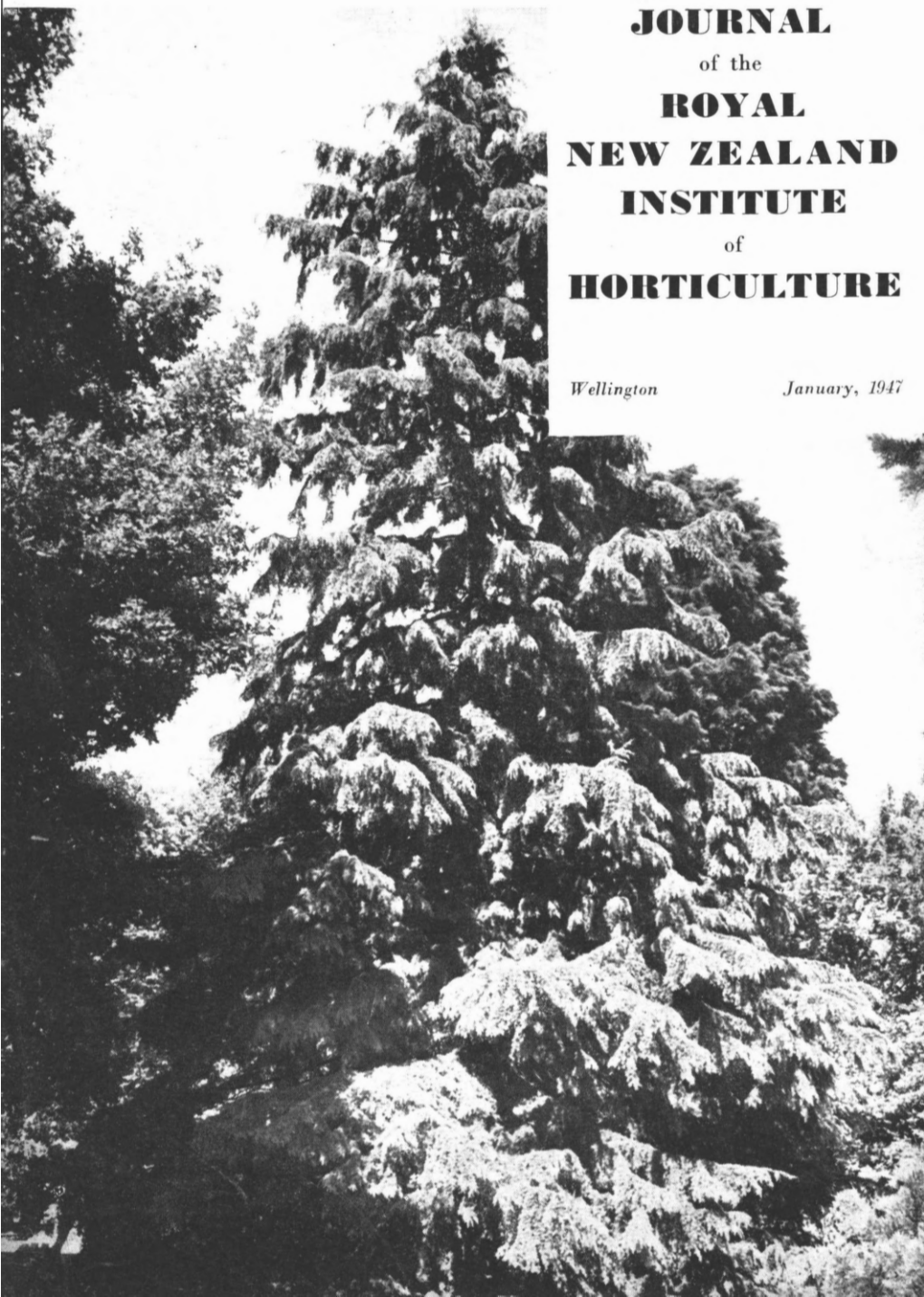


# Horticulture

**JOURNAL**  
of the  
**ROYAL**  
**NEW ZEALAND**  
**INSTITUTE**  
of  
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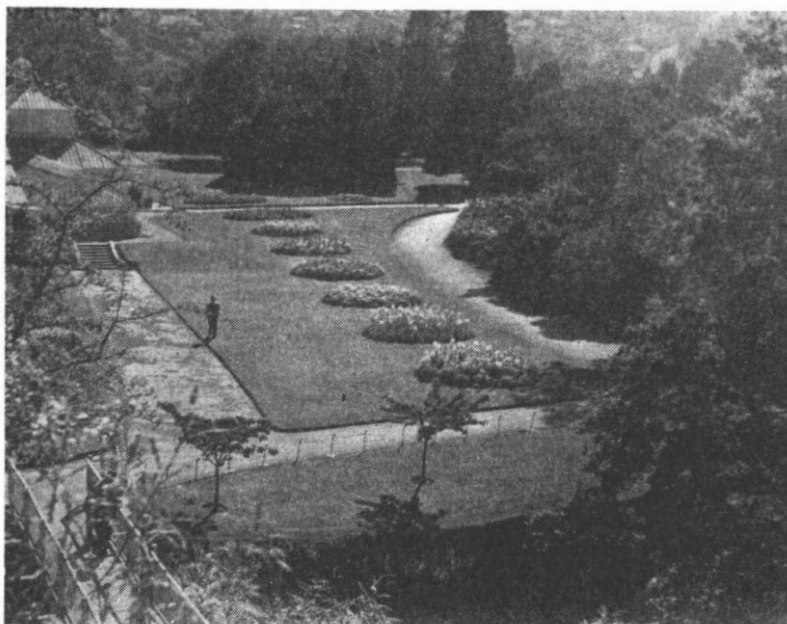
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## FLOWER BEDDING SCHEMES

# Suggestions for Southern Districts of New Zealand

By MISS M. LYSAGHT, N.D.H.(N.Z.)

**N**OW that there is so much to choose from, we should not let any mental slothfulness stand in the way of thinking and watching and comparing, so as to arrive at a just appreciation of the merits and uses of all our garden plants.

"It is not possible to use to any good effect all the plants that are to be had. In my own case I should wish to grow many more than just those I have, but if I do not find a place where my critical garden conscience approves of having any one plant I would rather be without it. It is better for me to deny myself the pleasure of having it than to endure the mild sense of guilt of having placed it where it neither does itself justice nor accords with its neighbours, and where it reproaches me every time I pass it."  
(From "The Gardeners' Companion," p. 270.)

# JOURNAL OF THE ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE

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## CONTENTS

	Page
Flower Bedding Schemes .....	1
The story of <b>Camellia Reticulata</b> .....	17
London's Garden of Remembrance .....	24
Book Reviews .....	25
Railway Horticulture in South Africa .....	27

The study on the front cover is of a Canadian hemlock (**Tsuga Canadensis**) in Risingholme Park, Opawa, Christchurch.

## ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE ACT

### Extract from the Statutes Amendment Act, 1946:—

"58. This section and the next two succeeding sections shall be read together with and deemed part of the New Zealand Institute of Horticulture Act, 1927 (in those sections referred to as the principal Act).

"59. Whereas in the year nineteen hundred and thirty-nine His Majesty was graciously pleased to approve of the use of the word 'Royal' in the name of the New Zealand Institute of Horticulture (Incorporated), being the Institute referred to in the principal Act: And whereas on the nineteenth day of March, nineteen hundred and forty-one, the name of the Institute was accordingly changed by the registration, pursuant to the provisions of the Incorporated Societies Act, 1908, of alterations in the rules of the Institute, and the Institute is now known as the Royal New Zealand Institute of Horticulture (Incorporated): Be it therefore enacted as follows:—

"(1) The principal Act may hereafter be cited as the Royal New Zealand Institute of Horticulture Act, 1927.

"(2) Section two of the principal Act is hereby amended by omitting from the definition of the expression 'the Institute' the words 'the New Zealand Institute of Horticulture (Incorporated)', and substituting the words 'the Royal New Zealand Institute of Horticulture (Incorporated)'.

"60. (1) The power conferred upon the Governor-General in Council by section four of the principal Act to approve any scheme of examination submitted by the Institute in relation to the conduct of examinations shall extend, and shall be deemed always to have extended, to authorise the approval, in any such scheme as aforesaid, of conditions subject to which certificates and diplomas may be granted, including conditions requiring applicants therefor to undergo prescribed courses of training and instruction in practical horticulture for prescribed periods.

"(2) Any scheme approved under the said section four may from time to time with the like approval, but not otherwise, be amended or revoked."



**T**HESE words were written by Miss Gertrude Jekyll in 1900, and to-day they have not lost their appeal to horticulturists to do their very best with the materials offered. Miss Jekyll was one of the pioneers of the informal style in gardening, and her work in that direction received official recognition when, in 1897, the Royal Horticultural Society conferred on her its highest distinction, the Victoria Medal of Honour.

In New Zealand we are inclined to think that our work in most directions is very well up to date. Surely consideration will show that for a long period there have been relatively few changes in the use of bedding plants throughout the country compared with the best practice overseas as judged from current literature.

### HISTORY OF GARDEN DESIGN

Garden design in England has been subjected to the whims and fancies of widely-differing schools of thought. Probably the first flower gardens were those associated with monasteries, which, we read, had beds of "flowering herbs" (H. Averay Tipping, 1928). It is assumed that the plants occupying such beds were largely, if not entirely, perennial in habit.

During the following centuries garden design ranged from the strictly formal to the landscape style as portrayed by Capability Brown. This latter form of design, however, fell into disfavour and, as a contrast, during the early nineteenth century the practice known as "bedding out" was introduced. With this development came greater appreciation of flowers grown near the house. At that period no provision was made in the bedding out for a spring display and the beds were, in consequence, left empty for more than half the year.

Once again, toward the close of the nineteenth century, the current practice of garden design was subject to attack, this time by William Robinson, an extremist who worked most vigorously to introduce the natural style, as shown by this extract from his writings: "To make a flowerbed to imitate a bad carpet, by throwing aside all grace of form and loveliness of bloom, was indeed a dismal mistake." ("The English Flower Garden," p. 6.) Robinson also encouraged the fullest use being made of all plants available, both new introductions and old favourites. Fortunately, at the same time, there were equally active exponents of the formal style.

These two schools battled fiercely, neither making any concessions to the other. It fell to the lot of an architect, John D. Sedding, to point out the middle course between the extremes of naturalism and formalism, and it is largely because of his work that there is at present a pleasing lack of rigid formality in the most up-to-date bedding schemes, but in which, at the same time, order and neatness may easily be maintained.

### TRENDS IN NEW ZEALAND

Bedding schemes in New Zealand have been developed in different localities to suit widely-differing climates. The general trend is to copy, and adapt to local conditions, the work carried out in England, though, in many respects, New Zealand bedding work leaves much to be desired. Present practice wavers between formal and informal styles, and even carpet bedding is sometimes carried out. In public parks in some districts the formal style of bedding of the late nineteenth century, using geraniums, alyssum and lobelia, may still be considered general practice, and the introduction of more modern ideas is obviously required.

To find a clear definition of the terms "formal" and "informal" in relation to the use of bedding plants is most difficult. That position is accentuated by both terms having been used freely without any apparent consideration for their exact meanings. The Oxford Dictionary defines formal as "prim" and "stiff" and informal as "without formality".

### FORMAL BEDDING.

William Robinson (1883) wrote: "It is only when the plants of a garden are rigidly set out in geometrical design that the term 'formal' is rightly applied." There appears to be a diversity of opinion about the exact meaning of the term "formal bedding". However, for the purpose of this article it is used to describe all carpet bedding, and also any other planting to a scheme which leads to the creation of a definite pattern or design within the flower bed, including floral clocks, and designs portraying crowns, flags, or other insignia.

Till the present there has been an ever-increasing tendency to break away from this type of planting, and to produce something of a higher aesthetic value. There are, however, a limited number of settings where such work would still be in keeping and where it might well be used as an alternative to, if not to the exclusion of, other schemes. The formal design is most appreciated when carried out in connection with some national festival or public occasion, and is essentially for use in public parks or the gardens of industrial concerns rather than the gardens of private homes.

In some settings carpet bedding is necessarily the style to be chosen, and an informal planting would detract very considerably from the general effect. Such sites are frequently in the nature of a small formal enclosure, or in close proximity to a building of prim architectural features. In such circumstances planting to a formal design may, with care and reasonable forethought, be an attractive feature.

### PUBLICITY VALUE

The commercial and publicity value of carpet bedding should not be overlooked. As a proportion of the population is considerably influenced by clever Press advertising, so also should the publicity value of horticulture be reckoned with—even should such an idea seem repugnant from the viewpoint of the landscape gardener. Should any commercial executive desire such a scheme to be carried out, it should be the duty of the designer to see that horticulture is not debased, but that the commercial aspect is combined with the æsthetic to give both a satisfactory and a pleasing result.



Winter-flowering pansies in neat beds.



**Winter-flowering pansies in another setting.**

Before deciding on a formal planting a number of factors should be considered:—

**Cost:**

The planting and maintenance of such a scheme must be carried out with the greatest precision or the work appears shoddy and ridiculous. It must, therefore, be decided whether the project warrants the extra expenditure necessary for both labour and supervision.

The majority of the plants required are not generally used in other plantings, and a stock which is suitable for that purpose only must be raised and maintained, thus incurring special expenditure in acquiring a stock of plants which may not be widely used.

Further, a proportion of the plants must be raised and held under glass till late spring, when the danger of frosts is reduced to a minimum.

**The Plan:**

Before such a scheme can be embarked on a detailed planting plan must be prepared and the number of each variety of plant required carefully estimated. A plan of this type must necessarily be carried out in greater detail and with more care, from the point of view of the draughtsman, than the plan for planting a similar site in the informal style.

**The Design:**

The shape of the bed may decide or limit the design to be chosen. For example, a bed of definite geometric outline such as a diamond or a narrow parallelogram requires the repetition of similar lines rather than the introduction of flowing curves as the base of the planting scheme.

There are many schemes upon which the designer may work according to the setting, and possibly the occasion, for which the planting is required.

For the visits of important personages such plantings may well be designed to be in keeping with the event. For the visit of a member of the Royal Family, or for the celebration of an occasion such as a coronation or a jubilee, the incorporation of a crown as the central feature of a design is suggested. On the occasion of a national festival the use of flags in the design is suitable. For a conference of importance bringing visitors from other centres the use of suitable insignia is evidence of interest and may be greatly appreciated.

### FLORAL CLOCKS AND SUNDIALS

In a country such as New Zealand floral clocks and sundials have very little to commend them except novelty. Considerable outlay is required to install the mechanical equipment for a clock, and the planting must be carried out with the greatest accuracy. The clock must also be maintained in first-rate condition under difficult circumstances, and the services of technicians may be more difficult to obtain in New Zealand than overseas. Further, any clock which does not keep accurate time, even if it is seen by only a small proportion of the population, soon falls into disfavour; in the case of a floral clock such discredit falls not only on the technicians but also on the horticulturists involved.

In such circumstances clocks are surely better left in any place rather than planted in gardens, with the chance of bringing the displeasure of the public on the garden staff.

Sundials planted along the same lines are favoured in some centres overseas. Though these do not bring with them mechanical intricacies as in the case of the floral clock, the planting must be carried out with equal precision if the scheme is to meet with any success. Certainly if a formal bedding scheme is desired, and a sunny situation is available, the sundial has the advantage of novelty without the pitfalls and high initial outlay of the clock. In New Zealand sundials are not seen very frequently and the novelty of such a venture may well make it worth while for at least one season in a park or in the grounds of an industrial exhibition.

The use of carpet bedding, however, is not confined solely to the intricacies of floral clocks and the representation of flags and other insignia. The most attractive application of this method is a conventional design or a combination of geometrical forms to make a conventional but reasonably simple design.

### THE INFORMAL SCHOOL

Though informal bedding has had its champions during the past half century it has not yet won through in the battle against geraniums, alyssum and lobelia combined in formal plantings in this country. New Zealand, as a young country, has comparatively few gardens where formal bedding should be always adopted to the exclusion of informal bedding. Still, however, there are public parks where "pelargoniums and paper picking" are the unfortunate lot of the staff, though the informal plantings which could be adopted would be of considerable merit from both aesthetic and economic viewpoints.

"We are only beginning to break away from the cast-iron method of planning, a method which has survived the primness of outlook in which it originated, whose every line and form are severely geometrical and every colour crude and definite" (*"The Complete Book of Gardening,"* p. 199). This is a true statement of the position in parts of New Zealand, though it was written by men engaged in horticulture in England in 1930.

For commerce and publicity, informal bedding has yet to be put to its fullest use. The charm and brilliance which may be achieved in an informal display have a strong appeal to a large section of the community, which appeal should be exploited to the fullest extent as a means of commercial publicity. In this respect, as in all bedding work, it must be borne in mind that the monotony which may occur in informal work is as much an offence as monotony in formal bedding, which has contributed much to bringing it to disrepute.

Unlike formal bedding, the informal work is not so exacting in its requirements, and the wide range of plants makes it possible for the expenditure on a particular scheme to be controlled, to a large extent, by the choice of material. Further, the larger plants used reduce the quantity of material

required to be raised for a given area. The number of annuals raised, obviating the overwintering of stock at a time when space in glasshouses is urgently required, is also a considerable advantage of informal bedding.

**The planting and maintenance of an informal bed are much less exacting and more easily carried out than for a formal scheme. That does not mean that informal work should be rough or slipshod, as a high standard of work is essential wherever bedding of either type is done.**

Planning for informal bedding is also much simpler, as there is greater freedom of style, and plans do not require to be carried out with such precision or in such detail. The blending of colour and form of plants, both flowers and foliage, may be exploited to the full in informal work, and there is plenty of scope for artistic application. Of course, the freedom in the use of colour in informal bedding has its pitfalls which should be guarded against by those who have not a keen appreciation of colour and an understanding of colour combination and contrast. Any person who is required to design colour displays, and who has not previously been trained in the principles of colour work, would be well advised to consult the Horticultural Colour Chart (published, price £2 4s. sterling, in two volumes by the Royal Horticultural Society), arranged to demonstrate the law of colour contrasts and colour blending. It is also helpful to have a full range of colours, as given in the colour chart, easily accessible for assistance in arranging new bedding schemes.

### SEASONAL GROUPS

In dealing with bedding schemes it is found that the plantings fall into seasonal groups which are fairly clearly defined. In order of flowering sequence, these groups are:—

**Early spring:** *Crocus*, *Iris reticulata*.

**Spring:** *Polyanthus*, wallflower, *myosotis*.

**Late spring, continuing to early summer:** Pansies, *Erysimum asperum* (*Cheiranthus Allioni*), ranunculi.

**Summer and autumn:** Sweet William, antirrhinums, dahlias, gladioli, etc.

Up to the present the methods practised in England for the provision of fine autumn displays have not been practised in this country. Under such conditions large quantities of early flowering chrysanthemums are transferred from the nursery beds while in flower, and these displays remain until destroyed by frosts. It is quite possible that such plantings, adapted to local conditions, may in future years comprise a popular addition to the present range of bedding schemes.

### SUCCESSION

Of all the points which must be considered in arranging for bedding displays, succession is one of the most important. Without an intimate knowledge of this aspect of the work the production of plants for appropriate plantings—in fact the entire arrangement of nursery work—would be almost impossible, and the displays themselves would be considerably impaired. It is necessary to arrange bedding schemes which follow, in suitable sequence, the schemes preceding them, and which give a reasonably rapid succession of bloom.

Rotation of crops must receive some consideration: It is advisable always to rest the soil after a cruciferous crop by using plants not subject to club-root disease for following plantings. The variation of schemes must be considered, and the ability to sustain interest in and anticipation of forthcoming displays is of the utmost importance.

The bedding season begins in late autumn, when the spring-flowering plants are put out in their flowering sites. These autumn-planted subjects

finish their displays in early, mid, or late spring, when they require to be replaced. To replace early spring displays, plants should be chosen which will stand a light fall of snow or about five degrees of frost. In districts where late frosts occur, such plants as dahlias or salvias are not suitable for this planting, but antirrhinums, *Verbena venosa*, viscarias and ageratum may be used.

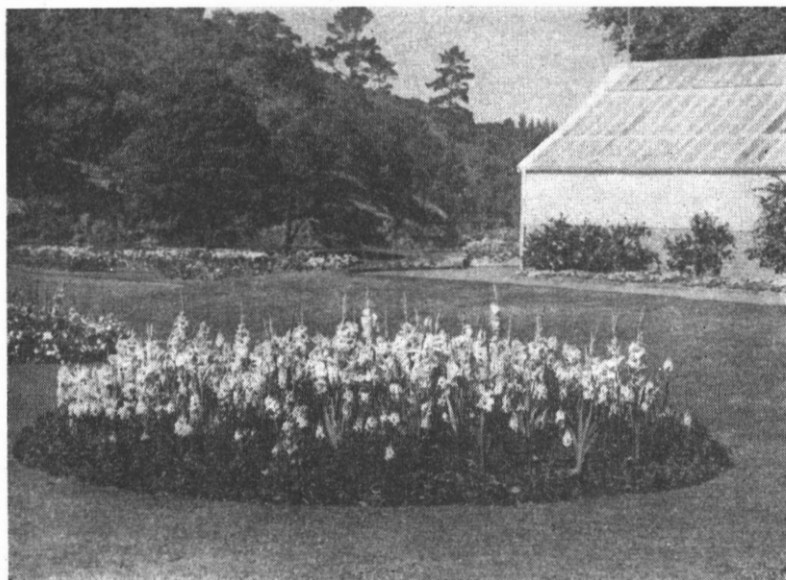
Following the main spring displays successional plantings of more tender plants may be used, and an endeavour should be made to include at this time all plants which require as long as possible to mature before flowering, such as dahlias.

The late spring displays of ranunculi are over in time for plantings of salvias, tuberous begonias, and other tender subjects. Beds which have been used for sweet William become vacant in time for filling with plants for autumn display, especially the quick-flowering varieties such as French marigolds or viscarias.

Of the summer displays, a few of short duration, such as nemesias or viscarias, may be followed by a further planting of quick-flowering plants such as French marigolds, which are reasonably dependable in this climate. The success of these late plantings is governed largely by climate, and should bad weather and early frosts prevail the displays will be considerably curtailed.

### NEW PLANTS AND IDEAS

Monotony is to be avoided at all costs in planning for bedding displays, and every attempt should be made to bring into use new varieties and new colour combinations. There are at present on the market large numbers of plants which are very suitable for bedding and may be combined in an almost limitless number of schemes. There are also many plants which are rarely, if ever, used for bedding, and some of these may be eminently suitable for bedding work and are well worth investigation.



Gladioli and antirrhinums.





**Gladioli: Colourful spears surmount the groundwork and provide additional interest.**

One very well-known horticulturist who has done a great deal to improve the standard and variety of bedding plants is Mr. Thomas Hay, V.M.H. Because of his untiring efforts a number of plants have been made available to the Royal Parks, some of them specially procured from overseas. On arrival the possibilities of these plants are fully investigated, and the plants, if they are considered of the required standard, are put to use. Thus, **Lisianthus Russellianus** has been featured as a bedding plant in London's Royal Parks, and the public came in considerable numbers to see this amazing new plant when it was first used in a bed at Hyde Park.

Mr. Hay's energies have not, however, been confined entirely to the utilisation of new plants, one of the outstanding aspects of his work being the introduction of quite common plants to new uses. Credit is his for the introduction of the modern bedding dahlias now used extensively. Mr. Hay was also the originator of the combination of **Lilium regale** and heliotropes in bedding schemes. New Zealand has only a relatively small population and consequently less spending power for horticultural work. Still, there is every reason why the plants which are already available should be used to the best advantage, and why every avenue should be explored in the utilisation of these plants.

Even in wartime seedsmen listed in their catalogues an amazing variety of material, and a few packets bought each year for trial purposes will surely demonstrate the possibilities of some new bedding schemes for introduction the following season. One firm of seedsmen in England offers 99 varieties of antirrhinums in its wartime catalogue, not to mention the wide choice in other groups of plants suitable for bedding. In these circumstances there is no excuse for monotony in bedding schemes.

### PLACING OF BEDS

Though bedding is in itself extremely important, it should be considered in relation to the other sections of landscape gardening. Beds should not be



placed about a garden indiscriminately solely to make places for the display of plants. There are often points in the design at which the introduction of a group of flowering plants will add very considerably to the general effect; on the other hand some places are appreciated for the simplicity of a sweep of lawn and a few trees well planted. The use of the garden to display bedding plants, rather than the use of bedding to enhance the beauty and architectural design of the garden, must be avoided.

When it is decided that a bed is wanted at a point in the garden, a number of factors should be considered. The bed should interfere as little as possible with the cutting and maintenance of surrounding grass, and it must be simple in shape. The balance between the bed and any other features in the vicinity must be considered; that may determine the size and shape as well as the position of the bed.

**The position of the bed in relation to nearby trees is most important. In the first place a well-grown tree or group of trees forms a picture which in many cases is only detracted from by the addition of flowerbeds. Secondly, if a bed is placed too close to any large tree the plants in the bed will never reach their optimum display, and the bed will consequently never be of high standard.**

Before the position of a flowerbed is finally decided on, consideration must be given to the maintenance of both the bed and the surrounding area. Narrow borders of grass, which are awkward to cut with the lawnmower in general use, should be avoided wherever possible; creating a maintenance difficulty of this description immediately increases the cost of the flowerbed. Similarly, the designer must bear in mind that acute angles are awkward to maintain and should be done away with if possible.

In large areas—for example public parks—it is frequently the practice where space will allow to mow lawns with tractor-drawn multiple units. Such methods represent a considerable saving in maintenance costs, and these costs may be still further reduced if all beds are designed with curved lines which are more in keeping with the swing of the machinery and thus reduce the area to be cut later with a smaller machine.

### BEDS OR BORDERS

The question will often arise which is to be used in a selected site for a floral display: A border or beds. Where the display is along a roadside, and space will allow, a better effect is obtained from a long border than from a series of small beds. There are, however, sites where beds for roadside beautification may be more suitable, such as any area where the natural lines of the landscape are broken, as in a small piece of waste ground such as those frequently remaining after road alterations have been carried out.

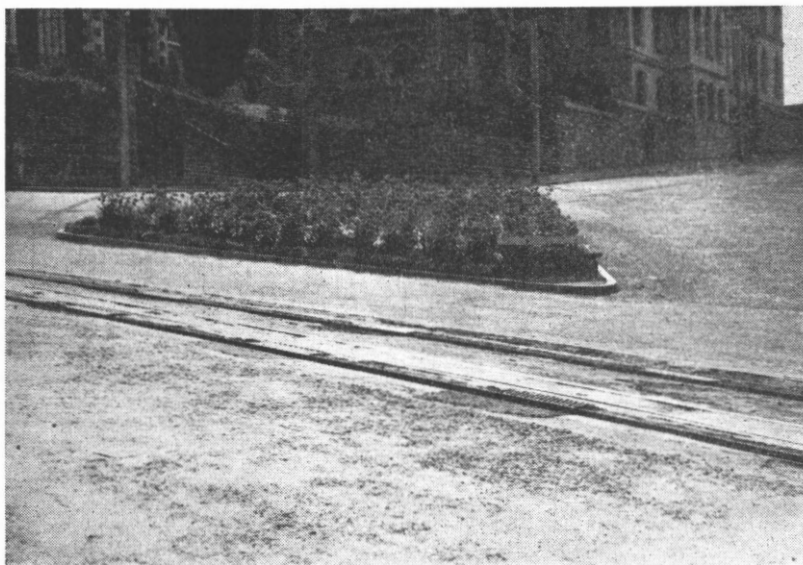
In parks and gardens the selection of the form which a plot is to take is perhaps more a question of personal taste than in the case of more restricted areas usually associated with street plantings. Consideration must, of course, be given to the lines of the surrounding area, and the architectural theme of the design repeated in the outline of the plot. Large sweeping areas, for example, lend themselves to large borders rather than small beds, though the use of large beds in such a scheme may prove suitable. In any garden where the architectural features are chiefly straight lines, rectangular beds are nearly always pleasing to the eye.

The decision to form either beds or borders on any site is not, however, subject to definite rules which are without exception, and it is most important that the site itself be carefully examined before any finality is reached. Some idea should also be formed of the types of plants which it is desired to display in the plot. For example, the use of tall plants precludes a narrow ribbon border in which they are to be grown, as they would appear out of proportion.

Some planting of flower displays is often required along the street frontage of a large building. In this case a border is to be preferred to a series of small beds; they tend to give a spotted appearance, whereas the long lines of a border or long rectangular beds are in keeping with the lines of the architecture, and considerably simplify the maintenance of the area. Where a building is set back some distance from the street the inclusion of flowerbeds may be possible, but care must be exercised to make sure that nothing fussy is introduced which will detract from the appearance of a building with architectural merit.

### SELECTION OF PLANTING MATERIAL

To achieve success with the planting of a bed consideration must be given to a number of factors which contribute to the quality of the display. A full appreciation of the importance of the surrounding features is of considerable assistance. Tall buildings, for example, do not form the best background for such plants as lobelia Cambridge blue and begonia flamboyant which, if planted in a bed in an open park, form a delightful picture.



**Dahlia Bishop of Llandaff in a plot on a main transport route.**

### SHELTER AND ASPECT

One factor which has a considerable effect on the ultimate display is the exposure to or protection of the site from very strong winds. In southern districts dwarf plants will provide a wealth of bloom in a locality where tall plants would be in a battered condition and appear untidy and unattractive.

**Wind nuisance is perhaps at its worst in exposed coastal areas and in built-up areas where the buildings form a funnel through which blows an almost continuous current of air. In these situations dwarf plants should always be used unless a costly maintenance programme of staking and tying is to be carried out.**

A floral display is affected by the aspect of the planting site. Should the bed slope to the north or north-west the provision of sun-loving plants is relatively simple; if the bed lies to the south or east planting for a successful display is much more difficult.

Trees or a building casting shade for most of the day further restrict the bedding scheme for a plot. Plants suitable for these shady situations are polyanthus, wallflowers and pansies for spring flowering, and sweet Williams, ageratums, antirrhinums, dahlia "Joan," and lobelias for summer displays.

### SHADE AND MOISTURE

Specially where beds are situated near trees, moisture or lack of it can make or mar a floral display. Where trees overshadow the bed and take up most of the available moisture, summer bedding plants should not be used if they are expected to make much growth before flowering. If the trees are evergreen, such a site restricts the choice of plants for spring bedding to low-growing plants which do not require to grow much after being planted out. Where the trees are deciduous, however, full use should be made of the site for spring bedding; in such conditions beautiful displays of polyanthus may be grown and will last in the shade longer than those in full sun, which deteriorate very quickly with the approach of dry weather. For such sites the following would be suitable: *Myosotis*, *Bellis perennis* varieties and polyanthus for spring; ageratum and lobelia for summer.

The condition of the soil will also have considerable effect on the amount of moisture available to the plants. "A soil which has been enriched in humus through repeated applications of farmyard manure will resist drought better than one in which the humus is low; the difference is seen not so much in the greater amount of moisture present in the soil containing humus as in the way it will absorb a large amount of water temporarily during heavy rainfall, and then let it work more slowly down into the soil, thus keeping it longer within reach of the crops" ("The Soil," A. D. Hall, p. 144).

### POINTS OF VIEW

The points of view from which a display will be seen should be given some consideration. Where a bed is on a slope seen from below—sometimes the case with roadside plantings—medium to low-growing subjects are usually the most successful; taller plants are not seen to best advantage, and a site where a fine display is possible is wasted. On the other hand, where the slope is below the road level the use of tall plants is necessary to bring the display up to its public.

Where a planting is not easily accessible and is usually seen from a distance, very dwarf plants should be avoided and a taller display aimed at.

Care should always be taken to avoid the use of plants with flowers which turn toward the sun if, in doing so, the flowers turn their backs on their public.

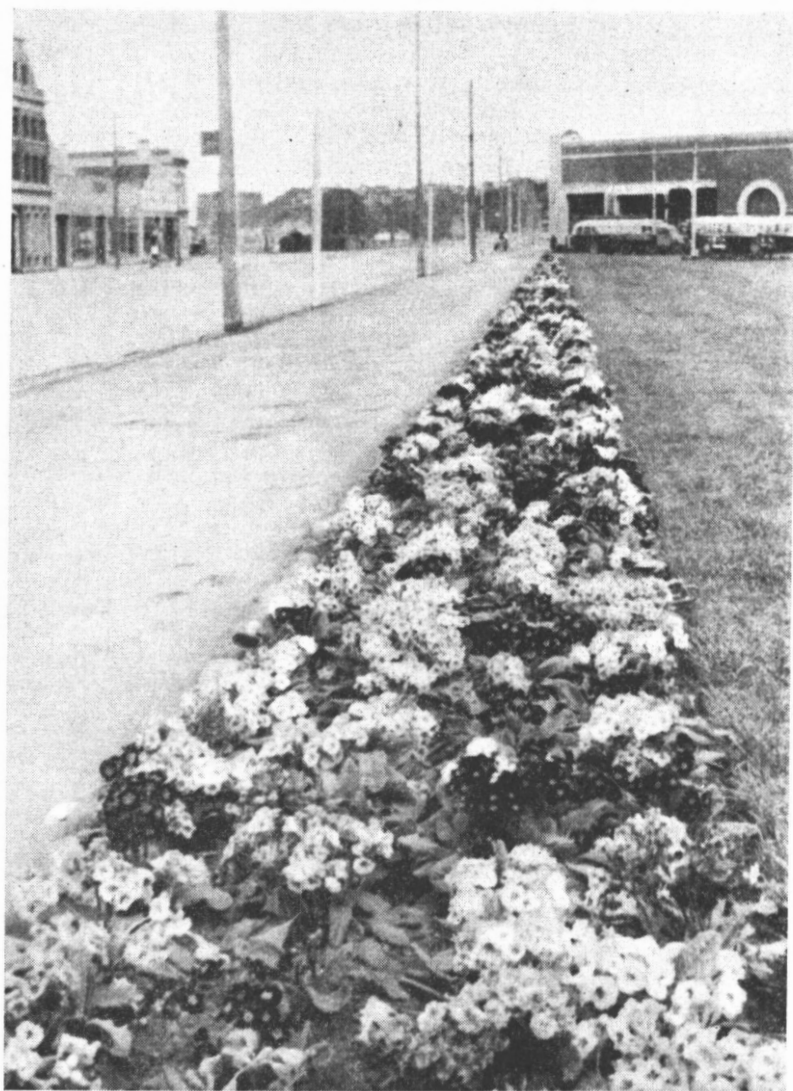
### CARTAGE COSTS

Cartage is an expensive item which is involved at both planting time and at the time of the removal of the spent display. The major differences at planting time occur with the autumn plantings for spring display. For example, many hundreds of ranunculi may be carried with ease by one man, whereas wallflower plants are large and carriage is costly. Similarly, a bed of ranunculi may be much more easily cleared out after flowering than a similar area planted with wallflower.

This cartage becomes a very considerable item with large plantings long distances from the nursery, and the cost of the work is materially increased.

### VARIATION, ROTATION, AND SEQUENCE

To avoid monotony is most important and plantings should be as varied as possible, remembering that any plant or scheme used to excess soon becomes hackneyed. To give a really satisfactory series is more difficult in this respect with spring displays than with summer bedding schemes, where there is much wider choice of material.



**Polyanthus:** A narrow border is ideal for windy situations.

As in agricultural practice, the rotation of crops should be practised with bedding plants, though to a less extent. This is particularly important with cruciferous plants, where club-root infection is liable to become established in the soil if such precautions are not taken.

In planning for future displays consideration must also be given to the previous display, which will govern the time of planting, and, in the case of summer plantings, the time in which the display may be expected to reach its height.

### DAMAGE TO DISPLAYS

In public parks and flower plots in a town there is often some source of damage which must be contended with. The three major offending groups are dogs, the public, and birds, all of which if uncontrolled may destroy a display. Local bodies usually place some restriction on dogs wandering uncontrolled in the streets; these restrictions tend to reduce but do not eliminate the damage done by dogs.

Birds, such as pigeons or seagulls, may cause extensive damage by trampling over a planted area. In Dunedin birds will sometimes pick off every flower in a bed of polyanthus. This damage usually occurs early in the season, the later blooms being left untouched when more food is available for the birds. The best means of protection against such damage is to place strands of black cotton, stretched between small canes, just above the flowers. Such a measure will appreciably reduce the damage done.

Insect pests may cause havoc in a display and be very difficult to combat. Wireworms (larvae of the click-beetles) and grass grubs (larvae of *Odontria zealandica*) are perhaps the major offenders, killing off the plants by eating the roots. The only methods of eliminating these pests are by the application of a fumigant such as carbon bisulphide to the soil, or by the application of a poison such as colloidal lead arsenate.

Leather jackets (larvae of daddy long-legs) and cut-worms eat through the stems of plants just below the surface of the soil. They are also difficult to combat, but in small areas hand picking will reduce the menace, and the Paris green bait can also be used with good effect.

Greenfly will attack plants in poor condition and may cause considerable damage. The most effective method of eliminating these pests is by use of nicotine sprays.

Earwigs will destroy dahlias and other flowers. Trapping them in hollow bamboos or flower pots filled with straw, and emptying the traps daily, will reduce the numbers of this pest.

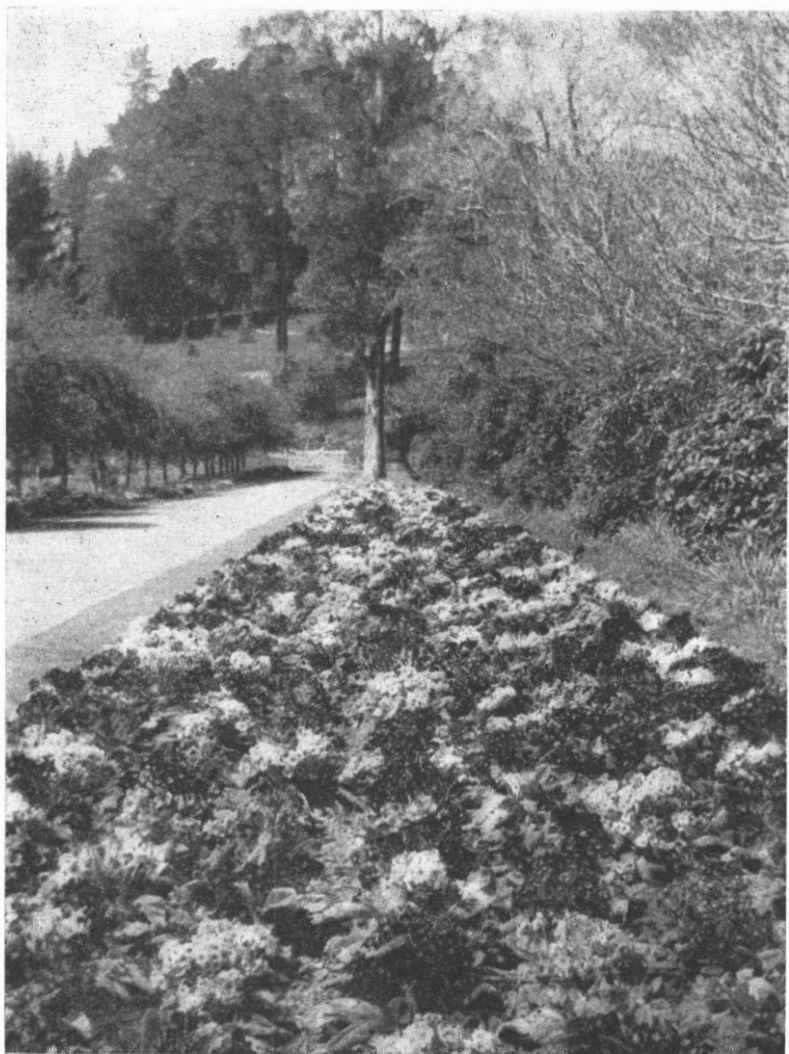
Slugs, where there is a serious infestation, may ruin a display. Poison baits of powdered Meta mixed with bran at the rate of 1 cake of powdered Meta to 10oz. of bran are most effective.

**As a result of the introduction, during the war years, of new insecticides which are claimed to be vastly superior to those in common use, it is quite possible that the whole approach to pest control will be altered within the next few years.**

### PUBLIC THE CHIEF OFFENDERS

Of all the sources of damage, the public may often be considered responsible for the greatest proportion. Thefts of plants and flowers from both public and private gardens occur with astounding frequency. Wanton destruction of displays is also met with, on occasions several dozens of plants being pulled up and thrown about in the vicinity of the beds. Children, and adults too, are serious offenders in trampling on displays, walking across flowerplots because they are too lazy and indifferent to walk round them. Children will frequently walk along a kerb beside a border and overbalance on to the display; this so-called balancing feat is even encouraged in children by their elders.

After VJ-Day celebrations in Dunedin the flowerbeds in the Octagon were all badly damaged, having been trampled over by many pairs of feet. That was in sharp contrast to news received from a visitor to London on VE-Day; despite the huge crowds which gathered in front of Buckingham Palace, he stated, a bed of tulips in a central position remained unharmed—not one flower touched, not one footmark on the bed. It is indeed a great pity that New Zealanders, as a community, should be so lamentably lacking in civic pride and appreciation of beauty.



**Polyanthus: Another border in less austere surroundings.**

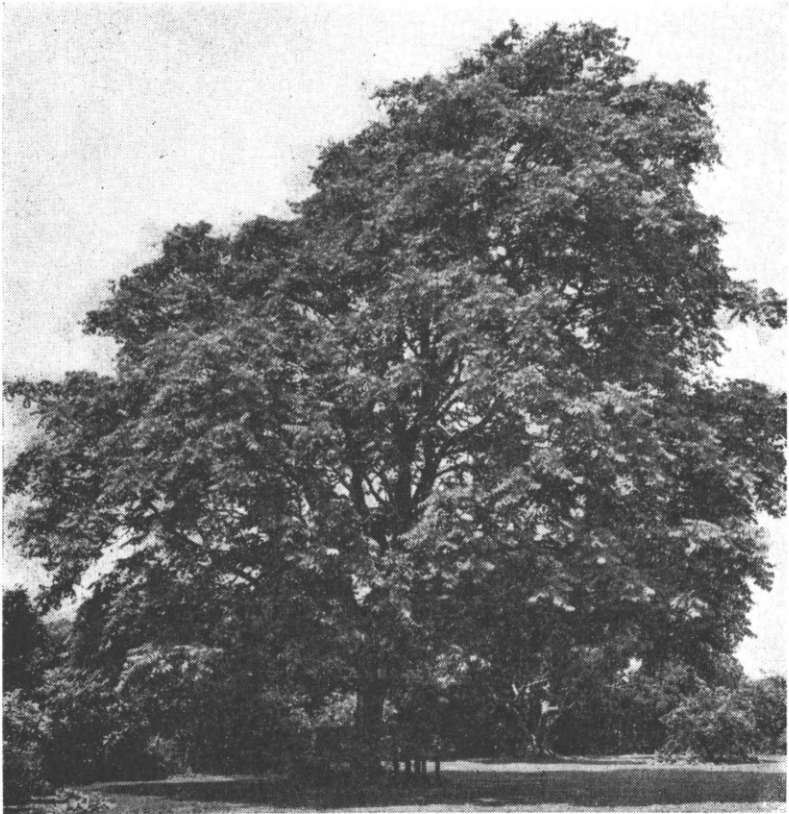
Where these difficulties are encountered every possible effort should be made to remove the cause or to discourage the practice from which the difficulties arise. Such problems are usually slow to be settled, and the damage will probably continue for some time. In these circumstances the only course to take is to plant inexpensive and fairly hardy material until the displays are treated in such a fashion as to warrant the use of more costly plants. The same course is recommended for a locality where plants are stolen from the beds after planting.



### AMENITY VALUE OF SITES

Amenity value should be considered when planting is done by a local body. A bed bed on a main transport route toward the centre of a town is seen and appreciated by a greater proportion of the ratepayers than a planting in a suburban street. On this principle such potential high-value sites should be planted with better-class material than the lower-value plots. But an inexpensive display of half-hardy annuals need not be poor or commonplace in colour combination, arrangement, or quality.

In the arrangement of plants and planting sites, special consideration should be given when dealing with scented varieties. These plants should be placed to enable the perfume to be enjoyed to best advantage. Planting in close proximity to a path is recommended, and night scented flowers should, if possible, be planted where passers-by may enjoy their fragrance.



The Chinese Tree of Heaven (*Ailanthus glandulosa*) in Woodham Park, Christchurch.



# Tracing the Story of *Camellia Reticulata*

By ROBERT CASAMAJOR

WHILE visiting the garden of Mr. Victor Reiter, Jun., in San Francisco in April, 1942, I noticed a gorgeous flower on a small shrub in the distance, which my host informed me was *Camellia reticulata*. Though I had heard of this rare plant for years, I had never seen it, and the foliage is so different from the familiar *C. japonica* that I would never have recognised it as a camellia. Naturally, I immediately wanted to own a plant, and, on finding it could not be secured from Mr. Reiter, I tried elsewhere, only to discover that it just was not for sale anywhere. This fact rather intrigued me, so I began a search, which has led into many places and experiences.

PREDOMINANT cause of its scarcity, I soon learned, was the fact that no one had been able to get it to strike roots from a cutting, though much wood has been lost in the attempt. Therefore it must be propagated by grafts, and even these are tricky compared with *C. japonica*.

I found a great atmosphere of secrecy about it wherever I inquired, and though several people owned it they just didn't talk about it, much less want to show it.

It soon became apparent that nearly all of the existing plants in California were raised from scions secured from a large plant growing in the Botanic Gardens at the University of California in Berkeley. Therefore it seemed that, if I wanted to learn more of *C. reticulata*, I had better start there. Though my visit brought me very little information, at least I saw a magnificent specimen, carefully housed under lock and key in a lath house. This plant was about 10 feet high and 6 feet across, and when I saw it in December, 1943, it had at least 400 fat flowerbuds on it.

I was somewhat amazed, however, when no one there could tell me where the plant had been secured. That was disappointing, because I had hoped its history and habitat would be on record. It was hinted to me, however, that there was doubt about it being a true species and further doubt about whether it had ever made viable pollen or fully developed stigmas.

One interesting fact offered from the university was that when the plant was small it produced larger flowers than it has done in later years, and I was told that some blooms exceeded 9 inches in diameter.

My search next led me to the Huntington Library in San Marino, California, and there, with the assistance of Mr. William Hortrich, curator of the Huntington Botanic Garden, and some articles on the subject collected by Mrs. Carlo Galli, of South Pasadena, California, the story gradually unfolded.

## TAKEN TO ENGLAND IN 1820

It appears that in 1820 a Captain Richard Rawes took to England, in his East India merchantman, a plant of a fine camellia which he had secured in Canton, China, and gave it to a friend, Thomas Carey Palmer, of Blomley, Kent. Mr. Palmer grew it in his conservatory and it bloomed in the spring of 1826. It was given the name of Captain Rawes Camellia, and in the Botanical Register of July 1, 1827, No. 1078, Vol. XIII, it was identified by John Lindley, an English botanist, as *Camellia reticulata*.

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In describing the plant he said: "We conceive there can be no doubt of this being specifically distinct from *C. japonica*, from which it is distinguished by its rigid, flat, strongly-reticulated leaves, and also by its silky ovalrium. The flowers have also a different aspect, the petals are much undulated, and irregularly and loosely arranged, with none of the compactness and regularity for which *C. japonica* is so much admired.



Captain Rawes' Camellia, identified by John Lindley in 1827 as *Camellia reticulata*.

"*C. reticulata* has the habit of *C. japonica*. The leaves are rigid, oblong, acuminate at each end, serrated, flat, not shining, and reticulated with deeply-sunken veins. Flowers are very large, bright clear purple, with the appearance of a peony. The calyx is imbricated, five-leaved, and more or less stained with purple. Petals, numbering 17 or 18, are somewhat repand, wavy, generally entire, and loosely arranged. The stamens are much shorter than the petals, at the

base irregularly monadelphous in several rows, the minor ones rather separate from the others; they are often divided into several bundles, which are placed opposite the inner petals. The ovary is roundish, silky, and four-celled, with several distichous ovules. The style is four-fold and smooth and the stigmata simple; the style is occasionally two- or three-fold, and the ovary two- or three-celled."

### CONSIDERED A DISTINCT SPECIES

After this careful description he goes on at great length to make his point that it is a new species and says that, though one of the fundamental qualifications of a species is that it will reproduce itself when self-pollinised, he still considers this plant to be a distinct species. Though he does not say that this plant did not set seed, he does imply that it had not done so.

The colour plate which accompanied this description was not drawn from the plant taken in by Captain Rawes and bloomed by Palmer, but from another plant owned by the Royal Horticultural Society and taken to England in 1824 by John Dampier Parks in his East Indiaman, Lowther Castle.

Five months later the Curtis "Botanical Magazine," on December 1, 1827, No. 2784, published another colour plate of *C. reticulata* from a drawing by Miss Curtis of Captain Rawes' plant. In telling about the flower Mr. Curtis says: "Not having myself had the opportunity of seeing the plant, I adopt Mr. Lindley's suggestion of its being a new species," and he then quotes the Lindley description.

In this plate there are drawings of a seed capsule and section, and seeds alone, but a note says: "Representations of capsule and sections are from the Warratah camellia (t. 1654) and seeds from the single red (t. 42)." So once again there is the implication that the plant did not set seed, or else its own seed and capsule would have been shown and not that of another plant.

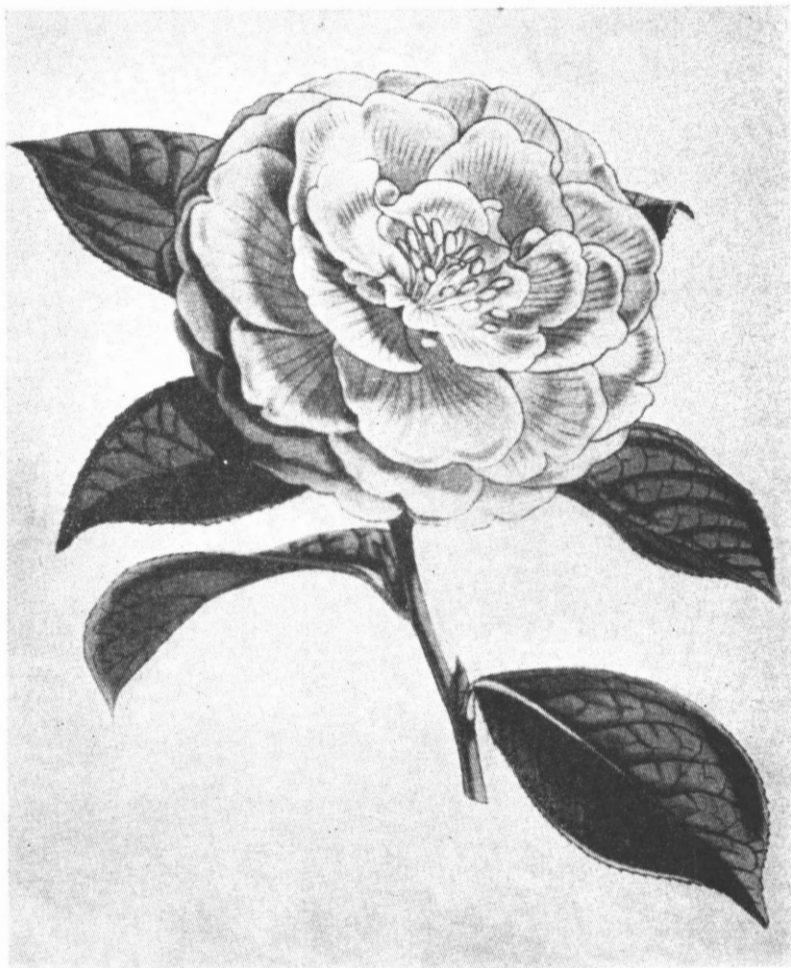
A comparison of these two plates shows that the Captain Rawes Camellia in the "Botanical Magazine" is 6 inches in diameter and a clear rose pink colour, while the plate in the Botanical Register is 5 inches in diameter and a trifle darker. The form of the two flowers is apparently the same.

The next reference found was in Paxton's "Magazine of Botany," ten years later, in Volume 3, 1836-37, page 101, which shows a colour plate with a flower 7½ inches in diameter and very similar in form and colour to the plate in the "Botanical Magazine" of 1827. There is no new information in the accompanying article.

### A DIFFERENT FORM

Twenty years later, in the "Botanical Magazine," No. 4976, of April 1, 1857, is shown a plate of *C. reticulata flore-pleno*, a double form, and quite different from the earlier drawings. That plant was sent to England by Robert Fortune, a Scottish botanist, who had been sent to China by the Royal Horticultural Society to collect plants. It is believed that he secured it from a man by the name of Reeves, who was in the employ of the East India Company in Canton and used to gather choice plants from the gardens of Canton and send them to England by sea captains who went to the port. There is no evidence that he did any collecting of plants or seeds in their native haunts. It therefore appears that the so-called double form of *C. reticulata* is either a natural or a horticultural hybrid.

A comparison of this plate with one published by Verschaffelt, of which Mrs. Verne O. McCaskill, of Pasadena, California, has a copy, indicates that the two were probably made from flowers from the same plant. In one the flower is 5 inches across and in the other 5½ inches, but the form is identical. It has about twice as many petals as the one brought in by Captain Rawes, is more formal, imbricated, and shows the stamens prominently. The edges of some of the petals fade to nearly white.



*Camellia reticulata* florelpeno. The double form sent to England by Robert Fortune from Canton, China.

In the article in the "Botanical Magazine" accompanying this drawing is a story of a fine plant of the Captain Rawes *Camellia* growing in the conservatory of William Byam Martin, Bank Grove, near Kingston, Surrey, which was 13 feet high, had a 16 feet spread and a circumference of 50 feet. For the health of the plant in October, 1848, it was necessary to remove 2,600 buds, and when it bloomed in April, 1849, it had 2,000 flowers, each 8 inches across.

#### WILD FORM DISCOVERED AT LAST

Nearly 80 years later, the "Botanical Magazine" of May 13, 1935, states, after 108 years, that Captain Rawes' *camellia* was not the true species of *C. reticulata* at all, and that John Lindley was probably in error in identifying it as the true species.

The article states: "For more than a century the species has been known only in the double or semi-double flowered garden form, and till 1912 no wild material had ever been collected that could be definitely connected with the garden form.

"In March, 1932, Mr. J. C. Williams, of Caerhays Castle, Cornwall, sent me specimens of a camellia raised from seed collected by Forrest (No. 25352), which had just come into flower with him, and from this material the present plate was prepared. The plant was grown under the name *C. speciosa*, but there is not the slightest doubt that it is really *C. reticulata*, and examination of Forrest's field specimens, in the Kew Herbarium, reveal a number of shoots which the late Dr. O. Stapf was able to identify with *C. reticulata*. All were obtained in the hills around Tengyueh (Western Yunnan), where Forrest found the plant growing in scrub, thickets, and open pine forest at altitudes of 1830 to 2750 metres. He first collected it in 1912 (Nos. 7662, 9305), and subsequently in 1913 (No. 9715), 1924 (No. 25352), and 1925 (No. 27165), and sent home seed from which plants have been raised. Thus, after more than 100 years, the wild form of the species has at last been discovered and introduced into cultivation."

It is described as a tree up to 10.5 metres high, loosely branched, with greyish bark and flowers having five or six petals. In the plate, however, there are apparently ten petals and the open flower is  $3\frac{1}{2}$  inches across. The colour is a clear rose, showing many stamens. The description further states that the flowers appear singly on the twigs in the axils of the uppermost leaves. This is also a characteristic of the plant at the University of California.

Mr. Reiter told me that the specimen at the university was one of four which were imported by Golden Gate Park from Hillier and Sons, of Winchester, England, of which he received one and the park kept two, which were later lost. He also stated that he has another plant that he secured from Canada, the flower of which is identical with the original one.

Mr. George Petersen, of Chico, California, told me he had a plant in bud that was killed by a cold spell in 1933, so it was apparently more tender than *C. japonica*. His stock was secured from the University of California.

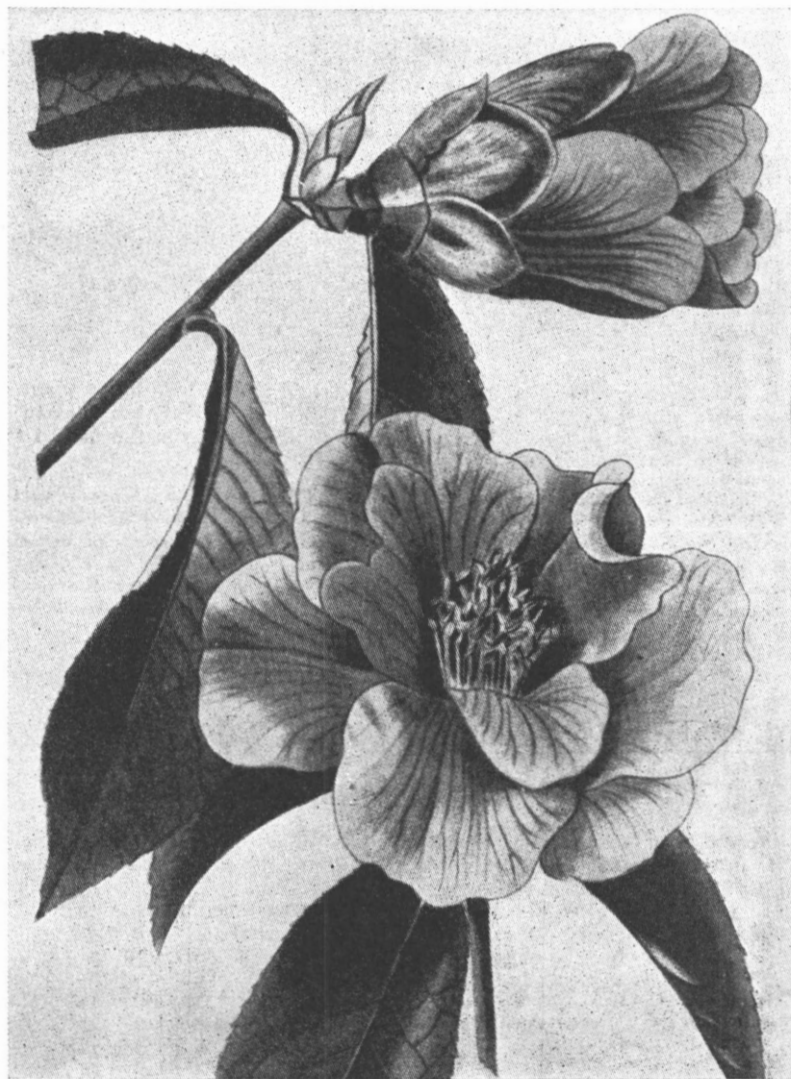
If the drawing and colours of the Captain Rawes Camellia, as shown in the "Botanical Magazine," are correct, it seems apparent that the plant at the university in Berkeley and now coming into circulation throughout the State of California as *C. reticulata*, is identical with the specimen brought to England in 1820.

#### CAPTAIN RAWES CAMELLIA PROBABLY A HYBRID

Though it is true that this plant has the characteristics that distinguish *C. reticulata*, as grown from Forrest's seed (No. 25352), it also is apparent that the flowers of the two plants are different, the Captain Rawes Camellia being easily twice as large as the wild species and more double. This would indicate that the former is a hybrid, in which one side of the cross is *C. reticulata*, or a primary hybrid of it. Hybrid vigour would thus account for the great improvement in size. There is also the possibility that it could be a mutation or "sport" of the species, though this seems less likely than the hybrid theory.

**In any case it is a magnificent camellia and well worth owning—if you can find some way to secure it. The "Botanical Magazine" of 1935 says this of the species: "*C. reticulata* is quite the finest of all the camellias. It is easily recognisable by its very large rose-red flowers and large elliptic leaves with a dull upper surface and the venation clearly visible in the living state."**

As far as I can learn the wild species, as collected by Forrest near the town of Tengyueh, is not now growing in the United States of America, and camellia growers would do well to attempt to secure it as well as the allied



The wild species grown in England from seed collected by Forrest near Tengyueh, in Western Yunnan, China.

species *C. pitardii*. If the blood of these two camellias could be introduced into hybrids with that of several of the present fine varieties of *C. japonica* an entirely new race of fine flowers might result.

In view of the foregoing facts it appears that it is really improper nomenclature to call the plant which is now in cultivation in California *C. reticulata*, and it could more properly be designated "Captain Rawes" or possibly "*C. reticulata* var. Captain Rawes."



### VIGOROUS TOP GROWTH

When selecting a root stock on which to graft scions of this variety it is advisable to use a strong, vigorous grower, as there is considerable evidence that the top growth is far more vigorous than that of most *C. japonica* varieties. There is a possibility that that may be why the University of California plant did not have such large flowers as it grew in size, in spite of the fact that it was fertilised regularly. In other words, the root action did not keep pace with the top growth.

It would be interesting to try it on the wild species of *C. reticulata* itself if seeds could be obtained. As the tree grows to 32 feet it should have a strong root system. That this fact was observed many years ago is evidenced by an article in an old copy of the "Gardeners' Chronicle", of London, in which the writer deplored the fact that some way could not be found to get it to grow on its own roots.

Mr. O. E. Hopper, of Oakland, California, told me that he has a plant of *C. reticulata* which he secured from Robert Veitch in Surrey, but a plate of a flower from it looks quite different in colour and form from the one at the University of California.

In any event there appear to be several flower forms from plants which have the characteristic leaf of *C. reticulata*, as well as its habit of making but one growth a year, and that the colour and number of petals vary considerably. Till someone has had an opportunity to observe several of them growing under the same conditions, along with the wild species as collected by Forrest, it will be difficult to clarify the nomenclature for this monarch of all the camellias.

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## WAR MEMORIAL

### LONDON'S GARDEN OF REMEMBRANCE

**I**N the Garden of Remembrance which has been laid out on a bomb-damaged site in the forecourt of St. James's, Piccadilly, and which was designed by Professor A. E. Richardson, R.A., F.R.I.B.A., of London University, the main feature is a parterre arranged after the seventeenth-century design and at present filled with red pelargoniums. Near the parterre is a double row of tubs, containing rhododendrons and azaleas, and on surrounding trellises flowering plants are trained. The flowers and shrubs will be changed with the seasons to present a continuous mass of colour. As St. James's is one of Wren's masterpieces, the furniture of the garden has been made in keeping with the Wren style, with oak more than a century old.

The rectory and vestry were demolished by a 1,000-pound bomb during the night of October 14, 1940. A few hours later, a shower of incendiaries penetrated the roof of the church and severely damaged the interior. Worship has been carried on in the south aisle during the past five years, but the whole church will ultimately be restored.

On the plinth of the flagstaff is recorded the fact that the Garden of Remembrance was given by the late Viscount Southwood on behalf of the "Daily Herald" to commemorate the courage of Londoners during the war. The garden is for the free enjoyment of Londoners and of all who come to the capital.

—From "The Gardeners' Chronicle," June, 1946.

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## **Horticulture in the Dominions**

**M**R. GILES TUKER, an English fruit-grower with more than 200 acres of orchards in Essex, was a member of a delegation of representatives of the British National Farmers' Union which visited Australia, Canada, New Zealand, and the United States of America in 1944-45. Since returning to England Mr. Toker has written an account of what he saw of the horticultural industries, specially the fruit-growing industries, of the Dominions and the U.S.A.

Comments are made on cultural aspects of the horticultural crops, but the most important sections of the book are devoted to the costs of growing, packing, and marketing of fruit crops, and details of growers' organisations in various countries. It seems clear from Mr. Toker's account that fruit-growers as a whole are much better organised than vegetable-growers in all the countries he visited, and that considerable advantages have accrued to the fruitgrowers as a direct result of their strong organisations.

Apart from British Columbia, where many young trees were seen, the countries visited have planted up little tree fruit in the past few years. This dearth of new plantings is causing some concern. An account is given of the Hercules "Brush Shredder", which passes between the rows of trees after pruning, picks up the prunings, shreds them into small pieces, and returns the shreds to the soil where they serve as a mulch. The machines used in the U.S.A. cost about £1250, cover about 50 acres a day each at a cost of about 16s. an acre, and are usually owned co-operatively by groups of growers.

This book is recommended to the serious attention of all who are interested in the horticultural industries, specially market gardening and fruit-growing.

**"The Horticultural Industry in the Dominions and the United States of America,"** by G. Toker. 119 pages. Published by the National Farmers' Union, 45 Bedford Square, London, W.C.1. Price 5s. sterling.

## **Sunflower-Growing for Oil**

**E**DIBLE oils are an important part of the dietary of all nations, and are at present in short supply in many countries of the world. Before the war many countries, notably Russia and the Argentine, grew vast acreages of sunflower for the production of oil from the seed. During the war the shortage of oils led Britain to experiment with the sunflower as a source of home-produced vegetable oil. The trials were successful, as it was found that certain varieties of sunflower would grow well in southern and eastern England and produce satisfactory yields of seed which was in no way inferior in oil content to seed grown overseas. The seed was also used for feeding poultry and other birds.

This well-illustrated book gives a full account of the commercial cultivation of sunflowers in various countries, including Britain, and devotes much space to a consideration of harvesting the crop. If the crop is to be grown profitably, some method of mechanised harvesting must be developed, and systems by which a good sample of seed can be obtained without manual handling of the crop are discussed.

**"Sunflower for Food, Fodder, and Fertility,"** by E. F. Hurt. 155 pages and 20 plates. Published by Faber and Faber, Ltd., 24 Russell Square, London. Price 16s. 6d. (N.Z.).

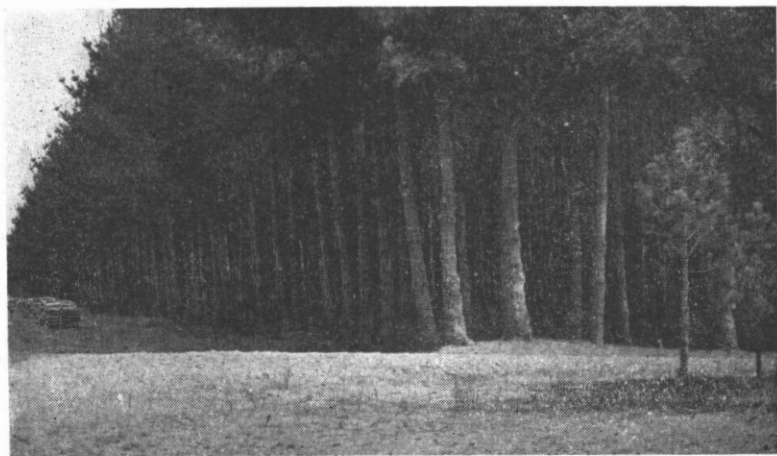
### Recently-published Books

**"Harnessing the Hormone,"** by T. Swarbrick, 52 pages, illustrated. Published by Grower Publications, Ltd., 49 Doughty Street, London, W.C.1, in the "Science at Your Service" series. This should be a valuable and readable account of the subject, as Dr. Swarbrick, late of the Long Ashton Research Station, has been responsible for much of the fundamental work in Britain on hormones and their application to gardening practices.

**"The Identification of Conifers,"** by A. Bruce Jackson, A.L.S., 152 pages, profusely illustrated by line drawings. Published by Edward Arnold and Co., London. Price 13s. 6d. (N.Z.). This book, which is of a size suitable for carrying in the pocket, should be valuable to those interested in the fascinating but complicated business of naming conifers. Keys are given based on well-marked characteristics of shoots, winter buds, and foliage to enable identification even by those with little knowledge of morphological botany.

**"Modern Flower-Growing for Profit,"** by W. E. Shewell-Cooper, N.D.H. 215 pages. Republished by Ernest Benn, Ltd., Bouverie House, London, E.C.4, at the low price of 5s. sterling. The book, which would have been very much improved by illustrations, is the only one at present in print devoted entirely to the cut-flower business. Though written for growers in Britain, it should also be of considerable assistance to those engaged in growing for the cut-flower trade in New Zealand.

**"The Young Gardener,"** by W. J. C. Lawrence, Curator, John Innes Horticultural Institution. 191 pages, illustrated by line drawings and 1 plate. Published in 1943 by George Allen and Unwin, Ltd., London, and since reprinted. Price 6s. 2d. sterling. Those who are familiar with Lawrence's earlier books, "Practical Plant-breeding" and (with J. Newell) "Seed and Potting Composts", will specially welcome another from the same author. Lawrence deals this time, in his usual lucid style, with the problem of training the young gardener, introducing the trainee to some of the work he should undertake, and showing him how it should be tackled. Anyone who is aware of Lawrence's own methodical ways will understand and appreciate his emphasis on method and orderliness in everything the young gardener does.



*Pinus radiata* on sand dune country 15 years after planting. The two small trees in the foreground are *Pinus ponderosa* var. *scopulorum* planted at the same time.

# South African Official Tells Plans for Future

**C**IRCUMSTANCES have been kind in placing me in one of the most interesting horticultural posts in South Africa—that of Railway Horticulturist in the Department of Railways and Harbours, said Mr. A. F. Green, Johannesburg, in a paper he read at the 1946 Pietermaritzburg conference of the South African Institute of Parks Administration.

**A**S far back as 1894, the late Sir Thomas Price, then general manager of the Cape Government Railways, initiated a scheme to beautify the railway stations of Cape Colony, and to encourage the cultivation of flowers and the planting of trees by railwaymen. Prizes were offered yearly by the administration to assist and encourage horticulture among railway employees. This excellent scheme, begun at the Cape, was in time introduced into the other provinces, and I think I am correct in saying that Natal, "the Garden Colony," was last to adopt the scheme, in 1908.

The year 1910 saw the formidable task of bringing the three large railway administrations (the Cape Government, Natal Government and Central South African Railways) under one control. Railway construction was pushed steadily ahead and a Railway Horticulturist was appointed. He had a heavy task to undertake in coping with the growing administration. Railway nurseries were established at Canada Junction, Inchanga, and Bloemfontein, with smaller horticultural establishments at Kimberley and Kroonstad.

The South African Railways have always done a great deal to encourage horticulture. In 1914 the administration was offering £250 in prizes for the best-kept stations and the best-kept employees' gardens; in the same year the administration distributed 70,000 young trees, exclusive of shrubs and plants, for planting out on railway properties.

## RAILWAY HORTICULTURAL SHOWS

Thirty years ago railway horticultural shows were fashionable events in Johannesburg and Cape Town. The flower shows were the Mecca for gardening enthusiasts from far and wide. Competition was keen, entries high, and fashionable crowds thronged the exhibition halls. Old familiar names flit across the years, names unknown and maybe forgotten by many of us to-day. . . . Fine displays of aloes and succulent plants were exhibited by Dr. Pole Evans, the chief of the Division of Botany; those were the days before we had so many succulent enthusiasts in the field—the new vogue for collecting succulents only came in during the past 20 years. The present Railway Horticulturist has no share in this past history; that was the work of pioneers.

During the first few years of the war, railway horticultural work was in abeyance. The maintenance of the nurseries was carried on by the gardening staff, but little in the way of development was undertaken. I was appointed to my present post early last year, and was asked by the railway administration to draw up a programme of work for post-war development. After completing a tour of inspection of nurseries and principal railway premises, I was able to submit a report on the conditions prevailing, and to recommend where improvements could be made.

# WEEDONE

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A trial conducted by the Horticulturist of the Department of Agriculture on a very weedy Wellington lawn gave spectacular results. Within a month all plantain, catsear, and white clover plants were dead, but the lawn grasses were unaffected.

This lawn was so neglected that the Horticulturist considered that no other method would have been effective, short of digging over the whole area and re-sowing. Full details were given in the September, 1946, issue of the "N.Z. Journal of Agriculture".

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### PROGRAMME FOR YEARS

As a result, the railway administration has drawn up its programme of work which will operate over a number of years, indicating where desirable the priority to be given to various objectives.

The Railway Horticultural Section falls under the Office of Works and Estates in the General Manager's Department, and the scope of the Horticulturist's activities can be considered under these headings:—

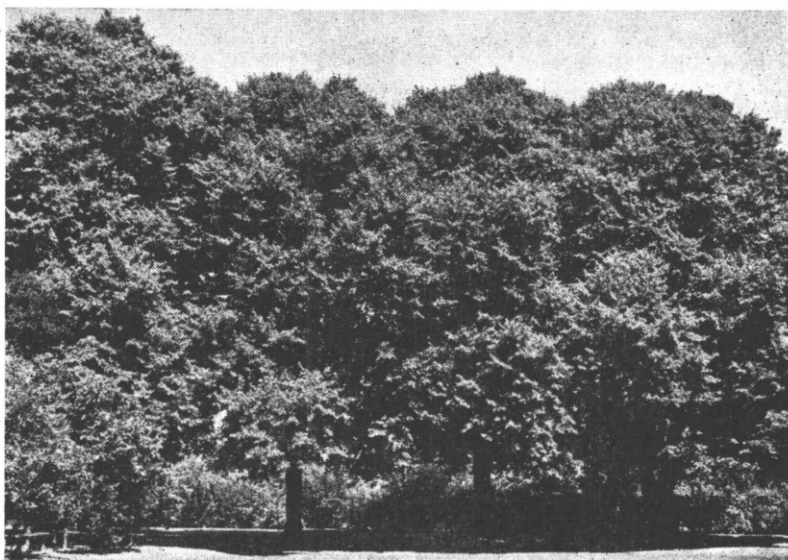
1. Carrying out expansion schemes in the national interest and for the benefit of the community as a whole.
2. Encouragement and application in beautifying and maintaining railway stations, airports, dockyards, employees' quarters, etc.
3. Ensuring and maintaining an adequate supply of trained personnel for all sections of railway horticultural work.

The administration has discharged the first of these three functions by establishing a horticultural section under its control and direction, and by financing it from its own vote. It has established a seat of education for the training of its employees, known as the Central Railway Training Institute, at Esselen Park. This scheme, whereby future railway employees will be trained, should benefit the community as a whole. A temporary nursery has been opened at Esselen Park for trees and shrubs for planting in the gardens and grounds of the institute. In time it is hoped that a permanent nursery will be established to meet the requirements of this centre.

The establishment of three national airports is under the control of the administration, and arrangements are already in hand to serve the particular needs of this great national project.

### BEAUTIFYING STATIONS

Under the second heading—encouragement in beautifying railway stations and properties—a programme has been prepared and preference has been given to the beautifying of main-line stations and in particular main stopping



Four beautiful English lime trees (*Tilia vulgaris*) planted in Abberley Park, Christchurch, about 1865.

and watering stations. The present-day policy of the administration whereby the railway architectural and horticultural sections work in collaboration is wise. By this co-operation stations will receive technical consideration combined with aesthetic planning. To-day the successful erection of a station and the lay-out of the adjoining grounds represents an achievement of the greatest civic importance.

**The same applies to harbours, dockyards and airports; these are the "gateways" of this land and everything possible is being done to make them attractive as well as useful.**

To encourage gardening and tidiness among the railway staffs, prizes are offered for the best-kept stations, and the Lady Duncan trophy has been the means of infusing enthusiasm among the staff throughout the country. Railway embankments and emplacements are being planted to prevent denudation and erosion. Thousands of fruit trees have been grown in the nurseries for distribution by the Health and Welfare Department to gangers and lower-wage groups; every encouragement and assistance is given in planting these fruit trees in the gardens of employees.

### NEED FOR TRAINED MEN

Under the third heading reference was made to the need of training personnel in all sections of railway horticultural work. The efficient operation of any system requires a staff of workers with varied skills, training and experience. The Railway Horticultural Section will be needing men to fill vacant positions. The question arises: Where are we to look for trained men? Are we to train men to meet modern needs? We need horticulturists for our major schemes—men who can conduct and direct activities, maintenance personnel, and a host of others. We do not want gardeners with a rudimentary knowledge of gardening; we need practical men who have devoted their lives to the study of this science, who know its problems and who are progressive in their outlook.

**We shall be on the lookout for men with originality of thought, men with newer and broader ideas, men who can help us to get away from the monotonous regularity that binds so many of us.**

When railway employees pass through the training institute at Esselen Park, an opportunity will be given to men who will be the future station-masters, gangers, etc., to learn a little about gardening. The talks will be on practical and realistic subjects, such as the use of tools and equipment. They will not be overburdened with horticultural technique. If the men show initiative they will be able to give expression to it on their stations and in their gardens.

Railway horticulture is all set for a phenomenal expansion in the years ahead. Work is being reorientated to meet post-war needs. The great national airports to be constructed under the railway administration will have to be laid out and maintained; the Railway Training Institute at Esselen Park is to be developed; railway hotels, when erected, have to be catered for; dockyards laid out and beautified. And, on the economic side, land will be available for the production of vegetables, and the problem of erosion of railway lands will be tackled. These are but a few of the jobs scheduled for the future.

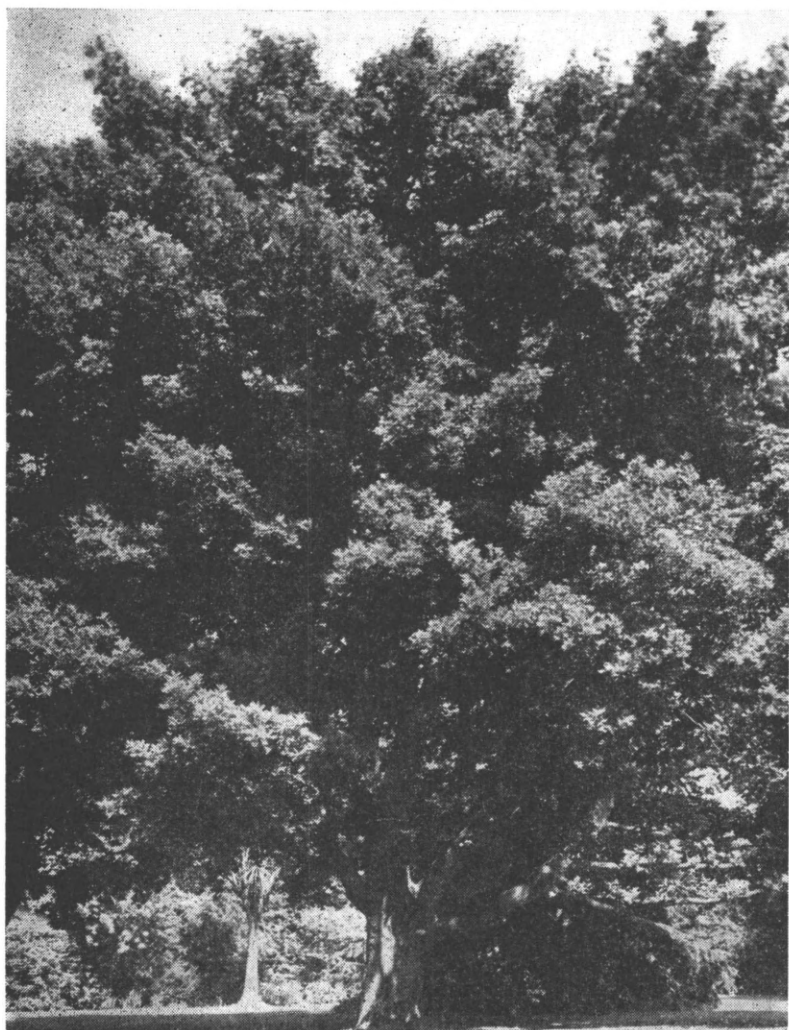
### FUTURE OF SOUTH AFRICAN HORTICULTURE

I wonder how many of us at this conference realise that it is in our power to play a really vital part in the horticultural development of this country? In this changing world, we in this southern part of the great African continent may find we are becoming isolated from the rest of the world. We are not on any of the great ocean-going or air-going trade routes. Our future visitors will be mostly of the business kind: They will alight from their aircraft and hurry to the great business centres; trade agreements will be signed, and these men of speed will return to their own lands. We shall have to hold out great attractions to induce wanderers from other latitudes to visit us.



The material is here in our midst. Our flora and fauna are special to and characteristic of South Africa. It is up to us to do all in our power to create more and more botanic gardens, public parks, nature reserves and other centres of beauty. With greater specialisation in industrial jobs, and increasing leisure, greater numbers of our own people will visit these areas to enjoy their restfulness and beauty, and people in other lands will hear of this floral grandeur and will come specially to see our wonders. As gardeners, we are the trustees of this land of botanical promise, and it is up to us to see that this "botanicorum paradus"—as Linnaeus, in his happy descriptive way, called the Cape—is made known to the rest of the world.

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A British oak (*Quercus pedunculata*) in Risingholme Park, Opawa, Christchurch.

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# ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE (INC.)

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## OBJECTS

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The objects of the Institute are:—

1. To encourage, foster and improve every branch of horticulture.
2. To exercise all the powers and functions of a horticultural nomenclature and certificating board, including the making of decisions and reports in regard to the nomenclature of plants, and to issue, in the name of the Institute, certificates, medals or diplomas for novelties of merit or new varieties.
3. To assist and promote horticultural education in every way possible.
4. To promote legislation having for its objects the advancement or protection of horticulture.
5. To assist research work in connection with any or all branches of horticulture.
6. To endow or assist any chair, lectureship, or horticultural teaching in New Zealand, in colleges, universities or other educational institutions the Institute may decide upon.
7. To promote the interchange of horticultural knowledge and to co-operate with Governments, scientific or other societies or bodies, or persons in any part of the world who may be working along any or all of the lines covered by the objects of this Institute.
8. To undertake or assist in the introduction and acclimatisation of any fruit tree, flowering tree or plant, forest tree, seeds or other form of plant life which, in the opinion of the Institute, should be introduced.
9. To establish, assist or endow libraries, and to obtain by purchase, exchange, or otherwise, books, papers and other publications relating to any or all of the matters covered by the objects of the Institute.
10. To arrange for the carrying out of work of "bud selection," the testing of new varieties of trees, plants, vegetables and any and all things necessary to the better understanding of tree and plant life and the maintenance or improvement of the standard of such.
11. To arrange for the selection and breeding of any or all classes of trees and plants for testing, and for the supply of certificated propagating material to nurserymen and others on such terms as may be arranged.
12. To carry out, arrange for or assist any object or objects which, in the opinion of the Dominion Council or of the Executive, come within the scope of horticulture, in its widest sense (not excepting forestry or agriculture).

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