, etc. The room in which these plants are grown is 16 x 18 ft., with three windows having an eastern, and two a southern exposure. The room has no direct heat, the only artificial warmth that reaches it coming from a narrow hall leading into a heated room and from a door opening into a warm hall. In this room the thermometer never goes above 60 degrees, while the minimum temperature, occurring but once or twice during the season, is 35 degrees.

My success I ascribe principally to the following: the low temperature of the room; the compost used, made of all the manures that it is possible to get (green and otherwise), mixed with wood ashes, brick dust, scraps of old leather, bone meal, rotten

stump and, above all, pea vines which decay very quickly. The continued coolness of the room, and the fact that I leave most of the plants outdoors until the thermometer registers 30 degrees, keeps them free from insects. They are also stronger and in better condition for having had a little cold weather.

I am very particular that the plants shall have the best possible drainage and always place broken charcoal in the bottom of the pots. When in the house, I am also particular that the plants be watered each day; but when they are in the ground I never water them, but simply loosen the soil from time to time and keep it free from weeds.

The coleus plants, one year old, were raised from slips and brought into the house early in September. These are the only plants that are removed from the room at any time during the winter. When the temperature approaches 35 degrees in the room, I move the coleus into a warmer temperature. This plant makes an attrac-

tive growth before most of the other plants are brought indoors.

The geraniums raised from seed were planted in the house in February and placed in the ground in May, at which time they were three or four inches high. Except the delicate rose geranium, which was housed in September, all the geraniums were brought into the house about November 15th. For window display plant in 3, or 4-inch pots. A Clyde and a Snowdrop geranium one and a half years old, were raised from California seed, and were brought into the house November 12th. The following were raised from cuttings and are strong, vigorous, three-year old plants: Madame Bruant, Jean Viaud, double General Grant, Gettysburg, Granville, Telegraph and the ivy geranium Galilee. The last three named are but one year old.

A gillyflower with its lovely lavender blossoms was raised from seed planted in May. The plant was brought indoors in October and bloomed in January. This,



These plants were brought indoors during September, October, and November, and were successfully grown in an unheated room

and a white snapdragon (raised from a seedling and brought indoors in October) are very satisfactory house plants, their blossoms lasting all through the winter season. Cyclamen, raised from bulbs and brought indoors in September, will bloom for several years.

Freeseias, planted five or six bulbs to a pot, were set out on August 20th, and the Golden Bermuda oxalis, one bulb to a pot, was planted November 15th. Oxalis, if given a place in full sunshine next to the glass, blooms in about six weeks: the freeseias will flower in about four months, if given partial shade. Alyssums (seeds planted in May) were brought in November 15th, and commenced to bloom at once.



Night-blooming cereus is not difficult to cultivate. It has delightfully fragrant flowers

The Rex begonia, which has been a most disappointing plant to me through all the years that I have grown it, has at last proved satisfactory. I now water it only through the saucer, and with this treatment it has bloomed twice during the past season. Its leaves no longer turn brown on the edges and drop off. Its blossoms are very pretty, of pinkish yellow with four very thick and waxy-looking petals. I also have a Rubra begonia which was raised from a rooted plant and is six years old. The begonias are always brought into the house in September.

I have had excellent success with the maiden-hair fern, which is as luxuriant as though growing on the rocks by the brookside. It was brought in on October 10th, and is three years old from the roots. A lace fern, one year old, and a Sprengeri, four years old, were raised from roots and were brought indoors in September.

A Borbonica palm, seven years old, now has eleven leaves. It is brought indoors in September and if given a southern window with full sunshine, seldom loses a leaf and the tips do not turn brown.

Why not grow your own lemons? I have a tree which was placed outdoors in May and not brought in until late in September. It bore nine lemons, although owing to unforeseen accidents, only one matured.

This measured twelve inches around and weighed a pound. It was very juicy and had a delicious flavor, the rind being very thin and the seeds small.

Climbing ivies planted in the house in October flourished amazingly all winter. Roses, after being brought in, commenced at once to put out new shoots which increased ten or twelve inches in length within a month; one lot of sweet peas, brought in in November, and another on the 12th of January, were lifted during a cold rain storm and showed no sign of having been disturbed. These plants were seedlings from the summer crop, grew five feet high and had thicker stalks and more luxuriant foliage than when grown in the open. They bloomed in April. I have also tried bringing sweet peas in early in the season and giving them a warm room, but the vines have invariably dried up.

My cactus plants, with but few exceptions, were brought from California or Arizona. I have a *Stapelia variegata*, an *Echeveria secunda glauca*, a *Gasteria verrucosa*, an *Ackermanii*, and a Christmas cactus which I have had for six years. This plant was raised from a small slip and has had as many as eighty blossoms on it at one time. The flowers appear two or three days before Christmas and last until March. Cacti require little care; but as they have very fine roots growing near the surface, the greatest possible attention must necessarily be paid to their watering, neglect frequently resulting in the loss of plants. Give them plenty of water during the blooming season, but a more moderate supply when they are resting. The larger plants in my collection I leave in their pots through the summer; the smaller I place in the ground about the 5th of May and pot them in September after the first cold rain. I use rather shallow pots, and for the small varieties secure the best bloom by using pots about two or three inches in diameter.

A large night-blooming cereus was given me by a friend, who said that she had owned it for several years without its having had but one blossom. I repotted it in a larger pot, using the compost already described, and the first season it had five large, fragrant flowers; the second year it had nine blossoms; the third, twelve buds and blossoms in the month of June, and at the end of July it had its second crop of twelve buds which bloomed in September.

Ornamental Fruits on Hardy Evergreen Shrubs

(Sixth article in the series "Ornamental Fruits for Every Month")

OF EVERGREEN trees and shrubs with ornamental berries we have but few which are hardy in the Northern States. First place should be given the American holly (*Ilex opaca*). Though not quite as beautiful as the English holly, it is much hardier and will bear fruit as far north as New York. It makes a very handsome, small tree with its dense dark green foliage

and its bright red berries which adorn the tree all winter.

The fire thorn (*Pyracantha coccinea* or *Cotoneaster pyracantha*) is a low, thorny shrub which is beautiful in fall with its wealth of orange red berries disposed in clusters along the branches and remaining through the winter if not eaten by the birds. It is likewise handsome in June with its clusters of white flowers.

Some of the low-spreading cotoneasters, like *C. microphylla* and *C. rotundifolia*, will stand the winter with some protection and are adapted for rockeries. They are densely clothed with small glossy leaves and bear in autumn bright red berries scattered along the branches. The higher growing *Cotoneaster Simonsi* has likewise bright red berries but is only half-evergreen.

The mahonia or Oregon grape (*Berberis aquifolium*) is a low shrub rarely exceeding five feet, with glossy pinnate foliage and upright clusters of dark blue berries covered with a whitish bloom and preceded in June by yellow flowers.

The trailing euonymus (*E. radicans*) opens in October its pale pods and discloses the orange berries (properly arils) which stay on the branches until midwinter. All the above are broad-leaved evergreens and none of them will stand an exposed situation in the Northern states without loss or injury to their foliage.

Of the conifers, only the yew may be properly mentioned here. There are two kinds, both with bright scarlet berries. The American yew or ground hemlock (*Taxus Canadensis*), a low spreading shrub only a few feet high, ripens its fruits towards the end of July or in the beginning of August, while the European yew (*Taxus baccata*) does not show its berries before September and will keep them until midwinter if they are not eaten by the birds. The European yew generally needs protection and is short-lived in America.

Massachusetts. ALFRED REHDER.

[The next article will summarize the fruits that last all winter]



Branches of the trailing euonymus, are covered with orange-scarlet fruit nearly all winter



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Methods of Fattening Poultry

POUSTRY not intended for breeding or for laying stock should be fattened and sold as quickly as possible. The ideal temperature for fattening is 60 degrees; when the weather becomes cold, more feed and greater care will be required and the process will be slower. Turkeys are an exception, as they seem to fatten better after frosty weather sets in. Prices are likely to be lower, too, after the holidays.

In putting extra fat on a bird, there is not only a gain in weight, but an improved appearance and quality of flesh, which means a higher price. An increase of 50 per cent. in weight is not unusual, and there have been cases where very thin but vigorous birds doubled in weight. From two to three weeks is about the limit of time that chickens may be profitably confined for fattening; after that, appetites are liable to become cloyed, and deterioration begins.

The best sized chickens for fattening are those weighing from three to four pounds of such breeds as Rocks, Wyandottes and Rhode Island Reds. Brahmas, Langshans, and Cochins are extremely large-framed birds and grow the large frame first to be covered with flesh and fat later. They make much heavier roasters. Leghorns and the lighter breeds are not so satisfactory to fatten; they are best turned off as broilers when young, but whenever sold should, of course, be made as fat as possible.

Three leading methods are practised — yard or pen fattening, where the fowls or chickens are kept in small yards or pens; crate fattening, in which the birds are confined closely in small coops or crates; and cramming, where the birds are fed by hand or by machines especially made for the purpose. A fourth method might be added to these, where the birds run at large and are fed at random, mostly on corn; but the exercise runs off the fat, develops the muscles, and the carcass is likely to be tough.

Cramming is largely practised in Europe; in France and Belgium hand cramming has long been in vogue, the food being made into pellets and forced down the birds' throats by hand. Another variation in this system is the use of a long funnel specially made, which is inserted into the bird's crop, and the semi-liquid feed is poured down. But the modern method is with the cramming machine, which will feed from 300 to 400 birds per hour.

In England finely ground oatmeal (which is sometimes one-fourth barley meal) forms

a large part of the feed. Corn is little used, as it gives a yellow tinge to the flesh, which is disliked. It is also too heating for birds in confinement, and is not relished by them for any length of time. One of the leading feeders in this country gives a ration consisting of 100 pounds of ground oats, 10 pounds corn meal, 5 pounds mealed clover, 5 pounds blood meal, and 1 pound salt. After being thoroughly mixed dry, it is wet to the proper consistency with sour milk or buttermilk. This is good for crate fattening, and sometimes the two systems are combined, the chickens being fed for a week or ten days in troughs, until their appetites begin to fail, when the machine is brought into use.

In crate fattening the birds get little exercise, and as the muscles are not developed, softer-meated carcasses are produced. The flesh of chickens thus fattened is fine grained, with the fat well distributed through the tissues, which renders the flesh tender and juicy when cooked. There is also a much larger proportion of edible meat on chickens so fed.

After placing in the crates, let the chickens get hungry before feeding; then scatter a little feed in the troughs. After this has disappeared give a little more, but do not give them all they will eat. Feed three times a day, and after the first week or ten days, give them as much as they will eat, although it is sometimes better to cut down to two feeds daily. Clean the troughs a half hour after each feeding, as nothing will upset appetites more quickly than stale feed left lying in the troughs.

Feeding a ration of two parts corn meal, one part each of ground oats and buckwheat produces yellow flesh; for white flesh feed ground oats, sometimes part barley, or buckwheat, with some wheat middlings and bran. The addition of a small portion of corn meal is allowable. The proportions of these ingredients may be varied according to their availability or cheapness. Sour milk or buttermilk is best for wetting the mixture; make it crumbly and not sloppy. If sweet milk or water is used, green stuff must be supplied. If milk is not obtainable, beef scrap (possibly one-tenth of the whole amount) will also help to fatten. Mix the feed several hours before feeding;

certain changes will then take place, and the birds will get it partially predigested. After ten days, add a small portion of tallow, which is melted and made into a paste with corn meal so that it will mix readily with the feed. Give plenty of drinking water. Add finely granulated charcoal to the feed occasionally, and a little clean sand mixed in now and then will do for grit. Dust the chicks thoroughly with insect powder before putting them into the crates, and repeat the operation in two weeks.

The regulation fattening crate is six feet long, about sixteen inches wide and twenty inches high. A frame is made of 1 x 2 in. lumber, planed, covered with slats planed smooth. The front slats are put on perpendicularly two inches apart, the others lengthwise one and one-half inches apart. This forms a slat floor which is self-cleaning. Laths will do for the slats. Two tight wooden partitions divide this crate into three compartments, each holding about four chickens. Of course, the size of the crate and the number of chickens may be varied, but too many in a compartment are not desirable. The most convenient door is made by cutting the top slats over each partition, and nailing the ends of each set to 2-inch strips. These doors are hinged at the back. Such a crate is intended to be used singly on stands about eighteen inches from the ground. Where a large business is done, they are placed one above the other, sometimes four or five high, but a floor or pan of some kind must be slipped under all but the bottom crate in order to catch the droppings.

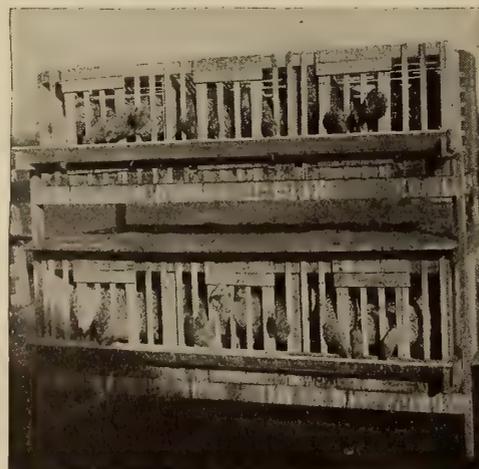
The feed trough is a simple V-shaped affair, about two and one-half inches deep inside and the length of the coop. It is supported two or three inches in front, and a few inches above the bottom of the coop, by cleats nailed on the ends and projecting in front. When only a few chickens are to be fattened, an ordinary packing case may be utilized. Remove one side and replace with slats for the bottom, slatting over the top of the box for the front.

In yard or pen fattening, the birds are confined in small pens generally with small yards attached. They have more freedom than in crates and a much larger number are placed together, yet pens and yards are small enough to prevent any great amount of exercise. The feeding is much the same as that for chicks in crates.

The highest priced chickens in this country are the South Shore roasters, sold in the Boston market to a select trade which has been built up by the producers. These are fed, after they are too old for chick feed, mostly on cracked corn and beef scrap, with grass range in summer and steamed clover or other green feed in winter. The cockerels are caponized. The pullets are sold just before ready to lay. All are confined in yards while fattening. The highest prices for these are in the spring when roasters are not so plentiful. Some of those sold then are hatched in fall and early winter, and forced through the cold months.

New Jersey

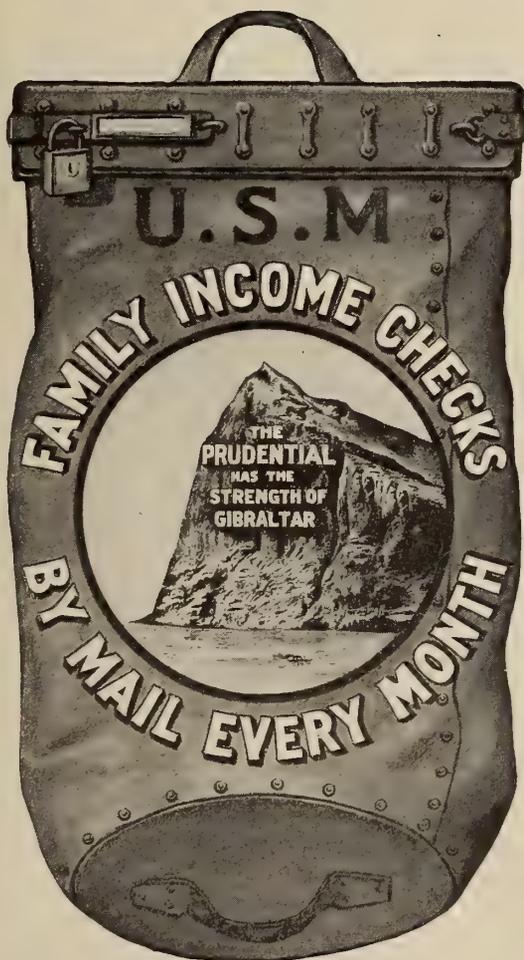
F. H. VALENTINE.



In crate fattening, do not crowd the chickens. Give them plenty of light and air

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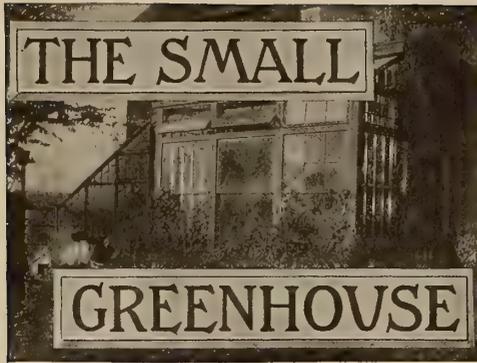
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An Outdoor Living-room

IN COLD weather, when the mercury hovers near the freezing point, how pleasant it is to sit in a veritable garden, surrounded by ferns and flowers, and enjoy a warm sun bath.

Our dwelling, which is a plain country one, the west front being forty feet long, has an "L" wing in the rear thirty feet long, on the south side of which there is a narrow porch. The hall from the front of the house and two rooms in the wing open on to this porch, and in order to have the satisfaction and pleasure of keeping these doors open all the year, we enclosed this small piazza.

We procured from a nearby church seven large window sash at a cost of one dollar and fifty cents apiece. The carpenter's



This enclosed piazza really added another room to the house at moderate cost

contract of \$100 included all the materials used, which were as follows: Lumber for framing, ceiling, flooring, siding, casing, etc., one door with glass, tin roof and spouting, nails, hinges for the windows and other hardware. To this bill must be added the cost of the windows, \$10.50, and the cost of painting, \$4.50, making the total expenditure \$115. The new, enclosed porch, when completed, measured twenty-four feet long and ten feet wide.

As a rule the mercury in this latitude does not drop more than four or five degrees



Here one may enjoy a warm sunbath even on the coldest days in winter

below zero and the heat from the house is sufficient to keep the plants from freezing during the night, but in very cold weather they are taken into the living-rooms. In summer the open windows are covered with mosquito netting, making the porch an ideal outdoor living-room.

W. Virginia WILL W. STEVENS.

Protecting and Pruning Fruit Trees

IT IS an easy matter to lose trees from the attacks of rabbits, mice, and other rodents. There are a great many remedies for curing trees that have been girdled, but "an ounce of prevention is worth a pound of cure." The danger of girdling is not so great as it is supposed to be, for the rodents attack only the young trees. When a tree becomes old enough to have a hard bark, or a bark that is ridged and seamed, the rodents will not attack it. Food, in order to satisfy them, must be young and tender. Apple trees of more than two inches in diameter are not likely to suffer.

Trees are attacked by mice when the fields are covered with snow. The mice, deprived of other food, seek out a tree that has tender bark and will eat as far above the snow as they can reach and as far below as they can dig easily. As the snow settles it gives the mice a chance to eat the bark still further down, and it sometimes happens that a tree has its bark so badly eaten that it is impossible to save it.

The best possible protection I have found to be a screen made of a few laths between which wire has been woven in and out. The laths should be so small a distance apart that the mice cannot get through. These screens can be made in the house and quickly adjusted to the trees. Pick away the snow or frozen soil from about the tree so that the laths rest on the ground. This will keep the mice from getting under the screen.

HOW TO PRUNE

Pruning so as to maintain a balance between fruit production and wood growth is of vital importance. If the soil is very fertile or especially rich in nitrogen, the wood producing functions tend to crowd out the fruit producing functions; or if the soil is poor, fruit production is encouraged at the expense of wood production, and the vitality of the tree is affected. This may result in premature death.

Prune regularly and lightly every year when growth is dormant, at any time between the fall of the year and the bursting of the buds, although this work is usually best done in the early spring—February or March—just before the sap rises. When pruning bearing trees, cut out all the dead wood, and if the top branches are thickly interlaced and form a dense mass through which the sun cannot penetrate, thin out carefully. When pruning a tree set out last spring, thin out all the weak shoots, leaving several of the strongest, which must be headed back about a third.

Too severe pruning frequently gives a setback to an old tree. The younger the tree the better it will stand being severely pruned. If the soil is very rich and the water supply good, the trees will stand a more severe pruning than if the conditions are otherwise.

Wisconsin W. STENSON.



Fall Work in Orchard and Garden

PLANT shade trees now, using small trees, which live better than large ones. The magnolia in my opinion is the best for the purpose in the South, as it not only casts a dense shade but is also the most beautiful flowering tree in cultivation.

Prune fruit trees now and burn all the old brush, so as to be sure to destroy all possible insects and disease germs. Wrap heavy paper around trunks of the trees to prevent rabbits from gnawing the bark off during the winter. The best location for a fruit orchard is on the south side of sloping ground as the trees are then protected from cold north winds. The fruit from these trees will be ripe a few days earlier than from trees planted on the north side. Order both fruit and shade trees from a nearby nursery so that they will be out of the ground as short a time as possible.

Place all farm tools under shelter, but before doing so rub them with kerosene oil to prevent rusting.

When plowing or spading up the garden have the chickens in the garden, too, to catch the insects that are turned up with the soil. The number of insects a dozen or more chickens can find and destroy in one day is astonishing.

Blanch collard leaves early in the month, directions for which were given in *THE GARDEN MAGAZINE* for June, 1908, page 29c.

Plant out hardy roses at any time from the first of the month to the first of March, although you will have more time to do it now than later on.

Prepare the soil for planting asparagus roots, early next month. The soil must be well fertilized with cow manure or other fertilizer that is rich in nitrogen.

Harvest the sugar cane very early in the month and make it into syrup before heavy frost injures it.

On rainy days thrash or pick off the peanuts from the vines, saving the best for planting.

Georgia. THOMAS J. STEED.



To the Greenhouse Inclined

You would be entertained to read some of the greenhouse inquiries that we receive. One man, for example, wants to know the price of a house 25 feet long, in which he can grow roses, carnations, palms, orchids, lettuce, tomatoes, and so on through a list of things that would take a range of houses several hundred feet long with at least a dozen compartments. Still another has a little cramped up space, and talks of having a 40 foot palm house with adjoining wings and a row of parallel houses in the rear—a layout that is splendidly adapted to the larger country places, but one out of all keeping with his grounds or pocket-book—and so it goes.

Now take your case: You want a greenhouse but perhaps don't know the best way to go about it. Anticipating this, we have printed a 72 page greenhouse book that covers pretty much every phase of the greenhouse question. It is intended to answer your questions, and do it in an interesting, untechnical way, both by text and numerous illustrations. It is called, "Greenhouses as We Build Them." Send for a copy.

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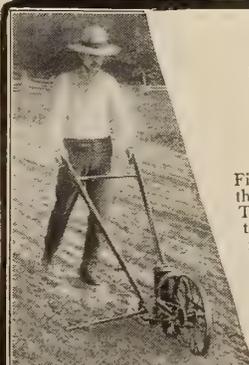


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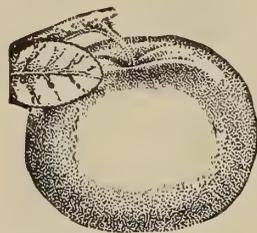
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A FEW HUNDRED DOLLARS HOLD 10 ACRES OF THE FINEST FRUIT LAND IN THIS WONDERFUL IRRIGATED BITTER ROOT VALLEY OF MONTANA

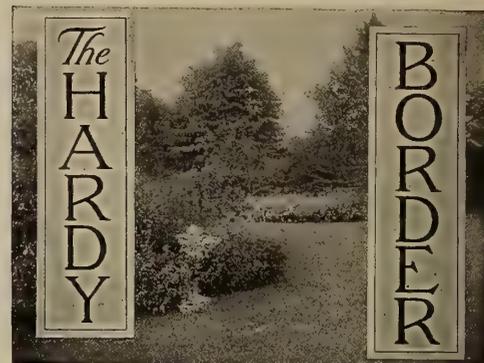
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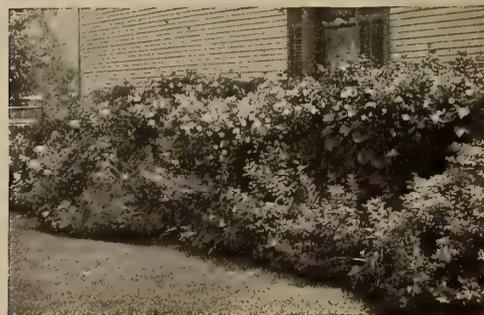
Duties for the Late Fall

ALL necessary additions and changes in the border that were planned during the growing season must now be rushed to completion, and all planting must be completed before cold weather sets in. Helenium, Stokesia, lobelias, *Senecio pulcher*, and others of a similar nature had better be left undisturbed until spring, but almost all plants of a hard-wooded, fibrous-rooted nature may be safely moved and replanted.

Fork up the border with a spading fork (not a spade) and leave the surface slightly rough. Do not endeavor to make it smooth this fall. Fork lightly around the plants so as not to injure or loosen the roots and if possible raise the foliage of shallow rooted plants and fill in around the roots to the level of the newly spaded ground with fine loose soil.

After the first heavy frosts, the roughness of the bed will soon disappear and the ground will dry out quickly during the winter and early spring. The frosts will be able to get at the soil because of its roughness and will pulverize and sweeten it. Give the border a good coating of manure to act both as a mulch and as a winter protection, putting the manure on to a depth of three or four inches. Cover the plants with the loosest and lightest of the material and the tender ones should also be given a covering of leaves, protected by evergreen branches, which will keep the wind from blowing away the mulch. In the early spring, remove the roughest portion and lightly fork in the balance. By this method I have seen beds of antirrhinum and *Pentstemon gentianoides* carried over the winter in good condition.

Complete all bulb planting in the border before the winter covering is put on. Many



A border of hardy flowers, planted close to the house, is very effective



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SOWING SEEDS IN DANNY

By

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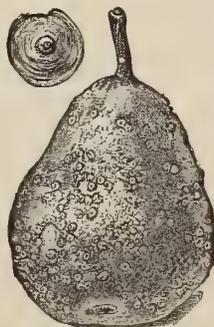
COUNTRY LIFE IN AMERICA THE WORLD'S WORK THE GARDEN MAGAZINE
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This preparation is Lime, Sulphur and Salt, making a concentrated Poly-sulphide of Calcium. The Salt adds to the adhesive properties, but the destructiveness to Scale Life lies in the Calcium Sulphide. **Aside from its ability to destroy San Jose Scale, Horicum is a Fungicide, "HORICUM" preventing the free development of fungoid troubles.**

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San Jose Scale on a Pear.

The color in its concentrated form is a deep bronze green. **Do not pour off the clear liquor only, stir the Horicum from the bottom of package, add 20 parts of water (hot, if you can get it) for ordinary use. For a stronger dilution when the growth is all dormant, use 16 parts of water only (hot, if you have it) and spray thoroughly. By grading your dilution you make it any desired strength.**

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prefer late planting, believing a better rooting system is obtained in cold weather than during the warmer days of September and October, when the bulbs might start into top growth and get frozen.

Cannas, dahlias, and gladioli that have not been dug up, if not already too much injured by severe frosts, must be lifted at once. Allow some soil to adhere to the roots of the former and store in a cool, dry cellar absolutely free from frost. If possible, keep the temperature about 40 degrees. Dahlias can be stored in the same place but should have the dirt well shaken off. Place in a barrel or box, cover with dry sand and look over the bulbs occasionally to see that they are not shrivelling. If they are, dampen the sand very slightly.

Cut off the gladioli tops one or two inches above the bulbs. Pull off the old corms and throw them away, carefully saving all the little bulbils. As soon as they are reasonably dry, place them in paper bags and store in a cool place free from frost. The larger corms can be treated in the same way.

Ohio.

HERBERT GREENSMITH.

Don't Burn Your Autumn Leaves

YOU might as well put a two-dollar bill in the fire as to burn your autumn leaves. The thing to do is to make a compost heap of them; that is, simply pile them up and put some branches over them to keep them from blowing away, and a year from now, you will have perfect leaf-mold to use in potting bulbs and lightening flower beds. Leaf-mold is absolutely essential in the cultivation of many lilies and other choice plants.

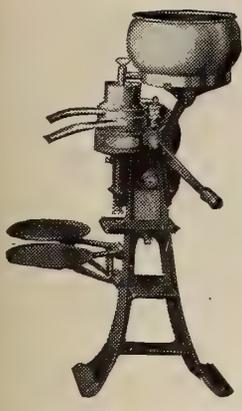
The accompanying picture shows another reason for not burning your leaves. Ignorant and irresponsible people love to play with fire, and unless you give strict orders that no fire will be allowed on the grounds, you may find your oldest and best evergreen trees ruined, like the one here shown. As everybody knows, the live branches of evergreens will burn like tinder and when the lower branches are lost, the beauty of a tree is forever marred. Don't let anyone make a fire on your grounds in autumn — especially near evergreen trees.

New Jersey.

T. McA.



The lower branches of this evergreen were ruined by a laborer burning autumn leaves



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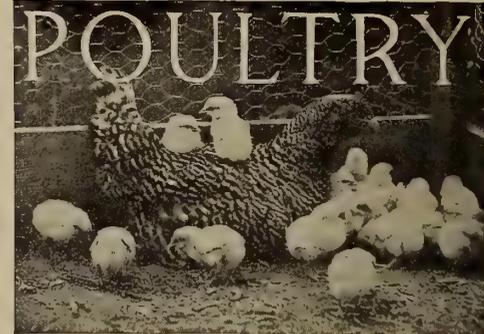
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Crocus in the Grass

THIS illustrates one of the many effective ways in which these heralds of Spring can be used. The cost compared to the charming effect produced is a mere nothing. We can supply good bulbs in mixed colors for \$3.50 per thousand. Many other bulbs can be used in the same way. Our Autumn catalogue tells all about them. *Copies free on application.*

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Send to-day
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My Way of Feeding for Eggs

BY November 1st all the old, and the weak, undesirable birds, with the surplus cockerels, must be removed from the flock kept for winter laying. Then be sure that these chosen ones, with their quarters, are free from mites and vermin. Dust the birds with insect powder and spray the walls and roosts of the quarters with the following solution: Warm until dissolved three pounds of carbolic acid crystals, to which add enough kerosene emulsion to make one gallon. Use one quart of this mixture, one quart creolin and two quarts of kerosene to spray. This must be done as often as once a week at first for three or four weeks; later once a fortnight will be often enough.

Do not crowd too many hens into too small a house. Allow from eight to fourteen square feet of floor space for each adult bird, according to size and breed. If there is an outside scratching shed the space may be reduced one-third.

Twenty hens and a rooster are enough for a colony, and small colonies isolated in small, or colony, houses are better as producers, than the same number kept in pens under one roof, but are not as easily cared for.

Keep the floor dry, clean, and well littered, and in this litter feed the morning meal, consisting of two parts wheat, two parts oats, and one part buckwheat. This is fed as soon after daylight as possible and not more than one quart to twelve hens. This light feed will keep the hens at work and warm until they get their midday meal, consisting of three parts wheat bran, three parts finely ground oats, three parts of finely cut clover and one part of beef scraps. This is to be mixed and wet with hot skim milk or hot water, but do not make it sloppy. Feed while warm and only as much as the hens will pick up clean. Some green stuff, like cabbage or lettuce, and cut beets or potatoes should be given.

For the evening meal shelled corn is scattered in the litter, or corn on the cob is given, allowing the hens to pick it off for exercise. This ration may be changed to suit the circumstances, but the more closely it is adhered to, the better will be the result.

One cause of failure of the hens to lay is the excessive feeding of corn; it is fattening. The only profitable place for a fat hen to lay is on the butcher's block. Fat hens will not produce eggs in profitable quantities, nor will the hen with cold feet, so this must

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Not for Future Generations

Start with the largest stock that can be secured! It takes over twenty years to grow such Trees and Shrubs as we offer.

We do the long waiting—thus enabling you to secure Trees and Shrubs that give an immediate effect. Price List Now Ready.

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Genasco Ready Roofing

puts an end to your roof troubles.

It is made of Trinidad Lake Asphalt, the natural water-proofer. It gives you absolute weather-protection years after ordinary roofing has "passed away."

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The Flexible Flyer Craze is here. Your children have caught it. It's healthful and safe. Encourage it.

The fastest, safest, strongest, ever invented. A Boy's sled—the only one Girls can properly control. Steers easily around others without dragging the feet—runs away from them all—runs farthest. Easiest to pull up hill.

Saves its cost in shoes the first winter—prevents wet feet, colds and Doctor's bills. Built to last of special steel and second growth white ash, handsomely finished. Insist on a Flexible Flyer.

Look for the new Flexible Flyer Racer—long, low, narrow, speedy, moderate priced.

Send for Free Cardboard Model (showing just how it steers) and colored Christmas booklet with prices.

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HERE IS THIS LITTLE GREENHOUSE AGAIN

We have already shown it to you at least twice, but somehow it seems like just the thing for a good many of you Garden readers.

It is 25 feet long and has a center and two side benches. The proportionate cost of a small house may seem high, if you figure the potting room in, but if you already have a suitable building to attach the greenhouse to, you are that much better off.

You see this greenhouse is of the curved eave, U-Bar construction which assures you of highest growing conditions and great durability. Because of its attractiveness it can be placed just a step from your dwelling, with an assured pleasing effect.

Write for particulars.

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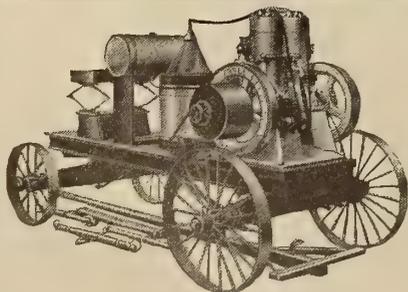
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also be guarded against. Many times we see a hen standing in the snow on one foot, with the other held close to the body. They never lay eggs in this position.

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New Jersey. ALBERT J. DYKE.

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MAINTENANCE of soil fertility is a question that, to a certain extent, must be solved by the individual farmer for himself. While the average soil contains enough of the three principal elements, nitrogen, phosphoric acid, and potash, to produce maximum crops for years to come, they are in an unavailable and insoluble form, and can be released only by nitrification. Cultivation and intelligent tillage will assist in this process, but add no material fertility to the soil.

On the majority of farms the greatest waste is that of manure. The farmer does not seem to realize the vital importance of the relation it bears to crop production, and a great waste is permitted, especially of the liquid manure.

Much experimentation has been conducted to show how manurial production is related to the kind and quality of food used. The results are interesting and valuable in that they show how a greater manurial value may be obtained by using foods with a high percentage of nitrogen, phosphoric acid, and potash. As about one-fourth of the fertilizing value of food is retained and assimilated by the system, it is readily understood how much food increases the value of the farm's manurial product. Great precautions must therefore be taken toward the economizing of the liquid manure since this contains the greater per cent. of the valuable elements of fertility. Provide your stables with gutters which are connected with cement tanks or cisterns.

New York.

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BVLB DEPARTMENT
Growing Bulbs in Moss
 AFTER reading with considerable interest the article on growing bulbs in fibre which appeared in the November, 1907, number of THE GARDEN MAGAZINE-FARMING, I tried an experiment with moss which may prove useful to other amateurs. The moss used is found very plentifully in the woods, and can be stripped off the rocks in large sheets. It was placed in vases, jardiniere, etc., following the directions given for the use of fibre, and the results obtained were equally as good.

An old incubator glass jar about twelve inches deep and six or seven inches in diameter filled with it, the green side being placed next to the glass, gave a very pleasing effect. If kept sufficiently moist, this moss will last fresh and green all winter, although I have gathered it in the woods as late as December.
 The moss must not be too wet. Drain off all surplus moisture by turning the jardiniere over on its side. There must be at least an inch of drainage material, consisting of broken charcoal or pottery, in the bottom of the jar. Do not put the bulbs more than two inches below the surface and after planting place them in some cool place where the light is subdued. Keep them there until growth commences to show above the moss, when the jardiniere may be brought into the light and warmth.
 New Jersey E. S. P.

Controlling Cranberry Worms
 WHEN the supply of water above the cranberry bog is such that a pond or reservoir may be formed, both the yellow and black head worms can be effectually controlled. Draw the water off early, wait until all the eggs have hatched and some of the worms are nearly half grown, then recover the bog with water for forty-eight hours. New bogs should not be laid out without considering this matter of reflowage. Covering the bog should begin in the late afternoon, and be completed before the next morning. On a rainy day it may begin at any time, the object being to prevent injury to the young shoots from the sun. Drawing off the water should be done in like manner, so that the bog will be dry the morning after it is begun. Reflowing will help to check the girdle worm where abundant.

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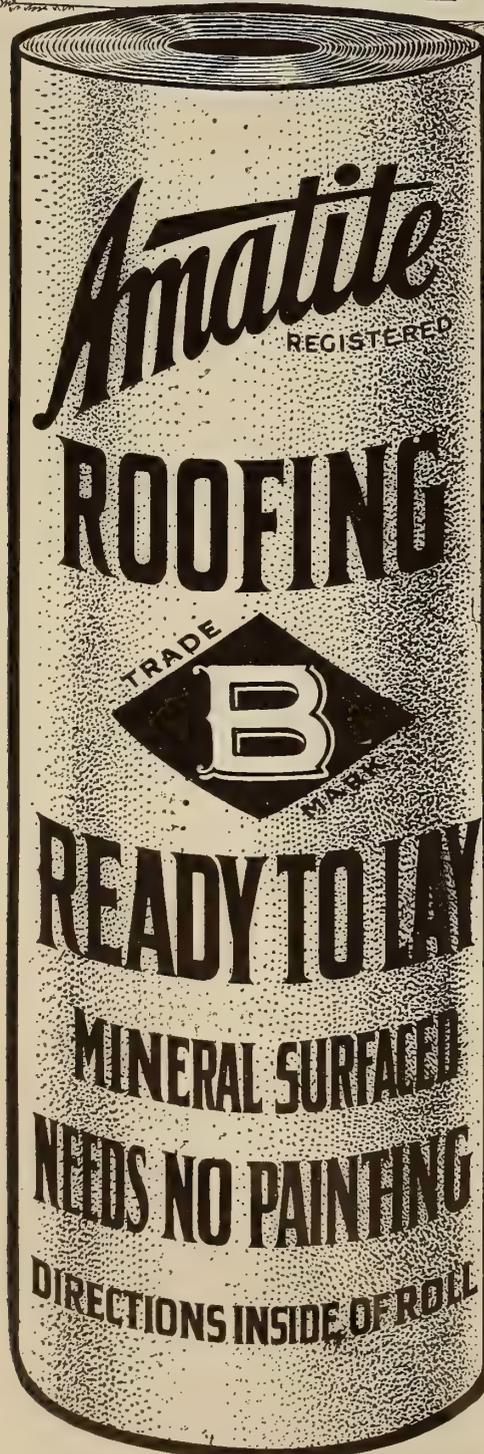
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How to Make the Dairy Pay

THERE are about eighteen million dairy cattle in the United States and fully half of them are kept at a positive financial loss. If you credit each cow with the value of the milk and butter she produces, and deduct the interest on her value, the market price of her food, the cost of milking and caring for her and one-seventh of her value each year, you will find that half the cows in this country are a losing venture. The census for recent years shows that the number of dairy cows for every thousand inhabitants has been steadily decreasing, and at the same time, the consumption of milk per capita has increased. This indicates how much has been done in improving breeds of dairy cattle.

In 1900 the average production of every dairy cow in the United States was increased by over a thousand pounds of milk per cow over what the census showed in 1890. This would be about 500 quarts per cow, and if we estimate that the milk sold at two cents a quart, the amount that the improvement of the dairy cow has added to the country is \$180,000,000 annually.

In spite of all this, and the unquestionable superiority of pure bred cattle over scrubs, the latter are still largely in the majority. It is quite an exceptional thing to see a cow of pure breed in many of the well known dairy sections. This is due to a number of causes. Perhaps one of the leading ones is that the small farmer does not as a rule raise his own cows, but prefers to send the calves to market and to buy a fresh cow when occasion requires it.

The question as to which breed will make a quart of milk the cheapest naturally interests dairymen and should also interest the small farmer. The answer seems to be that the Holsteins will, although the Ayrshires are a very close second. The Guernseys and Jerseys are specialists in producing milk that contains a large percentage of butter fat, and therefore are more desirable as butter producing cows.

The ultimate fate of the dairy cow is to go to the butcher, and some farmers try to get a cow that will in a sense answer a dual purpose. There is no such thing. Any breed that proves itself most profitable for the dairy is bound to be of little value as a beef cow. The conformation and habits of the two breeds are entirely different.

The best way to tell whether your cows are paying their board or not is to weigh the milk at stated intervals, to have a cream separator, Babcock testers, and to keep accurate records. When you have determined as to the relative merits of your herd, then weed out the unprofitable ones.

As many of the readers of THE GARDEN MAGAZINE-FARMING are interested in the dairy proposition purely from a one or two cow standpoint, perhaps they may feel that the suggestions in the foregoing remarks will not be entirely applicable to their case, but whether you keep one cow or one hundred, you should be content with nothing but the best.

New Jersey

JOHN HARRISON

Dairy Hints

To produce that high scoring butter—you must insist on cleanliness; the proper care of your herd; and that the cream be in the best possible condition.



Tubular Separators

will assist you in your enterprise because they are easy to clean, due to their simplicity; and they produce a rich velvety cream in an unwhipped and unchurned condition.

Their simplicity, durability, efficiency and originality of design are recognized everywhere, by everyone.

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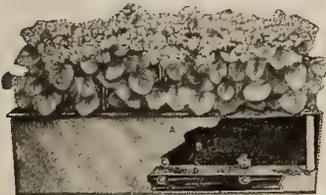
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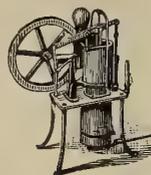
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The Vegetable Garden. By Ida M. Bennett. The McClure Company, New York, 1908; pp. 256, illustrated. Price \$1.50 net.

This is a companion book to Miss Bennett's "The Flower Garden." It discusses in a general way the preparation of a vegetable garden, its planning and location and the raising of the favorite kitchen garden crops. Supplementary chapters discuss the garden's enemies and spraying mixtures.

Soils and Fertilizers. By Harry Snyder. The Chemical Publishing Company, Easton, Pa., 1908; pp. 294. Price \$1.50.

An elementary scientific treatise explaining in popular terms the action of different soil substances and their relations to crops. A book for the student rather than for the practical cultivator, but it will answer a great many questions and problems of fertility that bother most amateurs.

Flower Decoration in the House. By Gertrude Jekyll. Imported by Charles Scribner's Sons, New York, 1908; pp. 98, illustrated. Price \$2.00 net.

A thoroughly practical book for English conditions, treated in the form of a calendar showing the possibilities for each month. That part of it would not appeal directly to American readers, but the principles of floral arrangements and the illustrations that are given cannot but convey many very important suggestions, especially as the everyday flowers that everybody knows are used in the compositions. Miss Jekyll borrows a great many of her ideas from the Japanese school of floral arrangement and very strongly urges the proper harmony of the receptacle to the flower that it holds.

London Parks and Gardens. By the Hon. Mrs. Evelyn Cecil, with illustrations by Lady Victoria Manners. E. P. Dutton Company, New York, 1907; pp. 384. Price \$6.00 net.

A very appreciative discussion of the garden features of parks of the world's metropolis. Special chapters are devoted to each of the leading parks as well as the converted burial grounds, squares, historical gardens and a few of the most famous private gardens of London. The illustrations by Lady Manners are all color plates and convey very successfully the peculiar charm of the London atmosphere. The treatment is very largely historical. We learn that there are 6,000 acres of park land in London apart from the private gardens, which are now very much reduced in size.

The Book of Garden Pests. By R. Hooper Pearson. John Lane Company, New York, 1908; pp. 214, illustrated. Price \$1.00 net.

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to time in the gardening press and in the more technical and special books devoted to the diseases of plants and to injurious insects. The matter is grouped in the major horticultural divisions, and the specific diseases and troubles of each plant are described and the possible remedies suggested. There is no attempt at scientific analysis, the book being merely a guide to identification and remedy. A copious index makes it of easy reference.

The Book of the Chrysanthemum. By Percy S. Follwell. John Lane Company, New York, 1908; pp. 97. Price \$1.00 net.

Another cultural manual on the chrysanthemum from the English standpoint and useful to the American cultivator chiefly on account of its chapters on judging and hybridizing and on the selection of the bud, a feature that is given very little attention on this side of the water. In looking over the list of recommended varieties it is interesting to note that many of our favorites are included in the author's lists. It shows a tendency toward a common standard of merit.

Roses, Their History, Development and Cultivation. By Rev. Joseph H. Pemberton. Longmans Green & Co., New York, 1908; pp. 336, illustrated. Price \$2.50 net.

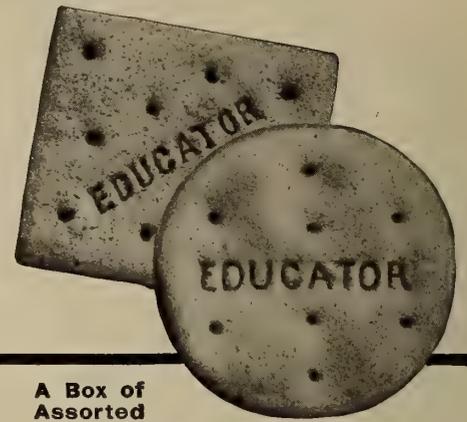
In many respects the most interesting and instructive addition to the literature of the rose that has been published within recent years. Mr. Pemberton urges very strongly the desirability of reviving the cultivation of the groups of roses other than the hybrid teas. He discusses the origin and development of the groups and does his task better than it has been done by any other author that we have read. No rose lover should omit to add this important book to his library.

A Garden Diary and Country Home Guide. By Loring Underwood. F. A. Stokes & Co., New York, 1908; pp. 336, illustrated. Price \$2.50 net.

This is in the form of a blank book with a page for every day in the year, and is designed to be a record of garden operations and the weather and an account book. There is a complicated record system in some supplementary pages in which it is proposed to index each particular subject in the garden. The book is so arranged that the diary may be commenced at any time and if kept conscientiously it must of course become a valuable record of fact, especially if the records are continued for several years.

North American Trees. By Nathaniel Lord Britton. Henry Holt & Co., New York, 1908; pp. 894, illustrated. Price \$7.00 net.

This makes a large and somewhat cumbersome volume on account of the large type used. The illustrations are chiefly those of the same author's Illustrated Flora and the arrangement of the text is on the same plan. It discusses and illustrates the trees growing independently of cultivation in North America north of Mexico and in the West Indies. It has copious indices of English and Latin names and is a less comprehensive book than Professor Sargent's Manual. It is published as one of the volumes in the American Nature Series.



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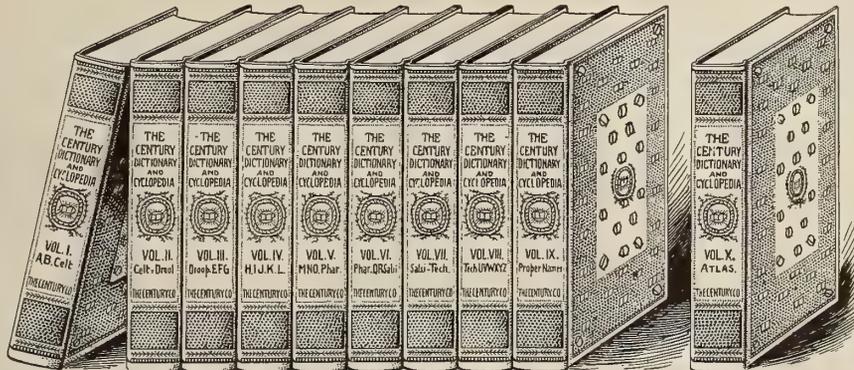
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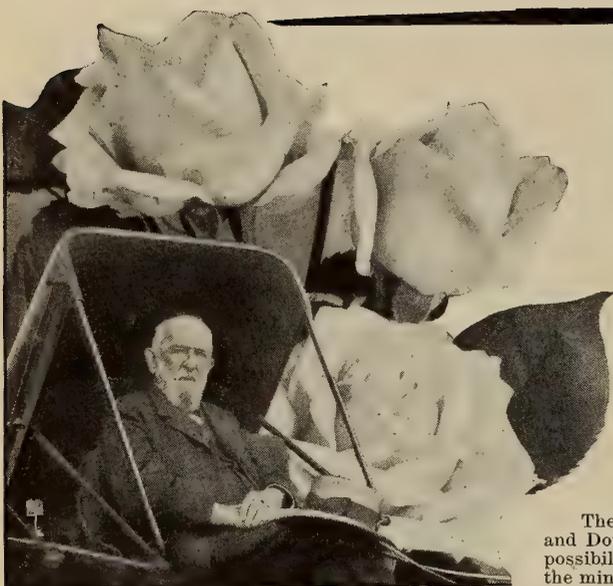
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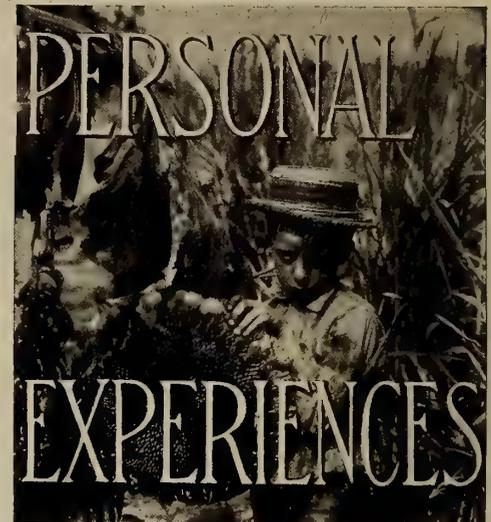


THE WORLD'S WORK



THE GARDEN MAGAZINE

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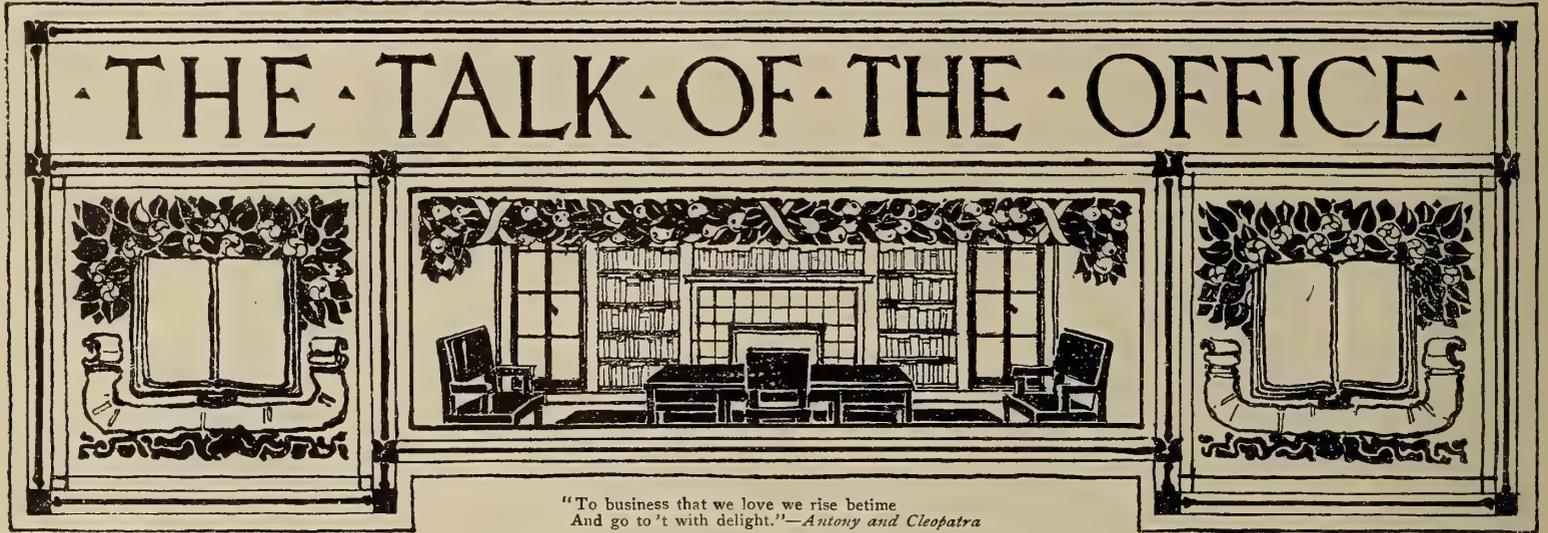
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fountain designed by Vedder, etc. All these pictures have been made directly from nature in the original colors.

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- Christmas Greens and Mistletoe.
- A Cape Cod Christmas Gift.
- Two Colonial Christmas Days, being extracts from a quaint old letter and an interesting Colonial diary, with remarkable illuminations in gold and color by Walter Tittle.
- The Children's Christmas.
- The Sport of Ice-Boating.
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When we began the publication "The Garden and Farm Almanac" in 1907, we felt that everyone would appreciate an annual reference book that would really be worth something for the home, the garden, and the farm, and the success of the issues of 1907 and 1908 has convinced us that henceforth it must take its place as an annual publication. This year we have increased its sphere of usefulness, and the enlarged and illustrated "Garden and Farm Almanac" for 1909 will contain much new and original matter, especially for the benefit of gardeners, both amateur and professional, country estate owners and their employees, suburbanites, and in fact everyone having an interest in the life and growing things of the country. The time to begin the use of this 1909 Almanac is now, and the price is 25 cents, postpaid.

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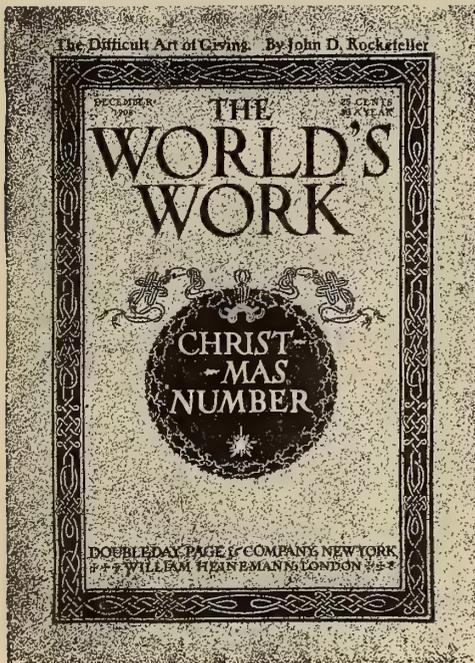
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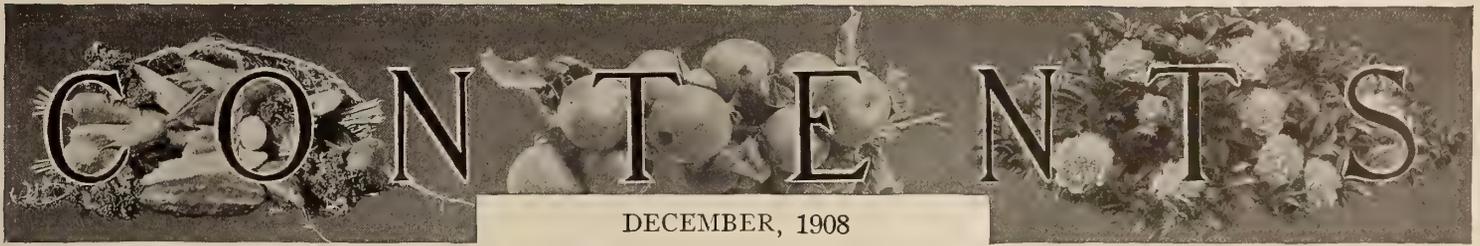
time and thought and money. This is a particularly fortunate and cheery topic for the Christmas time.

Other important articles are:

- How Men Get Rich, and the Right View of Wealth, by Andrew Carnegie.
- Whale Hunting as It Is Done To-Day.
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- The Lions That Stopped a Railroad, Part II.
- Sunday Schools Around the World.
- A Novelist and His Novels in Politics—Winston Churchill and much more.

THE REAL CHRISTMAS MAGAZINE

is the December number of *Country Life in America*. This magazine has always been beautiful and full of the Christmas spirit at the holiday season; but now the Lumière process of color photography has given us another opportunity, and we have for the first time used this new color photography to show a beautiful country estate place outside and in — the Louis C. Tiffany estate, with its wonderful indoor favrile glass fountain, wealth of flowers, a garden



DECEMBER, 1908

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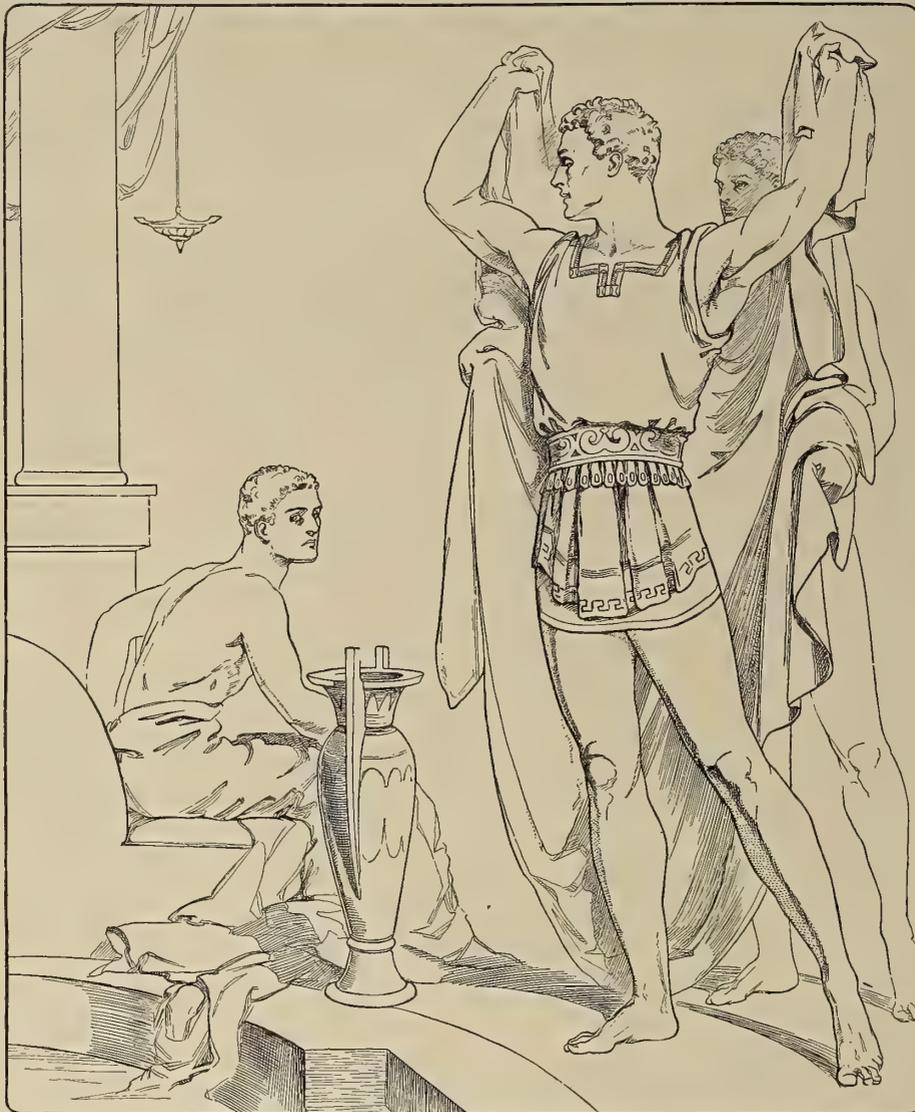
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Hyacinth growing in Tye Hyacinth Glass



Hyacinth growing in Tall Hyacinth Glass



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The Garden Magazine

VOL. VIII—No. 5
PUBLISHED MONTHLY

DECEMBER, 1908

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Plants as Christmas Presents

WHY not give some plants or flowers this Christmas? Flowers go straight to the heart. They are innocent, not designing, and as far as possible removed from commercial ideas. They provoke no unpleasant thoughts about cost and the necessity of "getting even." Do they not symbolize the gaiety of the season and the personal relation you wish to express better than manufactured goods?

The best way to give flowers is to grow them yourself for your friends, because the maximum amount of personality then enters into the gift. There are two ways in which



Roman hyacinth

you can do that this year. You can buy Roman hyacinth bulbs on November 15th, the day this magazine is published, and with good luck you can have them beginning to bloom on Christmas day, for we have known them to bloom in six weeks.



Baby primrose

Another plan is to buy any plant you like now from a florist, take it home and bring it into bloom at your own home. Thus a month of your own daily care will go into the gift. This scheme is too risky for costly plants,

if you have nothing better than a window sill, but it is practical with the cheapest plants suitable for house culture, e.g., Roman hyacinths, Chinese primroses

and the baby primrose, any of which costs twenty-five to thirty-five cents a pot. The baby primrose is here pictured. It is a darling little pink thing — just like a baby — and many an infant has crowded at the sight of it.

The Chinese primrose has fewer blossoms but they are the largest in the genus — about two inches across and often with a brightly colored eye. There is a pretty variety called *Primula stellata* by the florists which has a starry effect, the blossoms being less showy but more graceful. Primroses should bloom through the holidays and are then thrown away.

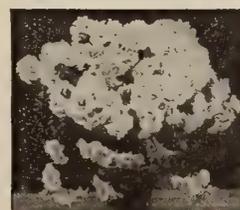


Cattleya Trianaei

one spray of orchids once a year. Ask and see.

Red is the cheeriest color and therefore the favorite at Christmas. The cheapest red flowers you can buy at Christmas are tulips, provided you get only a potful. A box of fifty may cost \$10. Only the Duc van Tholl varieties can be forced for Christmas and even they require special skill.

Place your order now for these or you will "get left."



Azalea



Chinese primrose

The flowers that last longest when cut are orchids, because they have no insects here to fertilize them. The most gorgeous orchids are cattleyas. Here is the one that you see in all first-class florists' stores at Christmas. Don't take it for granted any longer that you can't afford to buy



Red tulips

bushes, which cost the most but last longest. They really need a greenhouse, but if your friends have none they can "board them out" to a local florist every summer, and every Christmas they will be re-

joined to see them again full of flowers or red berries. The showiest flowering shrub at Christmas is the azalea.

Of the red-berried shrubs, English holly is the richest in associations. If you live in a large city you can buy a magnificent English holly, in a tub like the one here shown, loaded with berries. The berries will drop soon after Christmas unless you have a cold, frost-proof room such as bay trees are stored in. There they will last all winter.



English holly

Think of red berries that last two years! About half the berries on the bush here pic-



Ardisia crenulata

tured have been attractive that long. They will drop off in summer, though, unless you have a greenhouse or a pit in which to put the plants. Every good florist has this plant. Ask for an ardisia.

Everybody loves that spotty-leaved thing — the aucuba — which you see in window boxes or tubs in front of big hotels. A much better plant is the green-leaved form because it had red berries all winter. It is a tender evergreen from Japan. In the South it will grow outdoors.

DON'T FORGET

Plants cost more than cut flowers but they last longer and mean a lot more as Christmas presents.

Don't wait until Christmas week or you will pay the highest prices and miss the best things. Place your order now and write on a card when and where you want the plants delivered.



Aucuba Japonica

Our Roof Garden Among the Tenements

What It Has Done for Children in the Riis House in Henry Street, New York

By Jacob A. Riis

Photographs by Alice Boughton and Henry H. Saylor

A YEAR has gone since I wrote to THE GARDEN MAGAZINE of how we had built a roof garden on top of the gymnasium that took away our children's playground by filling up the yard. In many ways it has been the hardest of all the years we have lived through with our poor neighbors. Poverty, illness, misrepresentation, and the hottest and hardest of all summers for those who must live in the city's crowds — they have all borne their share. But to the blackest cloud there is somewhere a silver lining if you look long enough and hard enough for it, and ours has been that roof garden. It is not a very great affair — some of your readers would smile at it I suppose. There are no palm trees and no "pergola," just a plain roof down in a kind of well with tall tenements all about. Two big barrels close to the wall tell their own story of how the world is growing up toward the light. For they once held whiskey and trouble and deviltry; now they are filled with fresh, sweet earth and beautiful Japanese ivy grows out of them and clings lovingly to the wall of our house, spreading its soft, green tendrils farther and farther each season, undismayed by the winter's cold. And then boxes and boxes on a brick parapet, with hardy Golden Glow, scarlet geraniums, California privet and even a venturesome Crimson Rambler. These, when winter comes, we dig down in the yard and cover them with straw, and that is how one of them came to be "swiped." For the fence between ours and the next tenement-house yard is easy to scale for nimble little legs.

It was a privet shrub, and we did n't miss it till we came to set them out this spring. Then we did not pay much heed to our loss, but one day one of our kindergartners beckoned me over to the corner of the roof and pointed down in our neighbor's yard. There in the twilight gloom, for the yard was just a hole between towering brick walls and the sun could not have found its way into it had it tried, a little space had been cleared in the rubbish and brick bats, and dug and fenced with truant lath from the building in the next block, with infinite toil and care. In it grew our shrub. Looking down from the roof we could read the story of it as plain as if it were written in print: The boy with the longing in his little heart for something beautiful which the tenement had starved all his days, the short cut over the fence to what he wanted—who has not taken the short cut to something he wanted, and his way so easy? Then the eager husbandry and the forlorn little "garden" down there in the gloom.

Did we send a policeman for him and for our shrub? Not we. Policemen are for other things in our scheme and we see as little of them as we can. We went around and scratched up an acquaintance with the lad, and we told him that if he would come in by our front door we would show him a place where there were ever so many more of the green shrubs, and flowers to boot, and that when we had plenty we would share them with him, which we certainly will. For he is the kind we are looking for. The short cut is just a stage, and a brief one, when it leads



"All through the day the children own the garden and carry on their play there"

to our door. When first we got window boxes and filled them with the ivy that looks so pretty and is seen so far, every child in the block accepted it as an invitation to help himself when and how he could. They never touch it nowadays. They like it too much. We did n't have to tell them. They do it themselves. When this summer it became necessary on account of the crowd to eliminate the husky boys from the roof garden and we gave them the gym instead to romp in, they insisted on paying their way. Free on the roof was one thing; this was quite another. They taxed themselves two cents a week, one for the house, one for the club treasury, and they passed this resolution that "any boy wot shoots craps or swears, or makes a row in the house or is disrespectful to Mr. Smith or runs with any crooks, is put out of the club." They were persuaded to fine the offender a cent instead of expelling him, and it worked all right except with Sammy, who arose to dispute the equity of it all and to demand the organization of a club "where they don't put a feller out fer shootin' craps — wot's craps!"

But I was telling of the roof garden and what happened there. It was in the long vacation when it is open from early morning until all the little ones in the neighborhood are asleep and the house closes its doors. All through the day the children own the garden and carry on their play there. One evening each week our girls' club have an "at home" on the roof, and on three nights the boys bring their friends and smoke and talk. Wednesday and Friday are mothers' and children's nights. That was when they began it. The little ones had been telling stories of Cinderella and Red Riding Hood and Beauty and the Beast and Rebecca of Sunnybrook Farm, and before they themselves realized that they were doing it, they were acting them. The dramatic



"So the prince rode off with Cinderella on a fiery kindergarden chair"



A wall was built around the roof garden, but this hole was made to save a neighbor's sole chance for light and air

instinct is strong in these children. The "princess" of the fairy tales appeals irresistibly, Cinderella even more. The triumph of good over evil is rapturously applauded; the villain has to look out for himself — and indeed, he had better! Don't I know? Have I forgotten the time they put me out of the theatre in Copenhagen for shrieking "Murder! Police!" when the rascal lover — nice lover, he! — was on the very point of plunging a gleaming knife into the heart of the beautiful maiden who slept in an arm-chair, unconscious of her peril. And I was sixteen; these are eight, or nine.

So the prince rode off with Cinderella in front of him on a fiery kindergarten chair,

and the wicked sisters were left to turn green with envy; and another prince with black cotton moustache, on an even more impetuous charger, a tuft of tissue paper in his cap for a feather, galloped up to release Beauty with a kiss from her century of sleep; and Beauty awoke as naturally as if she had but just closed her eyes, amid volleys of applause from the roof and from the tenements, every window in which was a reserved seat.

Next the Bad Wolf strode into the ring, with honeyed speech to beguile little Red Riding Hood. The plays had rapidly become so popular that a regular ring had to be made on the roof for a stage. When the seats gave out, chalk lines took their place and the children and their mothers sat on them with all the gravity befitting the dress-circle. Red Riding Hood having happily escaped being eaten alive, Rebecca rode by with cheery smile and pink parasol, as full of sunshine as the brook on her home farm. The children shouted their delight.

"Where do you get it all?" asked one who did not know of our dog-eared library they grew up with before the Carnegie branch came and we put ours in the attic.

"We know the story — all we have to do is to act it," was the children's reply. And act it they did, until the report went abroad that at the Riis House there was a prime show every Wednesday and Friday night. That was when the schools re-opened and the recreation centre at No. 1 in the next block was closed. Then its crowds came and besieged our house until the street was jammed and traffic impossible. For the first and only time in its history a policeman had to be placed on the stoop, or we should have been swamped past hope. But he is gone long ago. Don't let him deter you from calling.

The nights are cold now, and Cinderella rides no more on the prancing steed of her fairy prince. The children's songs have ceased. Beauty and the Beast are tucked away with the ivy and the bulbs and the green shrubs against the bright sunny days that are coming. The wolf is a bad memory, and the tenement windows that were filled with laughing faces are vacant and shut. But many a child smiles in its sleep, dreaming of the happy hours in our roof garden, and many a mother's heavy burden was lightened because of it and because of the children's joy. The garden was an afterthought — we had taken their playground in the yard, and there was the wide roof. It seemed as though it ought to be put to use. They said flowers would n't grow down in that hole, and that the neighbors would throw things and anyway the children would despoil them. Well, they did grow, never better, and the whole block grew up to them. Their message went into every tenement house home. Not the crabbedest old bachelor ever threw anything on our roof to disgrace it; and as for the children, they loved the flowers. That tells it all. The stone we made light of proved the cornerstone of the building. There is nothing in our house, full as it is of a hundred activities to bring sweetening touch to weary lives, that has half the cheer in it which our roof garden holds in



Distributing flowers sent by country children to the children of the tenements

summer, nothing that has tenderer memories for us all the year round.

That is the story of the flowers in one garden as big as the average back yard, and of the girls who took them to their hearts. For, of course, it was the girls who did it. The boys — well! boys are boys in Henry Street as on Madison Avenue. Perhaps on ours there is a trifle less veneering. They had a party to end up with, and ice-cream, lots of it. But as the mothers could n't come, it being wash-day or something, and they did n't want their sisters — they were hardly old enough to see the advantage of swapping them over — they had to eat it themselves, all of it. I am not even sure they didn't plan it so. The one redeeming feature was that they treated the workers liberally first. Else they might have died of indigestion. Whether they planned that, too, I wonder.



"Not the crabbedest old bachelor ever threw anything on our roof to disgrace it"



Riis House, a social settlement in New York

Fourth Annual "Round-up" of Gardening Stories

A CHRISTMAS JOLLIFICATION BY READERS OF THE GARDEN MAGAZINE WHO TELL HOW THEY SOLVED THEIR PECULIAR PROBLEMS IN SOME NEW, CHEAPER OR BETTER WAY

Best Way to Start Seeds Indoors

MRS. W. P. SEIBERT, Pennsylvania

WISHING to start some seeds indoors in flats last spring and finding we could use more flats than we had room for, my husband constructed a rack or stand that has served the purpose well. It holds seven flats but only occupies the space usually given to one.

This rack stands on the floor, is five feet high, and holds seven flats $15 \times 18\frac{1}{2} \times 3\frac{1}{4}$ in., which we made by sawing soap boxes into three sections. After boring a few holes in the bottom, we put a layer of



A rack that holds seven flats in the space ordinarily allotted to one

coarse material for drainage, and then in some of the flats we made square paper pots (formed over a wooden block which is also original with us), as is shown in the photograph.

The slides on which the flats rest slope two inches to the front, so as to get the most light and sunshine.

Keeping Tomatoes until New Year's

I. M. A., New York

THE common way to treat tomatoes at the approach of frost is to use the green ones for pickling and bring the nearly ripe ones indoors, where they may be ripened in a window. But by the first of November fresh tomatoes from the garden are usually gone.

There is a simple method by which you can have fresh tomatoes until New Year's. Pull the vines whole, trim off superfluous foliage, remove small and imperfect fruits,

and hang the vines on nails in the cellar. If you have no cellar space available, a warm part of the barn will do.

A Home-made Fumigating Box for House Plants

C. L. MELLER, Wisconsin

EVERY home ought to have house plants and everyone who has house plants ought to have a fumigating box, because that furnishes the easiest and best way to exterminate the commonest enemy of indoor flowers, viz. plant lice. It will also control mildew.

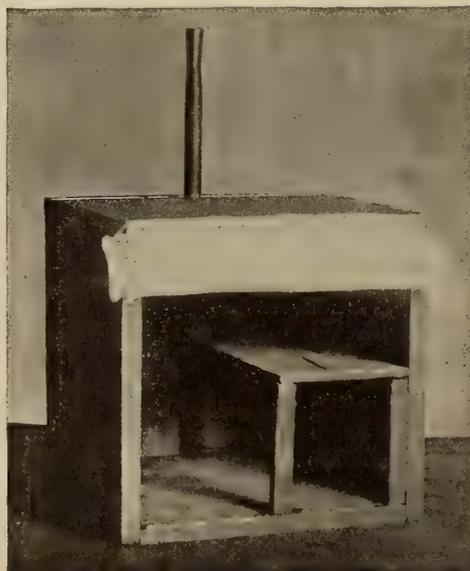
A photograph on this page shows a fumigating box that I made without cost. You can make one out of a large dry-goods box. It must be air-tight to prevent the fumes from escaping into the living rooms.

The box must be large enough to hold your largest plant, but not necessarily all your plants at one time, as you can readily fumigate them one after another.

In order to utilize all the available space to the utmost it is well to have a shelf in one-half so that tall plants can find room on one side and lower ones be placed both on the floor and shelf of the other side.

Moreover, you must have a place for the pan of tobacco stems which must in no case come into direct contact with the pots. So a good place for the pan is under the shelf.

The smoke need never be a nuisance, for, generally, the fumes can be allowed to escape through the basement window after they have served their purpose. If, however, this is not practicable, you can let the fumes go straight into the chimney or



The best way to control plant lice on house plants is to make a fumigating box

through the furnace pipe by using an ordinary stove pipe for a vent. However, it is better to have the vent somewhat smaller in diameter. And a damper is a positive necessity to prevent the smoke or fumes from going up the chimney when they are needed in the box.

The reason why no damper appears in the picture is that it was more convenient for me to close this small vent pipe by means of a piece of sheet-iron, so arranged that it slides right over the opening at that end of the pipe which is inside of the box and consequently not visible in the picture.

One side of the box might be hinged on to act as a door, though some heavy cloth



The vines in this cellar produced ripe tomatoes from October 6th to January 6th

or a piece of carpet hung over the open side in such a manner, as to be readily removed will be quite as effective and will make the interior more accessible.

It is best to start fumigating in the morning, the plants being subjected to the smoke from one to six hours, depending upon the hardness of the individual plants and the extent to which they are infested with the lice or other insect pests. They will need to be inspected occasionally to avoid possible injury from smoke. A soft-wooded plant is injured more quickly than a hard-wooded one. To obtain this smoke the tobacco stems are ignited, a handful being more than enough for a box measuring five feet every way. The plants should be so arranged that the burning tobacco will not come into direct contact with any flower pot. The stems should never burn with a flame, but smolder. To facilitate this, moisten the stems if necessary. This will provide an abundance of smoke.



A sacred lily brought to flower in thirty days by an invalid in spite of a breakdown of the furnace

Mildews are not likely to make their appearance on house plants but when they do show themselves the infected plants should be treated with fumes of sulphur. Sufficient fumes for this purpose may be generated by floating a small dish of flowers of sulphur in water that has been brought to the boiling point. If this water can be maintained at the boiling point while in the box all the better. These fumes will also prove detrimental to insects. Fumes from burning sulphur can never be used as they kill any plant they come into contact with.

A discarded kitchen utensil will serve as a receptacle for the tobacco stems or to hold the hot water necessary to evaporate the sulphur.

Rescuing a Greenhouse

A. B. BLANTON, Kentucky

MY GREENHOUSE, which is forty feet long by twenty feet wide, was a bower of bloom in the middle of January, when there came a sudden change in temperature accompanied by an icy wind. But at eleven o'clock that night there was a good fire in the furnace and the drafts all right, so I felt safe.

But at six o'clock next morning I found that the inside door of the greenhouse had not been closed tight and every plant was frozen stiff.

I soon had the water boiling and the pipes hot; moved as many plants as I could to the floor; sprinkled all with cold water and made a dense tobacco smoke to help raise the temperature; and then I covered most of them with newspapers.

Fortunately the day was cloudy and in the afternoon I found that, with a few exceptions, the plants looked as well as ever. There were a few black leaves on the blooming heliotropes, but the callas that were lying flat in the morning had straightened up and had not a mark to mar their beauty.

My begonias and Piersoni ferns were killed, but the other ferns were not damaged. Jasmines, *Murraya exotica*, stephanotis, geraniums, and lilies went on blooming, and the roses never did better. I suppose the fact that the house and plants were quite dry may have helped. I have cared for my greenhouse for fifteen years and have never had a like experience.

Moral: Be sure the greenhouse doors are locked every night.

A Home-made Roller for \$1.10

CHARLES BILLINGS, Vermont

I SAVED about \$13 by making my own garden roller, which is thirteen inches in diameter, twenty-two inches long and weighs about 250 pounds. It cost me only \$1.10.

If you want one like it, have a tinsmith make a sheet-iron cylinder of the desired dimensions. Put a wooden head in either end, and a $\frac{5}{8}$ -inch steel rod, four inches longer than the cylinder, through the centre of the heads. Set the cylinder on end with the rod projecting two inches above and



A home-made garden roller for \$1.10—a saving of about \$13

below. Through one side of the upper head cut as large a hole as convenient.

Mix thoroughly Portland cement and sharp, screened sand, in the ratio of one to three, enough to fill the cylinder. Wet the mixture to the consistency of thin mortar,

pour into the cylinder and let stand until dry. Remove the board ends, and hammer the projecting metal down over the edges.

Take two pieces of $1\frac{1}{4} \times 1\frac{3}{4}$ in. scantling five feet long. Bore an $\frac{1}{8}$ -inch hole at one end of each piece and put them on the projecting ends of the cylinder rod. Bolt and brace a bar across them in front of the cylinder, and work down the front ends in suitable shape for handles.

Sacred Lilies in Thirty Days

A., New York

I READ with much interest an article in THE GARDEN MAGAZINE, saying that the Chinese sacred lily will bloom in about two months.

In December, 1906, some bulbs of the sacred lily were sent me from California, and I put one in a small jar with water and a few stones gathered from the roadway. At Christmas time I went away for a week, leaving the lily in my bedroom. During my absence the furnace broke down, and for a week there was no heat whatsoever in my room. I greatly feared my lily would be quite dead after such treatment, but on my return I placed it in my window where it had plenty of sunlight.

The picture on this page was taken about the middle of January, a month after planting, and at that time there were fifty blooms on the lily.

A Flower-bed for Thirty Cents

ELLA M. BEALS, Massachusetts

FOR the past two summers one of our neighbors has had a brilliant bed of annuals costing only thirty cents a year for seed. The bed is about 10 x 12 ft.

The edging is of blue ageratums. Next is a double row of crimson feathered celosia and a single row of white asters. The centre is filled with tall African marigolds



This flower bed was filled with annuals at a cost of thirty cents for seed. Edging of ageratums, then celosias, then asters. Marigolds in centre



A hotbed heated without manure. An old brooder was utilized and a common lamp

(Lemon Queen) and a few bulbs of summer hyacinth.

The seeds were sown in coldframes and the plants were in fine condition when it came time to set them out. Tulips had been grown in the bed and when the bulbs were taken up, the soil needed no fertilizing.

The first season the celosias chosen were yellow, making the color scheme yellow and blue. The substitution of the red in place of the yellow seemed a decided improvement.

The bed itself is level, but as the taller plants are in the centre it has the effect of a mound, every flower being in sight from any point of view. The cost of the bulbs is not included, but they might well have been omitted.

Heating a Hotbed Without Manure

R. E. T., Illinois

I HAD long wanted a small hotbed, but the difficulties attendant upon securing and caring for the heating material seemed insurmountable until last spring when I used a poultry brooder with satisfactory results. I spent \$4.25 for material and fuel and raised plants worth \$12.05 the first season.

The year before I had made a brooder according to designs published in Bulletin No. 36 of the Connecticut Experiment Station, at Storrs, Conn. This year it did not seem advisable to use it for its original purpose so I made a frame eight inches high in front and twelve inches high in the rear, secured a sash of suitable size and placed the whole over a cellar window on the south side of the house.

For heat I used an ordinary lamp which could be conveniently tended from the cellar by opening the hinged window. At night and on extremely cold dark days, the glass was covered with an old piece of carpet and some gunnybags and I had no difficulty in keeping a temperature of 60 degrees, even on nights when the outside temperature was zero or lower.

I secured both top and bottom heat in this way. A strip of tin four inches high and long enough to go around the pan in the centre of the floor was procured and fastened securely in place about one-half an inch from the lower edge of the pan. Then all the remaining space was filled with soil. This strip allowed the warm air to escape from the perforations in the pan.

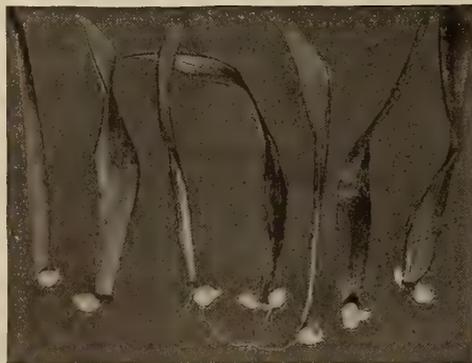
Seeds requiring special attention were planted in cigar boxes and placed on the top of this pan, thus using all the space.

The first seeds were planted about February 15th, and by practising "intensive farming" and using a coldframe for hardening the plants off, I had the following plants ready for the garden by the time the ground and the weather were suitable:

9 cannas, worth	\$.75
25 globe artichokes	3.00
200 White Heart cos lettuce . . . . .	.80
200 Holyrood hot weather lettuce . . . . .	.80
18 egg plants . . . . .	.25
30 pepper plants . . . . .	.50
125 tomatoes	1.50
12 verbenas . . . . .	.50
20 petunias . . . . .	.80
125 Bermuda onions . . . . .	.25
50 Drummond's phlox	1.00
100 turnip-rooted celery . . . . .	.90
18 asters	1.00
<hr/>	
Total	\$12.05
Coal oil	\$1.25
Glass, lumber, etc.	3.00
	<hr/>
	4.25
Balance	\$ 7.80

Beside this I had the advantage of knowing what variety of vegetable plant I was raising instead of buying nameless varieties from the corner grocer. Also I had the pleasure of experimenting with certain plants, as cannas, that do not come true from seed, but which occasionally give a seeding that will more than pay for all the time expended in producing it.

After these plants were removed to the coldframe for hardening off I put in some sand and rooted cuttings of bedding plants, such as geraniums and coleus. And during the summer I raised from seed a number of hardy perennials for fall planting.



A new method of propagating lilies, whereby the high priced kinds may be produced at lower rates

The picture on this page, showing the hotbed in operation, was taken on a sunny day in March. Even at this early date the cannas can be plainly seen in the upper left hand corner. The canna became a



Mignonette, verbenas, stock and calendula picked in the garden after a killing frost

magnificent bronze leaved beauty, nearly ten feet tall, with large branches making a clump fourteen inches in diameter.

Propagating Lilies from Leaf Cuttings

F. H. HORSFORD, Vermont

I BELIEVE it is not generally known that many of the lilies may be grown from leaf cuttings. Last winter while experimenting with leaf propagation, my son, C. P. Horsford, told me he was going to try lilies. I had little faith in his success until in about three weeks he showed me some well grown bulblets with roots from leaf cuttings. Several kinds were tried, including the Madonna, Philippine, Brown's, Henry's, speciosum, longiflorum, sulphureum, etc. The only one of these which failed to produce bulbs in this way was Henry's lily and I think this was owing to the temperature not being right for this kind.

The accompanying illustration shows how Brown's lily may be propagated in this way. Two and even more bulblets are often formed at the base of a single leaf. This method of increase will probably not pay with most of the cheaper kinds, but it may show a way by which the higher priced bulbs, such as Brown's lily can be produced at lower rates than the markets now afford.

A temperature of 60 degrees is about right for most kinds. The leaves are removed from the stems by pulling them off downwardly and sticking the bottom third in moist sand as one would do with carnation cuttings. If the light should be too strong for any length of time a thin covering of tissue paper will give about the right amount of shade. During long spells of cloudy weather the paper should be removed.

A Garden That Bloomed After Frost

I. M. A., New York

WHY not have all the more prominently situated flower beds filled with hardy annuals that will outlive the early frosts and bloom for weeks after tender plants are destroyed by the cold? After having



Another view of the bed of annuals (10 x 12 ft.), which cost only thirty cents a year for seed

a bed of nasturtiums ruined by a premature frost I decided to have a bed of frost-resisting annuals. It was a small affair, say three by thirty feet, but it kept up a fair show for about a month after gardens are generally devastated.

Mignonette bloomed even in the snow. One season it bloomed six weeks for me after tender plants were destroyed. Another year I picked some from the garden when the thermometer stood at 24 degrees and a coating of ice decorated the water pail. Late July is the time best suited for sowings intended for autumn bloom.

Sweet alyssum is about the last annual to give up when repeated frosts try to discourage it. It has bloomed in my garden when the ground was covered with snow. It is unnecessary to sow sweet alyssum every year. After the first season it will self sow, and these seedlings, transplanted to the "frost" bed, will be in their glory during the fall days.

Verbena supplies a brighter color than those already mentioned and is one of the hardiest, enduring without protection a temperature several degrees below freezing. Verbena, also, after being discolored and wilted with the cold, will gradually resume its natural appearance as it thaws out.

The pansy is one of the most attractive plants for late bloom. The rule is spring-sown seed for fall bloom and fall-sown seed for spring bloom. The flower bed that is given up to fall flowering pansies will yield a rich reward for the care given it. If all buds are picked off till cool weather begins the size and vigor of the flowers will repay the trouble. Fresh pansies have been picked from an unprotected bed when the weather was cold enough to cause ice in the water pail at noon. Pansies, likewise, escaped the frost that blackened tender plants under a covering of carpet. With foliage and stems almost black with the cold they will lift their heads as the weather moderates.

The petunia defies the frost, and when wilted with the cold will come back to its former state after a little thawing.

Calendulas are among the hardiest of all and have the further advantage that they add a touch of brilliant yellow to our autumn collection.

Transforming a Dump Heap

By MARY H. CHRISSINGER, Md.

THIS garden was a veritable dumping ground before it was reclaimed two years ago. It required patience and thoughtful care before it reached its present state of perfection; but the results have amply repaid.

The walk, which is seventy feet in length, has a solid border of asters, ranging in color from the palest to deepest tones, many of the blossoms measuring five inches and more across. Although the seed was "home grown," both plants and flowers have reached such a stage of cultivation that they resemble exquisite chrysanthemums more than asters, with their variously shaped petals and splendid foliage and stems. Quite a number have reached a height of three and a half feet and more.

They have grown so profusely and luxuriantly that as many as five hundred blossoms have been cut at one time without apparently making any impression in their appearance



This beautiful garden of asters was a veritable dump heap less than two years ago. Five hundred blossoms can be cut at one time without making any appreciable effect

and a conservative estimate might place the entire number close to twelve thousand!

A clematis vine in full bloom covers part of the fence at the side of the garden.

"New" Potatoes at Christmas

By L. J. C., New Hampshire

THE acme of quality in potatoes, from the English point of view, is represented by the little round tubers, about an inch in diameter, which are sent *in early spring* from the Jersey and Guernsey Islands. An English gardening periodical tells of an ingenious scheme by which anyone can have quite as good potatoes at Christmas time.

First of all dig a hole three feet in depth, and procure some biscuit tins about nine inches long and four inches wide, having close-fitting lids. Tubers of a kidney-shaped potato having a smooth skin should be selected for storing. Snowdrop is a suitable variety.

As each root of potato is dug pick up the tubers and put them in a basket, which should be immediately covered with haulm or something to prevent the tubers from drying. When sufficient has been dug, take them to a shed and pack them thickly into the biscuit tins. No soil or any material is put with them. The tins should then be buried in the hole prepared for them, and a stick put in the ground to denote their whereabouts.

It is best to select medium-sized tubers, just such tubers as are generally described as "new" potatoes. Remember that it is necessary to dig and store the tubers away in the tins before the skins are set, or they won't keep well, nor afterward scrape like "new" potatoes. A little green or dried mint should be boiled with the tubers.

Christmas Cheer Outdoors All Winter—By Jabez Tompkins, Connecticut

THE TRUE STORY OF AN "OLD-TIMER" WHO GETS ALL THE "FUN" OF GARDENING WITHOUT A LICK OF WORK, A CENT OF COST, OR EVEN A COLD IN THE HEAD



"I give the palm to American holly"

I MAY be a wrong-headed old man, but I believe I have the "grandest scheme on earth"—a practical plan by which all of us can enjoy the warmth and gaiety of the Christmas season all winter. Shall I tell you how I stumbled upon it?

When I pulled out of Wall Street ten years ago and resolved to "do

nothing ever afterward except just be happy on my country place," I confess that the first winter away from town seemed mighty dull. I never noticed before how pesky hard the wind blows in the country and what a cold proposition the snow is—the whole earth covered with a glaring sheet of white, broken only now and then by the tattered rags of some old weeds.

"Total amount of interest in this landscape," said I, "ought!" I know well enough that city grammars call for *naught*, but the word was n't equal to the occasion. If there is any country that looks more cheerless and monotonous for five-twelfths of the year than America I wish you'd name it to me. So I cast about for some "fun."

"Why don't you have a greenhouse?" asked Deborah. "You're as fond of gardening as anything and you could putter around indoors when it's too cold to go out."

I thought about anthracite at six-ought-five a ton and my pulse refused to quicken. Then I remembered a bill for repairs on his



"It is certainly the most graceful of the roses for winter effect." The multiflora

greenhouses John Hinchman once showed me and I gagged.

"Gardening in summer is all right enough," I retorted, "but in winter I draw the line on work. I'm busy enough with my books and my fire. I'd be willing to look at something pretty outdoors if I did n't have to go out on windy days or wait on a furnace."

When in doubt go to—Boston. Any problem can be solved there. I might have remembered that, but, as it happened, I went there merely on a visit to my daughter. One sunny day she drove me out to see the parks.

"What are all those red things?" I inquired.

"Those are shrubs with red berries on them. This is part of the Arnold Arboretum."

"Who was Arnold and what is an Arbore-



"The winterberry you see glowing in the swamps at Christmas." Black alder (*Ilex verticillata*)

tum?" thought I, but did n't dare to ask. I never did find out about Arnold, but I soon saw for myself that the Arboretum is the finest collection of trees and shrubs in America.

"Those red things" excited me greatly. They warmed the whole landscape. Judging by the effect on me they were a pretty fair substitute for coal. There were other colors, too—more varieties than I had ever dreamed of. We got out at what my daughter called the "Fruticetum" and walked up one path and down another until I had taken the name of every bush that struck my fancy. For now I was sure I had my idea for making winter interesting. I would have a collection of these berried shrubs. From every window of the house there should be visible some bright patch of color. I would also scatter a few bushes along the roadway so that my winter drives might have a little "ginger."

Out of one hundred possible errors I suppose I made over ninety. First I bought a lot of cheap ten-cent stock, which either died or waited three years to make a decent show of berries, instead of good big bushes at

thirty-five to fifty cents which will give a fine display the first winter, if planted in the spring. Then the birds ate all the berries of some kinds, while others dropped their fruits soon after frost or else lost their attractiveness by Christmas.

But my second winter in the country was not so dull, for my barberries alone were worth all the trouble. They burned brightly against the snow all winter and I was convinced that I had a "tail holt" on a good idea that was practically unknown to books and landscape gardeners. I searched forty "works" on gardening that winter in a vain hunt to find one single word of appreciation for the new world of beauty that had been opened to me. Finally, I went to two or three landscape gardeners for help, but they knew of nothing that I had not already planted. Their clients, apparently, were city men with summer homes, and the question of making the country interesting in winter had never come up in any large way.

Two great facts now began to loom up in my experience. First, the most valuable shrubs for winter effect are those which are attractive all winter, instead of falling by the way before Christmas. Therefore I would use the short-lived beauties only for spice and make my big plantings next spring of the kinds that would stay by me from November to March.

Second, I found that the cheeriest color



The long-stalked holly (*Ilex monticola*)



"I know a rose with even bigger 'hips' than rugosa and they last all winter!"



"I have every kind of a viburnum, but the one that cheers me most is *Viburnum Opulus*, the 'high bush cranberry.'"

is red. It burns like a live coal against the snow. Black and blue berries are dead by comparison, while white ones, though conspicuous, suggest the universal coldness. The best way to enliven home grounds is to have several large red mass effects.

Well, then, to make a short story long, you now have my theme — *red berries that last all winter*. Every picture accompanying this informal screed shows a different kind of red berry that lasts all, or nearly all, winter. What I don't know about botany would fill many books, so I won't attempt any learned description, as everyone would soon "find me out." However, if it would be any use to explain the human interest of these bushes I will try to set forth the relative winter values of a dozen of the best red berries in my collection.

I give the palm to American holly because it is practically the only tree or shrub we can have in the North which has the noblest possible foil for its red berries, viz., an evergreen background. That must be the basal reason why it is the most popular symbol of Christmas cheer. I had always supposed holly to be a Southern plant, and shall never forget my delight when I saw a tree twelve feet high near New York that was loaded with scarlet berries absolutely all winter. It suggested to me holly bushes in every northern yard and the cold dead landscape animated by these immortal-looking leaves and glowing berries.

But I am afraid that this supreme beauty will be realised only by the intelligent few, for holly bushes are necessarily costly and there are peculiarities in their cultivation as I found out by tedious experience.

I planted my first lot of holly the first

chance I got, which happened to be in the fall, and discovered that fall-planted holly will surely die. The next spring I put out a dozen more, but I disobeyed the nurseryman's injunctions to strip off all the leaves, for I could n't bear the idea of sacrificing all that grand foliage. Result — failure. The third year I paid a big price for a dozen large bushes and gloated over a big crop of flowers which promised a superb show of berries. Not one berry.

Then I learned that in order to have fruit you must have both kinds of bushes — staminate and pistillate. Mine were all staminate, and, of course, holly without berries is like Hamlet without the Prince. When I finally got holly to fruit in my own yard I was foolish enough to set some bushes down by the front entrance where people broke off sprigs and stole the berries.

I have spent more thought and money on holly and waited longer for it than for all the other red-berried plants put together. But it was worth it and the matter is really



The common purple leaved barberry for contrast with the prodigy shown on the cover

very easy when you know the facts I spent so much to learn.

Anyone who is in a hurry and does n't mind expense can sometimes pick up large plants that have been grown in pots five years, or long enough to prove whether they are staminate or pistillate, which cannot be done until they flower.

I have a large place and can use hundreds of hollies, so I have given a good deal of attention to getting them cheaply. I have had big plants collected from the wild and sent me, but without success, as the only way to get good enough roots is to transplant frequently or grow in pots.

A Philadelphia-grown holly two feet high costs about \$2.50 a plant. I can get Georgia-grown holly twelve to eighteen inches high for fifty cents each or \$40 per 100, enough to start a good bit of hedge, like the famous hedges of English holly abroad.

As I want to scatter holly all through my woods I have resorted to growing holly from

seeds, which is a slow business, but I have all the time in the world. The seeds do not sprout until the second year and have to be put in layers in boxes of sand and buried. My present hobby is to collect berries from the northernmost points where they grow wild, in the hope of developing a strain that will be the hardiest and longest-lived and not so fearfully slow-growing.

Speaking of holly reminds me that there are several hollies that shed their leaves and consequently are faster growing and cheaper. They cannot compete with the evergreen kind, which is *Ilex glabra*, but they are brilliant enough. The one I like best for big masses is the "winterberry" you see glowing in the swamps about Christmas time. That is the black alder, or *Ilex verticillata* of the nurserymen. It makes a good show until February. (See page 222.)

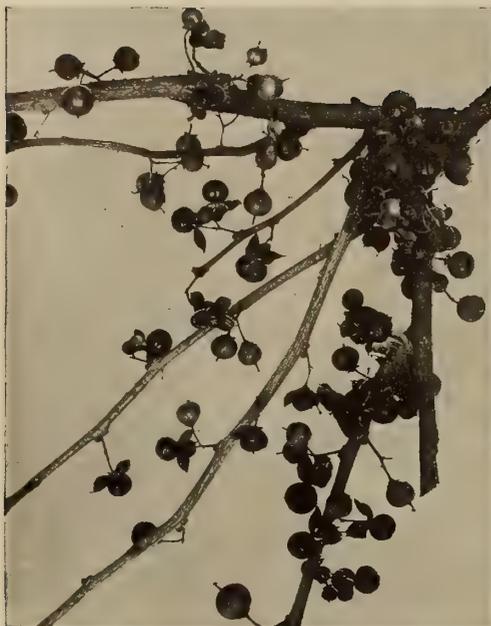
I have another holly that is said to have the largest berries of the tribe — the long-stalked holly (page 222) — which I got from a nursery in the Southern Appalachians under the name of *Ilex monticola*. The berries are half an inch in diameter, or twice as big as ordinary holly berries, but they are not very abundant and drop soon after Christmas, so I am satisfied with a few specimens.

It is a far cry from hollies to roses, but almost everyone who hears "red berries" mentioned begins to exclaim about the rugosa rose. Now I am a "bear" on rugosa, so far as winter value is concerned. I grant you that it has a "whopping" fruit but it rarely remains attractive as late as Christmas, and I know a rose that has even bigger "hips" that last all winter! (Pictured on page 222.) I have imported this from two Irish nurseries under the names *Rosa lutescens* and *macrophylla*. The fruits are over an inch long.

But the loveliest rose for winter effect, in my humble opinion, is the multiflora. I went



"Why not enjoy holly berries outdoors all winter in our own yard?"



An Asian bittersweet; showing how the orange husks open and disclose the scarlet berries. I bought this under the name *Celastrus paniculatus*



Gather native bittersweet in September for Christmas decoration. The leaves will shrivel but last all winter and add greatly to the effect

out to the big rose collection at the New York Botanical Garden last winter to see if they had anything that could beat it and it is certainly the most graceful of them all. Its open, many-fruited cluster is shown on page 222. Most rose fruits become unsightly by Christmas but this lasts all winter.

The "great American genus" of shrubs is *Viburnum*. We certainly beat the world on these flat-clustered white flowers that are followed by berries of so many hues. I have a collection of every kind of hardy viburnum but the one that cheers me most in winter is what the nurserymen call *Viburnum Opulus* — in plain English "high-bush cranberry." (Picture on page 223.) This is commonly considered a European species but it is American also. There are other viburnums with red berries that last all winter but this is the only one I can afford to have in big masses. Besides, it has the largest berries.

The greatest prodigy I have among red-berried shrubs is the peculiar barberry pictured on the cover of this magazine. The

astonishing fecundity of it may be seen by comparing it with the ordinary purple barberry pictured on page 223. I got this wonder from two importers of Japanese plants under two names — *Berberis Sieboldii* and *Hakodate*. I intend to propagate a lot of it for my own grounds.

When it comes to red-berried vines my standard of beauty is our native bittersweet or waxwork pictured on this page. That is the cheapest climber I know of for producing in a reasonable time big masses of red that are a comfort all winter. I like it best when it scrambles over a big stump, but I also send it up dead trees in my woods and I have one vine of it on my porch.

I also have on my porch another bittersweet which I believe makes an even better show (see this page). I hardly know what to call it. I bought it for the Himalayan bittersweet (*Celastrus paniculatus*), but that is not supposed to be hardy in the North. Perhaps it is the Japanese (*C. orbiculatus*) for that is said to fruit more profusely than our native kind.

Among red-berried trees everyone knows the mountain ash, but few people realize that we have two different species in our own country. The one pictured on this page is the Western mountain ash (*Sorbus* or *Pyrus sambucifolia*) which has larger flowers and fruit than the Eastern kind. The mountain ashes will thrive only in the North, and seem to have been divinely appointed to redeem our winter landscape from desolation. The Southerners can beat us on holly, ivy and all manner of broad-leaved evergreens, but the mountain ash is one of our compensations. True, its berries often fade by February or are eaten by the birds, but sometimes as late as March I have seen it furnish the only bright spot amid a world of snow. I go in heavily for mountain ash. I love its flat clusters of whitish flowers, its compound foliage, the admirable smoothness and lustre of its bark, its mystical suggestion of the Far North. Its fruit is not a bright scarlet, but like everything which has a dash of orange it is more brilliant than a true red under artificial light. A few bunches make a magnificent decorative material.

Another red-berried tree I have taken a fancy to is the red chokeberry. It is related to the mountain ash, as its scientific name (*Sorbus arbutifolia*) implies, but it has ordinary, instead of compound, leaves. In my collection there are half a dozen species of *Sorbus* answering this description, and some of them have larger fruit, but I believe this is the reddest and most promising. The flowers are white or tinged with red and the foliage turns orange red in autumn.

It is easy to spoil a good idea by overdoing it. I have no wish to pose as a "crank on berries." I have seen too many gardens and grounds where an idea has been pursued remorselessly to the logical end. I don't like logic in gardens — I like beauty of form and color, harmony, personality and all that. But there is neither logic nor sense in having home grounds in city or country bleak and dull for more than a third of the year. Why confine the Christmas spirit to one week or two? Why not have it all the year? And particularly why not enjoy holly berries outdoors all winter in our own yard?



"The Western mountain ash has larger flowers and fruits than the Eastern kind"



"The red chokeberry, a relative of the mountain ash, which has ordinary, not compound, leaves"



In August the flower beds were dug two feet deep and the soil mixed with rotted manure

The same beds eight months later. Canterbury Bells on left, foxglove in center, and sweet alyssum on right

Home Gardening in Southern California—By Charles F. Saunders

THE WONDERS THAT CAN BE ACCOMPLISHED IN A CLIMATE WHERE YOU CAN PICK FLOWERS OUTDOORS EVERY DAY OF THE YEAR—WHAT THE "TENDERFOOT" MUST LEARN

[Editor's Note. This is the fourth of a series of articles on "Home Gardening in Every Part of America," to which you are cordially invited to contribute. We had a Nebraska garden in June, 1906; a New Hampshire garden in October, 1907; a Texas garden in February, 1908. Will you tell us what the peculiar conditions of your region are, give a calendar for important operations, and make your story interesting and practical?]

WHEN, after half a lifetime in the East, we transferred our residence to California, the prospect of making our own "garden spot" was not the least of our anticipated pleasures. The pleasure was realized beyond our most sanguine hopes, but with it came surprises so pronounced that I may almost term them shocks.

Such a matter as common, everyday grass, for instance, on which we had counted for turfy walks as in the East, proved harder to grow than anything else and, except for lawns, had to be abandoned; seed blithely sown in June resisted all the blandishments of the watering pot and astonished us by coming up in January, long after we had forgotten it; familiar annual climbers, such as the canary-bird vine, which we had confidently planted for temporary screens, were a mass of burned leaves by July, as indeed by that time were most of our old-fashioned Eastern garden favorites which

we had set out for midsummer bloom; while nearly all the perennial vines, which enthusiastic friends who had toured California told us grew there like Jack's bean stalk, disappointed us by sulking for months until in some cases we were on the point of tearing them up root and branch. The beanstalk gait, we found, was usually not struck until the second year. But it came then — with emphasis!

The house that we bought was barely a year old, built upon a lot 60 x 180 ft. The original owner had given no attention to the grounds except to put in a lawn before the house and to set out a few flowering plants where they would be visible from the street. The whole rear of the lot, a space measuring 60x85 ft., had been left untouched. Upon this portion, in a tangle of weeds and wild grasses, stood five orange trees, remnants of a grove which had originally covered the tract of which our lot was part.

The surface of the land was humpy and irregular with a pronounced dip toward the back and to one side, so that the rear of the lot was from four to ten feet lower than the ground upon which the house stood. The soil was a dark, mellow, clay loam, which, after the first winter rains had sent their moisture well through it, was easily worked. It had, however, a strong tendency to pack as it dried out.

It was December when we obtained possession and our first concern was the building of a fence. We had several loads of soil hauled in from a neighboring lot, and deposited in and about the deepest corner so as to bring the rear line more nearly up to a level. The fence itself was made of redwood 3 x 4 in. posts set eight feet apart; these were six feet high, planted two feet in the ground, making the fence four feet high. Redwood battens one-half an inch thick by three inches wide were



Part of the rear lot, covered with wild grass and weeds, before the ground was broken for the garden, and the same place eight months later

nailed to the posts so as to make rectangular lattice work with openings one foot square. A dark green stain was applied, and the cost of all materials amounted to about \$35, or 15 cents per running foot of fence. Had I not contributed the labor myself, the cost would have been about \$65.

Owing to the irregular "lay of the land" and its sliding down to the back and to one side, we found it impracticable to lay out flower beds satisfactorily without radical regrading, and the dry season was well under way before we could devote attention to the matter. The ground at that season was baked quite hard and the July sun was very ardent, but it would probably have been four months before the winter rains would come to soften it, and such a delay would mean a whole season's loss of perennial bloom.

The plan followed was to fill the lower portions of the lot with the dirt dug from the higher parts, and arrange the garden in a series of level, descending low terraces or "benches."

The first terrace adjoined the house and was the whole width of the lot, sixty feet by twenty feet deep, with an L eight feet wide running at right angles along one of the side fences; the second terrace, dropped to a level two feet below, was fifty-two feet wide by twenty feet deep with a similar, but wider L paralleling the first and two feet lower; the third terrace, dropped to a level two feet below the second, measured thirty by forty-five feet and occupied about one quarter of the lot extending to the rear line.

The ground worked hard, indeed, on the surface after nearly three months of dry weather, and had to be broken with a mattock; but at a depth of six or eight inches it was mellow enough to be readily spaded, and at a foot deep was perceptibly damp. A few spots which had been packed especially hard by being walked on, were softened by allowing the hose to trickle upon them for some hours.

The next step was to make retaining walls to hold each terrace in place and also to hold in the earth about two of the orange trees that had been left high and dry by the cutting down of the higher ground.

For this we got two loads of the round water-worn arroyo stones — or cobbles —



Midsummer bloom in the garden. Gaillardia, Shasta daisy and sweet William



Building the pergola, which was to act later as a summer house

from the washes near the mountains, and hired a stone mason to build them into walls. On the lowest level, near the rear of the lot within a square determined by four of the orange trees, we erected a small pergola 12 x 6 ft. to serve us, when it should be vine-covered, as a summer house. The construction of this was of the simplest — four redwood 2 x 4 in. posts set eight feet high above the ground, connected lengthwise by two timbers of the same size, crosswise, upon which we nailed on edge four redwood planks 2 x 6 in. at equal distances. Flat stones made a serviceable and artistic pavement.

PLANTING THE GARDEN

We desired to have the terrace nearest the house turfed, so as to provide an evergreen foreground to the flower garden. As this space would be walked on a great deal, we decided upon *Lippia repens*, which makes a close mat, can be mowed like grass, may be tramped over with impunity and thrives on a minimum of water. Moreover, it is a charming little plant when in blossom, a patch of it making a whole flower garden in itself, beloved of the bees and the wandering wind.

We planted the cuttings in midsummer, kept them well soaked for a few days and protected with a layer of newspapers during the heat of the day, and by the beginning of the rainy season they were forming good sized mats. Our experience with *lippia* is that it requires more time than grass or clover to make a turf, but once established its drought-resisting properties render it valuable for many situations where a lawn would be troublesome and expensive to maintain.

Terrace number two, the sunniest portion of the garden, was edged on two adjoining sides with a 2-foot retaining wall, with a special cozy-corner made by the angle of the wall, where we sunk a water-tight half barrel for a water lily; planted about the rim a few umbrella plants (*Cyperus alternifolius*); a German ivy (*Senecio scandens*) to clamber over the low wall; a few violets; a couple of forget-me-nots; a root of the small sneezewort (*Helenium pumilum*); and another of spearmint — the whole making a nook of watery coolness very refreshing in a dry land. Some plants of creeping fig

(*Ficus repens*) were set against the retaining wall at different points to mitigate the rather pronounced white and black of the arroyo stones.

This situation, however, owing to its being partially shaded by an orange tree, proved not sunny enough for the best development of water-lilies, and we are arranging to substitute for it a less particular aquatic — the water hyacinth — and to sink another half tub in the open sunshine for the nymphæa.

On this same level we established our rose bed, transplanting the bushes on September 30th from other parts of the lot, being careful to lift them with an ample ball of earth. They promptly dropped all their leaves, but an abundance of water applied to the roots twice a week, brought out the dormant buds in a short time, and we had good bloom from Thanksgiving until after New Year's.

A bed of sweet blue violets (the "Princess," which is one of the most satisfactory here, producing large fragrant blossoms on long stems) was set out from young plants about the same time with the roses and gave us Christmas bloom. Another bed, in which in early autumn we put young plants of gaillardia, began to bloom about New Year's; and a patch of perennial coreopsis seedlings (*C. lanceolata*) planted at the same time, grew like weeds after the first winter rains fell, making pleasant mounds of fresh green foliage for us, followed in late January by the flower heads.

At the four posts of the pergola, we planted *Tecoma jasminoides*, which is a rapid grower, with beautiful, glossy, jasmine-like foliage, producing bloom both summer and winter; a star jasmine (*Trachelospermum jasminoides*) which we found slow to climb, but desirable on account of the delicious fragrance of the white, starry flowers; a *Plumbago Capensis*, which may be trained either as a bush or a climber, and makes a cloud of lavender bloom three-fourths of the year; a heliotrope, which in Southern California often grows to the second story of the houses, and is a perpetual bloomer, though on frosty nights it needs the protection of a sheet thrown over it.

To provide some constant green about the pergola, we planted at both sides of the short path leading to it more *Lippia*



A feature of our garden was the cactus bed, a miniature bit of desert

repens, and over the low retaining walls close by, two species of mesembryanthemum — the small-leaved variety bearing pink blossoms that hide the plants under an almost solid sheet of color in spring, and the coarser-leaved, large-flowered cerise species which blooms most profusely in summer.

The mesembryanthemums, which seem indifferent to water are particularly adapted to the long, dry season of this land.

Along the fence at the lower end of the garden were planted slips of Japanese honeysuckle, contributed by a neighbor. In eight or nine months they were making a perceptible screen over the fence.

A feature of our garden which has given special pleasure is a cactus bed, 8 x 15 ft. We selected for this the highest part of our lot, in full sunshine, removed the surface earth to the depth of six inches, filled the excavation about half full of coarse gravel, shoveled the original soil on top of this, rising toward the middle of the bed, and then spread sand over all to the depth of two or three inches. Some large stones and pieces of broken rock were scattered around for picturesque effect, and the whole formed a miniature sandy knoll like a bit of desert.

We purchased from a dealer a dozen small plants in 2- and 3-inch pots, costing on an average about twenty-five cents apiece—two mammillaria, two echinocactus, two cereus and half a dozen opuntia — and to these we have added from time to time slips from friends' gardens and specimens collected "in the wild." If you are going to like cactuses at all, you are going to like them hard, and you will find it fascinating in the extreme to watch the growth of these strange creations of nature, while the opening of the first blossom on your nursling plants will make a red letter day in your garden life.

At the rear of the house facing the garden is a large porch. There is no roof, but a framework of beams overhead, as in a pergola, makes a support for vines. A Lamarck rose was planted at one front post and a Reve d'Or at the other. They were sticks a couple of feet high when set out in March, but a season's growth sent them both over the top beams bursting into a mass of bloom the following April. This rose-embowered porch makes a pleasant vantage ground from which to enjoy the garden.

For a home-like, every-day sort of flower garden such as we have designed ours to be, with "something doing" all the year round, fragrant, pleasant to the eye, restful to the spirit, with shady spots and sunny — a garden suitable for people who cannot afford a gardener and who have themselves only a limited time to devote to its care — we have found the following list entirely satisfactory for this part of Southern California. The flowers named are all of the simplest culture, and comparatively free from disease and insect pests. The first list includes the dry autumn months, until the rains set in, usually in November:



Eight months after the garden was started, showing the first terrace with its arroyo-stone wall

FOR SUMMER BLOOM

Alyssum (sweet)	Mignonette
Canna	Nasturtium
Calendula	Pansy
Coreopsis	Petunia
Daisy (Shasta)	Penstemon
Gaillardia	Phlox
Geranium	Pink (Japanese)
Heliotrope	Portulacca
Lobelia (blue)	Poppy (California)
Marigold (French)	Salpiglossis
Mesembryanthemum, cerise	Verbena
	Zinnia

FOR WINTER BLOOM

Alyssum (sweet)	Marguerite
Calla (white)	Mignonette
Carnation	Nasturtium
Calendula	Pansy
Daisy (English)	Pink (Japanese)
Geranium	Stock (Cut-and-come-again)
Heliotrope	Verbena
	Violets

Hollyhock and snapdragon might be added to these for both winter and summer, as they grow easily and bloom abundantly,

but unfortunately they are exceedingly prone to certain rust and fungous troubles that make unsightly foliage.

I make little mention of spring months, for almost anything that will bloom anywhere will bloom in Southern California then, when the ground is one vast reservoir of moisture. If one has the time to prepare the beds and start the seedlings in the proper way, and is content with a short season of flowering, he can have in Southern California from March until the end of June a succession of all the old-fashioned favorites of the Eastern garden, with a magnificence of bloom unattainable there. We have never seen anywhere such wonderful beauty of foxgloves, Canterbury Bells, larkspurs, columbines, sweet William, poppies (Shirley and Japanese), irises, etc., as in the spring gardens of this vicinity.

Of course, much depends on how the plants are watered, and on page 238 I have told our methods for doing this work.



A Reve d'Or rose, two feet high, set out in March grew eight feet in a year's time

All the Winter Crocuses Worth Growing—By Wilhelm Miller, New York

WHY NOT HAVE A THREE-DOLLAR COLDFRAME AND ENJOY THESE CHARMING FLOWERS EVERY DAY FROM SEPTEMBER TO MARCH? CAN THEY BE GROWN SOUTH LIKE WILDFLOWERS?

[EDITOR'S NOTE. This is the twenty-second of those heretical "Little Monographs" which fight the old notion that the garden value of plants is wholly a matter of taste, and that the limitations of any plant should be politely ignored. We maintain that the comparative method, which is the life-blood of science, must be introduced into gardening; that its object is to discover which plants are the best for each particular purpose; and that we can never overcome the defects of any garden plant until they are honestly stated.]

EVERYBODY knows the common crocuses, which are the first showy garden flowers of spring, but most people do not know that there are also autumn and winter-blooming crocuses. I want you to make a sharp distinction in your mind between the autumn and winter species because anyone can afford to grow the former, whereas those that bloom in mid-winter are only for experiment.

There are only nine species, outside the regular spring bloomers, that are cheap enough to be planted in the lawns or gardens by the thousand and these I have described in the Christmas number of *Country Life in America*. My present object is to show why anyone should spend his hard-earned money for the higher-priced kinds.

This is very easy. The cheap kinds mostly bloom in September or February. Between those months comes the rub. The winter crocuses offer two opportunities: They will bloom outdoors in the South from November to February, and it is possible that they may prove to be the most interesting and valuable flowers in the Middle South during the long period when there are practically no other flowers.

In the North, winter crocuses make an excellent coldframe hobby for lovers of rare and interesting flowers. Now that we have these little portable frames (about two feet square) you can have a collection of thirty species (say a dozen bulbs of each)

which will give you flowers practically every day from September to March inclusive. On sunny days you can put the frames in the cellar and your friends will be surprised to see flowers coming right through frozen ground and even snow. For the coldframes do not furnish any heat. Their object is to protect these lovely flowers, after they have come up, from being spattered with dirt. Also, on days of feeble sunlight the flowers may open under glass, whereas outside they would remain closed.

The first amateur who made a great hobby of winter crocuses was Mr. Maw, whose glorious "Monograph of the Genus *Crocus*" I gloated over last winter while my crocuses were blooming just outside my dining-room window.

What a fine thing it would be if some American gentleman of leisure would take up any genus of plants in the same spirit as Mr. Maw! England is the only country, according to Hugo Munsterberg, in which important contributions to knowledge are commonly made by amateurs outside of university circles.

Consider the pleasure Mr. Maw had. His genus is confined to the Mediterranean region. Think of mountain climbing in the Holy Land and of scouring Italy and Greece for its most precious spring flowers! The search for type specimens took him to every important botanical garden and

herbarium in Europe. It gave him a chance to refresh his Latin, French, and German. He drew and colored every one of his seventy plates, with their full botanical details and made a beautiful map that shows at a glance just where each species grows wild. He grew every one of these pretty flowers at home. Yet the whole work took only what leisure a business man could spare for the purpose during eight years!

His "Monograph of the Genus *Crocus*" is a joy to handle and insures him a delightful immortality, for even when it is hopelessly out of date it will make everyone's eyes light up with pleasure. Yet so little are such things esteemed in America that I could not find a copy in the richest city of our country and I gratefully record my indebtedness to Dr. William Trelease of the Missouri Botanical Garden for the privilege of studying it for a fortnight.

There are two well marked color groups in the genus *Crocus*—the yellow and the purple. To the purple series belong the lilac, rose, and white, any of which is easily derived from the purple. But no species of the purple group has a yellow variety and vice versa. It is the fashion to call the yellow crocuses "orange," but I have seen no justification for this.

There are also two important kinds of markings—"feathered" and "suffused." The feathered crocuses have the branching veins of the petals outlined in purple or some derivative of that color. This is the type with which everybody is familiar among the spring-blooming crocuses. But the yellow species are often suffused with bronze—quite a different color from any in the purple series. Some of the purples also are suffused with a secondary color and it is a very agreeable change from the dominant type. In either case, the secondary color is nearly always confined to the outer surfaces of the three outer petals. Whenever any variation occurs I will mention it, as it is rare enough to be a specific character and always adds considerably to the interest.

CHOICE PURPLE CROCUSES

There are four crocuses that begin to bloom in October and ought to continue well into November.

The cheapest is *C. Asturicus*, which might be called the "variable Spanish crocus," because it is hard to find two flowers just alike even in its habitat. The other important species of which this is true are the common spring-blooming crocuses (*C. vernus* and *C. versicolor*). This Spanish crocus is generally violet or purple, and may be feathered or not. A dark purple variety seems to be the most



The largest of all the autumn blooming crocuses, sometimes six inches across! Aitchison's crocus, a feathered flower of September. (*Crocus speciosus*, var. *Aitchisonii*)



The Cloth-of-Gold crocus, a yellow flower of February, suffused outside with brown (*C. Susianus*)

popular now and fairly cheap (about \$25 a thousand).

The most consistently colored member of the purple group probably, is *C. Clusii*, which I shall call the "Portuguese purple crocus." It is said to bloom from the end of September till November and even into December, but the chances are that this refers to its season in the wild.

The most distinguished of the purples is the iris-flowered crocus (*C. Byzantinus* or *iridiflorus*), so called because it is the only member of the genus in which the three inner petals are conspicuously shorter and narrower than the outer. It is also the only species with purple stigmas.

Possibly the best purple for November is *C. medius*, but I do not feel sure enough of it to call it the "November purple crocus." It might be called the "Mentone crocus" as it grows wild from there to Spezzia. It is one of those exceptional species which are veined inside instead of outside. In this case the veins are near the base of the petals.

Then comes a break of two months which can probably be filled some time by a variety of *lævigatus*.

In February comes Sieber's crocus (*C. Sieberi*). I can imagine nothing gayer than its pale purple with a yellow base, the throat being yellow both inside and out. But the feathered form is said by connoisseurs to be even more attractive.

CHOICE PINKISH CROCUSES

I am sorry to say that there is no true pink crocus, the nearest approach being

rosy lilac. I think it quite improbable that we shall ever get pink or blue in this genus as these colors do not seem to be derivable from purple. A good pink can nearly always be secured from red, but there is no red crocus.

The only October-bloomer in this group is *C. longiflorus*, which I should call the "fragrant Sicilian crocus." This is a uniform pale vinous lilac with a yellow throat, but there is also a feathered form, which I should consider less precious because the ideal in this group is a pure pink.

The only November-bloomer I know of in this class is *C. Tournefortii* which might be called the "November lilac crocus." It has a few purple veins outside toward the base, but its general effect is probably self-colored. This flower is remarkable for never closing after it has once opened.

There are great gaps in this group. Perhaps we can get a cheap winter-blooming lilac crocus from a form of *lævigatus* and a cheap October bloomer in *C. sativus*, var. *Elwesii* which looks like the biggest of all that open between October and February. It is four inches across. I do not see it catalogued, but Mr. Bowles had some a few years ago.

CHOICE BLUISH CROCUSES

The word "blue" often appears in catalogue descriptions and doubtless causes much disappointment among buyers. We have some very pretty suggestions of blue among lilac and purple crocuses, but I believe it most improbable that we shall



Saffron, most famous of all crocuses (*C. sativus*), cultivated 3,000 years for the splendid orange dye yielded by enormous styles. Blooms October



The iris-flowered crocus, so called because it is the only one having inner petals conspicuously smaller than the outer (*C. Byzantinus*)

ever get even as near to blue as the Navy Blue sweet pea.

We have two very good autumn-bloomers of a bluish color, but then comes a long break, which might be filled by a variety *C. serotinus*, for the type is due in November and December. It belongs, however, to the feathered group, and though cultivated for over two hundred years, is rarely catalogued.

The only bluish crocus for February that I know of is *C. biflorus*, var. *Leichtlinii*, which will doubtless cost twenty-five cents a bulb before it gets to this country. Judging from the longest Dutch lists it is the only near approach to pale blue among the spring bloomers, save Tommasinianus which is too late, since it blooms after vernal.

CHOICE FEATHERED CROCUSES

Probably the earliest autumn-bloomer among the crocuses is *C. cancellatus*, for which I suggest the name "edible crocus" because the corms are sold for food in Damascus. (Another species, *Gaillardotii*, is also largely used for food but is unlikely to come into cultivation.) The typical *cancellatus* is pale lilac, more or less veined purple. One hardly knows whether to classify this species among the pinkish or feathered forms and there is doubt, too, about the season of bloom. The tradesmen say it does not flower till January.

Much cheaper than the edible crocus are "September feathered" (*C. speciosus*) and the October-blooming "saffron," both of which I have described in *Country Life in America*.

After the latter comes *C. Salzmanni*, an October-bloomer for which I suggest the name "big-corned crocus," as the only other species that has a very large corm (at least in the wild) is the saffron. The big-corned crocus is a vinous-lilac flower, feathered with purple. The bulbs are tolerably cheap (about \$1.50 per 100) and I hope that this species will be more certain to bloom the first year in October than the saffron.

The surest winter-bloomer among the feathered kinds is *C. lævigatus* which might be called the "variable winter crocus" or the "smooth-corned crocus," as either name would be quite designative. It is the only species that has a hard, leathery, polished corm. The flower varies from white to lilac and is generally suffused or feathered with rich purple outside. Maw even mentions a form that is a pure buff outside and I should consider this the most desirable of all. This species blooms from the end of October to Christmas and often into late spring.

CHOICE WHITE CROCUSES

A pure white crocus is a very sweet and precious sight and the amateur must expect to pay handsomely for it.

The only October white crocus that can be touched with a moderately long pole is the Caspian (*C. Caspius*), which is one of the two great treasures introduced since Mr. Maw's epoch-making monograph (1886). Mr. Bowles, upon whom the mantle of Mr. Maw seems to have fallen, was one of three to send a collector for it. He reported at Christmas time that its great charm is due to its unusually lengthy period of flowering. It had then bloomed in a frame from the middle of October and gave promise of producing flowers for several months after Christmas. It is nearly pure white, being yellowish at the throat. The corms cost about \$15 per 100.

The creamy white crocus (*C. ochroleucus*) is said to bloom from October to Christmas and it is distinguished by its conspicuous yellow throat.

Formerly the largest October white was thought to be the Adriatic crocus (*C. Hadriaticus*) which should be three inches across when fully open. It is normally purple throated, both inside and out, but white and yellow-throated forms have been found in the wild.

The centre of interest, however, among the whites is the true Marathon crocus (*C. Marathonisius*), a November-bloomer which Mr. Bowles says is quite the best

white-flowered autumn crocus, the flowers being larger and of greater substance than in ochroleucus or Hadriaticus, and not suffering so much from wetness. Mr. Bowles described this as a new species (*C. niveus*) but later came to the conclusion that it is the true old Marathonisius, which Maw never saw and which he was mistaken in considering a variety of *C. Boryi*. Both have yellow throats.

There is an acute mystery about this Boryi that needs solving. I find it offered at the shockingly low price of sixpence the dozen in an Irish catalogue of 1901, but I have not found it in any of the recent Dutch catalogues. Moreover it was apparently the most reliable November white known to Maw, though he says it needs a coldframe. It is a small flower, scarcely two inches across when wide open.

which has a bluish cast outside, and Pestalloza, which has a yellow throat. If you want the pure white be sure to specify the variety *Weldeni albus*, which costs about four times as much as *Weldeni albidus*.

In *Weldeni*, by the way, we sometimes get a third type of marking called "freckling," or "graining," of which this is the only available example known to me.

There are three splendid opportunities here for the amateur plant breeder, because we have no pure white crocus that is cheap enough to plant by the thousand. The most promising chance seems to be to get an autumn white from nudiflorus, a winter white from lævigatus and a spring white by the cheapening of biflorus, var. *Weldeni albus*. Mr. Bowles has already secured the first two varieties.



Common spring-blooming crocus. Earlier than other garden flowers, but the latest crocuses to bloom (*C. vernus* and *versicolor*)

"Christmas white crocus" would be a good name for *C. hyemalis*, which is cheap enough across the water, but nevertheless has the reputation of being hard to grow and a "shy bloomer."

The only cheap crocuses that come tolerably near to white are forms of *C. biflorus*, which blooms in February and is commonly called the Scotch crocus. It is, however, native to Italy and the wild form has the outer petals more deeply coated with buff than the Scotch. The cheapest and most popular variety is Cloth-of-Silver, which is fairly white when seen in mass at a distance, but the outer petals are feathered with purple. Other forms that are catalogued as whites are the var. argenteus,

CHOICE YELLOW CROCUSES

The earliest of all the crocuses is the much-heralded *C. Scharojani*, for which I propose the name "yellow summer crocus." It has been advertised in this country as a November-bloomer, but it begins to flower by the end of July and its real season is early August. For that reason the enthusiasts are willing to pay a dollar a bulb for it. There is another August-bloomer (*C. lazicus*) and it also is yellow, but there is little likelihood of its being a success in cultivation. I dare say these bulbs ought to be planted in early July and ordered a year or so in advance.

The only midwinter crocus among the yellows is *C. vitellinus*, which I shall venture to call the "Christmas yellow crocus," a name that is all the more appropriate because the plant is native to the vicinity of Christ's birthplace. In the Holy Land

the blossoms keep opening from November to February but we shall do well if we get a few by the holidays in a coldframe and I should not expect the main crop outdoors near New York before early March.

The best yellow crocus for late winter is *C. chrysanthus*, which I shall call the "variable yellow crocus." It is whitish in the var. *albidus*; pale yellow in *sulphureus*; orange in *superbus*; feathered with brown in *fusco-lineatus* and suffused with brown in *fusco-tinctus*. But the most exciting form is the pale lilac variety *cærulescens*, for this is supposed to bridge the gulf between the yellow and purple series. I have searched the Old World catalogues in vain for a quotation on it and I doubt if

mere money could buy it. Nothing short of love I fancy, would secure it. But it would be interesting to see whether it really has the botanical characteristics of *C. chrysanthus*, would it not? The variable yellow crocus is pretty certain to bloom outdoors in February; Mr. Gerard has had it in January. The flowers are smaller than those of the next species.

A KEY TO THE CROCUSES

I have prepared a key to the crocuses based on characters that are more accurate than season of bloom and color of flower and more interesting to the gardener than those which determine botanical relationship.

- A. Color of fls. yellow, or yellow and brown.
- B. Leaves dormant at flowering time. **Scharojani**
- BB. Leaves appearing with the fls. **vitellinus**
- C. Stigmas much branched.
- CC. Stigmas entire.
- D. Corm netted.
- E. Flowers suffused brown. **Susianus**
- EE. Flowers not suffused brown. **Mæsiacus**
- DD. Corm annulate. **chrysanthus**
- AA. Color of flowers purple, lilac, or white.
- B. Leaves dormant at flowering time.
- C. Throat yellow outside. **pulchellus**
- CC. Throat purple or lilac outside.
- D. Inner petals much smaller. **iridiflorus**
- DD. Inner petals about size of outer.
- E. Corm fibro-membranous. **nudiflorus**
- EE. Corm netted. **medius**
- BB. Leaves appearing with the fls.
- C. Stigmas entire.
- D. Throat yellow.
- E. Anthers white. **zonatus**
- EE. Anthers yellow.
- F. Corm fibro-membranous. **Caspicus**
- FF. Corm netted. **Sieberi**
- FFF. Corms annulate. **biflorus**
- DD. Throat white or violet.
- E. Petals feathered.
- F. Corms fibro-membranous. **versicolor**
- FF. Corms netted.
- G. Leaves glabrous. **vernus**
- GG. Leaves ciliated. **sativus**
- EE. Petals not feathered. **Hadriaticus**
- CC. Stigmas slightly divided.
- D. Throat yellow.
- E. Anthers white. **ochroleucus**
- EE. Anthers yellow.
- F. Corms fibro-membranous.
- G. Throat bearded. **Salzmanni**
- GG. Throat unbearded. **Imperati**
- FF. Corms netted. **longiflorus**
- DD. Throat white inside. **serotinus**
- CCC. Stigmas much branched.
- D. Throat yellow.
- E. Anthers yellow. **hyemalis**
- EE. Anthers white.
- F. Corm fibro-membranous.
- G. Filaments pubescent. **Tournefortii**
- GG. Filaments slightly papillose. **Boryi**
- FF. Corm leathery, hard, polished. **lævigatus**
- DD. Throat white or violet.
- E. Corms fibro-membranous. **Asturicus**
- EE. Corms netted.
- F. Throat bearded. **Clusii**
- FF. Throat unbearded. **cancellatus**
- EEE. Corms annulate. **speciosus**

A Wonderful Improvement in Primroses in One Year

By N. R. GRAVES, New York

THE flowers of a favorite primrose (*Primula obconica*) have been more than doubled in number in one year by a simple system of crossing and selection. Moreover, the flowers are of better color, and the plants are of more stocky and vigorous growth than those grown in the ordinary way and from ordinary seed.

The specimens here pictured were grown by a prominent firm of florists in Rochester, New York, who are much interested in this work.

The following method was used: When the plants from ordinary seed had reached the flowering stage the very best were selected, some being chosen for size and color of flowers, while others were kept because of their compact habit. The object was to get stocky plants with large compact flower tresses of a desirable pink shade and of a fringed type.

After pollinating there are two methods of distinguishing fertilized bloom. One is



After improvement, showing how the quantity of flowers has been doubled in one year simply by crossing and selection, such as any careful amateur can perform

Corn Discovered in Europe

By M. MULLER, New York

WHILE maize is practically unknown to Europe north of the Alps, it has now gained a stronghold in Southern Russia and Caucasia, where the climate is much like that of the Northeastern United States. The winters are likely to be very cold and the short summers are extremely hot and dry. The rainfall is only ten to eighteen inches and comes at the wrong time. Indian corn always does better than the other cereals, when a drought in the early part of the season is followed by abundant rains which are too late for wheat, etc., but in time to save the maize. Seed can be ripened as far north as latitude 48 degrees or 50 degrees. The exports of maize from this district vary from 30,000 to 100,000 tons, and in Bessarabia a quarter of the land is devoted to this crop. We ought to have a live account of the ornamental plants of this interesting region by someone who can point out the most promising trees and shrubs for planting in the United States.



Before improvement. Showing the average quality obtainable from ordinary seed of *Primula obconica*

to tie a string around each fertilized flower stem; the other and better way is to remove the petals from the flowers which have been successfully fertilized.

These plants have to be gone over carefully each day when the seeds begin to ripen, and such as are ripe must be gathered at once as, on account of their small size, the seeds are easily shaken out and lost.

I have other photographs to prove my statement that the specimens here shown are fair samples of large quantities secured in this way.

Primroses will thrive as window plants in a fairly cool room provided they do not get chilled and the soil in the pots is not permitted to dry out. A sudden change of air, however, is certain to injure the plants. If the surroundings are congenial, flowers will be produced over a long season, and with good care the plants can be kept for three or four years.



The petals have been picked off the top cluster which has been successfully pollinated

Garden and Farm News

THINK of producing a net gain of \$2.56 for every apple tree you have, or over two bushels of fruit! Just one thing was responsible for this—spraying. If you want particulars, ask the Nebraska experiment station. Or, if you want the best possible outfit for home use, write the Readers' Service Department.

Do you have any rocky land in an exposed situation which is unfit for farming? Why not grow chestnut oak on it? You can sell the bark for tanning material and always have a coppice without the bother of raising plants from seed. The old stumps make a good growth of sprouts. For particulars, write the Forest Service, Washington, D. C. Ask for Circular 135.

A pound of English walnuts at twenty cents is a better bargain than a pound of porterhouse steak at twenty-five cents, as it will produce about 20 per cent. more in weight of food material and energy. Pecans make an even better showing. Professor Close thinks that both ought to become staple articles of food instead of mere luxuries, and believes the commercial culture of these nuts is possible as far north as Maryland. This is considerably in advance of popular opinion.

What is your opinion of a man who would like to throw an advertisement on the face of Niagara Falls by searchlight? He was willing to pay \$1,000 a week for the privilege. Thank heaven for the "moral wave" which defeated such a project and thank the American Civic Association for "busting" this magic lantern scheme: Do you hate billboards? Better join the association now. Your three dollars will do more and better fighting now than \$25 would five years ago. Write to the secretary, North American Building, Philadelphia, and ask him whether the association is one of the regular mutual admiration societies which never does anything except a dull annual report and an indigestible annual dinner. Ask him if the association has ever done anything really important. Then see what happens!

About 2,500 acres have been planted to forest crops in the six New England States this year by *private citizens*. This has been done on abandoned farms, which still comprise 10 per cent. of the total area of Massachusetts, while even little Rhode Island has 228 abandoned farms. One owner in Massachusetts, who started a white pine plantation of 63 acres this year, expects to plant 50 acres annually for the next ten years. White pine is, of course, the species most generally planted, but other species which are being used more and more are Norway spruce, for timber and pulpwood; chestnut, for telegraph poles, posts, ties, and lumber; red oak, for piles and ties; black locust, for fence posts; and sugar maple for a variety of products.

A rust-proof asparagus would be a mighty good thing. Anyone who lives in a region where the rust has ruined field after field of asparagus should keep his eyes open for a resistant plant. He might be able to sell it to some seedsman for a good round sum.

Forest experiment stations will soon be established in a number of the National Forest states of the West according to plans which have just been completed by the United States Forest Service. These new stations will be comparable to the agricultural experiment stations.

As a first step an experiment station has already been established on the Coconino National Forest in the Southwest, with headquarters at Flagstaff, Arizona. It is the intention ultimately to have at least one experiment station in each of the silvicultural regions of the West.

One of the most important parts of the work of the new experiment stations will be the maintenance of model forests typical of the region.

At the Coconino station, one of the first problems to be taken up will be the reproduction of western yellow pine and the causes of its success and failure. This is by far the most valuable tree in the Southwest but in many cases it does not form a satisfactory second growth. The study will be carried on largely by means of sample plots, which will be laid out for future observation to determine the effects of grazing, of the different methods of cutting and disposing of the brush, and of other factors on the success of reproduction.

The Poinsettia

THE poinsettia is probably the showiest red "flower" during the Christmas holidays. The spectacular portion is composed of bracts, the true flowers being minute and clustered in the centres of the whorl of red leaves.

It is impractical to keep the poinsettia over from one Christmas to another without a greenhouse, as the best plants can be raised only by making cuttings every year. After the plant has ceased to flower it should be rested until late spring. Put it away in the cellar and give it very little water.

In late spring it will give a liberal supply of cuttings if furnished with heat and moisture. These cuttings should be placed on a shelf for several days until the milky juice has run away, otherwise they will not root easily.



Enlarge this picture five times, paint the leaves scarlet and you have a picture of the poinsettia

During the summer the plants can be put into pots and plunged outdoors in the garden.

Pennsylvania.

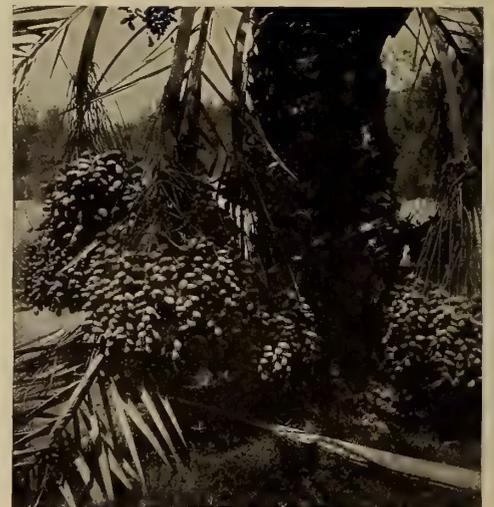
W. E. P.

A Tidy Little Date Farm

WHAT are we coming to when the "Great American Desert" begins to preach *intensive* farming! "Yet Bermuda grass alone may ultimately drive us to it," says R. H. Forbes of Arizona. "It is practically impossible to resist the encroachments of this grass on a large farm with un-intensive crops, because of the relatively large expense in fighting it. It costs about \$2.50 an acre a year to keep an alfalfa field free of Bermuda grass. Crops which are not cultivable for any considerable period of time and which do not densely shade the ground, even during a short growing period, are seriously questionable for this region. But on a small farm intensively cultivated, the destruction of Bermuda grass is but an incident in the tillage of profitable crops."

The special reasons why Arizona should go into intensive farming are first, a growing season beginning early in February and second, the great variety of quick-maturing crops available.

Think of \$800 profit from a "play farm" of less than five acres devoted to vegetables!



Why not have a tidy little date farm of seven acres—enough to support a family of five

This was enough to support a family of five. The cash capital was only \$127. And this profit was made the very first year, with land covered by saltweed and creosote bushes. Moreover, the big profit is still to come, for these vegetables were raised between young date trees. The whole farm is seven acres and eventually the dates will support the family. This is near Yuma.

Contrast this profit of \$160 an acre with the paltry \$12.21 an acre which is averaged by 110 acres of barley on a typical big-scale farm near by! If you wish to know just how the Yuma family managed, write to the Arizona Experiment Station at Tucson for Bulletin 57.

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Storing Vegetables Over Winter

NOT all vegetables should be stored through the winter in the cellar—in fact, the cellar is not the most suitable place for the storage of any of them. Specially constructed buildings and pits in the ground can be prepared at comparatively small cost, where both vegetables and apples can be kept in ideal condition through the greater part of the winter. Inasmuch as the requirements for each variety varies, I shall group them where several kinds require the same method of storage.

Carrots, turnips, parsnips, and cabbage are not injured by freezing, but are improved in flavor if allowed to freeze slightly. No house or other covering is required except that they be buried in a pit where the earth can come in direct contact with them. A heavy covering of earth is not essential, as freezing and thawing will not injure these vegetables provided they are in contact with the earth when thawing. It is much easier to get at the vegetables if the ground is not frozen hard; a covering of straw over the earth mound will guard against this.

For cabbages, dig long ditches wide enough to take two rows of heads, or wider still where there is a large quantity to store. Pull up the heads and pile in the ditch with the stalks up. Cover with earth and round off the top of the mound.

Carrots, turnips, parsnips and salsify can be simply piled in a round heap and covered with dirt. Do not store any of these until after a slight freeze, but if they freeze hard, leave them in the ground until thawed.

Gather the apples about the time of the first frost and put in an open shed, or rail



Do you wonder that fruit and vegetables do not keep when stored in this way?

pen covered with boards. They should be kept there as long as possible without freezing hard; a slight freeze will not injure them. Whenever practicable, make the apple or potato pit under a shed where there is protection from the water and good drainage. Scoop out a place in the ground a foot deep, throwing the dirt out on all sides. Place some straw in the bottom, then pile the potatoes or apples on this in a conical heap. Cover with straw to keep the dirt off, then cover with earth to a sufficient depth to prevent freezing. Lastly, put on boards in the shape of a roof, unless the pit is under a shelter.

Potatoes must not be allowed to freeze at all, although they will stand a heavy frost without injury. If there should be an unusually warm spell after storing, remove part of the covering. A better way is to cover lightly at first and put on more earth as the weather gets colder and the ground freezes.

One of the best methods of storing sweet potatoes is to keep them in barrels or boxes of road dust in a room where the temperature does not drop to the freezing point. They must not be allowed to chill and must be kept dry. They are, however, also very susceptible to heat, and if stored in large quantities are apt to get overheated and rot.

If stored in a pit, leave an opening in the top for ventilation, which must be



Garden truck stored in this cellar will be in ideal condition whenever used

closed only to keep out rain or to prevent freezing. Where large quantities are kept it will be necessary to have a frost-proof building with free circulation of air.

While celery is not a tender plant, it must not be allowed to freeze solid as parsnips or salsify may. A cheap way of storing celery is to allow it to remain in the row, drawing more dirt up to it as the temperature falls, and when the ground freezes cover with sufficient earth and straw or fodder to exclude the frost. This method requires a great amount of labor and is not always satisfactory.

A better method is to make a pit similar to the one for carrots, pull up the bunches of celery by the roots and set them close together in the pit, being careful to have the roots in contact with fresh dirt and setting the bunch upright. When all is in place draw the tops together and cover lightly with straw to keep the dirt out of

the crown. Do not put any straw on the sides but draw up the dirt so that it will be in contact with the outside bunches and be deep enough to prevent freezing. It is essential that the roots be left on and remain in contact with moist earth.

Celery may be kept very well in a cellar by placing some earth in barrels or boxes and setting the bunches therein, sprinkling frequently to keep moist. However, storing in the ground insures crispness. Celery need not be stored early as the banking will afford protection against quite a cold spell. A heavy frost or even a light freeze will not injure it, and if stored too early it will rot.

Specially constructed pits walled with boards and covered with removable roofs are convenient, as it will not be necessary to use so much dirt or straw.

Missouri.

HUGH F. GRINSTEAD.



Insects on the Umbrella Tree

IN THE GARDEN MAGAZINE for October, 1908, on page 120, the eminent horticulturist, Mr. P. J. Berckmans, in a very interesting article on shade trees, makes the statement that the umbrella tree is not infested by insects. As this tree has been largely planted in Florida and the article is likely to be read to a considerable extent in the South, I feel it will be quite necessary to correct this statement—at least so far as Florida, the southern portions of Georgia, Alabama, Mississippi, Louisiana, and sub-tropical Texas are concerned.

The chinaberry and umbrella trees in this region are severely infested by that most noxious and ubiquitous insect, the white fly, which has certainly caused greater loss to the citrus growers of the Southeastern United States than all other insects combined. The chinaberry and umbrella trees are such prolific breeders that myriads of these insects are on flight every evening about sundown, making it extremely uncomfortable to be passing along the streets of the smaller cities during that time.

In Northern Florida and Southern Georgia citrus trees rarely occur, but the white fly becomes a great nuisance due almost wholly to breeding on the chinaberry and umbrella trees. In addition to the white fly, at least two species of scale insects become unusually severe on both the umbrella and chinaberry trees.

Florida.

P. H. ROLFS.

For the Fresh Air Reader



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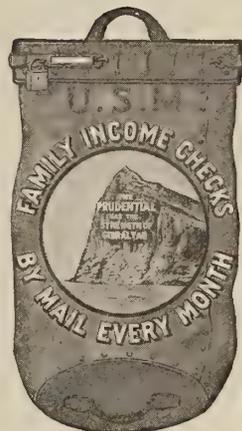
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Fattening Turkeys, Ducks and Geese

THE methods for fattening turkeys must be a little different from those for fattening chickens and fowls, because of the nature of the birds. Turkeys will not thrive in close confinement; if fed heavily, and at regular intervals, they are not so much inclined to roam, and will soon learn to come to their meals. Some feeders give whole grain, mostly corn, in small quantities. Turkeys pick up a variety of feed in their wanderings, but as they are fattened late (after much of their natural food is unavailable) it is better from the standpoint of health to give them a little more variety. A mash made of cooked vegetables thickened with ground corn and oats and bran, with a little beef scrap, makes an excellent morning meal. Milk is a valuable addition to this mixture.

Pulverized or finely granulated charcoal, given two or three times a week, aids digestion and prevents disease. This should be fed as early in the morning as possible, before the turkeys are off for their range. The rest of the ration, usually two meals, may consist of whole corn, with the addition of wheat and oats, or a little barley and buckwheat. Corn and oats are the most valuable for fattening. Old corn is best; if it is necessary to use new corn, feed it moderately at first.

Three to four weeks of heavy feeding should put the hens in good condition. The toms usually require a little more time for maturity, and may not be in the best condition for Thanksgiving. In this case, better feed them a while longer for the Christmas market. The greatest demand is for medium-sized turkeys.

TO PROPERLY FATTEN DUCKS

A properly fattened duck is one that has been stuffed from the time it was a day old. There are several large establishments in this country that make a specialty of raising ducks for market. Almost without exception, the breed is the Pekin, which, when nine or ten weeks of age, are made to weigh from five to six pounds. They are then considered best for market. All the fat possible should be put on.

To do this, confine the ducks in rather small yards where they have water for drinking only. Feed on mashes, a good one consisting of about four parts of ground corn and oats, three parts of wheat bran,

one part of middlings, one part of beef scrap, and one part of clean sand and charcoal. Milk is excellent for moistening the mash. Green feed or steamed clover should be given, but this can be omitted toward the end of the fattening period. Two weeks should place young, voracious ducks in good condition for market.

GEESE FOR CHRISTMAS

A thrifty young goose may be fattened in about two weeks. Where large numbers are handled, divide into flocks of not more than a hundred each, a smaller number being better. Steamed or soaked corn is good for a portion of the ration. The mash may well have a large proportion of corn meal, with the addition of bran, middlings, or ground oats or barley, with about 15 per cent. of beef scrap. If the birds are very thin at the beginning of the feeding, more than two weeks will be required.

Fattening geese is an industry by itself. An extensive establishment a few miles from me handles many carloads every season, buying them from the raisers as far west as Missouri, and from Kentucky to Canada. Many of these are very thin, but will often nearly double in weight during the feeding period. The greatest demand for geese is at Christmas.

New Jersey. F. H. VALENTINE.

Ornamental Fruits in Winter

Seventh article in the series "Ornamental Fruits for Every Month"

MOST of the fruits disappear when severe winter weather sets in and but a comparatively small number brave the wintry storms and are still conspicuous about and after midwinter. As such may be mentioned *Berberis Thunbergii*, which easily takes the first place as regards the resistance of its beautiful fruit against the influence of the weather; other kinds of barberries; the high cranberry-bush; some of the wild roses, as *Rosa lucida*, *R. humilis*, *R. nitida*, the memorial rose (*R. Wichurii*



The bright red fruits of *Rosa rugosa* form a charming contrast to its dark green foliage

ana) and *R. multiflora*, with its pale red pea-sized hips; the privets; the sea-buckthorn; the species of ilex; the fire-thorn; several cotoneasters; the cockspur thorn and Washington thorn; the red chokeberry; the wax work; and among those not previously described the greenbriar (*Smilax rotundifolia*) with black berries; the bayberry or wax-myrtle (*Myrica Carolinensis*), with its small grayish white berries clustered along the branches; and the Japanese *Rhodotypos kerrioides*, with its shining black berry-like fruits arranged in fours at the end of the branchlets.

The fruits of some shrubs are partly dried up or discolored by midwinter but are still a conspicuous feature of the bare shrubs. Such are the English hawthorn, the purple chokeberry, the sheep-berry and the black haw, the Tupelo, the buckthorn, the European dogwood, the Virginia creeper with its clusters of bluish black berries and some of the roses, like *R. villosa*, *R. rugosa*, *R. canina*, *R. cinnamomea* and a few others.

Massachusetts. ALFRED REHDER.



The choke cherry (*Prunus Virginiana*) has red or amber-color fruits the size of peas

A Desirable Shade Tree for the South

WHILE our native type of black locust or false acacia (*Robinia*) is more frequently used as a shade tree, it is also valuable for landscape work where trees of large size and rapid growth are desired. The improved forms give a variety of colored flowers which make these trees unusually conspicuous by the profusion of drooping racemes.

In *R. Decaisneana*, the flowers are of a bright rose; *bella-rosea*, pale rose; *Neo-Mexicana* is of medium height, with rose-colored axillary racemes; and in *sempreflorens* we have short, heavy racemes of pure white flowers during the whole summer.

Georgia.

P. J. B.



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CALIFORNIA DEPARTMENT

Hints for Watering.

IN watering plants during the dry season which extends usually from May until November, the mistake made not only by the novice but by old residents also, is to overwater—in forgetfulness of the fact that after the rainy season the soil is a storehouse of moisture which the roots seek out and appropriate.

Of course a certain amount of artificial watering is needed with most plants not indigenous to the section, but it should be administered in a way to reach well down to the main roots, not sprinkled on the surface only, to tempt the roots up to it. For this purpose it is well to scoop ample shallow basins around the bases of shrubs, roses, and all plants that stand far enough apart to permit, and slowly apply the water with the hose (the sprinkler removed) directly at the root. After the basin is full, let the water sink in, then fill again, continuing the process if needful until the soil will absorb no more. Then in a day or two, or as soon as the surface is dry enough to be worked, fork up the ground in the basin, making a sort of dirt mulch.

Unless the weather is exceptionally hot, in which case the plant will show its need by wilting, nothing further need be done for two or three weeks, when the process is to be repeated. During July and August, however, roses should not be watered at all, this being their resting time here.

In the case of plants in a close border or in a row, a trough may be made with a hoe as a channel for the irrigating water to run in, the forking up and dirt mulching to follow just as with the basined shrubs. Where the plants are massed in a bed so that working about them is impracticable, the hose (always without the sprinkler) should be laid upon the ground and the water allowed to run slowly until the bed is thoroughly saturated. For this purpose, every bed should be enclosed with a slightly raised edging of board, brick or stone, to keep the water from running upon the paths.

There is no hard and fast rule as to when to water again, but I find it well to turn up the soil with a trowel now and then near the plant roots and if the moisture fails to be apparent at a couple of inches depth, it is well to water again.

The cactus bed must never be soaked, as an excess of moisture tends to rot the roots; but a moderate sprinkling once or twice a week during the dry months, simulating a summer shower, has, in our experience, proved beneficial.

So. California. C. F. S.

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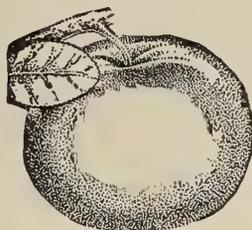
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The Hot-Air Pump



The "Ring Around the Rosy" Style of Planting

I NOTICED the other day in one of the suburbs in this locality that a clever idea introduced first in just the right place had, by use in an inappropriate place, become a blot on the landscape.

At the base of a large white oak tree, whose top was partially dead, there was clustered a clump of common elder (*Sambucus Canadensis*), sumac (*Rhus aromatica*) and black locust (*Robinia Pseudacacia*). A



Do not plant flowers around trees without a good reason. It gives a "spotty" effect

close inspection revealed the fact that about the base of the tree was quite a depression apparently left, years ago, when the lawn was graded. The purpose of this massing of shrubbery at the base of the tree was therefore quite apparent, as it effectually hid from a casual view the depression. The mass of greenery combined harmoniously with the rugged, rough-barked tree trunk and the shrubs were just the kinds one might expect to see in such a situation.

However, from this happy thought, there developed in the vicinity a style which is extremely bad. It consists of planting flowers in the "ring around the rosy" style about the trunks of trees of all sizes, varieties, and in all sorts of situations. A beautiful sweep of shaded turf is mottled with rings of Golden Glow, striving to look well upon their spindly stems; across the street the trees in the parking have petunias thinly encircling them; other lawns with leggy, young trees have clusters of salvia



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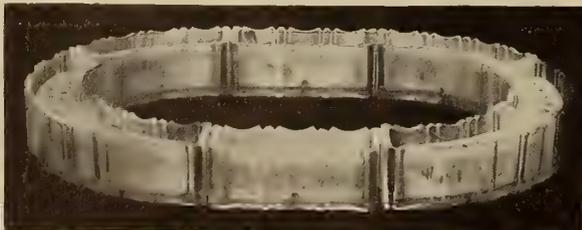
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Same sizes in the tulip shape in brass; 75c, \$1.00, \$1.25 each.

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- 4½ in. "Japana" each .50
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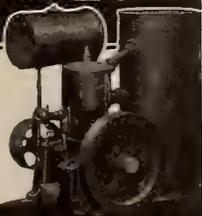
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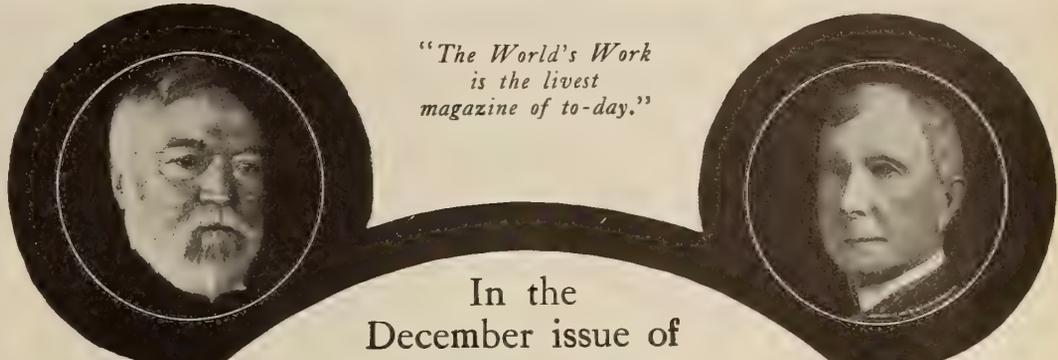
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at their bases. Still others have nasturtiums, and one sickly tree appears as though it were being smothered to death by a huge mass of cannas. There are no depressions about these trees which demand screening, the trees are also younger and the bark is not sufficiently rough to need the softening effects given by vegetation.

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The Time for Hotbeds

DECEMBER may be termed a beginning as well as an ending for the amateur gardener of the South. The hotbeds must be prepared now and seed of such annuals as will bear transplanting sown in them before the holidays, if you would have flowers before your neighbors. Of course, the plants will have to be thinned and transplanted to other hotbeds later on, so that they will have plenty of room. If this is not done, the growth will be weakened and the plants will be tall and spindling instead of short and stocky. A few well cared for specimens will give more satisfaction than double the number of partly neglected plants.

Sow the seed of early tomatoes the last

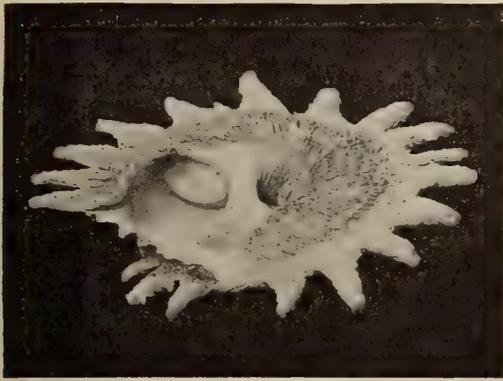


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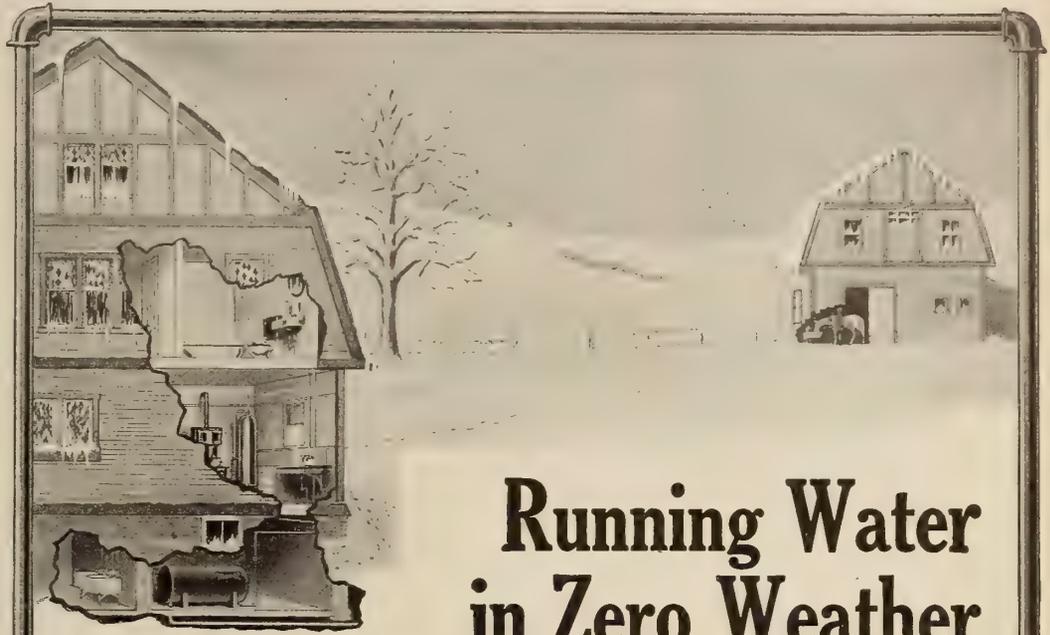
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of the month in hotbeds or in boxes of rich soil placed in a sunny window in the house. Sow the seed very thinly in drills three inches apart and cover with one-quarter of an inch of soil.

When the plants have three or four leaves transplant to other boxes or hotbeds, placing the plants four inches apart each way. Small pots give more satisfactory results.

When the plants become crowded transplant again to larger boxes and allow six inches between them each way. As the weather becomes sufficiently warm transplant to the open ground, allowing a distance of two feet each way. If the plants have been well cared for they will be loaded with fruit and flowers by this time.

Handle the plants carefully when transplanting. Use a large flat trowel so as to get up as much soil as possible with the roots, and thereby avoid stunting the plants. Early tomatoes require a rich, warm, loam soil on the south side of a slope. Eggplant and pepper may be planted at the same time and given the same treatment.

Work in the greenhouses should be proceeding nicely now. If not, commence at once.

If your land needs draining, it is a good time to do it, as there is not very much other work on the farm requiring immediate attention.

Georgia.

THOMAS J. STEED.



The Lonely Baby

Old Dr. Stork has flown away
And left me "on the shelf."
It isn't fun for me to stay
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Please telephone for me to come
I'm feeling awful blue.
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If you are afraid to use poison you will find trapping safer but not so quick a method. If you want further particulars write to the Nebraska experiment station at Lincoln for a bulletin on gophers.

Illinois.

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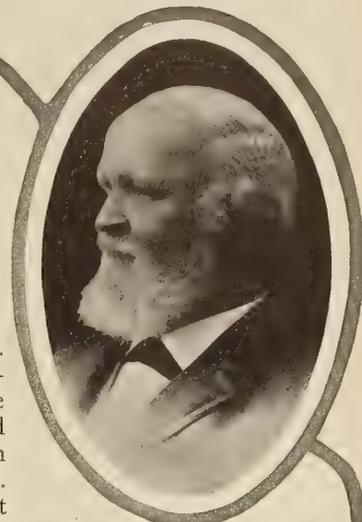
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Real and Fancied Yields

WHEN cows are on pasture little heed is given to the comparative productive capacity of the individuals, but in winter, with most grains hovering around the thirty-dollar-a-ton mark, the average farmer begins to notice which cows are using their expensive diet to the best advantage and commences to cut down the allowance of such as do not make adequate returns at the pail. Too often, in the interests of a false economy, the cutting down is too severe and winter dairying is classed as a poor policy, when the opposite conclusion might have been easily reached.

Simple observation of the milk yield is very generally taken as the sole guide in feeding, whereas the very least that should determine this is a daily weighing of the milk in connection with at least three fair butterfat tests each month. The truth of this has just been forcibly impressed on me.

I faithfully recorded milk weights and weekly milk tests on the entire dairy throughout last fall when the cows were all in advanced periods of lactation, without gaining sufficient knowledge to be able to dispose of the poorer cows with any certainty. I was about to discontinue when two cows freshened and their record was continued. These two were both purchased last summer from the same person and at the same price. One was a thoroughbred Jersey which the former owner was very anxious to be rid of, as he was an out and out Shorthorn admirer, even for dairy purposes. The other was a pure bred Shorthorn of milking strain, considered an exceptional animal. I wanted Jerseys only, but took the latter because I was determined to do winter dairying.

By cautiously increasing the grain ration I found I could get a daily yield of from thirty to thirty-five pounds of milk from each. Estimating the weight and assuming the richness of milk in the case of each to be about 3.5 per cent., I constructed from the feeds available a ration as nearly as possible to Professor Haecker's new American feeding standards. This consisted of twenty pounds of early cut hay and a grain allowance of seven pounds per day, consisting of three pounds bran and four pounds gluten feed.

This was the best I could do judging from milk yield alone, but the first test opened my eyes—5.8 per cent. for the Jersey and 3.6 per cent. for the Shorthorn. This was confirmed a few days later by the churn. The Jersey cow was making two and one-third pounds of butter a day and the Shorthorn one and one-half from the same amount of milk. From these facts I figure that if the latter is worth \$40 at present (a fair price for a common cow fresh in milk), then the Jersey is worth \$72.

The "dual-purpose" cow will find a ready sale in early fall to some of her numerous admirers in this vicinity and one more of the special-purpose cows will occupy her stall in my stable.

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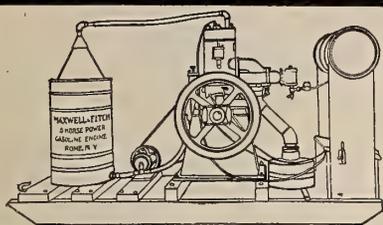
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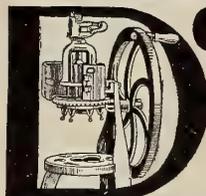
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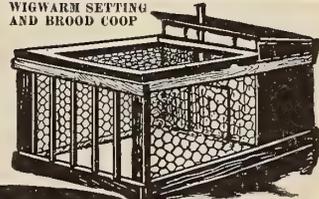
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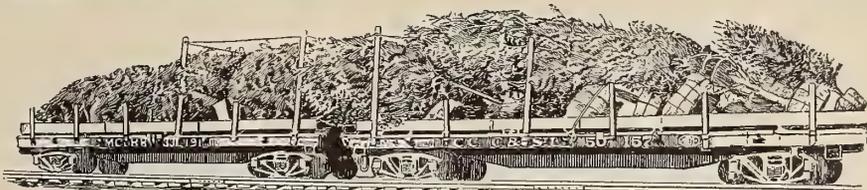
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I SHOULD not advise anyone to plant tulips as late as December but sometimes it cannot be avoided and then special precautions are necessary.

Last year I planted bulbs of Darwin, May-flowering, and Parrot tulips the last week in December, digging up the frozen earth with a crowbar. I mulched the bed with fairly good manure, and then covered it with about two feet of leaves. The tulips were carried over the winter without showing any bad results.

Whenever bulbs of tender varieties are planted late it is best to protect them with leaves after the frost has caused a good crust to form. Fill packing boxes with leaves and invert them over the beds, taking care that the boxes are made watertight with tar paper. More bulbs rot from excessive moisture during winter than from all other causes combined.

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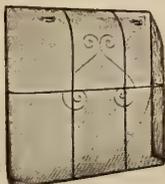
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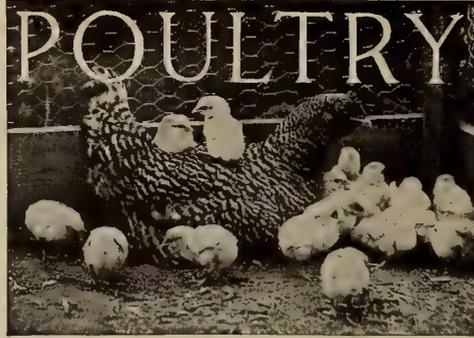


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I converted an old cow shed, 11 x 13 ft., with leaking roof, into shelter for the hens by covering the roof with tarred paper, and lining the inside with building paper. There were three small windows, two on the south side and one on the west side, out of which most of the panes of glass were broken. Over the casings I stretched heavy unbleached cloth. I put in a wooden floor eight inches above the ground as the drainage was poor. A place on the floor, 4 x 4 ft., was kept covered with sifted coal ashes, replaced monthly. Another space was filled with excelsior and straw for scratching. The roosts are all two and one-half feet from the floor to prevent crowding in the highest roost.

About November 1st seventeen White Leghorn hens and one rooster, and seven Plymouth Rock hens were put in this enclosure and not allowed any outdoor freedom. The three-year-old hens, nine in all, and the May pullets, did not begin to lay until about the middle of December. They steadily increased the number of eggs until by February first they averaged fifteen eggs a day, and this record was not lessened by the cold weather so unusual for the vicinity of Philadelphia. Other people's flocks averaged five and eight eggs from fifty to seventy-five fowls.

January 1st I put the seven Plymouth Rock in a shed, 9 x 7, with a window of cloth, 2 x 1 1/2 ft., dividing the floor into a dust bath and a scratching pen. These seven hens have averaged five eggs a day all through January.

These twenty-five fowls did not have the variety of foods recommended in poultry guide books, but only such as every housewife can provide, namely, wheat and cracked corn (heated during the coldest days) thrown into the straw morning and night, all the scraps from the table, a little clover hay, a pan of skimmed milk, and occasionally apples, potatoes, or onions chopped fine and fed at noon. A box of charcoal, ground bone, and oyster shell was kept before the fowls, fresh straw or excelsior was put in the scratching pen once a month, the roosting part was cleaned every three or four days, and the roosts brushed with coal oil once a month.

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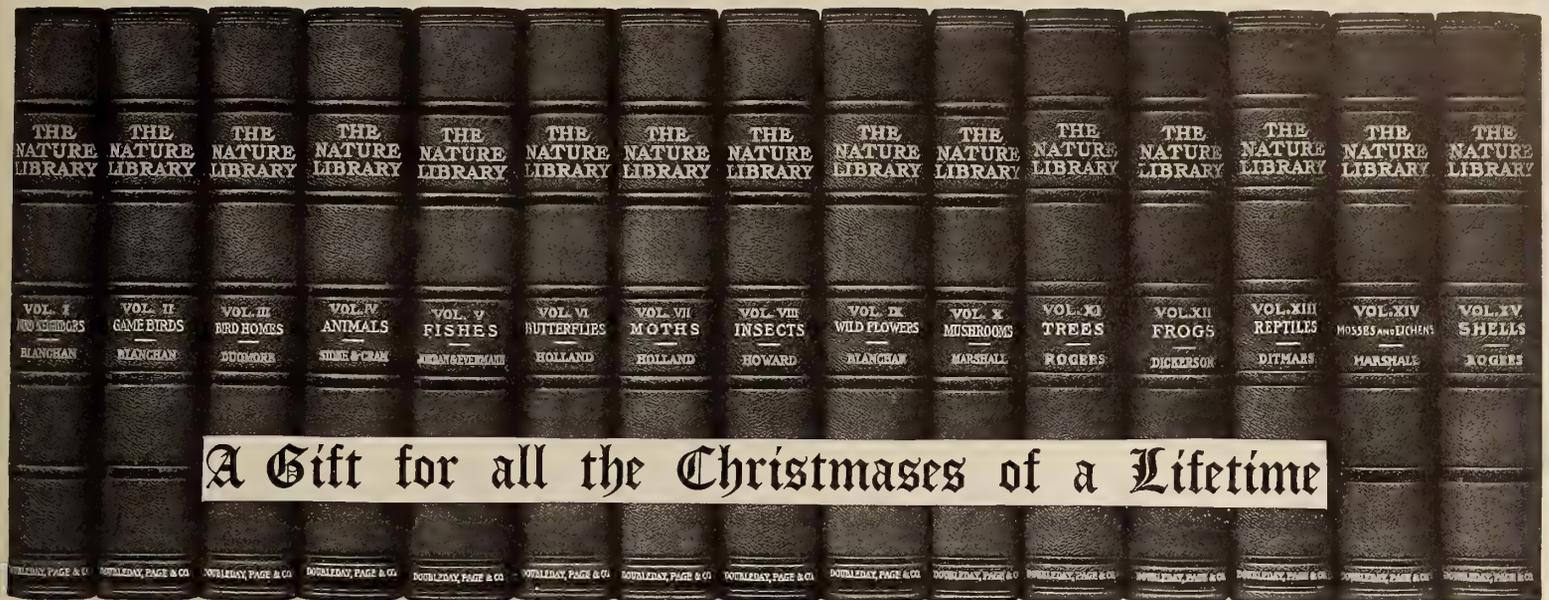
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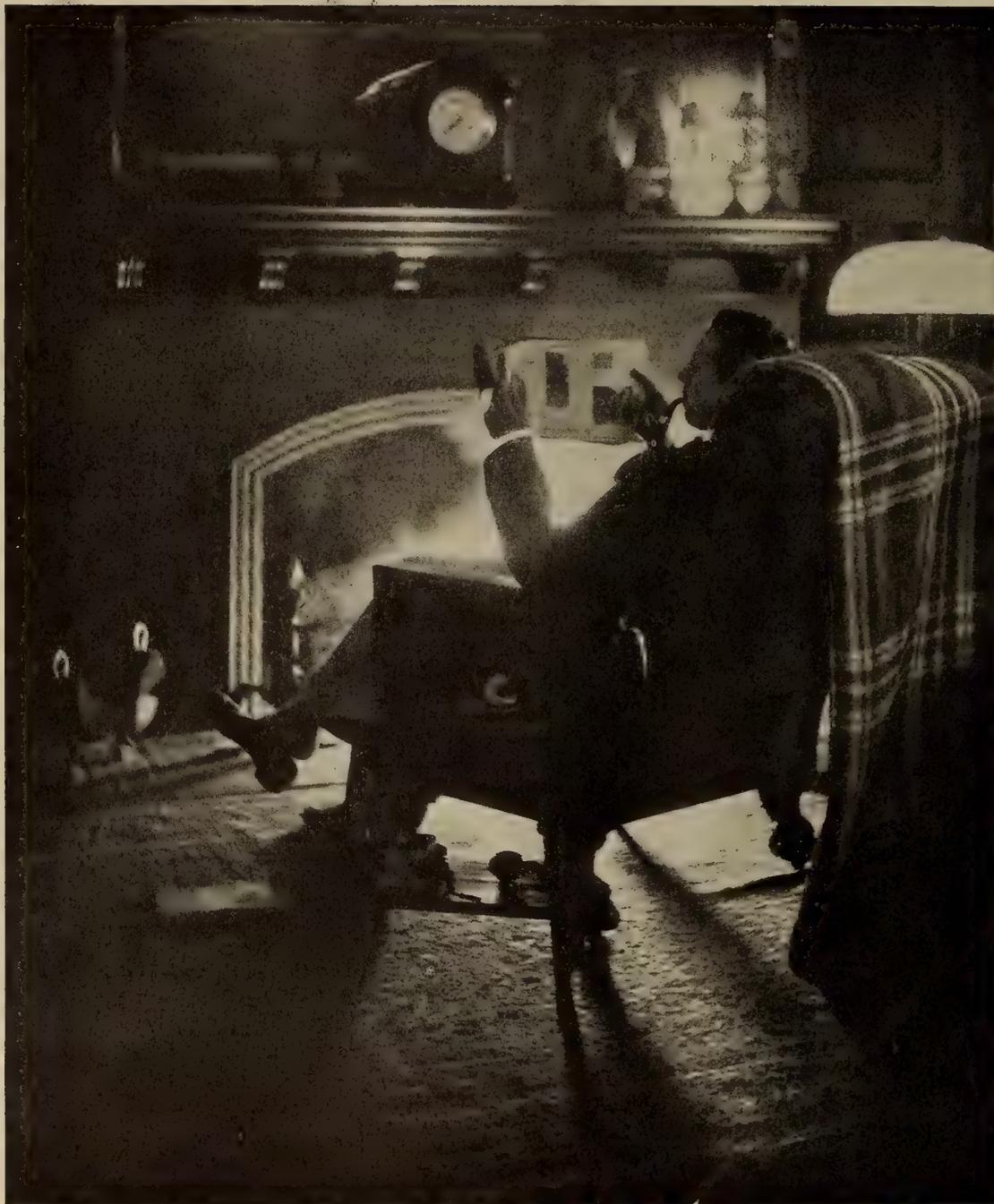
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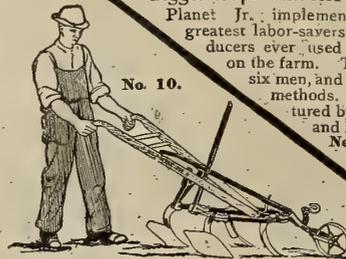
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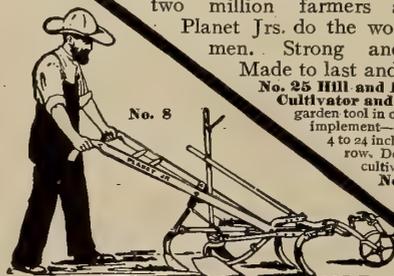
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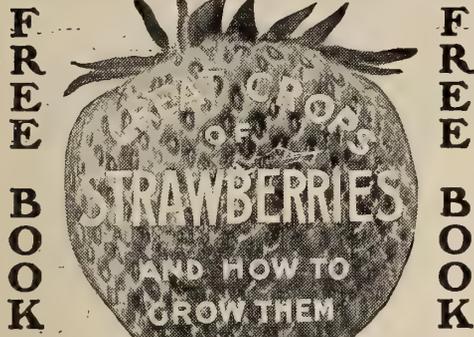
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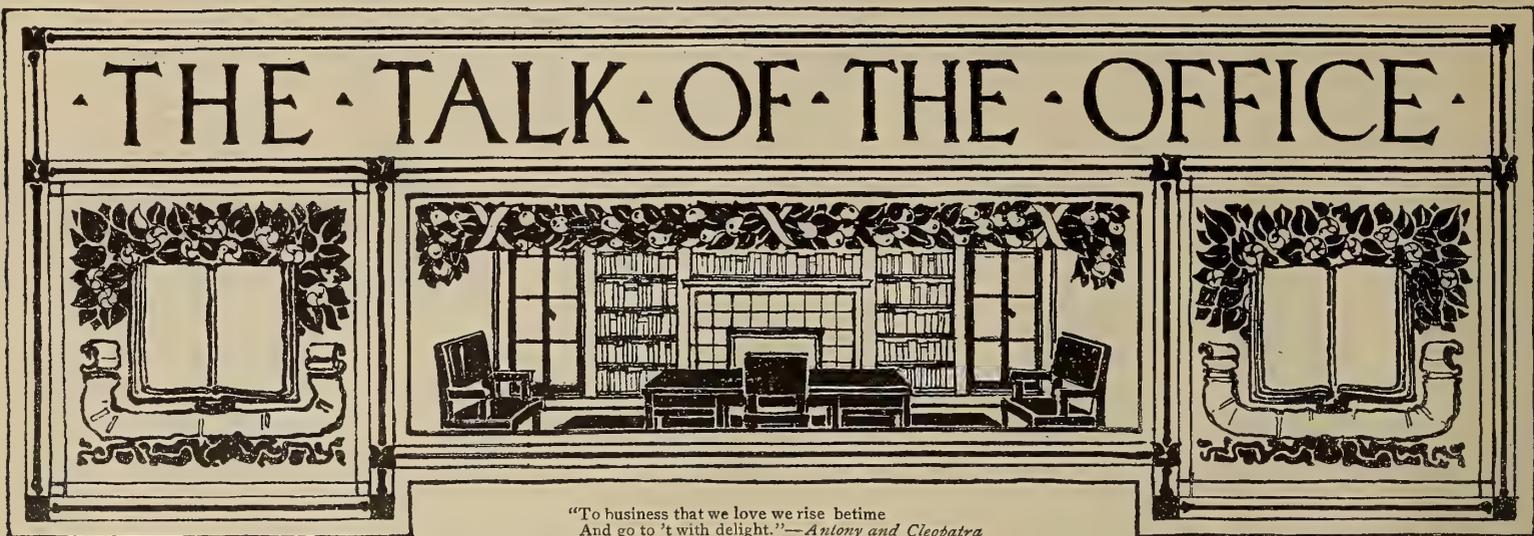
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Mr. S. S. McClure, who built up this fine list, including 245 writers and 411 separate titles, representing many of our best modern authors, wishes to devote all his time to *McClure's Magazine*. While we count ourselves most fortunate in being able to add this important and very active list to our own, we are equally pleased to be able to say that we shall have Mr. McClure's help in securing new writers, and the coöperation of his great magazine, which has always had among its contributors authors of fame and distinction.

The responsibility of doing justice to these writers whose work has come to us we deeply appreciate; and our enlarged staff, including the active men of the McClure book department, hope and expect to do the large list of books full justice.

A very partial and much abbreviated list of those whose works

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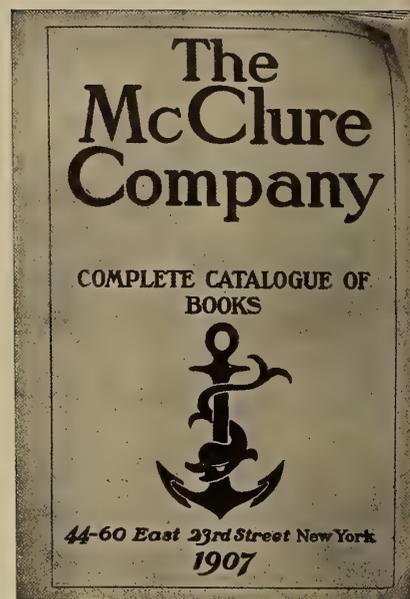
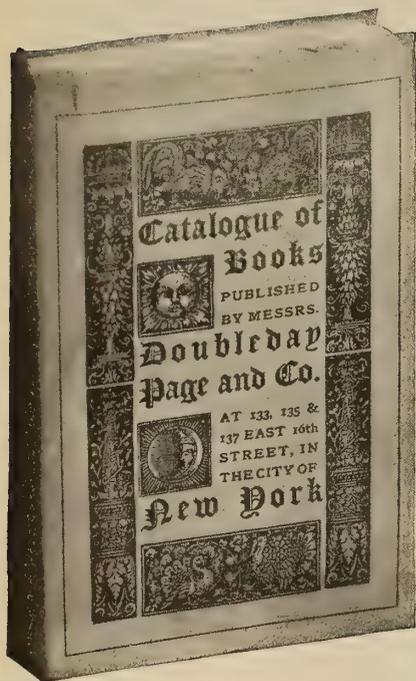
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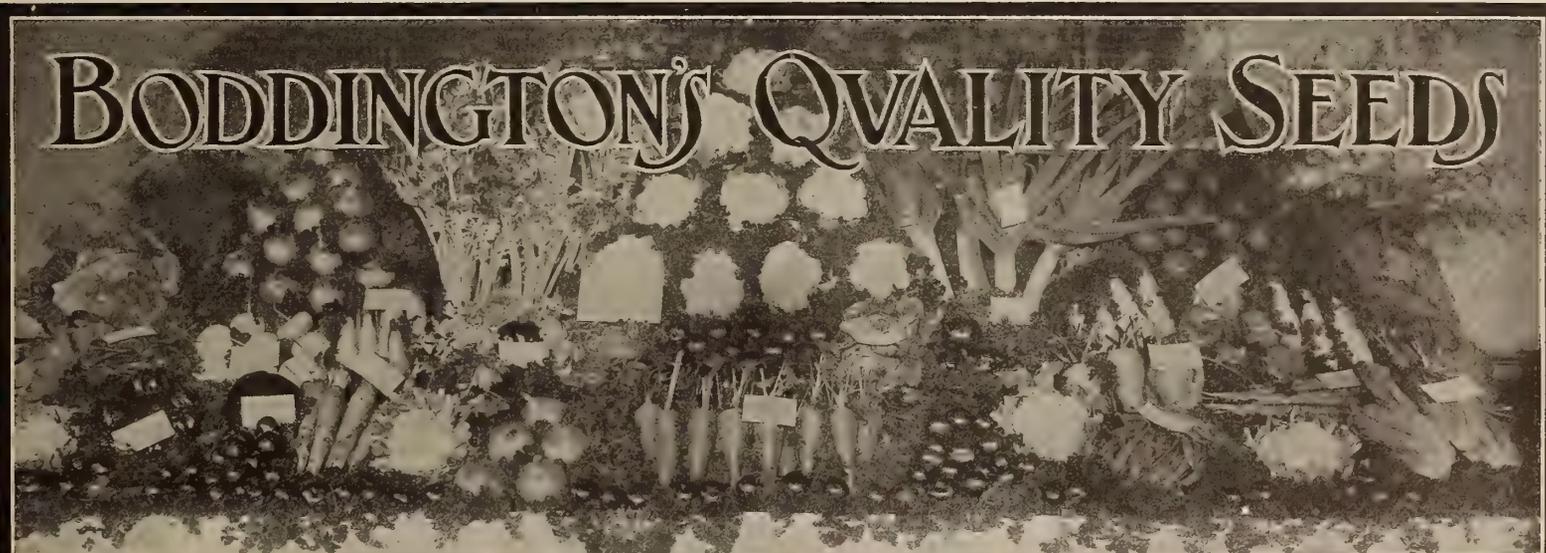
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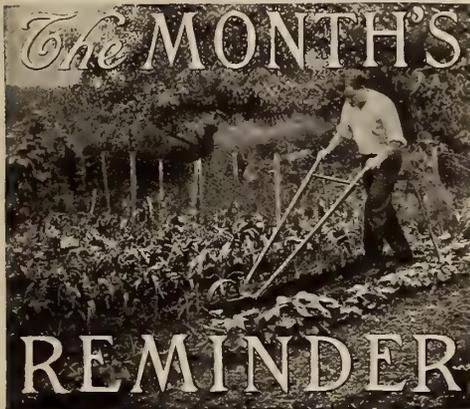
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The Garden Magazine

VOL. VIII—No. 6
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JANUARY, 1909

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[For the purpose of reckoning dates, New York is generally taken as a standard. Allow six days' difference for every hundred miles of latitude.]

Take Care of the Christmas Plants

YOU need not lose all the Christmas plants after they have done their season's service. Unfortunately, the great majority of plants that flower for Christmas are doomed to death immediately they leave the florist's, but you can take care of yours and preserve some of them for a very long time. The best arrangement of all is to have a sort of small frame or toy greenhouse built as an extension to the window, in which the plants can be given plenty of light and a proper temperature maintained. The next best thing is to put them in a room rather cool than warm, and which is not subject to extreme variations or to hot and cold drafts.

As soon as the plant is received from the florist's it should be watered thoroughly, or the pot plunged into a pail of water. Do this in a cool place, and if the plant is to be put into a much-heated living-room it should be gradually brought up to the warmer place in successive stages, resting several hours in each.

Azaleas that have done service should be kept watered after the flowers have dropped, and as soon as possible in spring should be plunged outdoors in a shady place and kept growing all summer. Forced bulbous stock is not worth carrying over for another year.

If you live in the South, there are great opportunities for planting trees and shrubs during this month. Read the article on page 290.

The most important thing for you to do, if you live in the North, is to make your plans for the coming season. Send for the catalogues of the nurserymen and seedsmen, and do your studying while the ground is still frozen. All the dealers will gladly

send their catalogues on receipt of a request by mail if you mention THE GARDEN MAGAZINE.

Repairing and overhauling large trees is best done during the winter because the condition of the tree can be more easily seen, and useless and dead branches removed more easily when there is no confusion of foliage.

Are there any old decaying trees about your place that you would very much dislike to lose? You had better consult some of the expert tree-menders. This work has become specialized and is done now by skilled gangs who can do it more quickly, more efficiently, and probably more cheaply, than you can do it yourself with unskilled labor of your own. It is risky, dangerous work, too, and every now and then there are serious accidents to inexperienced workers. Is it not worth your while to avoid such risks?

Everyone should know by this time that the San José scale has been brought into subjection by winter spraying with the lime-sulphur wash. It may make the trees and shrubs look unnatural, but it saves their lives and prevents the spread of the pest among your neighbours.

The only time when very strong sprays can be used is when the wood is dormant in winter. The lime-sulphur and crude-oil sprays should never be used at any other time.

DUTCH BULBS

Do not forget the flats and boxes that were put up in the fall and buried. They may be making considerable growth by this time.

Remove the ashes from everything that has grown up a few inches. They may be brought into heat and pushed on into flower as needed. Place them in a warm, dark place in order to make good growth, but the Cape bulbs must be put into a light place, cool and airy. Don't let them get "drawn."

Anemones, calochortus, and ranunculus must remain in the frames for some little time, or if brought indoors must be kept as cool as violets. The secret of success in forcing this class of flower root is in forcing ever so little.

Freesias that have done flowering must be put in the lightest part of the greenhouse or window, that the bulbs may be ripened off properly for starting next season.

Take advantage of the available heat in the greenhouse at this time to propagate stove and greenhouse plants. Warmth day and night is necessary for crotons, seedums, and such like things. Geraniums and heliotropes can also be started for stock or for growing on indoors.

Hybrid perpetual roses that are wanted to flower for Easter (April 11th) must be started in January. They will take twelve weeks to come into flower. Start forcing Crimson Rambler roses. Plants that are now in pots and have flowered before should have a top dressing of bone meal and loam, the useless wood cut out, and last season's growths trained into any form desired. Keep them as cool as violets until a break is made, and then 10 degrees more should be given. Syringe lightly every day and avoid drafts. The hybrid perpetual roses can be treated exactly the same.



Every year there is more or less of a scare about the destruction of our forests owing to the Christmas trade. Do not entertain any fear that the demand for Christmas trees is depleting all our forests. The material that comes into the market is nothing but weedy growth, which would be cut and sacrificed anyway.

English Effects with Hardy Conifers—By Wilhelm Miller New York

WHAT EQUIVALENTS CAN WE HAVE FOR YEWS A THOUSAND YEARS OLD, CEDARS OF LEBANON PLANTED BY CRUSADERS AND "BIG" TREES THAT GROW A HUNDRED FEET IN SIXTY YEARS?

[EDITOR'S NOTE.—This is the first of twelve articles on the *materials of gardening*, while a companion series in *Country Life in America* is devoted to *garden effects*. Subsequent articles will describe the most famous trees, shrubs, vines, bulbs, perennials, etc., in England, and show why they are generally short-lived in America. The articles will explain how we waste about a million dollars a year on European plants and where we must look for long-lived equivalents.]

EVEN the most casual visitor to England notices three conifers, or evergreen trees, for every returned tourist chatters enthusiastically about "yews a thousand years old, cedars of Lebanon planted by returned Crusaders, and 'big trees' from California that grow a hundred feet in sixty years." Verily, it is not surprising that we spend many thousands of dollars a year in vainly trying to reproduce such wonderful effects.

But all this money is wasted because we fail to realize that the climate of the Northern and Eastern quarter of the United States (where a good many of us live) is antagonistic to that of England. Our summer is hot and dry, theirs cool and moist; our winter is characterized by zero spells, theirs is mild and open. Socially we are related to Europe, but climatically to Japan and China. If beginners knew this we could save a million dollars a year which we now spend on European trees and shrubs that die the first winter or soon thereafter. For long-lived material we must look to our own native trees. For "spice" we must look to China and Japan. All else is merely temporary.

My errand in England for THE GARDEN MAGAZINE was to study the materials of gardening from a new point of view. I was to find out what were the half-dozen most important trees, shrubs, vines, etc., in England and their long-lived equivalents for America. For example, everywhere in England you see the redwood—a native of California. Our equivalent for it is

hemlock, for both trees have a feathery effect produced by flat sprays. Such a statement is calculated to give a botanist a sick headache, because the fruits of these trees are utterly different. But we do not cultivate conifers for their fruits. Plain tree lovers are primarily interested in the texture of the foliage. We know a pine by its brush, a spruce by its stiff needles, an arborvitæ by its fan, and so on.

In other words, it was the landscape value of garden materials I went to study. I wanted to see with my own eyes which trees were grave and which were gay; why people gush about box and yew and rhododendrons, and whether we cannot grow a tree that looks just like the cedar of Lebanon—except to a botanist. It was human interest I was after—the kind of thing that never gets into the botanies. I wanted to see how to make America as beautiful as England, and how to stop wasting a million dollars a year.

OUR EQUIVALENT FOR YEW

The yew is the most important ornamental conifer for England chiefly because it is the longest-lived of all trees the English have. "The Fotheringal yew," says Miss Rogers, "proved by the rings on its stump that it had lived nearly 3,000 years." It also has the following strong points: (1) It holds its lower branches better than any conifer I know, even when considerably crowded and shaded. (2) It stands clipping well and therefore makes a better hedge in Europe than any other conifer. (3) It is just the right height for a decorative tree, since anything over thirty feet high is out of proportion in a garden or on a lawn. (4) Its trunk symbolizes the relation between the mother country and her colonies and also between the classes in England, for it seems to say, "Socially we divide, politically we are one; in peace we scatter, in time of need we act together."

But yew has one great drawback. It



See how small the man is in comparison with these Douglas spruces which have grown 100 feet in sixty years in England! The California form of the Douglas spruce is not hardy in the East, but the Colorado is. Never buy a Douglas spruce without asking which form your nurseryman has



"Wellingtonia" is the English name for the "big tree." This one was planted by the Duchess of Wellington. Notice the bunched foliage-effect

is poisonous, and therefore cannot be planted where cattle may nibble the foliage, for to eat a spray of it is to die. Consequently, yew is not conspicuous in the landscape, but it is in everyone's home grounds; it hedges gardens; it makes stately avenues, as at Hampton Court; it lines walks of beautiful solemnity approaching many an exquisite church; and in the graveyard it is the ever-present symbol of immortality.

Unfortunately yew is a failure in America. It exists only in places protected in winter from strong wind and sunshine. Our native yew is what people call "ground hemlock" (*Taxus Canadensis*), but this can never fill the place of the English yew, because it is only a trailing bush. The real equivalent of the yew, as a lawn tree, is the Japanese yew (*Taxus cuspidata*), because it forms a low, round-headed tree. It has the same red berries, showy in autumn. (Luckily the berries are not poisonous.) Moreover, the bark of the Japanese yew is redder and warmer than that of the English yew. The tree is not harmed by zero weather, drying winds, or sudden bursts of sunshine when the ground is frozen, and is hardy even in New England.

But even if Japanese yew should live for thousands of years in America it can never stir such emotions as the yew does in England, for it will always be a menace to life. If England had dozens of native conifers, as we have, the yew would be a mere incident. But England has practically only two native conifers — the yew and the Scotch pine. No wonder these two have become almost a part of the English character!

I am glad that the yew is a failure in America because no country ought to copy any other; each should make the most of its own character. In the hemlock we have a tree with the same foliage-effect which has strong American traits. The peculiar grace of both trees is produced by short, soft

needles arranged in two ranks, but presenting the effect of a flat spray. Hemlock is not so enormously long-lived, it grows too tall for gardens, we must use more care to preserve its lower branches, especially in hedges, and its trunk is less interesting than that of yew.

On the other hand, hemlock has a more delicate spray (owing to the shorter needles), and is not poisonous, so that we can plant it everywhere and by the million. Hemlock and white pine ought always to be the most prominent evergreens in the North and East, for the former is the best embodiment of the idea of *grace* among available conifers, while the latter best expresses the idea of *strength*.

OUR EQUIVALENT FOR THE CEDAR OF LEBANON

As the yew is the most decorative conifer in England, so the cedar of Lebanon is the most picturesque. You see it everywhere, centuries old, the pride of every country gentleman's estate. In Asia Minor specimens have lived 2,000 years. The peculiar glory of this cedar is the perfection of its strata. It is a very open tree and its successive tiers or platforms of foliage are spread out for every one to enjoy. It also has very interesting cones. We have absolutely nothing like it growing wild in America.

Of all the foreign conifers the cedar of Lebanon is the most conspicuous in England, but it is also the most thoroughly at home. Technically, this is not true, because it does not "self sow," but humanly speaking it fits the landscape to perfection. It never has the stern or tragic look of our picturesque conifers, eloquent of a thousand battles lost and won. The mellowness of old England has descended upon it like a benediction.

But never has a grander personality made a poorer start in life. A young cedar of Lebanon grows very slowly and has little

beauty. At the time when other conifers are symmetrical and graceful it is a rough, tousled mass of harsh foliage having the texture of the larch. But in old age and at a distance the foliage-effect becomes wonderfully soft and the whole tree assumes a prophetic appearance, so that one is transported as if by magic to Old Testament times.

Unfortunately the cedar of Lebanon is a failure in America. The exceptions only prove the rule. But Professor Sargent is doing a splendid work in sending explorers for the hardiest forms of the most important trees, and the Arnold Arboretum has a stock of *Cedrus Libani* raised from seeds found in the northernmost mountains of the Taurus range and at the highest altitude where this cedar grows.

But even if Professor Sargent's form of the cedar of Lebanon should prove disappointing there is another cedar which is certainly hardier than the common stock and in old age it cannot be distinguished from the cedar of Lebanon. This is the Mount Atlas cedar (*Cedrus Atlantica*), which Mr. William Robinson believes is only a geographical variation of the cedar of Lebanon and not a distinct species. In the young state, the African cedar has an upright leader, while that of the Lebanon cedar is nodding. The leaves of the former are generally less than an inch long and thicker than broad, while those of the latter are an inch or more long and broader than thick. But their landscape effects are identical. I saw a superb avenue of African cedars at Dropmore, composed of trees about seventy feet high, and a picture of it is published this month in *Country Life in America*.

At the home of Major Rogers, Sevenoaks, Kent, I saw a cedar of Lebanon practically 100 feet high which was planted in 1815. At Enfield I paced under one about 250 years old which had a spread of over 100 feet.



Cedar of Lebanon at the left, Scotch pines at the right. Professor Sargent has found the hardiest form of the first. A better tree of the same type as the Scotch pine is our native red pine (*Pinus resinosa*)

"No finer things than the cedars can be within the view of the flower garden," says William Robinson, "but they should never be planted near the house, or their great branches will darken it and in small flower gardens they are sure to be in the way."

OUR EQUIVALENTS FOR THEIR SPRUCES

Another conifer that will grow a hundred feet in a century is the Douglas spruce. Indeed, I saw one at Dropmore, 117 feet high, with a spread of 100 feet, which came from the first lot of seeds brought to England in the winter of 1827-28. This is the only hundred-foot conifer I have ever seen that has retained its symmetry. It is a perfect pyramid, the lower branches being all present and resting on the ground.

The Douglas spruce illustrates a most important principle. The trees of western continental coasts are, broadly speaking, interchangeable and so are the trees of eastern continental coasts, but you cannot expect western trees to live long in an eastern country or eastern in a western. For example, England can grow the Douglas spruce and other gigantic conifers of the Pacific coast to perfection, and California can grow most of the European trees. Thus the Pacific coast, though socially related to us, is climatically akin to Europe.

Again, the Californian form of the Douglas spruce is not hardy in the East, but its Colorado form is. We could wish that all the California conifers had been able to cross the Great Divide, so that the East might hope to have hardy forms of all these titanic trees. One should never buy Douglas spruces without inquiring whether they came from the California or Colorado stock.

Botanically, the Douglas spruce belongs to a different genus (*Pseudotsuga*), but for



A section of hemlock hedge in America viewed closely to show that it is our equivalent for a hedge of English yew



"But never has a grander personality made a poorer start in life. A young cedar of Lebanon is a tousled mass of harsh foliage having the texture of the larch"

landscape purposes it is a spruce. It is the best spruce England can have, both for ornament and for timber. It will grow sixty feet in forty years in England, and occasionally three feet a year.

The spruce on which America has wasted the most money (doubtless more than a million dollars in the past) is the Norway (*Picea excelsa*). This is the blackest and gloomiest of conifers and the chief source of the notion (where it exists) that evergreens are monotonous and depressing. One of our worst American traits is that we buy the things that are cheapest at first instead of cheapest in the end. The Norway spruce is the lowest priced conifer because it is the fastest grower and like nearly all other fast growers it is short-lived. It makes a splendid appearance in the nursery but soon gets shabby. The best dark-colored spruce that is always radiantly happy in our climate is the oriental (*Picea orientalis*).

Our best native spruces are the white and Colorado (*P. alba* and *pungens*). England cannot grow a good white spruce but she grows good Colorado spruces and has an important lesson to teach us about them. With us the Colorado spruce is the most popular of all evergreens, because it has the bluest and therefore the most conspicuous and unnatural color. Every yard has one, along with other curiosities, and we scatter them all over the place in an effort to make our grounds as different as possible from their environment. On the contrary we ought to plant chiefly the trees of our neighborhood, and America will never look happy and mellow until we do. Moreover we ought never to isolate a Colorado spruce or any other conspicuous object, but use such things to "spice" a composition. Precisely what I mean is shown by the picture on page 267.

OUR EQUIVALENTS FOR THE "BIG TREES"

How the soul of a Californian must rejoice when he sees a *Sequoia gigantea*

that has grown a hundred feet in fifty years! I saw one at Dropmore that was ninety-eight feet high and planted about 1860. The oldest specimens I have seen in the East are at Rochester and Dosoris, and they are "homelier than sin." To tell the truth, the big tree is not beautiful in our gardens.

The only equivalent of it we can have is *Cryptomeria Japonica*, the great timber tree of Japan. Both have a bunched foliage effect which is produced by long strings, like those of the cypress or club moss. But even the *Cryptomeria* is hardy only as far north as New York, unless in sheltered positions, and this type of conifer is only for collections. We do not want it in our landscape.

OUR EQUIVALENT FOR REDWOOD

The big tree cannot hold a candle to the redwood (*Sequoia sempervirens*) save in height. The tallest big tree I know of is 350 feet high; the tallest redwood 325. In England the redwood will grow a hundred feet in sixty years. I dare say I had read a hundred descriptions of the redwood, before I went to England, in a vain attempt to get a mental picture of it. Yet the essence of its beauty is ridiculously easy to tell. Its foliage effect is simply that of our common hemlock. Add to this a beautiful warm red bark and you have the whole story of its landscape value.

Of course, these points are nothing compared with the enormous height of the redwood. I don't mean to say that any words of mine can convey the feelings one has at the first sight of a hundred-foot conifer, but the redwood is only one of many conifers that reach a hundred feet. The distinctive beauty of the redwood is the feathery grace of its foliage and this is produced in precisely the same way as that of the hemlock, viz., by short, soft needles in two ranks. Hemlock is inferior in height and beauty of bark, but if we plant enough hemlocks we can make the East beautiful enough without sighing for sequoias. And our hemlock England can never grow to perfection. There the tree splits into several trunks instead of maintaining a single leader as it does here.

THEIR BEST FIR AND OURS

England has no native fir (what is called the Scotch fir is a pine), but the common fir



This picture might have been made in America, for the hedge effect is practically the same as that produced by hemlock, is it not? Yet this is the famous yew.

of Europe, which one sees everywhere, is the silver fir (*Abies Picea* or *pectinata*), and this is the one we waste our money on. But we have a much better tree in the white fir of Colorado (*Abies concolor*). It is the cheeriest fir because of the soft silvery tone of its foliage, and it is the most graceful because it has the longest and softest needles. Most firs are stiff; this is not.

But England has us badly beaten on hundred-foot firs. She can grow to perfection the colossal firs that attain 200 or 300 feet on the Pacific coast — the Cascade Mountain, Puget Sound, Columbia, and California red firs (*Abies amabilis*, *grandis*, *nobilis*, *magnifica*). These we can never hope to grow. But I saw them only as specimens in collections; they do not affect the English landscape. Whether we can ever grow hundred-foot conifers on Eastern estates, time alone can tell. Our only chance, apparently, among firs is with the Colorado white and the Crimean (*Abies concolor* and *Nordmanniana*). If we fail we can console ourselves with the reflection that they are out of proportion, anyhow, on a small estate.

THEIR BEST PINE AND OURS

The only pine native to England is the "Scotch" (*Pinus sylvestris*) and it is no wonder that we waste thousands of dollars on it, for in its own country it is very lovely. It is a picturesque pine, but mildly so, as befits its environment. Its chief asset is its warm red bark. And since it is everywhere planted for timber it conspires with the brick cottages, tile roofs and rosy cheeks of the people to make England seem the warmest and merriest place on earth. Fortunately, the tree is open enough to display the red bark to advantage. The metallic blue cast of the foliage is the third element of its beauty.

In America, the Scotch pine grows quickly but deteriorates or dies after twenty or thirty years. Our nearest approach to it is the red pine (*Pinus resinosa*) which agrees with the Scotch in having an open, roundish head when old, two leaves in a bundle and, most important of all, red bark. But the red pine is a better tree and it is strongly American. Its leaves are twice as long (four to six inches), it grows even higher than the white pine and it is long-lived. The red pine is sometimes called the Norway pine — after Norway in Maine, not Norway in Europe.

The red pine is also superior to the Austrian, which is the gloomiest tree in England. But for wind-breaks we need a pine with dense bunches of long, coarse needles. Therefore the Austrian is much planted in America for shelter belts, especially along the seashore, but it dies out after twenty or thirty years. As a lawn tree it is too coarse and dull and it always is shaggy with dead cones, whereas the Scotch pine has the neat habit of dropping its cones as soon as ripe. Whenever we want a wind-break we should plant red pine in preference to the Austrian; it will last longer and it makes cheerful groves because the trunks

are red and the foliage, though dark, is lusty and brilliant.

I am glad the Scotch and Austrian pines are short-lived here for we do not want our most conspicuous conifer to be like that of any other country. The white pine is our tree. Let us plant that everywhere and try to live up to it. The white pine (*Pinus*

pared with 300 feet?—for that stupefying height is attained in California by the sugar and Western yellow pines (*Pinus Lambertiana* and *ponderosa*). England has many hundred-foot specimens of these. Anyhow she can't grow a white pine to save her life — so there!* I never saw one in England worth the powder to blow it up and some



The right way to use highly colored evergreens as "spice" in a group or composition. The wrong way is to scatter them about and use too many. Colorado spruce at Wisley in the gardens of the Royal Horticultural Society

Strobilus) is one of the gracefulest pines in the world, because of its long, soft brushes, and it is certainly the cheeriest conifer we can have in the north, because there is so much white in its foliage.

When it comes to hundred-foot pines the East must own itself beaten by California and England. White and red pine have been known to attain 120 feet in the East, but hardly in cultivation, and what is that com-

one told me there was n't a healthy white pine in all Britain.

To sum up: England grows taller conifers than we, but we beat her on variety. Our job is to try Japanese conifers on a small scale and plant our native conifers by the million.

* Every rule has its exception. As this goes to press I have this word from Mr. William Robinson: "The white pine in England is quite happy if it is on shaly or gritty soil. I have seen trees of it in Wales as fine as any I saw in New England, but it hates our heavy clay soil."

Foliage Plants Other Than Palms — By Harold Clarke, Pennsylvania

HOUSE PLANTS THAT ARE EASY TO CULTIVATE AND HARDY ENOUGH TO WITHSTAND THE TRYING CONDITIONS OF THE LIVING-ROOM, MAKING THE WINDOW GARDEN INTERESTING ALL WINTER

THE best of the most popular foliage plants for indoor decoration, the palms, were fully described in THE GARDEN MAGAZINE for January, 1908, page 287. But there are other plants of quite different appearance that are worth growing, and some of them are actually better for some conditions. No palm, for instance, approaches the aspidistra (*A. lurida*) in hardiness. The tenacity of life of this plant is indeed wonderful, and it does not seem to mind the dust and dry air, or the spasmodic watering and insufficient light, which seem to be the common lot of most house plants. I have seen it stand all winter in the vestibule of an office building where each time the door was opened a cold blast blew across it; it was only a few days before palms placed near it were miserable-looking objects. The aspidistra has been wintered outdoors at Philadelphia by heavily mulching it with forest leaves.

If given a fairly rich soil and plenty of moisture the aspidistra will make a moderately rapid growth, broadening out, but never getting very tall. The plant has no stem, the leaves (which are from fifteen inches to two feet long) coming directly from the root-stock or rhizome. The leaf-stem is wiry, about one-eighth to one-quarter of an inch in diameter, and about one-quarter the length of the whole leaf. The blade is from three to five inches wide and very dark green in color. There is a variegated form having white-striped leaves. The stripes, however, are almost lost if the plant makes a rapid growth, and are never exactly the same in any two leaves on the same plant. The simplest way to get new plants is by dividing the old one, either in the early spring (February) before any growth takes place, so that the young leaves will not be injured, or in August.

Almost equally tough is the New Zealand hemp (*Sansevieria Zelanica*). Like the aspidistra, it has no stem. The leaves come directly from the rhizome, stand up straight



Dracaena Godseffiana, white mottled on green. A very decorative and unusual plant



The large-leaved rubber, *Ficus pandurata*, much broader and coarser than the common kind, and just as hardy

like sticks, are concave and from one to three feet tall. It is attractive only for its light green color and its many transverse markings of grayish white. There are two other sansevieras — *Guineensis* and *cylindrica* — but they are not common in cultivation. In the former the leaves are flat, dark green with lighter transverse markings; those of *cylindrica*, as the name indicates, are round.

Another plant of a totally different character, but still seemingly indifferent to the dust and gas of the living-room, is the sago palm (*Cycas revoluta*). The cycas has a short stem crowned with a whorl of leaves. It is very slow growing, only one whorl being produced in a year, but with care the old leaves may be made to persist for two or three years. The foliage is shiny dark green; the individual leaf is two to three feet long and flat, with slender pinnae three to four inches long borne in two rows, one each side of the central stalk or midrib. When the new leaves come out they are upright and unroll just like the fronds of the fiddle-head fern; but as they grow older, they gradually droop until the following year, when it is time for the new set to come out. They are then almost horizontal.

The cycas is of easy culture, and succeeds well in the varying temperature of the living-room and in almost any well-drained soil.

If you want the fun of starting one yourself, buy a dormant stem from the florist. It costs about fifteen cents a pound and weighs from two to fifty pounds. When the stem arrives, plant it in as small a pot as possible and keep it in a warm, humid atmosphere until growth starts; after that a cooler, drier atmosphere will do.

One of the most popular of all the plants for house culture is the rubber-plant (*Ficus elastica*). It is usually grown to a single stem, making a very pretty plant indeed for formal effects, but compact and branching plants are equally as decorative. The leaves are about one-third as wide as they are long, the length varying anywhere from three to twelve inches, and are oblong to elliptical in shape, with a small, abrupt point. The upper sides are very glossy and dark colored, but the under sides are dull and light green.

Compared with the palms, the rubber-plant is a fast grower, although a plant grown to a single stem will not become too tall for the living-room for several years. Then it should be cut back to within a foot or eighteen inches of the ground, and enough branches allowed to grow to make a well-balanced head. A rubber-plant six to eight feet tall always has a "leggy" look, for as a rule the bottom leaves drop off. When a rubber-plant gets too tall for the house, and has been cut back, instead of throwing the top away, root it and make a new plant.

The easiest way to root the top of a rubber-plant is to bind moss around the stem which has previously had several incisions made in it. If the moss is kept damp it will be a matter of only a few weeks before roots are produced, and the top may then be severed from the old plant, and being potted up makes a new plant. (See illustration on page 270.)

If you have a greenhouse or propagating box in which bottom heat and a humid atmosphere can be maintained, the stem can be cut up into short pieces — one leaf to a piece. Put the cuttings directly into the propagating box, each cutting being tied to a small stick so as to maintain the leaf in an



The Rex begonias have great range of colors and are beautifully marbled

upright position, and the whole planted in sand in 2- or 2½-inch pots, and then plunged in a cutting bench. To make the cuttings root, a steady heat and humid atmosphere must be maintained.

The rubber-plant is a gross feeder, so there is no danger of getting the soil too rich. Use an ordinary potting soil, and when the pot has become filled with roots, manure water or other liquid fertilizer may be given once or twice a week.

During the summer, the rubber-plant will be much benefited by being put out of doors; but if the plant has made a considerable growth in the house, do not put it where it will get the full sunshine, for the leaves will be burned. Place it where it will get the early morning and late afternoon sun, but be shaded during the middle of the day.

Within recent years, the fiddle-leaved rubber-tree (*Ficus pandurata*) has come into general cultivation and, so far as I can learn, is as hardy as the commoner one already described. It differs in the shape of its leaves, which are much broader and wedge shaped, and have creamy white veins.

The only member of the pine family which can safely be recommended for house cultivation is the Norfolk Island pine (*Araucaria excelsa*), one of the most popular house plants and by long odds the best formal plant for house decoration. The foliage is a bright grass-green and the branches are produced in regular whorls of five, at short, but regular intervals, making a very pretty, symmetrical plant. The Norfolk Island pine will stand a great deal of neglect so long as it is kept in a cool place and the soil about its roots is moist.

One of the most easily grown foliage plants is the canna. Of course, it will flower, but when grown in the window garden it is primarily a foliage plant. The best one is Black Beauty, which outdoors will grow five to six feet high, but in pot culture reaches only two or three feet. The leaves are of a rich, glistening, bronzy-purple, shaded black, and the margins are crimped or wavy. Roots can be bought from the seedsmen, but an easier way is to dig up those which have flowered in the garden during the summer, dry them off, and start them growing in 6- or 7-inch pots, transplanting to larger pots as necessary. The plant will make a good show all winter and may be put outdoors in the flower-bed again in the summer.

The most popular variegated plant for house culture is the variegated screw pine (*Pandanus Veitchii*). The leaves grow two to three feet long, one and one-half to two inches broad, light shiny green with broad, pure white stripes, and arch gracefully. Both the edges and the midrib of the leaf are thick and set with spines. When small, it is very useful as a centre-piece, small ferns and selaginellas being used about the base. Get plants which have been hardened off; soft, sappy specimens are apt to rot. Give rich but well-drained soil and plenty of water, but do not over-water. As the roots are rather large and fleshy, the soil must not be packed around them too tightly or growth will

be retarded. New plants can easily be made by removing the suckers that are very freely produced and treating them as cuttings. Another variegated pandanus (*P. Sanderi*) has yellow stripes, and during the winter the new growths in the centre of the plant are deep golden yellow.

Not as pretty, but just as hardy, is the common screw pine (*Pandanus utilis*), a stronger grower than Veitchii; I have seen specimens twenty feet high growing in greenhouses.

soil. These greatly resemble stilts. All the screw pines are more or less subject to "spot," which is caused by small insects burrowing under the epidermis of the leaf. There seems to be no remedy for this, so if a plant becomes badly infested, throw it away. If there are only one or two spots, cut off the infected leaves and burn them; keep the plant dry — do not syringe the leaves — and water the soil sparingly. Over-watering seems to induce an attack of this insect.



Screw pines are among the most easily grown house plants, and will attain great size

The leaves are produced in a spiral, from which it gets its name "screw" pine, are light green in color, and the edges and midrib are set with spines as in Veitchii. If you cannot get Veitchii, buy this one — and it does not cost as much, either, being easy to propagate as it may be grown from seed which germinates readily.

One curious thing about the screw pines is the stilted effect they give, particularly utilis. When the plant begins to get any size it produces from the stems near the ground large thick roots which immediately penetrate the

It seems to be the delight of a great many people to grow an orange or a lemon tree. They save the seeds from fruit used in the house, and with good care have a nice plant in a year or two. If it is grown long enough it will produce some fruit, usually sour. I have been asked a great many times how such plants can be made to bear sweet oranges or good lemons. The plants should have been budded, when about the size of a lead-pencil, with a good variety. This is a very bothersome and delicate operation, and also involves the necessity of sending to



The white and green variegated *Pandanus Veitchii* is gayer looking than the golden form, *P. Sanderii*

some California or Florida dealer for a bud-stick of a good variety.

A much better plan is to buy an Otaheite orange from the florist. The fruit is smaller and of no value for food, but the plants are dwarf — they grow only fifteen to eighteen inches high — and a well-grown specimen is usually covered with reddish-orange fruit. The flowers are pinkish in color. Even if the plant has no fruit, the deep green of its foliage is always attractive. These little orange plants seem particularly adapted to house culture.

The American Wonder or Ponderosa lemon is the best to grow. It is a rapid grower and bears large, white flowers sometimes as big as a tuberose, which are as fragrant as orange blossoms. The fruit is large — sometimes weighing one and one-half to two pounds — and although I have never eaten it, is said to be good for household use. The plant itself, without flower or fruit, is worthy of a place in the window garden on account of its deep green foliage and fairly symmetrical habit.

The best small decorative plant for the window garden is the rex begonia. It sel-



When the rubbers get "leggy" make new plants by "topping" with damp moss

dom grows more than six inches high; the leaves come directly from the rhizome, are obliquely heart-shaped, and all face one way. They are from six to eight inches long, and of a rich metallic green with a silver band. The original species has been crossed with many others, so that now one can get a variety of shades of green and many different markings. If the window garden is large enough, space should be given to three or four different varieties. Their culture is easy, and they delight in a rich soil to which a large proportion of leaf mold has been added.

The best specimens of the leopard plant or farfugium (*Senecio Kämpferi*, var. *aureo*



The sago palm (*Cycas revoluta*), slow growing, but very resistant

maculatus) that I have ever seen have been grown in window gardens. There is something about them which is always attractive. The leopard plant has large leaves — six to ten inches across — of thick, leathery texture, dark green color, blotched with yellow, or sometimes with white or pink. The leaves come directly from the rhizomes and the leafstems, and are from six inches to a foot long.

Other foliage plants well worth trying in the house are: fragrant dragon tree (*Dracæna fragrans* and *Godseffiana*); dracæna (*Cordylina australis*, but known in the trade as *Dracæna indivisa*); curmeria (*Homalomena Wallisii*); umbrella plant (*Cyperus alternifolius*); Japanese daphne (*Daphne odora*); camellia (*Camellia Japonica*); bay tree (*Laurus nobilis*), none of which insist upon any but the average conditions, and so may be grown by almost anyone.

PLANTS FOR EDGING

The general effectiveness of the window garden is much enhanced by the addition of a creeper of some sort as an edging to the window box or growing in hanging pots or vases. The best plant I know of is the periwinkle (*Vinca major*), which makes a slender growth one to two feet long. There is a variegated form of this, the leaves being marked with yellow. A much smaller plant which may be used for the same purpose is *Scirpus cernuus*, universally known among florists as *Isolepis gracilis*. It has pretty, drooping, grass-like foliage. Other suitable plants for these purposes are: Wandering Jew (*Tradescantia fluminensis* and *Zebrina pendula*); snake's beard (*Ophiopogon Jaburan*); variegated panicum (*Oplismenus Burmannii*).



Dragon plant (*Dracæna*) comes in green and many forms variegated with gold and crimson. *D. fragrans* the commonest

Two vines which succeed admirably in the house are the German ivy (*Senecio scandens*) and the English ivy (*Hedera Helix*). These may be trained around and over the window, and a most decorative effect is obtained from having a bay window festooned with the vines, strings being fastened for them to grow on. I have seen the ordinary sweet-potato used most effectively for giving a foliage frame to a window garden. The tuber is not planted in soil, but merely placed in a wide-mouthed vessel with sufficient water to just reach the tuber. In a few days shoots will develop and the vine can be trained as desired. If this plan is adopted, a new tuber must be started every little while as the old one becomes exhausted.

It should be remembered that the plants named above are of a tropical nature and must be protected from frost, even at the cost of light.



The yellow fruits of the oranges are very effective and last all winter

Our Christmas Gift to the Children of the Tenements

How the Flowers that Country Children Delight to Gather May
Be Sent Free to Children who Have Never Seen a Garden

By Lucy Lettingwell Cable

Photographs by Alice Boughton

DO YOU know that there are thousands of children in America who have never picked a wild flower, and who do not even know what a garden is? Their homes are in the crowded tenements of our great cities — New York, Philadelphia, Chicago, for instance — where they eat and sleep in dark, ill-smelling rooms, so that it is difficult for them to keep well and to grow as children should. Their playground is, at best, the



Wouldn't you like to send roadside flowers or the surplus of your garden to boys and girls who are sick?

paved street of the city, where no leaf nor blade of grass can spring up. How much happier these children would be if they might only see some flowers, even one daisy or one brown-eyed Susan, such as you can pick by the roadside any day in July.

But, to realize what flowers mean to children of the tenements — to understand for yourself what precious objects they are to them — you should go into the slums of a great city, on a summer day, and carry with you a bunch of flowers. Stop on the way to the station and pick anything along the roadside — clover or wild carrot or anything that happens to be in bloom; take these to the children who never have any, and what you shall see will be worth your while.

As soon as you reach the big city you will find the youngsters, one by one, sidling up to you, touching your arm, or eagerly running backward in front of you, their pinched, hungry faces upturned to yours, as they wistfully beg of you, "Please gimme a flower;" "Ain't you got jes' one for me?" "Say, lady, won't you gimme one o' them?" There will be no doubt in your mind about

their being glad to have any kind of flower at all.

Do you know that the express companies will carry flowers free to the children of the tenements under certain conditions? There is a very easy way by which you can send a lot of flowers once a week. You can get the children of your neighborhood to pick them, and there is a society that will distribute them where they will do the most good. It distributed nearly half a million bunches last year.

The society is called the "National Plant, Flower, and Fruit Guild," and for fifteen years it has been distributing garden products among the sick and the poor. It distributes flowers, fruit and vegetables, growing plants and jars of home-made jelly — those little things that are such great easements of pain and such shining rays of light in the dreary lives of those who dwell in dark places. Moreover, the society is a marvel of efficiency. "No other charity," says the Social Economy Report of 1906, "is conducted on so large a scale with so little money." This splendid record is, of course, largely due to the express companies, but the society's methods for getting the flowers to the right persons are very interesting. In brief, they are sent to day-nurseries, settlements and hospitals. Let us go now with a box of flowers from the country, and see if they really get to the people who appreciate them.

Here is the People's Home, a day-nursery on the East Side in New York. Just look at the children in front of that house! A



By means of this magical label nearly half a million bunches of flowers were carried free last year by the express companies



Think of being sick at Christmas time. How glad you would be to have flowers then!

host of ragged, ill-kept, ill-fed youngsters, crowding the sidewalk, sprawling over the steps, peering in at the door, noisily awaiting — what? The baker's cart, perhaps? They look hungry enough. The fruit-vender, then, who may drop them one or two half-bad oranges to scramble for? Or the "hokey-pokey" man? No, sir, it is none of these.

Ah, here is their expected prize, whatever it may be! A wagon marked American Express Company comes rattling along the street, and immediately — an uproar, a tumult, a riot! The flowers have come, into the middle of the street they swarm, for here is the place of distribution; numberless little dirty hands shoot out, grab the proffered bunches, and fairly tear them apart in their eagerness. And when all have been given away, you will see not so much as a leaf lying unclaimed on the pavement. Two or three luckless ones may even steal through the open doorway into the "office," and examine the waste-paper basket, to capture and bear away some faded treasure that has been discarded by the teachers; or a stray urchin who has happened along too late will raise an appealing face to the low window where sits one of the teachers at her typewriter, begging: "Please Miss D——, ain't there one left?" Thus would your flowers be welcomed.

The children of the streets are not the only ones who get the flowers, or the hospitals either, for there are visiting nurses in the Settlements who make personal visits to poor folk who are sick in their own homes and old folk who are house-bound or bedridden. Also they visit boys and girls who are

crippled or weak so that they cannot play even in the streets.

But where do these flowers come from? Many of them come from children in the country. Some of the flowers are gathered from the roadside, but a number of the children bought ten-cent packages of seed early in the spring, and made gardens for the purpose, that they might send some flowers of their own raising to the city children who have no garden.

There are several such "flower clubs," as they are called. The largest and most successful of them is that at Rowayton, Connecticut. Six years ago the children of Rowayton began to gather bunches of flowers and bring them once a week to the Sunday-school rooms; in this way, for two years, they sent to New York City as many as 5,000 bunches each year. Then a flower club was formed and its members had all the joy of Daisy and Goldenrod Picnics, by means of which, that year, they sent to New York City 15,000 bunches of wild flowers. It is only during the last two summers, 1907 and 1908, that they have been sending flowers from their own gardens; but during 1907 no less than 44,000 bunches went from the children of the country fields and gardens to those of the city streets and alleys.

Is n't it wonderful how much children can accomplish by giving a few hours a week?

And don't you suppose it has a good effect on the country children too? Would n't you like to have *your* children in such a club?

All you have to do to start such a club is to get the youngsters together and tell them about the children who never see as much as a blade of green grass all summer long. You do not need to import a lecturer — just tell what you have seen among the tenements. Tell some of the things that every country child has, but city children rarely or never have. The interest and sympathy of the children will be instantly aroused. Then form a club — every child likes to belong to a club — and supply each member with a package of mixed seed. (These seeds will be sent you freely, and in whatever quantity you desire, from the office of the National Guild, for this office is itself supplied by the generosity of florists throughout the country.) You will be surprised to see the flowers that will be raised in these tiny gardens. The Rowayton Club boasted several gardens, in 1907, that produced 500 bunches each.

Another way you could help is by getting the grown-ups to send the surplus from their gardens. You could go around to your friends and neighbors and secure from them the promise of enough flowers to make it worth while for the express company to carry them for you. Then someone should be appointed as collector, who will go from



Perhaps you think flowers aren't appreciated in the hospitals!

house to house, gathering in the bunches of flowers contributed, and send them to the express office, putting on the basket or box the label of the society, by which they are carried free of charge. There should also be patronesses, whose only duty is to pay a yearly due of one dollar. There are other details, of course, but they are few and very simple, and will gladly be sent you if you will write to the office of the National Plant, Flower, and Fruit Guild, 70 Fifth Avenue, New York City.

"But what," perhaps you are saying, "has all this to do with Christmas time? What can a Plant, Flower, and Fruit Guild do during the winter, and why should we be told about it now?"

During the winter the officers of the City Branches solicit the flowers that are used in such lavish abundance at large functions throughout any big city — at weddings, at receptions, at dinners, at balls. After these are over, the society collects and distributes the flowers among the poor and the sick. If in summer their advent is hailed with joy, think what pleasure they must bring in the dreary cold of winter! Another important winter duty is to distribute jars of home-made jelly, preserved fruits and bottles of grape-juice — all of which are sent in from the country branches — to the sick poor in hospitals or in their homes, and to the old and the crippled and the house-bound.

As each year its scope spreads wider, each year the society finds itself wholly unable to progress as it should and as it desires. Two things you can do, if you will, to help its work along: If you live in suburbs or country you can start a branch. If you can't do this, perhaps you would like to send some money now, for the Guild wants to make back-yard gardens in the tenements, and put window-boxes in front, and see that vacant lots are farmed, and plan school gardens. But above all it wants to send more and more flowers to the children, for there are never enough to go around and they are always so glad to have them.



One of the day nurseries where the flowers are distributed. These children have no gardens

The Best Climbers South and North—By P. J. Berckmans, Georgia

THE SEVENTH OF A SERIES OF MEMOIRS BY THE DEAN OF AMERICAN POMOLOGY AND OF SOUTHERN FLORICULTURE, IN WHICH HE TELLS OF HIS PERSONAL EXPERIENCES IN THE INTRODUCTION OF MANY PLANTS

IN SELECTING vines for house and garden, one should not begin with a list of plants. The best way is to determine the practical purposes for which vines are needed. Then one can choose the best vine for screening unsightly objects, for shading the veranda, for decorating the porch, for flowers, for fragrance, for winter effect, etc.

A new way to use vines is to hide the nakedness of a new place before trees and shrubs have time to attain luxuriance. This is a discovery of great importance to the



A trumpet creeper, probably the common one (*T. Radicans*). It has orange-red flowers two or three inches long, borne intermittently all summer

South. Large trees can be successfully transplanted in parts of the United States where climatic conditions are favorable, especially where sufficient moisture may be depended upon during the summer, either by rainfall or artificial irrigation, and under such conditions a piece of bare land may soon be transformed into a beautiful spot. But at the South where the summer heat often lasts longer and is more intense than in the New England States, transplanting large trees is always connected with great risk and it is therefore always advisable to select small but well grown trees which can be removed with all their roots and will start growing much more rapidly than larger ones. The quickest way to attain luxuriance in the South is by means of rampant vines, which can even be planted in shrubberies and trained on stakes or trellises so as to have the effect of shrubs.

While the annual vines are useful the first

year, the most important vines are the permanent or woody kinds. These are treated in two sections, the evergreen and deciduous.

Part I. Evergreen Vines

These have one great advantage over deciduous vines. They do not drop their leaves in winter and therefore are attractive the year round.

HARDY AND EVERGREEN, NORTH

There are but few vines that are both hardy and evergreen at the North—English ivy, climbing euonymus, a few roses and *Loniceras*.

The English ivy (*Hedera Helix*) is hardy throughout the largest part of the United States, but in the northern tier of states it can be grown only as a creeper. This species comprises some twenty or more forms, differing chiefly in size, shape and color of the leaf. The showiest varieties are those with variegated leaves, but these are not suited to the southern climate. In the North it is advisable to protect them somewhat during the winter. The common green leaved sort is the most desirable for covering walls, trees, trellises, and slopes. The South has a chance to make extraordinarily luxuriant effects by using the variety *Algeriensis*, which is known by its immense leaf.

The climbing euonymus (*Euonymus radicans*) is said to be hardier than English ivy in the North, and the green-leaved kind has red berries that are attractive all winter. It is a very valuable small climber for covering walls, rock-work or tree trunks. Its variegated-leaved form is frequently used for bordering flower-beds.

ONLY SEMI-EVERGREEN NORTH

We now come to a group which can be grown North and South, but which may drop the foliage in the North from one to three months according to the severity of the winter.

The most familiar example is Hall's honeysuckle. Japan has given us numerous showy honeysuckles with evergreen foliage and fragrant white or pale yellow flowers blooming nearly all summer. These are mostly varieties of *Lonicera Japonica* and the showiest of this class is the golden netted-leaved honeysuckle (var. *reticulata*). Its foliage is handsomely netted with bright yellow and in the autumn the leaves and stems change to a bright crimson. When grown in rich ground and trained on a stake, this variety will climb high.

The Belgian honeysuckle has the longest season of bloom. It begins in early spring and lasts all summer. Frequently its beautiful fragrant pink or reddish flowers can be gathered as late as December at the South. It is of very vigorous growth and may also be grown in bush form. It is a variety of

the woodbine (*Lonicera Periclymenum*, var. *Belgica*).

The nearest approach to an evergreen rose which the North can have is furnished by *Rosa Wichuraiana* and its hybrids. While these roses are mostly only spring bloomers, there are some that flower quite late and we look for new varieties that will also lengthen the flower harvest until they may be included in the everblooming class. They can stand the most intense, cold winters and are well suited for purposes where trailing plants are desired, such as covering slopes, rockeries, etc.

EVERGREEN CLIMBERS FOR THE SOUTH

We now come to those splendid vines which the South alone can grow to perfection. Northerners who come South to live make a great mistake in trying to grow northern plants that are not adapted to the southern climate. Why not concentrate on the best things the North can never have?

VALUED FOR SHOWY FLOWERS

The showiest single rose that can be grown in America is the Cherokee, which has run wild in the South and is popularly supposed to be native, but it is really a Japanese rose (*Rosa laevigata*). Its pure white flowers are often three and a half inches across. It is a high climber and, like the next, is mainly valuable for making tall hedges or massing.

The famous McCartney rose of the South is also a large, white, single rose from Japan, but if left unsupported it grows as a spreading bush. The flowers are smaller (about two inches) but are produced until early



The interesting leaves and pods of the silk vine, *Periploca Greeca*, a fast-growing hardy twiner that attains forty feet



The trumpet honeysuckle, inodorous, but with orange-scarlet flowers two inches long. It has the brightest colored flowers among honeysuckles and is hardy. In the South it is evergreen

winter. The leaf is composed of eleven to fifteen leaflets, while the Cherokee has only three.

The brightest color among honeysuckles is found in *Lonicera sempervirens*, the trumpet honeysuckle, which atones for its want of fragrance by its orange-scarlet color. It yields an abundance of flowers during the whole summer.

Bignonias have even larger trumpets than the trumpet honeysuckle. The foliage of our native *Bignonia capreolata* or cross vine, is not very dense, but its yellow and orange flowers, produced in the spring, are very handsome, and the vine will climb fifty feet high. *Bignonia speciosa*, with dark lilac flowers, is not hardy north of Savannah. The gem of this group is *Bignonia venusta*, which yields a profusion of bright orange flowers in drooping racemes. This is one of the most brilliant bloomers for Florida. Further north it can be grown only as a conservatory plant.

VALUED CHIEFLY FOR FRAGRANCE

The evergreen vines most valued in the South for fragrance are roses and jasmines.

The climbing Clothilde Soupert is a most valuable addition to the list of evergreen climbing roses. It will stand the winters of New England, but is not evergreen there. It is a perpetual bloomer. The flowers are of medium size, white with flesh centre, very double and beautiful in shape. This form originated in a nursery block of mine some ten years ago. It is considered by all the northern and western commercial growers as among the most valuable hardy, perpetual blooming, climbing roses.

The white and buff-colored Banksia roses

have clusters of small but highly fragrant flowers in spring. The growth is rapid and a trellis is soon covered with a luxuriant mass of green foliage.

The best white-flowered jasmine for the South is the Chinese jasmine (*Jasminum nudiflorum*), which blooms in midwinter. It is frequently trained upon a wire and used as a low hedge. It is covered with a profusion of yellow flowers in the South as early as January, and the display lasts several weeks. It is hardy as far north as Baltimore, and with some protection during winter can stand the latitude of New York.

In the Middle States it is possible to grow the Catalonian or Italian jasmine (*J. grandiflorum*), a white flower which is really native to India. It is rather a low climber with pinnate foliage and pure white, delicately fragrant flowers which are produced almost constantly farther south. This is the plant grown extensively in Europe for perfumery.

It is to be regretted that the star, or properly the Malayan jasmine (*Trachelospermum jasminoides*, but known to catalogues as *Rhynchospermum jasminoides*) is too tender to stand the winters above the latitude of Middle Georgia, because of its wonderful profusion of white, fragrant flowers and its bright, shining green foliage. It blooms from April until July in the South. It is well worthy of being grown in tubs in a northern greenhouse and bedded in the open ground during the summer. Its variegated-leaved form is less rampant in growth, but the foliage assumes a bright silvery and red color in the fall, and when trained on a trellis makes a very attractive plant.

Although not classed botanically as a

Jasminum, the southern yellow jasmine (*Gelsemium sempervirens*) is well known, and the favorite early spring flower of northern tourists, who value this bright, golden-yellow flower for its exquisite violet-like fragrance. It is found all through the Southern States beginning in Middle Georgia. A double-flowering form was found several years ago near Columbus, Georgia, and disseminated by the writer. If grown in a conservatory North this form frequently yields several crops of flowers during winter.

VALUED FOR ORNAMENTAL FRUIT

The Carolina moonseed is sometimes called "coral berry" because of its showy red berries. It is a graceful native climber which grows only five to twelve feet high. During fall and winter it is covered with coral-red clusters of berries. While only a semi-evergreen it retains its foliage quite late. Planted in a conservatory, nothing is more attractive than its festoons of bright berries which remain until spring. It is hardy in the Middle States, and (with slight protection) as far north as Baltimore. Its name is *Cocculus Carolinus*.

We must not overlook our native species of smilax, especially *S. laurifolia*, which is hardy as far north as New York, but becomes deciduous there. If grown in rich, moist soil the stems will climb to a great height. The vivid green leaves are long and broad. The berries are black and remain on the vine during winter.

VALUED FOR DECORATIVE EFFECT

The five-leaved akebia (*A. quinata*) is a very rapid climber with bright green leaves and dark purple flowers borne in early spring, under the foliage. It is an excellent plant to train either upon a trellis or stake, and it is hardy North and free from insect pests.

For the formation of a rustic arbor the Japan oleaster (*Elaeagnus reflexa*) will be found excellent material. The bright green and silvery reflexed foliage contrasts with the downy brown bark of the young shoots and its clove-scented flowers are very fragrant when they appear in the spring. If this vine is planted on good soil the branches often attain a length of fifteen feet in one year. The golden-leaved form is beyond question the best of the golden-leaved climbing shrubs, as its color is constant—never reverting to the green. While of less climbing habit than the green form it is sufficiently vigorous to make a satisfactory growth. Both are hardy in the Middle States and can withstand the winters as far north as Washington, D. C.

Part II. Deciduous Vines

Although the following vines are not green in winter, they have abundant attractions during the growing season.

VALUED FOR SHOWY FLOWERS

The showiest spring-blooming vines at the North are the wistarias, all of which are of rapid growth. Usually we find these plants covering the walls of buildings, but they are very much more attractive if trained

upon trellises or arbors. The Japanese gardeners understand their great value, and by training them as arbor plants bring out the great profusion and brilliancy of their pendulous flowers. We frequently find wistarias trained to standard, or tree, form, and when such plants are well cared for, have symmetrical heads, and are planted in a lawn, nothing is more attractive in early spring. The blooming period may be extended from March to the middle of May South, and from May until the middle of June at the North, by planting the different kinds. The first to bloom are the Chinese purple and white, which are perhaps the most valuable. These are followed by the Japanese forms, *Allenii* and *multijuga*. The latter has very long loose racemes, frequently two or three feet long. Then, the double-flowering purple Chinese gives an abundance of dark-purple flowers which last a long time. The improved American wistaria, *W. frutescens*, var. *magnifica*, is the most rampant grower, and if the new growth is occasionally cut back its lilac flowers may be had in limited number during the summer. This variety grows too vigorously to be trained as a standard. All wistarias should have their side branches pruned back to spurs during the fall or winter; which increases the profusion of flowers as well as the size of their racemes.

FOR SUMMER FLOWERS

The showiest flowering vines of summer are found among the clematis hybrids, especially Jackmanni and Henryi, the favorite purple and white varieties. Their flowers include a wide range of colors, from a deep purple and intermediate to rose, red, and pure white. More than one hundred sorts are grown but a very satisfactory collection can be made in a dozen varieties which have been successfully cultivated and by a careful selection of



Jasminum primulinum as grown in a greenhouse at Highland Park, Rochester, N. Y. Four evergreen jasmines can be grown in the South



Wistarias, the showiest hardy flowering vines of spring. Mr. Berkmans tells how to prune them so as to get a big floral show

the early and late blooming sorts, flowers may be had from May until October. Clematis vines require rich ground and should be well fertilized with stable manure during fall. The stems should be pruned in the autumn by cutting back part of the wood (but part of the old wood must be retained) as many of the best sorts blossom from the new growth.

The trumpet creepers or Japanese bignonias (*Tecoma radicans* and *grandiflora*) produce a continuous crop of very large orange-colored flowers from May until frost. The plants are best when trained upon posts and the branches cut back to spurs every spring; which will increase the size of the flowers. There are a few forms of this, differing chiefly in the size of the flowers and the shade of color. All are red or orange and perfectly hardy.

The climbing hydrangea (*Schizophragma hydrangeoides*) may be roughly described as a climbing *Hydrangea paniculata*. This must be grown in very rich soil and a shady situation.

In the Middle South we sometimes find *Decumaria barbara*, which has the appearance of the climbing hydrangea when covered with corymbs of white flowers in May or June. It requires a very rich, moist, shady situation, when it will often climb thirty to fifty feet upon trees.

VALUED FOR SHOWY FRUITS

An excellent rapid-growing climber for northern sections is the matrimony vine or *Lycium barbarum*. It is largely used for

covering trellises (see GARDEN MAGAZINE for October, 1908) and is covered during the summer with purple flowers which are followed with an abundant crop of large scarlet berries, which last till early winter.

A native climber very commonly found in the northern sections is the bittersweet, *Celastrus scandens*. Its main merit consists in the profusion of its orange-crimson berries, which are retained all winter and are largely used for interior decorating.

VALUED FOR DECORATIVE EFFECT

Wild grapes are worth growing for their decorative foliage and fragrant, though inconspicuous bloom. We have many native species of rapid growth and dense foliage.

Japan has given us many desirable climbers, among which are the actinidias, of rapid growth, handsome foliage, and with delightfully fragrant but rather inconspicuous flowers.

Those who desire a vine with very large leaves will find the birthwort or Dutchman's pipe (*Aristolochia Siphon*) a most rapid grower that soon covers a veranda or pillar with dense foliage.

Another excellent vigorous climber is the Grecian silk vine (*Periploca Graca*) with lanceolate leaves and numerous flowers brownish purple inside and greenish outside. It blooms in August and is fairly hardy North.

VALUED FOR THEIR GREAT HEIGHT

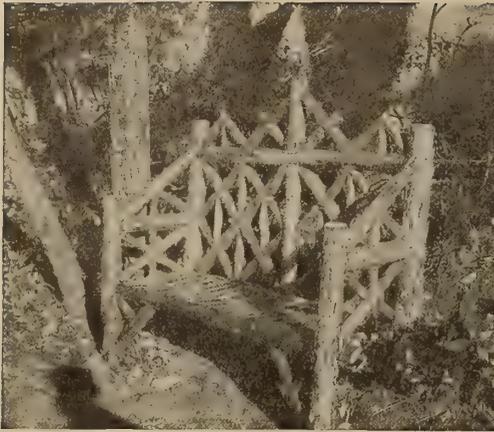
For the purpose of covering high walls with a very rapid climber the most desirable is no doubt the Japan ivy (*Ampelopsis Veitchii*). Its great merit, independently of its luxuriant growth, is that it casts its foliage in the fall, thus cleaning itself of dust and dead branches or straw. Such litter is often accumulated by birds during summer, and is frequently very objectionable in the evergreen ivies.

Japan ivy should not be used on wooden buildings or on dying trees. Virginia creeper is better for screening unsightly objects. Japan ivy is the best vine for great cities because it will grow to the top of a six story building from a hole in the pavement.

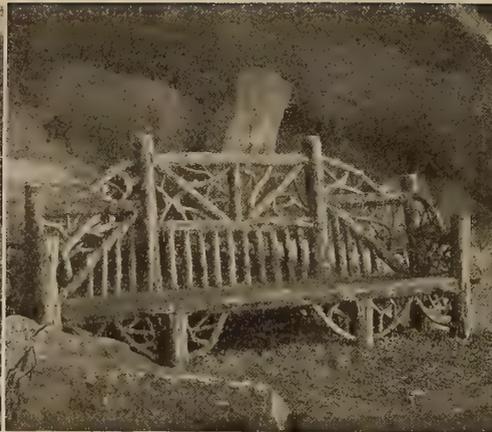
GREENHOUSE CLIMBERS

Where a greenhouse is added to a private place, many most excellent climbers of semi-hardy or tender habit may be grown to great advantage and bedded out during the summer. Of these we may mention as the most conspicuous and constant bloomers: *Bougainvillea glabra*, var. *Sanderiana*, with its enormous masses of lilac-colored flowers; *Allamanda Hendersonii*, with very large, bright-yellow flowers; *Passiflora carulea*, *Decaisneana*, *alata*, *quadrangularis*, etc., will repay the winter greenhouse protection, as will also the Mexican mountain rose (*Antigonon leptopus*), that exquisite fall bloomer at the South which is covered with small rose-colored flowers.

Many other excellent climbers can be utilized but the kinds that have been described in this article will be found amply sufficient for all the different purposes named.



1. Seat, five feet long. Design based on development of the diagonals. Cost: cedar \$1; labor, \$7.50; incidentals, 60 cents. Total, \$9.10



2. Ornate contrast with the overhanging rocks. Seat eleven feet long. Cost: cedar, \$2; labor, \$12.50; incidentals, \$1. Total, \$15.50



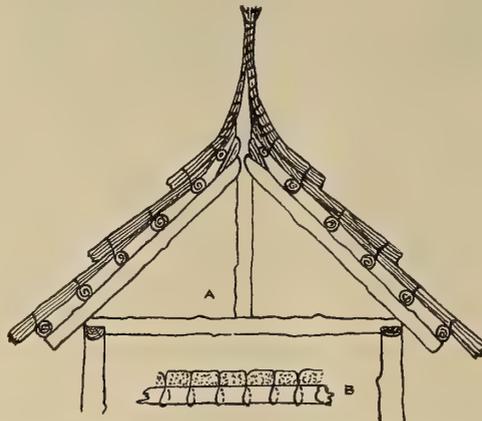
3. Good in design, but the wood should have been heavier to give massiveness. Cost: cedar \$1; labor, \$7.50; incidentals, 60 cents. Total, \$9.10

Practical Suggestions for Rustic Work—By Richard Ferris, New York

UTILIZING THE NATURAL MATERIAL OF THE WOODS TO MAKE SEATS AND SUMMER HOUSES THAT "FIT" THEIR SITUATIONS, AND HOW DESIGN ENTERS INTO THE SCHEME—COMMON ERRORS THAT CAN BE AVOIDED

THE simplest, elemental garden furniture is that made from the actual materials found on the place itself—trunks of fallen trees, broken limbs, and oddly shaped branches that lend themselves to any sort of design work. In the wild woods a log roughly hewn and placed in any spot commanding a view, or where one might desire to rest in quiet seclusion, is rustic work in its simplest and most appropriate form. And as gardens become more objects of care and applied art—artificial in the strict sense of the word—there develops an appropriateness for artifice in the furniture, and hence the element of design is introduced into rustic work.

As a rule, rustic work seems to lack fitness and repose, due to an almost nervous desire to make it too elaborately ornate, and it quickly passes into the grotesque and ridiculous. The amateur rustic-work builder's greatest danger lies in not having the courage to leave off. The best rustic constructions are those made of a few heavy pieces for the main lines, and what little ornament



Showing how the straw is attached to the roof frame. A, section. B, method of wiring

there is added only on a definite scheme of decoration. These points are emphasized in the present series of illustrations showing work done for a semi-public place at Lake Mohonk, N. Y.

One advantage of this class of work is its cheapness. The materials cost next to nothing; labor is the one costly item, but many GARDEN MAGAZINE readers will like the occupation and there is at times play for considerable ingenuity in selecting and fitting properly the various pieces of wood. Then again the work offers a congenial occupation during periods of the year when garden work proper is slack.

There is no more durable material and, in my opinion, none more picturesque than red cedar. It is worked up easiest when freshly cut; if left to dry, it becomes very tough and is inclined to crush under the tool. If it is cut very early in the spring, the bark may loosen a little while the wood is being worked on, but as the wood dries out it will tighten again. When red cedar is used the seat pieces are made from wood three to five inches in diameter split through the

centre to display the deep red heart in the white sap-wood. In finishing, these pieces are hewn slightly hollow on the flat side and smoothed with a small block-plane and sandpapered. After being nailed in place they are immediately oiled, for the fading of the red color in the heart-wood is very rapid. The next day a coat of spar varnish is applied, and a second and third coat given at intervals of two days. The same treatment is given to the ends of all prominent posts and braces, which are rounded and smoothed with jack-knife, block-plane and sandpaper.

The joinings are all hollowed out with a gouge so that the parts will fit snugly and smoothly. The beauty of the finished structure depends largely upon an accurate fitting of parts. Variety is obtained by sometimes halving in the sticks, allowing the ends to pass by. Generally, these structures are built in place, the posts being set in holes two feet deep and well rammed. But in some locations the character of the



4. Covered seat. The upright poles and the pine trees are in harmony. Cost: cedar, \$2; labor, \$9.25; incidentals, 65 cents. Total, \$11.90



5. Semicircular seat with back in three flat surfaces forming a half hexagon. Cost: cedar, \$1; labor, \$7.50; railing and platform, \$8; incidentals, 65 cents. Total, \$17.15



6. Bold style to redeem commonplace surroundings. Seventeen feet long with eighteen inch overhang. Cost: cedar, \$2; straw, \$1; labor, \$15; incidentals, \$1.30. Total, \$19.30



7. The turned-down rails give these steps an air of inviting you to ascend. Cost: cedar, \$3; labor, \$15; incidentals, 40 cents. Total, \$18.40



8. Summer-house six feet square. The floor is of 4-inch wood, split through the centre and hewn smooth. Cost: cedar, \$2; labor, \$18.50; straw, \$1; incidentals, \$1.50. Total, \$23

ground will prevent this, or it may be desired to have them portable. In such cases, the houses are built on sleepers, which may be sunk to the level of the path.

For roofs, the texture and pliability of straw make it indispensable where the desired effect cannot be produced with the straight cedar poles. Use only the best of rye straw. This will last for several years and may be renewed at small cost. Straighten the straw before using, or, in other words, bring all the butts to the same level. Take a handful from the bundle, hold it upright, and jar the butts forcibly three or four times upon the floor, loosening the grasp as the straw touches the ground. Remove all crooked and broken straws.

A framework of poles ten inches apart must be built to carry the straw roof. The straw is put on in handfuls and bound to the poles with a half-hitch of copper wire pulled snug, but not tight enough to break the straw, each handful being crowded close against the preceding one. For convenience in passing the wire through the framework, it is

wound on a stick or bobbin. It is best to have an assistant at roofing, who, standing inside the house, receives the bobbin and passes it up again to the thatcher at each stitch.

Care is required in laying the straw so that the best results will be had in the completed work. At the hips of the roof the straw must be parallel with them; at the centre of each side it should lie perpendicular to the line of the eaves. Between these points it must be adjusted, but the larger size of the straw at the butt makes this easy and the upper ends of the handfuls may be tied a little tighter if necessary. Good straw may be laid so as to expose twenty inches to the weather.

As to the estimated cost of the various pieces here given, labor, the principal item, is difficult to compute, for the ability to construct handsome rustic work often depends more upon a special knack or intuition than upon mechanical skill. The continually varying dimensions of the rough wood demand more "rule of thumb" to fit the parts into place than careful use of square and bevel. Therefore, the cost of labor is based on the payment of \$2.25 a day for the "handy man" and \$1.50 a day for his helper. The material used will depend on the local or available supply. Red cedar, quite abundant in the more thickly settled regions of the Catskill Mountains, for instance, sells there for

from six to ten dollars a cord, depending upon the size of the trees, and, as has been stated, is the best. If it can be had at a reasonable price, I advise its use. Of course there is considerable waste in this kind of work, and due allowance has been made for that in the figures. The best rye straw will cost about six cents a bundle, or twelve dollars a ton.

The other items of expense, grouped as incidentals, are for nails, copper wire No. 18 for binding the straw in place, and spar varnish for preserving the fine color of the hewn seat pieces.

No. 1 is a seat of simple design, placed at the edge of a walk through the woods to command a wood-interior landscape along the path. For contrast with the bold lines and flat surfaces of the rock masses behind it, a rich texture was decided upon. The design is based upon the development of the diagonals of the two main sections into which the back of the seat is divided, and is worked out into many small diamonds. In some of these, upright pieces are set to give still smaller spaces. These might have



9. Four-post summer-house six feet wide and four feet deep. A central steeple gives an air of piquancy to the low roof. Cost: cedar, \$3; labor, \$15; incidentals, \$1. Total, \$19



10. Covered seat seven feet long with steep roof. Back of seat solid work in diagonal; branch-wood panels as ends. Cost: cedar, \$2; labor, \$17; incidentals, 80 cents. Total, \$19.80



11. A dignified and graceful summer-house four feet square, located on a sharp turn in the path. Cost: cedar, \$1.50; labor, \$15; straw, 70 cents; incidentals, \$1. Total, \$18.20

been horizontal, but a finer harmony is secured by making them parallel with the upright lines of the trunks of the trees and saplings surrounding the seat.

The broad solid under-surface of the overhanging rock invited the contrast of an ornate design, shown in No. 2. The back of the seat was divided into a large central section with two wings in which heavy diagonals express strength. The filling of the upper panels with delicate crooked branches added grace. This seat commands an extensive view, and was made large enough to accommodate several persons.

No. 3 is a simple sturdy construction in vertical and horizontal lines, to contrast with the chaotic fractures of the rocks around it. The wood of which this seat was built was too small; it should have been very heavy to secure an effect of massiveness.

By the use of crooked branch-wood for the posts supporting the roof, graceful Gothic curves are produced in No. 4, which repeats the natural spring of the branches of near-by trees. Small crooked branch-wood is used haphazard to fill in the gable ends and the ends of the seat. The roof is made of small straight poles laid close together. Two large pines stand as entrance pillars to the nook, and the structure was given a cozy and peaceful effect by making the roof broad and flat in pitch. The largest posts are seven inches in diameter.

No. 5 is the semi-circular seat and platform with a railing, built around the

trunk of an immense hemlock tree growing close to a ledge of rock fifteen feet in height, and overlooks the lake from either side, commanding striking vistas in both directions. The back of the seat is of three flat surfaces in the form of the half of a hexagon, lines which combine most pleasingly with the curves of the seat and platform.

No. 6 is of large size and bold outline in order to secure an architectural effect in a spot where the surroundings are commonplace — a thicket of small undergrowth on land recently burned over. The wood of which this seat is built is comparatively slender, giving an effect of graceful lightness peculiarly pleasing.

A charming idea is a flight of steps leading up to a summer-house at an elevated point of outlook, seen in No. 7. The device of turning the line of the railing downward to the ground from the upper end relieves the terminal from abruptness. In No. 7 there are eleven steps each rising seven inches, and the treads are made of four-inch wood split and hewn smooth, three pieces forming a tread. The steps are three feet in width and the top of the hand-rail is thirty-four inches from the front of the step.

No. 8 shows a summer-house six feet square, built upon a high point which commands a fine view, the floor spanning a great crevice in the rock beneath. In this case, as in all others where a floor has been needed, it was made of 4- or 5-inch wood split through the centre, the flat side being hewn smooth with the hand-axe, and laid uppermost.

No. 9 displays a small four-post summer-house, six feet wide and four feet deep, overlooking the lake. Being under the low spreading branches of the big hemlock beside it, the pitch of the roof was made low and nestling. When in place, however, it was found that the rock beyond it dominated it too strongly, and the little central steeple was added for piquancy. The roof of this house is of small cedar poles running at right angles to the plates, and butting against a larger pole nailed on top of the hip rafters.

A graceful idea for a covered seat built in a natural niche beside the path is shown in No. 10. The high cliff behind it invited a steep roof line, which was accented by the little steeples with their up-curving braces which reach still higher at the peaks of the gables. This seat is seven feet in length, including the overhang of the roof at the gables. Small, straight, round poles are used for the roof, the solid filling of the gables, and the base below the level of the seat. The back of the seat is of the same solid work in diagonal. Crooked branch-wood makes open-work panels at each end of the seat, and this idea is further carried out in side and back panels under the roof and in an ornamental apex to the roof.

Another small summer-house, No. 11, is located at a sharp turn in the path. All about it are the disordered fragments of a ruined primæval cliff. When it is explained that this house is but four feet square on the ground, its dignity and grace will be better appreciated.

Christmas and Lenten Roses—By Leonard Barron, New York

THE WHITE-FLOWERED HELLEBORES THAT BLOOM ALL THE WINTER, — AND THOSE IN VARIOUS COLORS THAT BLOOM IN FEBRUARY AND MARCH — CAN THE LATTER BE ACCLIMATED?

THE most surprising plant of winter is surely the Christmas rose, which blooms outdoors amid the snow, and unfortunately, for that very reason, is not properly appreciated, because so few of us have sufficient energy to go out into the garden and brush away the snow. The true Christmas rose, *Helleborus niger*, flowering from December to March, is by all odds the most interesting member of this curious family, all the members of which produce their flowers some time during the winter or early spring before the very earliest flowers open.

The Christmas rose has evergreen foliage, grows about a foot high, and the pure white flowers, borne two to three on a stalk, are usually about two inches across; but in the variety *altifolius* they may even attain as much as five inches and they appear in November. A smaller plant, with flowers correspondingly smaller, is var. *angustifolius*, and this flowers after the turn of the year. There seems to be considerable trouble in getting these varieties true to name in the trade, but as all the stock is imported from Europe the errors rest entirely with

the foreign dealer. The ordinary form of Christmas rose can be bought in this country and is usually ready for delivery in March if the ground is open enough. The other best time to move it is September. It does not like interference, and will not be seen at its best until about two years after transplanting. A moist, well-drained soil and partial shade are necessary; therefore it makes a splendid ground cover in open shrubbery or under big trees in open winters. The freely produced blooms make a remarkable display. The fact that it can be had in winter time is surely sufficient merit alone.

In some old gardens colonies of this delightful plant have endured for years past. The conditions having been found exactly right for them, they have multiplied freely and present a great mass of bloom like that shown in the lower illustration on the opposite page, which was photographed in a garden at Rochester, N. Y. Only those who have had the pleasure of gathering armfuls of snow-white flowers in the middle of winter can realize what is meant by the possession of a bed of Christmas roses. The glistening white of the flowers endures

for the first few days, and for the best effects indoors they must be cut before they begin to fade and are suffused with a tinge of pink.

The best way to have flowers in winter is by giving the clumps protection with a coldframe, when the blooms will be had in all their immaculate whiteness, and they will be somewhat larger, too, than those from the open. Plants in the frames will repay for the use of liquid manure during summer, and all the plants under any conditions must be seen to as regards watering all through the summer and up to September.

The greatest difficulty in growing this plant is its protection from the heat and drought of summer, in which respect the only other species worth growing, *H. orientalis*, is even more delicate.

All the other forms of this family belong to two species, both flowering in late winter and early spring. They are quite popular in European gardens, but have met with but little favor in this country, except in some parts of New England. The severely late cold of our winters, coupled with dryness, catches these Lenten roses just at the time when they should be coming into flower,



Of the three varieties of the winter-blooming Christmas rose (*Helleborus niger*), the type which blooms from December to March is the most interesting. The variety *altifolius*, with 4-inch flowers, blooms in November. Transplant in March or September and give shade in summer

and so they stand still. Mr. T. D. Hatfield has grown these Lenten roses — all forms of the one species, *orientalis* — at Wellesley, Mass., from seed, and finds that they hybridize freely and produce a great variety of intermediate forms. They have been also grown to some extent in New Jersey, and the photographs presented herewith were made from plants growing in Rochester, N. Y.; yet these Lenten roses are only successful during winters that are distinctly English in character—that is, warm and wet. Probably, as Mr. Orpet has suggested, conditions may be sufficiently controlled in a majority of seasons by growing plants in a coldframe, but only enthusiastic admirers of hellebores will go to that trouble. The great range of color shown in the flowers of *orientalis* is remarkable, varying from pure white and white spotted with green and brown to coppery purple and even pale green in the variety *Caucasicus*. This last is curious rather than beautiful.

The best white-flowered variety is *Olym-*



Probably *Helleborus niger*, var. *altifolius*, at Albany, N. Y., in full flower on November 5th, after everything else was past

all to learn, after this is published, that these Lenten roses are flourishing quietly in some odd corner of some readers' gardens. And I am sure I hope so.

The only other species is the green-flowered *H. viridis*, but it cannot be confused with the other green-flowered member of the family just described because its leaves die annually. It bears five or six flowers to a cluster, yellowish green, and the whole plant is less than a foot high. This plant, the least beautiful and the smallest flowered, is quite easy to grow and has even become naturalized in the Eastern States and South to Virginia, but has never been really appreciated as a garden flower, except as a reminder of the greater beauties of the true Lenten roses, which flower earlier; this one appears in May.

These flowers are quite interesting to the student because the sepals are the showy colored parts, the petals, being reduced to a series of small green tubes surrounding the stamens, are easily overlooked.



Var. *Abschasicus*, glaucous purple

picus, which of course need never be confused with the Christmas rose, as they flower at entirely different seasons. *H. Olympicus* never blooms in winter. *Guttatus* is the best spotted form, white and crimson. Of the purple and reddish flowered kinds, the European catalogues offer a whole host of named varieties, none of which seem to have been especially offered in this country. Might it not be worth while trying in the milder parts of New England, or where the winter mantle of snow is assured, because with that comes necessary warmth and moisture? One of the great fascinations of gardening is that the unexpected is always happening, and every once in a while a plant that "cannot be grown" crops up serenely and upsets all generalizations. So therefore I shall not be surprised at



Var. *Olympicus*, the white spring form



Var. *guttatus*, white with purple spots

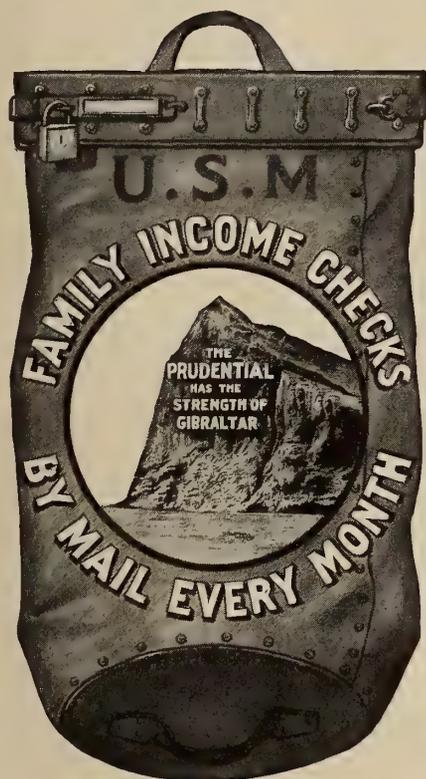


Var. *Gretchen Heinemann*, red, strong grower



Var. *atrorubens*, dark purple. Approaches *H. viridis*

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President

In order that we shall know where you read this we would appreciate it if you would mention this publication in your letter

SOUTHERN DEPARTMENT

Growing Beans in Florida

FARMING in Florida differs in many respects from farming in other parts of the United States. Outside of the citrus fruits our principal crops are tomatoes, beans, eggplants, and peppers raised for shipment to northern markets, and these crops, in the southern part of the state, are planted any time from September 1st to March 1st. We labor under the disadvantage of long distance shipping and in most cases it is necessary to ship by all rail express. But the best seed and large applications of high grade fertilizer will pay under the most unfavorable weather conditions.

A few yards from our house is a quarter of an acre of red clay soil which originally was covered with pine and palmetto. Last year I decided to try green beans on this land and planted the French Stringless Green Pod. Seed of this variety costs about double that of the Refugee, which has heretofore been the standard bean in this locality.

The land was covered with crab grass, which was dry enough to burn. Instead of doing that, however, I put on a heavy disk harrow and thoroughly ground up the soil and the grass. I then opened furrows two and a half feet apart and applied high grade fertilizer (analyzing 6 per cent. phosphoric acid, 4 per cent. ammonia, and 5 per cent. potash) at the rate of 1,600 pounds to the acre. I sowed it by hand in the furrows and ran a bull tongue through it, mixing it thoroughly. After waiting ten days to allow the chemicals to become incorporated with the soil, I sowed the beans, also by hand, on January 24th, at the rate of a bushel and a half to the acre. The season was extremely dry but we had heavy dews, and by dropping the seed in the afternoon and covering it in the morning while the dew was on the ground, I got a good stand.

The vines were not cultivated until the buds began to appear, then, with a hoe, I dug a shallow furrow about six inches from the vines, in which I sowed the same fertilizer (but containing 10 instead of 5 per cent. potash) at the rate of 1,000 pounds to the acre. I raked the loose dirt and trash over the fertilizer, but never worked while the dew was on the vines. We had two light showers while the beans were growing; had it been a wet season, the grass and weeds would have made it necessary to cultivate more often. The character of the soil, which has an underlying stratum of coral rock, is such that it can withstand quite a severe drought without injury to the crops.

Just as the young beans were forming, the plants began to show signs of mildew. I gave them an application of sulphur, shaking it on to the plants through an old corn sack, in the morning before the dew dried.

The first picking was made on March 27th. There were thirty-six hampers, which sold in the North for \$160.75 and netted me, exclusive of express and commissions, \$112. My expenses were as follows:

Harrowing	\$2.00
Plowing	1.00
Fertilizer	11.35
Picking	10.80
Hampers	3.95
Hauling	1.80
	<hr/>
	\$30.90

which left me a net profit on the first shipment of \$81.10. In the North the price received for the beans in the summer time would be less, but transportation and other expenses would also be lower.

Up to the 1st of June we had all the beans we could eat, many were given away and a quantity went to waste. When the vines had outlived their usefulness, I raked dirt up over them, forming ridges or beds, and planted sweet potatoes. Of course, it would not be possible in the North to follow with sweet potatoes, but some other crop the next year would benefit from the fertilizer, or turnips could be planted in the late summer for fall use.

Florida.

C. R. ROSS.

More About the Gardenia

THE gardenia or Cape jasmine is now procurable from southern nurseries. For a long while it was impossible to find it mentioned in any American catalogue, but its fragrance is so delicious that the plant is worth a place in southern gardens, where it blooms from May to September and is sometimes used for hedges. It will grow as far north as Virginia.



Gardenia Veitchii, one of the most fragrant white flowers. It blooms over a long season

It is a tender shrub two to six feet high with fragrant foliage and waxy white flowers. It blooms over a long season and is therefore desirable for cut flowers.

Connecticut.

HENRY MAXWELL.

Duties for the New Year

PLAN now to have a better garden this summer. If you do not already know the different varieties of vegetables and flowers, learn about them now by studying the seed catalogues.

The new improved farm and garden tools are great labor savers, and most of them will more than pay for themselves the first year.

Thrash the peanuts off the vines on rainy days and store them in a place where mice and rats cannot get at them.

Plants in the window garden must not be over watered or their growth will be checked and their color changed to a sickly yellow. Explicit directions for determining when and how to water were given in THE GARDEN MAGAZINE for January, 1907, page 277.

Begin spraying fruit trees for scale insects some time during the month. Do not spray after the buds have swelled, which usually occurs here in Middle Georgia about the first of March.

Prepare the soil now for planting early Irish potatoes next month.

If you are meaning to grow melons this year, spade or plow up the soil now, at least twelve inches deep, so that the weeds and stubble thereby turned under will have sufficient time to decay. Sandy loam with clay subsoil that has been lying out a year or two is the best for melons. A pea sod is also good, as vegetable matter is necessary to successful melon growing.

Make a compost now for fertilizing early vegetables next month. One of the best for this purpose is a mixture of cotton seed and horse stable manure.

Georgia.

THOMAS J. STEED.

Hyacinths in Five Weeks

LAST December I came across two hyacinth bulbs which had been overlooked in the previous fall planting. One of these, L'Innocence, I gave to a friend, and kept the other, which was a Grand Maitre. On February 16th we placed these bulbs in bowls about five inches in diameter filled with gravel and water, putting in a few pieces of broken charcoal to keep the water sweet. The bowl containing L'Innocence was kept in a dark room having a temperature of about 60 to 70 degrees, and the other was put in an absolutely dark bedroom closet, the temperature of which was from 65 to 70 degrees.

By March 16th, both bulbs had made a fine growth of leaves and buds, and we brought them into the light. L'Innocence was put directly into full light; Grand Maitre was kept in subdued light until the 19th. The former came into full bloom on March 21st; the latter commenced to bloom March 22nd, or just five weeks from the time of planting.

New York.

THOMAS W. LETSON.

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A complete list of new Victor Records for January will be found in the January number of Munsey's, Scribner's, McClure's, Century, Everybody's, Current Literature, and February Cosmopolitan.



BEFORE TREATMENT OF CAVITIES

Don't Let the Old Trees Die

Young trees may not equal the old ones in size and beauty during your life. Insecticides, fertilizers, bolting, pruning, tree surgery, and cavity-filling are only part of the practical means of restoring sick and dying trees to health and beauty. We examine estates, suggest improvements in planting new stock, and direct the work of saving diseased trees and shrubs. Trained assistants equipped with proper tools are furnished when desired. A booklet entitled "The Care of Trees" is sent on request.

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AFTER TREATMENT OF CAVITIES



Why We Like the Geranium

THERE are no flowering plants, in my opinion, to quite equal geraniums, with their profusion of bloom and wealth of color ranging through innumerable shades of red, pure white, and pink, and they are probably more universally grown than any other plant.

The soil for geraniums must be in good condition and fertile, but not over-rich. The best fertilizer is old manure, to which a sprinkling of coarse crushed bone has been added. If too much fertilizer is used the plants will grow too fast, will form long joints between the leaves and will not flower freely. The same results will also happen if the plants are kept too wet. A medium amount of irrigation is necessary. The young plants, as soon as they are planted out in the open, begin to make numerous new shoots and flowers; but as soon as the plants gain strength and healthy root action, they grow too rapidly and do not mature their wood fast enough to flower well. To remedy this and to ripen the necessary amount of wood, pinch out the point of each growth, at the same time keeping the soil rather dry.

When the plants are grown as single specimens, remove the tip of each growth

to make the plants form shapely and more bushy specimens, especially with Beauté Poitevine. Be careful not to destroy the buds. Cutting off the ends of the shoots is apt to give the plants an abrupt look; therefore, use a penknife and with the point of the blade break off the small bud at the end of the growth.

AS WALL COVERS

Where a retaining wall needs some growth to cover it, the ivy-leaved pelargonium is without a rival. It is often planted in the soil above a wall (as shown in the illustration) and allowed to grow down, the construction and form of the leaves and stalks giving them the power to hold themselves in position without being fastened to the wall.

There are not many strong-growing single varieties suitable for this purpose and the one generally used is L'Innocence, which will eventually convert a wall five feet high into a dense hedge. The flowers are large and white, shaded with lilac, and are produced very freely.

Comtesse H. de Choiseul is one of the best of its color, which is a satiny rose. The flowers are borne on 10-inch stems, the growth is robust, and the plant is well furnished with foliage.

Emile Lemoine has very large, semi-double flowers of orange-scarlet. Its growth, when established, is robust. Pinch off the tops to induce young growth.

Madame Thibaut is the most free-flowering of the doubles, compact in habit, with short joints having spur growths all along the main stem. It is well adapted for small walls, growing not more than three feet. The flowers are bright rose, borne on stems six inches long.

The flowers of Louis Thibaut are extra

large and of a deep lustrous red. The growth is robust, the plant often attaining a height of five feet. Cut off the points to make the growths break well along the branches.

ZONAL PELARGONIUMS

These are bush geraniums which will stand considerable abuse and neglect.

The Bruant race has large fleshy leaves with magnificent double and semi-double flowers, and gives the best results as bedding plants. The plants grow on an average three feet high and as much across. The large-trussed varieties should have the dead flowers pulled from the centre of the trusses as they appear. The Bruant race is benefited by being planted in partial shade, and is appropriate for planting amongst permanent trees and shrubs. In fact, the zonals are very accommodating and will often grow where other plants refuse to flourish, as for instance, under the shade of large palms (like *Phoenix Canariensis*) and such trees as *Magnolia grandiflora*. It is not advisable to bed them out in large masses, for in this part of the country they all grow too large; but for forming an edge to a flower bed or for filling a corner in a small garden they are extremely useful. In my opinion the following varieties are the best in their colors for all purposes.

Beauté Poitevine, with very large, semi-double flowers, the prevailing color being pink with salmon markings toward the centre. The truss is large and is borne on a long, stiff stem. This variety is a rapid grower and moderately free-flowering.

Mme. Landry is very free-flowering and has double flowers, circular in shape borne in large trusses. They are salmon colored, shaded with copper, and have white eyes.

The flowers of Mme. A. Mahien are large, double, and of a deep rose, with a rosette of small petals in the centre, the outer petals being saucer-like. The trusses are large and borne on good stems.

Enormous double flowers of a bright, rosy scarlet color are produced by Ville de Poitiers. The truss is extra large.

The best double white variety is Mme. A. Chevreliere. The flowers are pure white, large and double. The truss is also large and the stems are particularly good.

A very free-flowering delicate pink geranium is Jean Viaud, which attains a height of about two feet. The flowers are large and semi-double, borne in large trusses.

Santa Barbara.

W. H. MORSE.

Preserving the Greenhouse Benches

It is no joke to have all your greenhouse benches rot in a year or two. And some of the patent "wood preservatives" are said to be harmful to crops. The plan recommended by the New Jersey Experiment Station is to spray the benches once with copper sulphate and three times with whitewash. A pound of sulphate is enough for forty feet of board surface.



In California ivy-leaved pelargoniums planted above a wall will convert it into a dense hedge

Color Photography at Last



THE long-sought-for art has at last come to a practical application. Readers of the Christmas Annual of *Country Life in America* have already had presented to them many pictures from photographs taken in actual colors.

Lord Northcliffe, the great English publisher and proprietor of The London Times writes, apropos of *Country Life in America*: "The reproduction of color photographs in your Christmas number is the first real revolution in printing for many years."

Beginning in February, we plan that color photographs shall be a regular feature of that magazine, and we hope and expect to greatly develop and improve the art. Every day we are securing more wonderful effects; for instance, we have just been able to take photographs of live trout in full color.

No one who wants to follow and enjoy the most interesting of the new arts can afford to miss *Country Life in America* for 1909.

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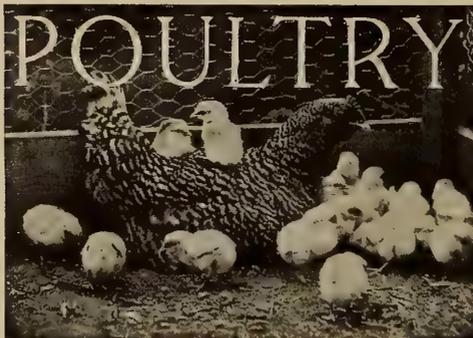
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How I Get Winter Eggs

A TRIAL of many different breeds of chickens has satisfied me that the White Plymouth Rocks excel in the production of eggs and meat.

When the first serious snow of winter covers the ground, I usually have about one hundred Plymouth Rocks. These are put into the sub-cellar of a barn where no horses are stabled, a space 20 x 25 ft. in area, lighted by five single sash 8 x 10 in. windows. The door from the barn swings inward, and is furnished with a weight and cord to keep it closed.

A lean-to 15 x 24 ft. on the south side of the barn and on a level with the entrance, has an earth floor and makes the feeding and nesting room. There is a large box in the corner for a dust bath, the dust being gathered from the road in the summer when it is thoroughly sun dried. Before being put into the box it is medicated by the addition of sulphur or some other insecticide. The nests are made of cheap lumber, are about fourteen inches wide and twelve inches high, and are partly covered on top, leaving space for the hen to enter. The front is hung on hinges. The nests are arranged on a shelf eighteen inches wide placed two and one-half feet above the floor along the north side of the room. A supply of fresh water is furnished twice a day when the chickens are fed.

Corn is fed on the ear; rutabagas, beets, carrots, etc., are fed whole; potato and apple parings and other kitchen scraps are placed in two or three flat boxes. Screenings, wheat, oats, and all small grains are fed so as to avoid waste. A pan or box of oyster shells and grit is placed where the hens can get at it easily.

I try to have two hens set at the same time on twelve or more eggs apiece if the hens are large enough to properly cover them. When the chicks arrive I give both broods to the larger hen, and place the family in a coop about twenty-four by thirty inches. One side of the coop is made of slats, one of which is removable. The coop is moved to a different spot every few days to allow fresh grass in the coop, which is built without a floor. The roof should be sufficiently close to give protection, and the coop should be so located, and ditched if necessary, that the water will run off.

NEWLY HATCHED CHICKS

I leave the newly hatched chicks without food for one or two days and then commence

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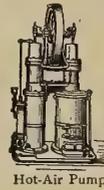
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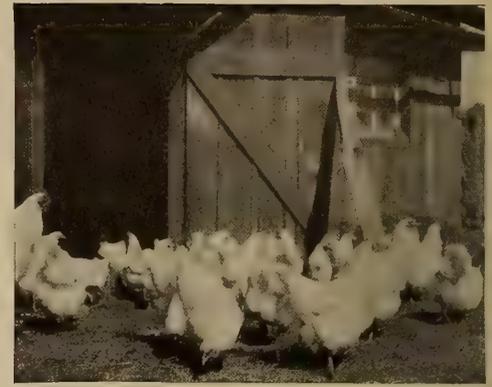
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A "Flower" of January

IT IS Thoreau, if I mistake not, who reports that he has seen a skunk cabbage blooming in January. While the great majority of the hoods (which are the showy feature) are not attractive in the North before March, individual hoods appear



Skunk cabbage is the first wild "flower" of the year. The hoods are often showy in February, and sometimes even in January

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in springs or sunny places as early as January.

It is a question when the skunk cabbage flowers, but probably the date that should be taken for it is the first day on which the anthers are hung out, giving evidence of containing ripe pollen for the bees.

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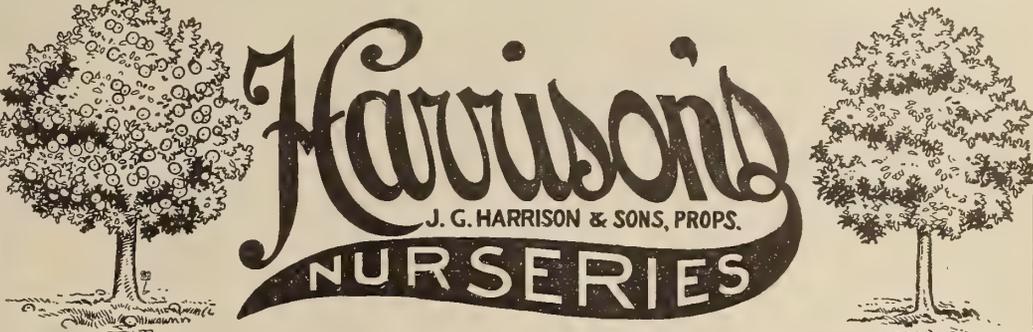
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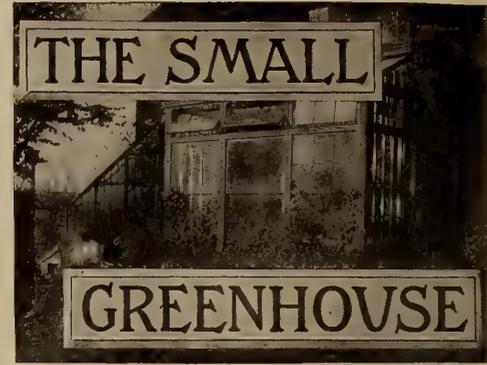
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One of the worst troubles that the amateur grower of carnations finds is the bursting of the calyx. To prevent this, never let the temperature fall below 50 degrees. Open the ventilator when it has risen to 60 degrees on very mild days. But on no account permit drafts. Disbud once a week. Start propagating carnations early in the month, and make the cutting-bed as near to the light as possible.

The February number of THE GARDEN MAGAZINE will contain an article on the management of carnations the year round.

Violets will be giving flowers now, and must be carefully looked after to keep dead and decaying leaves picked off. If green fly or black fly appears, fumigate lightly once a week with tobacco stems, and above all keep the plants cool. Forty-two to 45 degrees at night is as warm as a violet-house should run. The lower the temperature the more slowly the flowers open, but they will have stiffer stems and deeper color. Do not attempt to propagate new plants.

About the middle of the month sow gloxinias, begonias (tuberous and fibrous), streptocarpus, amaryllis, *Clerodendron fallax*, gesneras. All these seeds will germinate better now than a month later. Very fine seeds are not covered — merely scattered on the surface of the soil of the seed-bed, which is then covered with glass and put in a gentle bottom heat. You can do this just as well in the window garden, but watch the moisture and see that there is no great variation of conditions.

Start gloxinias and begonias for early flower. Put the tubers thickly together in flats with a light covering of sandy soil. Keep rather dry to avoid rot and pot off the plants as soon as roots are well developed.

Although it is too early to make hotbeds outdoors, considerable time may be saved by making sowings of nearly every kind of vegetable indoors. Egyptian beet, short-horn carrot, Tennis-ball lettuce, tomatoes (one of the English forcing kinds) are the best varieties for early crops. Parsley seed sown January 1st will give crops by April, and will yield until the outdoor crop comes in.

Do you want an unusual vegetable? Try the French globe artichoke. Now is the time to sow seeds in pots, with a chance of cutting heads this coming summer. Soil for seed sowing must be light, porous from sand or charcoal dust, and free from manure.

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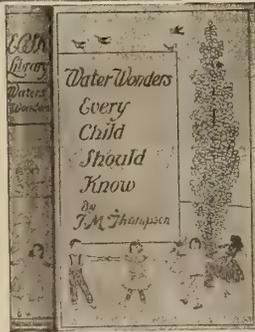
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Vines With Attractive Berries

(Supplementary article to the series "Ornamental Fruits For Every Month")

WE COMMONLY think of vines for their foliage and floral effects and very rarely consider their possibilities as ornamental fruits, and indeed there are but few vines that are attractive on account of their fruits alone. One of the best is the traveler's joy (*Clematis Virginiana*), which is as handsome in fruit as it is when in flower. The fragrant, white blossoms are followed by fruits that have feathery tails, giving the effect of a cloud of smoke.

Very beautiful are the bluish white and verdigris colors of the berry-like fruits of the Japanese *Ampelopsis heterophylla*. These colors are assumed before the berries attain their final dark violet blue, and as they frequently appear in all shades at one time in one cluster, the effect of the fruits on the mantle of green foliage is very striking.

There is no vine more beautiful in fruit than the waxwork or false bittersweet (*Celastrus scandens*) when its orange yellow capsules burst in October and disclose the bright scarlet seeds which remain a long time on the branches. More beautiful perhaps than the native species is the Asiatic *Celastrus orbiculatus* (or *C. articulatus* and



The orange-yellow capsules of the waxwork or false bittersweet burst open in October, disclosing bright scarlet seeds

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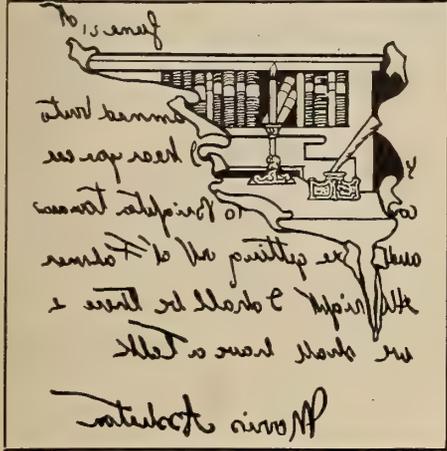
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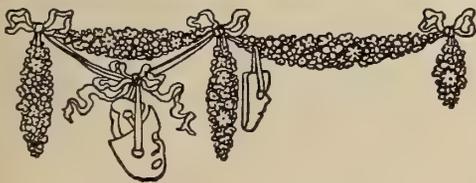
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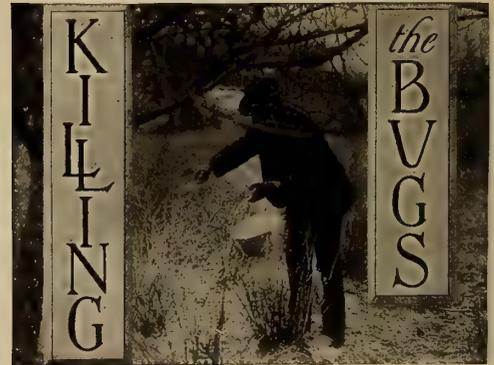


Celastrus orbiculatus (also called *C. articulatus* and *paniculatus*) bears a profusion of orange yellow fruit all along its branches

sometimes called erroneously *C. paniculatus*), as it bears a profusion of fruit all along its branches, while the native kind has them in clusters at the end of the branches. It rarely grows into trees like the latter but seems best adapted for rambling over rocks and shrubs.

Massachusetts. ALFRED REHDER.

[The next and last article in this series will summarize species that are worth planting to attract the birds.]



The Nasturtium Pest of 1908

IN MY experience, covering more than twenty years, I have never before known nasturtiums to be infested with insect pests of any kind, but must confess that this season many of my vines have been simply covered with black lice. This, I think, is all owing to the season, for the pea louse is always at its worst during extremely dry weather. The chances are ten to one that nasturtiums will not, for several years to come, be again infested by this terrible pest.

All our vines were cut off and burned, and the ground in which they were growing thoroughly limed and covered with tobacco stems in order to kill any of the lice that may have fallen from the plants during the process of cutting. In this way we hope to put down any chance of a recurrence the coming season.

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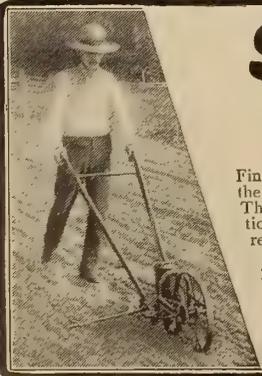
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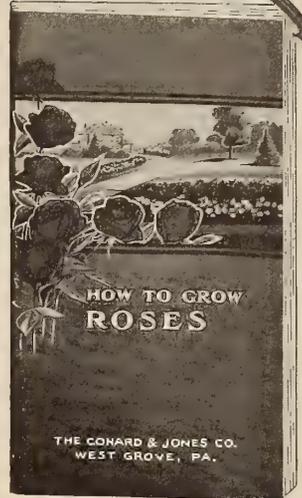
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Planting Deciduous and Evergreen Trees and Shrubs

WHILE vegetation is inactive during winter in the Southern States, so far as the formation of new leaves and wood in deciduous trees is concerned, the production of new roots still continues. This can be demonstrated by digging up a tree in early fall and heeling it in until needed for planting in its permanent place. When it is taken up at the end of a few weeks small new rootlets will have started where the older roots were cut off. This new root formation is of the utmost importance, and these new rootlets will greatly influence the ultimate rapid recuperation of the transplanted tree.

Experiment with two trees of the same age, class, variety, and vigor of growth. Transplant one in the early fall, the other in the spring, giving similar conditions of soil, fertilization, and care. After the first summer's growth, you will find that the fall-planted tree has started into vigorous growth much sooner than the spring-planted one. Should there happen to be a long period of dry weather in early spring (as is frequently the case here and which is often fatal to late-planted trees), you will be surprised at the vigor of the fall-planted tree, which, having been enabled to form a new root system during the winter months, has become firmly established and is therefore prepared to resist the drought.

This is a simple explanation of the value of fall and early winter planting in the South as compared with spring planting. This climate, however, influences vegetation quite differently than that of more northern latitudes. In fall planting, the land must be thoroughly prepared either by deep plowing or subsoiling, or spading and incorporating with it those fertilizing elements which will become readily available as plant food.

Well-decomposed stable manure plowed in as soon as a growing crop is removed will, as a rule, be found highly beneficial because it has been thoroughly mixed with the soil during the previous summer or fall. However, if this cannot be obtained, then chemical or commercial fertilizers may be used. One to two pounds of bone meal well mixed with the soil of each hole is usually a sufficient quantity at planting time. Other ingredients rich in potash and phosphates are useful, but many trees are killed by an overdose of heating or caustic manures. Dig the holes not less than two feet deep and square and fill with good top soil. Remove all bruised roots, shorten the top and side branches, and plant the tree no deeper than it stood in its former place, allowing the earth to fill in well between the roots. Watering is necessary only when the soil is unusually dry.

If fruit trees are to be transplanted specimens one or two years old and well grown will generally yield returns much sooner than older trees. In the middle and northern sections where different climatic conditions prevail, old trees may be successfully



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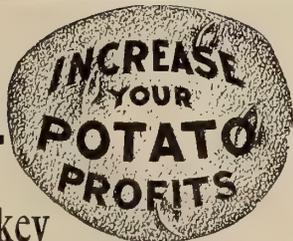
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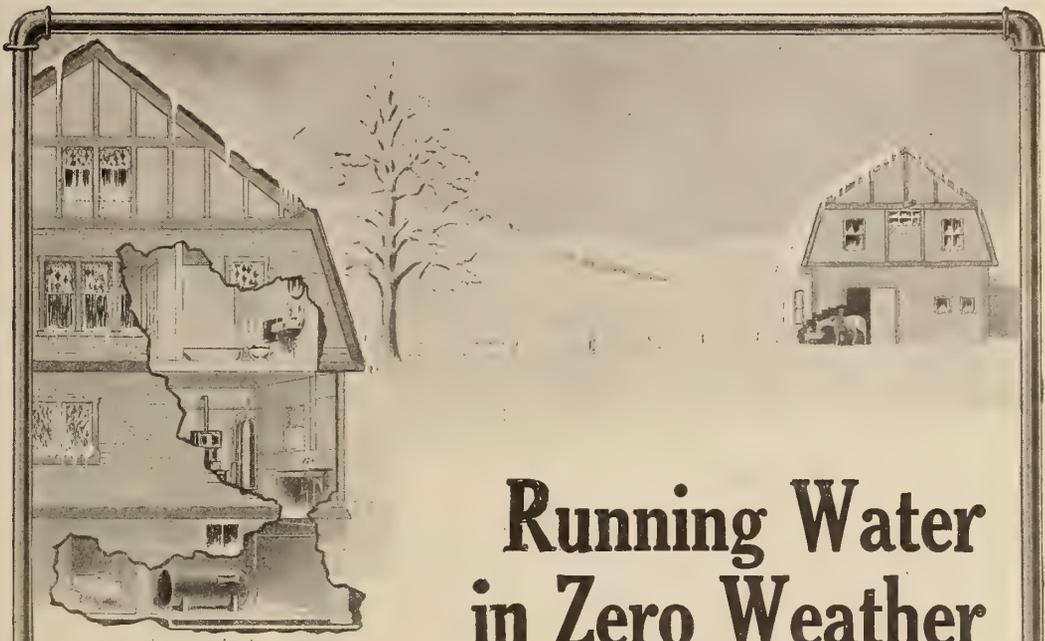
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The early fall planting period, following a sharp frost and lasting until early December, is to be preferred for transplanting evergreen trees and shrubs. After the coldest part of December and January is over and the ground becomes less cold and wet, the moving of plants taken up with bare roots may be resumed. But broad-leaved evergreens, like magnolias, English laurels, etc., will suffer little from being moved if they are defoliated. Large trees, such as live oaks, should have their tops and branches reduced according to the size of the tree.

In selecting evergreens, especially of the coniferous class, give preference to plants grown in pots, or to such that can be lifted with a large ball of earth and their roots left intact. After such plants are set out, give them a copious watering and cover the ground with a mulching of leaves, straw, or other material that will prevent a rapid evaporation of soil moisture. Such plants may frequently be transplanted in the South during the spring months, but care is required to keep the soil moist.

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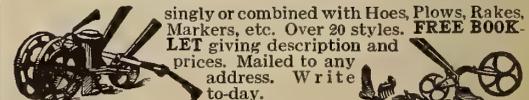
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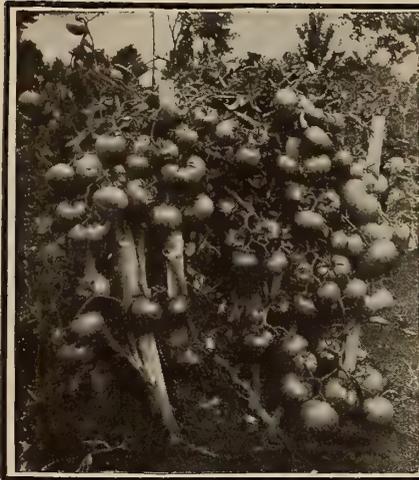
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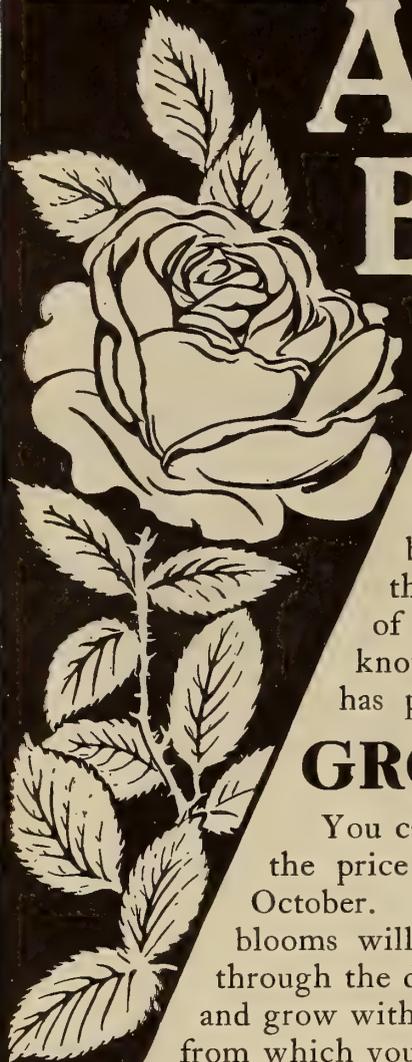
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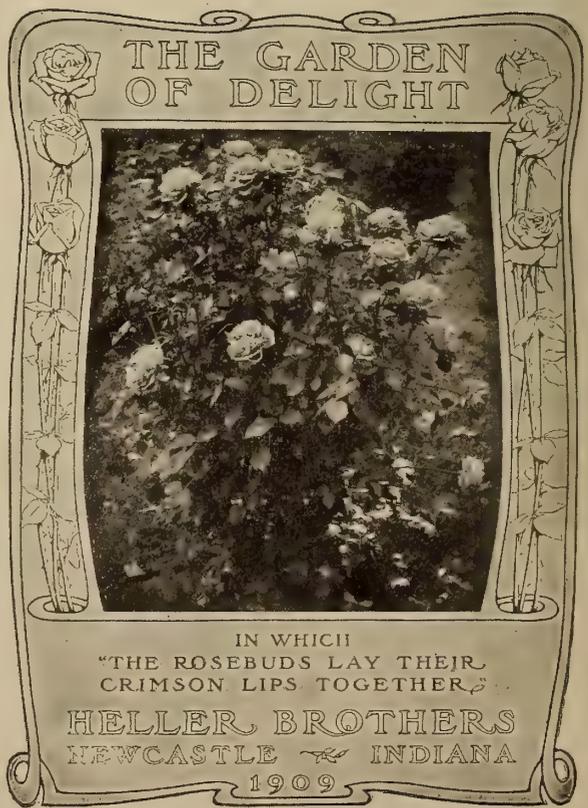
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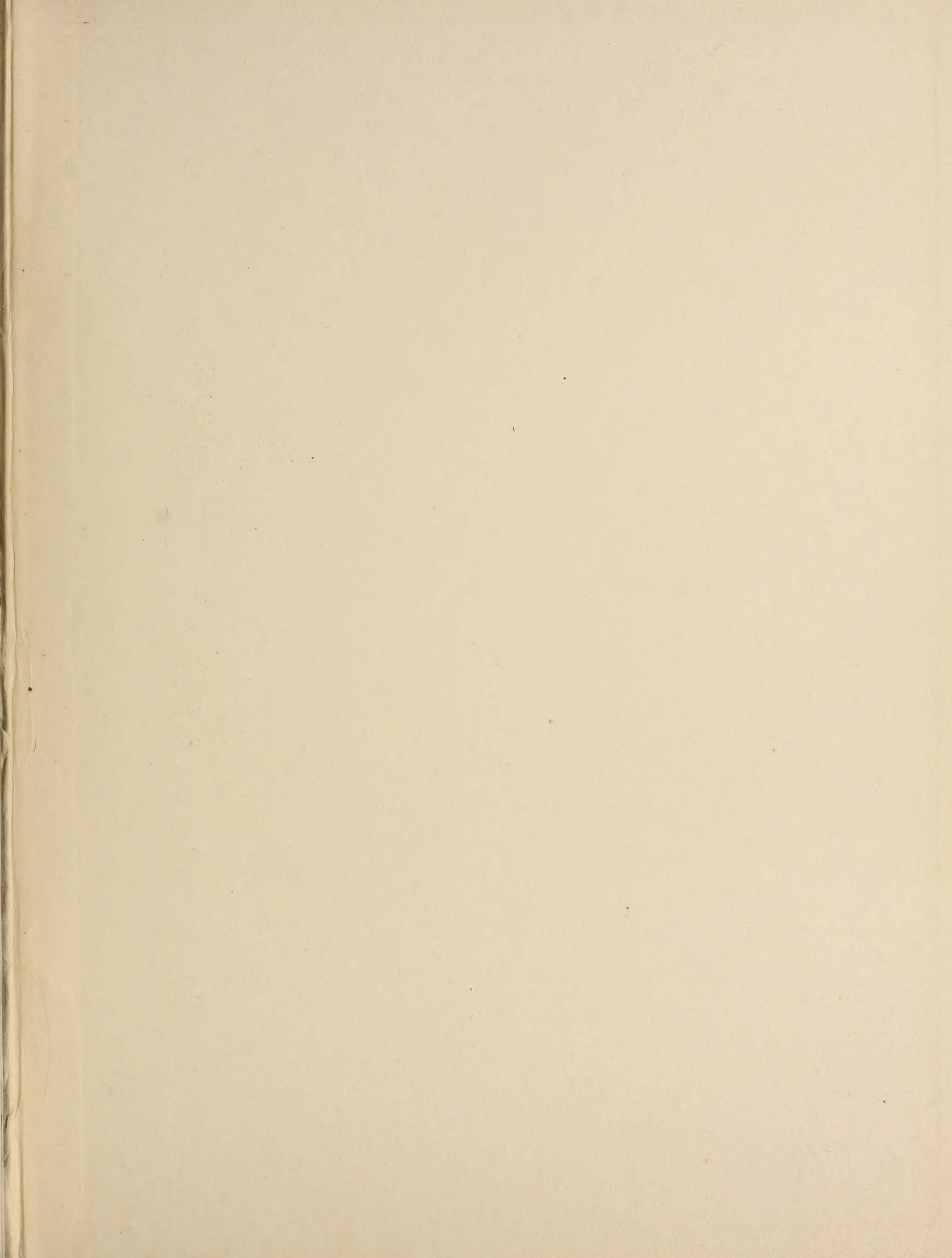
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