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NEW ZEALAND PLANTS AND GARDENS

THE JOURNAL OF THE ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE (INCORPORATED)



Editor:
G. A. R. PHILLIPS

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NEW ZEALAND PLANTS AND GARDENS

The Official Journal of the Royal New
Zealand Institute of Horticulture (Inc.)

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SPECIALISATION

In the present issue of this Journal an important innovation has been made by the inclusion of a section contributed by the Auckland Lily Society. Specialisation in certain plant genera has done a great deal to advance and guide their development along desirable channels. As would be expected the rose, the carnation, the sweet pea, the *Dahlia* and the *Chrysanthemum* have long established societies in many countries. With the further development of other genera that were less widely cultivated further specialist societies have been brought into being, including a number devoted to lilies. Most species and hybrids of lilies grow extremely well in New Zealand and our *auratum* x *speciosum* hybrids are gradually being recognised as the leading types in this particular class throughout the world. Plantsmen who devote their time almost exclusively to the study, cultivation and breeding of a particular genus must, obviously, acquire detailed knowledge that does not come within the range of the general grower. With this fact before us, we shall hope, from time to time, to welcome various specialist societies to our pages and, by so doing, make available valuable information.

In this issue there appears on page 98 an article by Mr. C. M. Smith, A.H., R.I.H.(N.Z.) entitled "Notes on the Naming of Plants." It is most important that any authoritative horticultural journal should be correct and consistent in its system of nomenclature. Although up to now we have followed the practice of using only a single *i* as a terminal to some specific names, from this issue onwards we shall adopt the recommendations set forth in Mr. Smith's article.

The recommendations of the *International Code of Nomenclature for Cultivated Plants*, published in February, 1958, are being adopted by all horticultural organisations of repute and they will be used in this Journal.

G. A. R. PHILLIPS,

Editor.

INTERNATIONAL CODE FOR NOMENCLATURE OF CULTIVATED PLANTS

published by the International Bureau for Plant Taxonomy
and Nomenclature

28 pages — paper Covers

Price 2/6

Sole Distributor for N.Z.—

Royal N.Z. Institute of Horticulture,
P.O. Box 450,
WELLINGTON.

This is the complete international code of rules for naming cultivated plants as adopted formally at the International Horticultural Congress held in Nice early in 1958. It is the latest edition and supersedes all previously adopted codes. It is an essential reference book for the library of all plant breeders and for all concerned with accuracy in their plant catalogues and gardening literature. Its usefulness is evidenced by the fact that in 1958 the original issue was so rapidly exhausted that it had to be twice reprinted.

The Institute is the sole N.Z. distributor authorised by the International Bureau and either stocks for sale or single copies are obtainable from the Secretary.

NOTES ON THE NAMING OF PLANTS

C. M. SMITH, A.H., R.I.H. (N.Z.)

January 1st, 1959, marks an epoch in the long history of man's efforts to understand and classify plants and to give to each kind of plant its due and proper name. That history is far too long and intricate to be narrated in a mere note, or even in a lengthy pamphlet, but certain relevant and formal resolutions of international bodies came into full effect on that date and are as follows:—

A.—Article 28. *The International Code of Botanical Nomenclature (adopted 1954, published 1956.)*

Plants arising in cultivation through hybridisation, mutation or other processes which tend to establish recognisable differences from the parent stocks receive epithets, preferably in common language (i.e., fancy epithets) markedly different from the Latin epithets of species or varieties. Detailed regulations for the nomenclature of plants in cultivation appear in *The International Code of Nomenclature for Cultivated Plants*, and B. Article 15—*The International Code of Nomenclature for Cultivated Plants* (published 1958.)

From 1st January, 1959 onwards, the name of a cultivar (variety) must be a fancy name, that is, one markedly different from a scientific name of Latin form.

Examples of new names (after 1st January, 1959), 'Pygmy' but not 'Pygmaea'; names, such as 'Alba', 'Spectabile', 'Fastigiata', 'Prostrata' will not be allowed.

There is, of course, much more to it than these two brief articles, but these are the two that mark the occasion for the plant-breeder and the plant-namer and grant them as it were, self-government in their own spheres. There are, in point of fact, 75 articles in *The International Botanical Code* and 56 articles in the *International Horticultural Code*, and the competent plant-namer should become fully conversant with them all. But in effect, under the provision quoted above, each authority undertakes to observe the rules of the other within the respective spheres.

It was thus then that, on New Year's Day, 1959, the long series of requests, arguments and negotiations brought botanists and horticulturists into a new era of toleration, goodwill and reciprocal assistance. The whole idea has taken over a century to develop to this present satisfactory outcome.

There is little doubt that the average run of horticulturists (those whom Linnaeus classified as 'gardeners and flower-lovers') will at first welcome the new era as affording them relief from the old dominance of Latin (or latinized) plant names. 'Latin names are done away with' will probably be the rough-and-ready interpretation of Article 15 of the *Cultivated Plant Code* quoted above, and the approximate summing-up of the valuable effect of the whole Code in practice. Such a summary and such an interpretation would be only partial and superficial truth. Botanical Latin names still remain and will be correctly observed by the horticulturist where their use is necessary, but the fancy name for a cultivated plant *must not* be Latin. The description for name-registration of a plant by an international authority *need* not be in Latin, but may be in any language at all (see Article 27, *Cultivated Plant Code*.) It is, however, strongly recommended under that article that either English, French, German, Russian or Spanish be the language used for any formal descriptive publication or registration (or that alternatively a translation into one of these languages accompany any publication in any other language.)

This introduces to the observant and careful reader the truly new and progressive part of the new *Horticultural Code*. The novelty lies far less in the exclusion of Latin fancy names than in the provision for formal international registration of legitimate, admissible, valid, and constant names for plants raised in cultivation. This is a quite new provision and procedure, and is designed 'to promote uniformity, accuracy and fixity in the naming of agricultural, silvicultural and

horticultural cultivars (varieties)'—Article 3, *Horticultural Code*, 1958. The horticulturist therefore has at his own request been granted relief from what he has long averred to be the impediment to progress caused by the insistence on latinized name-forms and Latin descriptions for plants of cultivated origin. He has in return offered to accept and has been granted full international authority for registering such plants and for devising methods to achieve uniformity, accuracy, and fixity in their names. This responsibility will at least counter-balance the freedom that the horticulturist has secured; and there is even a possibility that responsibility may outweigh freedom. What is certain is that success in securing accuracy and fixity in plant-naming will not be achieved if horticulturists rest on their laurels with the measure of relief now in their hands. It will require the concentrated effort and goodwill of every horticulturist in the world to make real progress towards the clear goal of uniformity, accuracy, and fixity of fancy names for those plants that he cultivates (and has cultivated) whether in garden, farm or forest. Assistance between horticulturists and botanists will have to be mutual and unstinted; and the respective rules of both games will have to be uncomplainingly observed by both parties to the new compact.

One of the reasons for offering these occasional notes on plant names and plant-naming was to afford local horticulturists some guidance on correct procedure for plant-naming and for deciding on the correctness or otherwise of often conflicting versions of the same plant-name form. The public that I had particularly in view was the widely dispersed body of students who are aspirants for horticultural trade diplomas or certificates. Their sincerity in their search for correctness and exactitude in this field of their work is unquestionable and admirable. Their difficulty in securing authoritative reference works on this subject (as distinct from elementary text-books and semi-technical but often inaccurate popular handbooks) is extreme. Judging from the numerous casual enquiries received from much older and more experienced plantsmen, their anxiety for correctness is just as keen, and their difficulties are often just as great.

The intention as a trial is to deal separately with the commonest of the queries hitherto encountered by quoting the authoritative text that is relevant from the Code concerned (either botanical or horticultural) and to append illustrative comment and example from indigenous New Zealand plants and from the all too few authoritative local reference books, principally Cheeseman's *Manual of the N.Z. Flora*.

Common Query No. 1.—Should the specific epithet of a plant-name end in *ii* or in *i*?

Answer.—The *International Code of Botanical Nomenclature* (1958) shows the full rulings in Recommendation 73C, thus:—

'When the specific epithet is taken from the name of a man, it should be formed in the following manner:—

(a) When the name of the man ends in a vowel, the letter *i* is added, except when the vowel is *a* when the letter *e* is added. Thus *bureaui* from Bureau, but *balansae* from Balansa.)

(b) When the name ends in a consonant the letters *ii* are added, except when the name ends in *er* when *i* is added. (Thus *ramondii* from Ramond, and *kernerii* from Kerner).

(c)—(d) (Not relevant to the particular query.)

Note:—If the personal name is already Latin or Greek, the appropriate Latin gentive should be used, e.g., *hectoris* from Hector.

Comment: The rule is simple enough and should be easy to understand and apply. The difficulty is that in Cheeseman's Manual as in so many other manuals of the early part of the century, many examples of incorrect application as well as of correct applications are found. The following list shows examples of such specific epithets from Cheeseman which are correctly formed: *petriei*, *colensoi*, *cockaynei*, *purdiei*, *banksii*, *cookii*, *cunninghamii*, *cheesemani*, *kirki*, *lyablii*, *traversii*, *hookeri*, *forsteri*

The next list shows examples from the same book of such epithets wrongly formed: *astoni*, *buchanani*, *christenseni*, *joyeni*, *poppelwelli*, *patersoni*, *thomsoni*, *tournsoni*, *stevensoni*, *tayhori*.

In all cases shown in this second list (and in many other similar cases not here listed) the ending *ii* should have been used. To expound probable reasons for these errors would take too long for this short note, but they are certainly too numerous to be all passed off as 'printers' errors'. Students and other readers need have no qualms in correctly using *ii* in these cases in their own writing or plant-labelling, because there is a note under Article 73 of the *Botanical Code* which expressly states that the 'use of the termination *i* instead of *ii*, and the reverse error' are orthographic errors, and as such should be corrected. These explanations cover all the cases of doubt on this point known to me in Cheeseman's Manual except *Nothofagus solandri* and *Senecio hectori* and *Celmisia hectori*. The first of these is introduced by Cheeseman in the form *solandri* (*solanderi*) so that he himself was evidently aware of the doubt about the correct form and this note may leave it at that to avoid a lengthy and perhaps controversial argument. The second instance *Senecio hectori* should undoubtedly be *S. hectoris* as the very epithet itself is expressly quoted in the note from the *Botanical Code* cited just above this 'Comments' paragraph. *C. hectori* is exactly analogous. One prefers here to leave decision on these isolated cases until after the publication of the third edition of Cheeseman's Manual, which should not now be long.

ROXBURGH PERPETUATES NATIVE HEBE**Over 300 *Hebe Dartonii* Planted at Roxburgh Hydro.**

BRIAN M. JEFFERY, F.R.I.H.(N.Z.), S.C.(N.Z.)

Planting has been completed of over 300 hebes on the rocky face adjoining the west side of the Roxburgh Hydro Dam. This was thought an excellent position to make a mass planting, where the conditions were ideal for the re-establishment of this rare and interesting species.

When approached, the Station Superintendent, Mr. A. H. Ross, expressed pleasure at being able to assist in the perpetuating of a veronica, which is native only to Roxburgh. He gladly gave permission cuttings were struck, potted-up and grown on. Recently these plants were given their permanent quarters. This work was carried out by Mr. J. Towler, gardener at the Roxburgh Hydro Project, along with Mr. A. Fraser. In most cases soil had to be carted and filled-in into the high rock faces. This entailed a great deal of work, however the planting has been done, and the plants are looking well in their new home. *Hebe dartonii* is a small rounded shrub growing to 3 feet with pale lavender flowers in 2 to 3-inch racemes. The foliage is of a pleasing pale green. Apart from covering this face of giant rocks the plants are in an ideal position to propagate themselves.

It was in the early '70's that an Inspector Petrie (of Otago Schools), a keen botanist, collected specimens of a *Veronica (Hebe)* on the banks of the Clutha River at Teviot, now known as Roxburgh.

Some of these pressed specimens later came into the hands of the late Mr. H. Darton, rector of the Lawrence District High School and who, on his retirement, became the popular secretary of the Canterbury Horticultural Society and editor of the 'City Beautiful.' At that time, along with Mr. H. Hart he had assembled at Lawrence, a marvellous collection of *Hebe*, numbering over 300 species and hybrids.

In 1923 Mr. Darton visited Roxburgh, carrying with him, the pressed specimens collected by Inspector Petrie. He made several exhaustive searches assisted by the late Dr. J. R. Gilmour and my late father, Mr. F. T. D. Jeffery. Despite thorough searching of the banks of the Clutha, gullies and back country they could find no trace of the hebe growing in its native habitat.

Months later, the writer, then a schoolboy, who had accompanied the searchers on their trips, discovered two plants growing on the face of a bluff of rocks overlooking the Roxburgh Tennis Courts and Bowling Greens. Mr. Darton was advised and at the week-end arrived in Roxburgh to identify the shrub. Dr. Gilmour was lowered on a rope and took cuttings of the hebe, which was identified as the species which had been found by Inspector Petrie. Unfortunately, the following day, these plants were wantonly destroyed by youths who had observed the party working on the rock face.

At the last meeting of the Roxburgh Memorial Hall Committee arrangements were made to make a planting of Roxburgh's native *Hebe* on the frontage of the Memorial Hall.

RECENT SIGNIFICANT CHANGES IN HORTICULTURAL PRACTICES IN NEW ZEALAND

Presented to the Royal N.Z. Institute of Horticulture Inc., at Timaru on 12th February, 1959, by A. M. W. GREIG, N.D.H.(N.Z.), A.H.R.I.H.(N.Z.).

About 2 years ago the Commonwealth Bureau of Horticulture and Plantation Crops with its headquarters at East Malling, Kent, requested its official correspondents to make a brief review of the most significant results of research, experimental work or field practices for the 5-year period 1952-57. This review has been cyclostyled and is tabled for the information of the Institute. Arising from this review, I was asked to give a brief talk to this Conference on the subject 'Recent Significant Changes in Horticultural Practices in New Zealand.' Please note this is not going to be a review of the research or experimental work going on in this country. It is a review of techniques or procedures which are today being put into practice.

I have therefore put myself in the position of an overseas visitor interested in horticulture who came to New Zealand in the decade 1938-48 and revisited this country at the end of the last decade 1948-58. What are the most significant changes noticeable in plant nurseries, in bulb growing or cut flower production, in the market garden, in the vineyard, hop or tobacco garden, in the production of crops under glass or in fruitgrowing?

In the time at my disposal I have picked a dozen significant changes which I propose to name:—

1. Farm gardening.
2. Plastic 'glasshouses'.
3. Trickle irrigation.
4. Mist propagation.
5. Grassed down orchards.
6. Bulk harvesting.
7. Bulk handling.
8. Hormone weedkillers.
9. Spray materials.
10. Spray timing.
11. Spray application.
12. Plant quarantine.

1. Farm Gardening

The rapid expansion in the quick freezing and canning of vegetables in this country has brought about marked changes in the location and type of vegetable producers. A few years ago, the production of vegetables excluding potatoes and swedes was done by market gardeners on small holdings of from 8 to 10 acres. Today, in the vicinity of these quick-freeze and canning factories at Hastings, Gisborne,

Pukekohe, Motueka, Nelson, Blenheim and Christchurch a new type of vegetable grower or cropping farmer known as a process grower has evolved with crops sown and harvested according to factory requirements — the stage of maturity of peas being measured by tenderometer. During the harvesting period, giant harvesting machines and pea viners work under arc lamps throughout the night — picking and podding the peas ready for delivery to the factory. Last year over half the total vegetable acreage was in process crops — 13,000 acres of which 9,000 acres were in peas.

2. Plastic Glasshouses — a contradiction in terms

For generations many plants have been grown under glass either because the climatic conditions were too unfavourable out of doors or it was possible to produce an artificial and more congenial climate for the plant under glass. This method could apply for part of the life of a plant — for instance, raising seedlings — or for the whole life of the plant. The use of glass has become so standardised that the term 'glasshouse' has often superseded the term 'greenhouse.' Today a new rival material has arrived — polythene plastic. This is being used either to replace glass or in co-operation with it. It is being used as temporary protection for plants grown in frames and there are today a number of so-called 'glasshouses' with plastic instead of glass. In addition it has been found of value as an interior lining or insulator in a glasshouse to reduce the fluctuations in temperature between night and day or very hot and very cold days or nights.

3. Trickle Irrigation

A very concentrated form of production is tomato growing commercially under glass. A crop of 9 lbs. per plant or 4 tons from standard glasshouse 100ft. x 30ft. is considered normal.

To obtain this production the glasshouse tomato grower must keep his plants supplied with adequate water and fertiliser as well as controlling the atmospheric conditions around the plant. This requires constant attention and judgment, giving frequent water applications by hose and side dressings of dry fertilisers.

Recently there have been a phenomenal number of growers installing trickle irrigation, a method of regular watering and plant feeding with soluble fertilisers. By this system, soil moisture within the glasshouse is maintained and turning on the trickle system which can be used in conjunction with tensiometers or moisture gauges to ensure consistent soil moisture. This reticulated system consists of plastic or rubber tubing connecting the water supply to each plant where a brass nozzle is so adjusted that it will drip at the rate of 1 to 2 pints per hour.

Fertiliser is added by a fertiliser concentrate in a large glass jar or injection being connected to the rubber tubing and the fertiliser concentrate being sucked into the water supply.

It is estimated that over 10% of glasshouse tomatoes are now grown under trickle irrigation and this system of management is increasing.

4. Mist Propagation

In the propagation of plants from cuttings it is essential to maintain a moist atmosphere otherwise the cuttings will soon wilt. The standard procedure used to be to put the cuttings under glass and to keep the confined atmosphere moist by syringing them with water as often as four times a day.

A new technique which is rapidly being adopted by plant propagators is known as intermittent mist propagation — an automatic device which is turned off and on regularly by a time switch or set to come on according to the moisture requirements of a particular line of plants, by the mist maintaining a film of water on the leaves of the cuttings.

This procedure enables the plantsman or propagator to save many man hours which he can devote in other directions. This equipment is of particular value over week-ends and holidays as it acts as an automatic hand.

5. Grassing Down Orchards

Soil management of most orchards in New Zealand used to consist of spring and summer cultivation followed by autumn cover crops or adventitious weeds. Today, an increasing number of orchards are being sown down in permanent pasture. This normally consists of rye grass, white clover mixture which is regularly cut with rotary type mowers (the number of cuts depending on seasonal pasture growth) at intervals of 10 days to 3 weeks from spring to autumn and many being grazed with sheep over the winter months. Grassed down orchards now cover more than 2000 acres over 10 per cent of the orchard acreage, being most extensive in Hawke's Bay with 750 acres followed by Auckland 490 acres and Motueka 230 acres.

6. Bulk Harvesting

Harvest time in an apple orchard used to involve considerable man-power in loading or unloading bushel cases of 40lbs. of fruit from the orchard to the grading table. Since its introduction in Nelson in 1953 a new system now operates in 75% of the commercial orchards in the two principal apple districts — Nelson and Hawke's Bay. This is known as bulk harvesting whereby orchard or field cases are no longer required. The picked fruit is now poured out of the picking bag into a 40 to 100 bushel capacity trailer bins. These bins are towed to the packing shed and lifted bodily by fork lift trucks or the trailers are themselves bins on wheels which on reaching the packing shed are tilted so that the fruit moves by gravity directly from the bin on the conveyor belt which carries it to the grader. The whole operation from tree to

grading table is carried out without handling or heaving of the field case by man.

7. Bulk Handling

An independent but similar saving in manpower has been the bulk handling of the packed bushel apple cases from packing shed to ship's hold or coolstore. In the two major apple districts of Nelson and Hawke's Bay all packed cases are loaded on to pallets which carry 35 bushels of packed fruit. These pallets are moved by fork lift trucks on and off the motor lorries, into cool stores or to the ship's side. When it is realised that bushel cases used to be stacked 12 to 15 high in cool stores, all lifting being done by man power, it can be seen what a tremendous reduction is taking place in strained muscles, bruised fruit or broken cases.

8. Hormone Weedkillers

The suppression of weeds has always been a major problem for the horticulturist but today weeds are not the headache they used to be in the production of asparagus, peas and tobacco. Today, by the use of pre-emergent chemical sprays the majority of weeds are either killed or adequately suppressed before the main crops come through and the commercial crop is given such an adequate start in growth that weeds are unable to compete.

Such chemical weedkillers as Monuron, DNBP, MCPB and methyl bromide are used today in the commercial production of these three crops — asparagus, peas and tobacco.

Other chemical weedkillers are gaining in importance — such as DNBP and DNAP amongst raspberry canes and (C.I.P.C.) and crag herbicide in nursery stock (2, 4-DES).

9. Spray Materials

Before World War II the commercial fruitgrower in New Zealand used five main groups of chemicals for the control or eradication of orchard pests and diseases. These broad groups were Bordeaux mixture and sulphur sprays as fungicides; arsenate of lead to combat chewing insects, nicotine sulphate for use against sucking insects and spraying oils (winter and summer) or red and white against a wider group of insects.

Immediately after the last war a great number of additional chemicals were put on the market. Many have proved of worth, others have raised new problems or resurrected old ones and may be regarded as mixed blessings. Today new materials such as thiram and captan are replacing Bordeaux; zineb and karathane replacing sulphur sprays and D.D.T. and Lindane are used in place of arsenate of lead. Summer oils are giving place to malathion and parathion whilst in the war against insects winter oil almost stands alone to fight a rearguard action.

10. Spray Timing

The time at which to apply sprays on pip and stone fruit orchards used to be stated in relation to tree growth, green tip, open cluster, pink or petal fall with little correlation with the rise and fall of the insect population. Today in Nelson the control of two serious apple pests — codling moth and leafroller caterpillar — is timed by an insect forecasting service. Through the use of light lures these night flying moths are caught in traps and their numbers counted twice a week. The results of these counts form the basis of an insect warning service, by radio broadcast and the press, which enables fruitgrowers to time their spray application to coincide with the varying seasonal activities of these pests. This service operates from November to February.

11. Spray Application

The application of orchard sprays used to be a laborious process requiring 3 men — one to drive the sprayer and two to drag the heavy long hoses and spray each tree by hand. The three men took one hour to apply 150 to 200 gallons on an acre of trees. Today the new spraying machines have made this essential disease control operation very much easier. The new methods use air as the carrier for the chemical, spray automatically and thus only require 1 man for the job — a big reduction in labour. The large air blast sprayers hold 500 gallons and with 1 man can cover an acre in 30 minutes. The semi-concentrate sprayers use $\frac{1}{3}$ or less volume of water conserve chemicals as there is no run-off. With these machines one man can cover an acre in 40 minutes or 12 acres per day compared with the old machines, where with 3 men 8 acres only could be covered in the day. The new machines do not require the high pressure nor the high cost pump.

12. Plant Quarantine

Ten years ago, plant quarantine officers as such were unknown in this country and no checks were made at the overseas airports. Today the interior of every plane arriving in this country including baggage compartment receives an agricultural spray, all plant and animal refuse is destroyed and all passengers interrogated. Formerly all plants or plant propagating material, once it had been landed was distributed all over the country and if a plant disease was subsequently found, that plant's close relatives and travelling companions could seldom be traced. Today all plants serve a detention term of one year or more known as post entry quarantine and many pests and diseases have been identified on plants during this term. To indicate the necessity for this procedure let me state that in the year ended 31st March, 1958, there were 250 lines of plants imported detected with disease. Of these 68 were detected at airports, 87 at seaports, 40 at post offices (parcels post) and 55 were found whilst the plants were in post entry quarantine.

Conclusion

In conclusion I may say that these are twelve new practices which have recently made a major impact on New Zealand horticulture through their adoption by commercial producers. Many of them are of special significance because they are essentially labour saving devices. These changing practices show that horticulture in New Zealand is not static and that we are all associated with a dynamic and intensely interesting biological science.

KNIPHOFIAS

F. R. LONG, A.H., R.H.S. (South Africa)

Species of the genus *Kniphofia*—named after Johann H. Kniphof, 1704-1763, a professor of medicine at Erfurt in the eighteenth century—are found for the most part in South Africa, but a few are native of Abyssinia (*K. carnosa* and *K. comosa*), Tropical Africa and Madagascar. In all, there are approximately 50 species, that is to say, different wild forms. 'Red Hot Pokers' or 'Torch Lilies' were known at one time as *Tritoma* but this title has now been dropped for *Kniphofia*, being a prior description.

As far back as 1905, there were about 24 species being grown in the Royal Botanic Gardens, Kew, and were found hardy in that difficult winter climate. There is perhaps some confusion from a botanical angle and the genus needs revision but let us rather here discuss the horticultural side of these outstanding and conspicuous plants. Besides many beautiful species, there are many hybrids and varieties of garden merit. The flower spikes range from 1 to 10 feet in height, colours are scarlet, orange, yellow, salmon, pale lemon or white, many with scarlet buds opening to yellow-orange flowers, some with green tips. The leaves are grass or spear-like, mostly evergreen and in themselves attractive.

In South Africa, *Kniphofia* are found over a wide range. The well known *K. aloides* is found on the coast, not three miles from where this article is being written, others in the Orange Free State 3,500 feet, Basutoland 4,000 feet, Barberton in the Transvaal 3,000 feet—enjoying a wide range of climates with mild winters on the coast to severe but dry winters up country. Several are found in mountainous areas of the Drakensburg, Pondoland, Eastern Province of the Cape of Good Hope, whilst others in the warmer parts of Zululand (*K. gracilis*). They are usually found in damp hollows or gullies where they receive copious supplies of moisture during some months of the year whilst at other times they exist under drier conditions. From these remarks on the natural habitat of 'Red Hot Pokers' it will be gathered that they are, for the most part, tough plants to grow in the

average garden. Whilst enjoying copious watering during the growing and flowering season, they endure, and perhaps enjoy, a drier period when dormant.

All species are herbaceous in character; they do not form stems other than flower stalks; they form dense clumps or grass-like tufts and these can be divided after the dormant period and just before they put on new growth. In dividing them, see that the leaves are cut back two-thirds of their length and that every piece has its individual roots. They resent transplanting and pulling about and should therefore remain several years without disturbance.

Any good average garden soil on the sandy and well drained side will be suitable. Some of the small species are suitable for the rockeries, others are suited to the pond or stream side, whilst all are well placed in the herbaceous border. Clumps of the taller kinds look well planted between shrubs. It will be gathered from these remarks that 'Torch Lilies' give a grand return for a minimum amount of labour. They are hardy but when subject to severe frost, a covering of dry leaves will protect them from damage.

There are many beautiful hybrids and varieties to be had these days. The writer imported some outstanding large named sorts from Maurice Prichard & Sons, of Christchurch, England. One 'C.M. Prichard,' 5 feet, with huge soft yellow spikes; 'Empress,' 3 feet, in salmon suffused orange; 'Lemon Queen,' 3 feet; 'Mount Etna,' 5 feet, spring, terra-cotto very massive spikes; 'Royal Standard,' 3½ feet, gold with upper half scarlet, midsummer.

The common *K. aloides* (*uvaria*) or 'Red Hot Poker' is a late summer-autumn flower. There is another winter flowering one here on the coast. The writer earned an ill-deserved reputation of making *aloides* flower twice in the year. His foreman, in replanting a big bed at one of the large factories in Port Elizabeth, mixed up the two varieties with the result one heard the remark: 'How clever of our Mr. Long, he has made our Red Hot Pokers flower twice instead of once a year.' I did not let on, but it gave me the idea to plant a bed of mixed sorts and so spread the time of flowering! There is nothing so telling as a big mixed bed of Torch Lilies. An occasional mulch of compost or manure is all that is needed to give a grand return with little labour over several years without replanting.

There are many outstanding varieties of the large group and it is great fun to raise one's seedlings from a packet of mixed hybrids. Resulting plants will flower in the second year. The writer raised mixed species from seed supplied by the National Botanic Gardens, Kirstenbosch, Cape Province. They flowered some 18 months after sowing; there were all colours and all heights, one a huge pale yellow one, another almost white, whilst one was green.

K. snowdenii, 4 to 5 feet, is a gem from Uganda with coral-scarlet florets widely spaced on a 4 to 5 feet spike, rather resembling the make-up of a huge *Lachenalia*.

'White Fairy' is a gem with a long flowering period.

K. vomerense is another gem $1\frac{1}{2}$ to 2 feet with tawny yellow flowers.

Now to mention a few of the smaller species as opposed to the varieties and hybrids:—

K. modesta, $1\frac{1}{2}$ feet, white flowers, from Natal and Griqualand East—very choice.

K. galpinii, 2-3 feet, flame-red, from the Kalahari, not an easy grower.

K. macowanii, 1 to $1\frac{1}{2}$ feet, with drooping flowers in clear orange, with grass-like tufts of leaves, very suitable for the rockery.

K. citrina, $1\frac{1}{2}$ -2 feet, pale yellow, found in the mountains round Grahamstown in the Eastern Province, Cape.

K. nelsonii, $1\frac{1}{2}$ -2 feet, from the Orange Free State, a real free-flowering gem with coral-red flowers suitable for pot and rockery.

K. burchellii, $1\frac{1}{2}$ feet, scarlet and yellow tipped with green, collected in 1816 by Dr. Burchell, the famous botanist.

Amongst the medium-height 'Torch Lilies', there are some of the most desirable for the average garden border. To mention a few that every horticulturist should include in his collection:—

K. buchananii, 3 feet, all whitish.

K. carnosa, 3 feet, apricot-yellow, a handsome species from Abyssinia, flowers in autumn.

K. caulescens, 4 feet, reddish-salmon, fine sturdy plant with broad leaves known as the 'Basuto Torch Lily', coral-red to yellow as they open, then greenish-white.

K. tuckii and *K. ensifolia* (*K. rivularis*) are similar flowers in late spring, greenish-white with coral buds at the tip.

K. laxiflora, 3 feet, long tubular orange coloured flowers arranged at intervals, not dense. A native of Natal and found on river banks.

K. splendida, 4 feet, bright orange buds to yellow flowers, a showy autumn species, dies down in winter but grows again in the spring, from the Transvaal and Swaziland.

K. rooperi, 4 feet a vigorous spring grower with rather squat flower heads, pale red buds to yellow-green flowers.

Finally there are the tall species, so suitable to plant between shrubs or as a background to the herbaceous border:—

K. multiflora, up to 9 feet, flowers small but crowded over 2 to 3 feet of the tip of the stalk; colour whitish to yellow with red buds.

K. northiae, 5 feet, flowers yellow with red tips well known in English gardens; very handsome.

K. aloides and its varieties *nobilis* and *maxima*, 5 to 7 feet, the common 'Red Hot Poker'. There are several hybrids now under cultivation.

K. zululandiae, a tall red winter flowering species.

K. tysonii, 4 feet, a red-yellow from the Zuurberg (some 60 miles from Port Elizabeth).

During the World War II, the writer had urgent instructions to re-open the aerodrome at Barberton, Eastern Transvaal, 3,000 feet (all civil landing grounds were closed at the outbreak of war). It was a rush job in 1941. An officer was sent down to report on the condition of the field and to specify what was required to put the area into service. He returned the following morning to headquarters, walked into my office carrying a 10-foot long growth. I looked up from my busy desk and remonstrated with the man for fooling: "I am not fooling, sir," says he, "This is what is growing all over the Barberton aerodrome". I looked more closely and found it to be a *Kniphofia* flower stalk. This at once told us that the place was marshy and had growth on it 10-12 feet tall. Suitable equipment and men were there-upon despatched to put the aerodrome in a fit state for flying operations.

In reading over the above descriptions of the many species and varieties of *Kniphofia* that are to be had, the question at once arises, How are they to be obtained and imported into New Zealand?

For the species, seed may be obtained from the National Botanical Gardens of South Africa, Kirstenbosch, Newlands, Cape Province, South Africa. The list includes several species and also *Kniphofia* spp. Several overseas seedsmen, such as Sutton & Sons, Reading, list packets of *Tritoma*. These should certainly be given a trial. Seed germinates freely in September/October; plant out the resulting seedlings in a richly prepared bed and finally transplant to their permanent quarters during the following early spring.

For the hybrids and the many beautiful varieties listed in the European and American catalogues, it is recommended that plants be imported in October in cool not (cold) storage on mail boats. Plants by ordinary post or other freight do not travel well. The writer imported some very fine varieties in this way back in 1935 with success. Amos Perry of Enfield, England, lists a fine lot of hybrids.

In conclusion, it should be emphasised that there are few South African plants that give such a magnificent return for such little trouble as the *Kniphofia*. All are handsome, some even noble and when established, grow well under a wide range of conditions in any good garden soil in an open sunny situation.

CANTERBURY'S BIG SHOW

S. CHALLENGER (Christchurch).

One of the finest ways to promote an interest in horticultural activities is to stage a show, as indeed any committee member of any horticultural society is fully aware. To be really successful the show must fulfil several requirements — it must be interesting, and indeed spectacular to the general public; it must cover as wide a range of horticultural interests as possible; and it must stimulate horticultural activity on the part of the visitor after he has left the show.

If these criteria are accepted then there is no doubt that the show recently held by the Canterbury Horticultural Society at Christchurch on February 25th, 26th and 27th was among the most outstanding shows ever held in New Zealand. It certainly was the biggest show which Australasia has ever seen, for the showgrounds were 6 acres in extent, and included well over half-an-acre of exhibits under canvas. Over 30 major exhibits and 24 garden club displays, in addition to competitive classes and trade stands, helped to make this show one which will not be easily forgotten.

Canterbury Horticultural Society is well known throughout New Zealand for its interest in promoting horticultural activities. The Society's monthly magazine 'City Beautiful,' the affiliated Garden Clubs and Societies, and the shows play no small part in assisting this spread of horticultural knowledge. The 'Big Show' — the friendly term for this two-yearly event — is held in the beautiful setting of Hagley Park, adjoining Victoria Lake, and these surroundings give an air of pleasant restfulness that would be hard to equal elsewhere. The organisation of a show such as this is no slight undertaking and it is to the credit of a small but efficient sub-committee — amongst whose members are included Mr. M. J. Barnett, Mr. H. Gilpin, Mr. Edgar Taylor, who planned the attractive layout and soothed harassed exhibitors, and Mr. J. Fraser, Secretary of the Society, that things ran as smoothly as they did. They had to run smoothly to deal with an attendance of over 30,000, in addition to members of the Society with their privilege tickets. When it is realised that an expenditure of well over £1,500 is involved before the show opens, the need for efficient backroom work will be well appreciated.

One considerable difference between this show and those seen overseas lay in the exhibitors themselves. The backbone of a show in, say, England, is composed of exhibits by members of the horticultural trade — professionals with, quite often, long experience in the design and staging of horticultural displays. Some firms even employ a small staff permanently on the business of staging exhibits up and down the country. There are very few stands arranged co-operatively. The backbone of the C.H.S. 'Big Show' was, on the contrary, composed of these co-operative exhibits, and trade displays of flowers especially were

distinctly in the minority. The members of the various societies and garden groups who produced the fine results which they did are to be greatly commended since they produced their exhibits for the love of horticulture, and not for the hope of financial gain.

One feature of the show was the realism and sense of permanence obtained, and nine of the largest exhibits were staged as established garden layouts. Not for them the artificiality of vases and benching! Exhibits such as these, however, mean work which is often commenced twelve months before the date of the show, and the visitor often has little idea of how much is involved. In the Lincoln College display, for example, was a fine standard lime tree, 15 feet tall and in full leaf which had been prepared the previous winter, with a root ball 5 feet across and weighing nearly a quarter of a ton. Carefully wrapped in moss and wire netting the root ball moved without turning a hair, but many were the visitors who wondered why the tree didn't wilt when it must have been cut off at ground level! These displays are very satisfying to the public, however, and are well worth the effort.

The layout of the grounds was in the form of a grand avenue. As one came to the entrance gates a vista down the whole length of the avenue was seen, with tents on either side. The outdoor trade exhibits of glasshouses, furniture, garden power equipment and many other sundries were grouped to the left of the entrance, whilst the vista was closed with Victoria Lake and a fine fountain. On the lake shore were outdoor gardens of alpine and natives. Seats and tubbed plants down the length of the avenue added to the restful impression which the trees and grass of Hagley Park created.

Probably the tent which aroused the greatest interest was the large marquee, 181ft. x 37ft. which housed the 24 bays staged by the Garden Clubs and Horticultural Societies which are affiliated to the Canterbury Horticultural Society. At busy times during the show it was quite a common sight to see a long queue patiently waiting to see the bays. However, even the most sturdy objectors to queueing were heard to say afterwards that it was well worth the wait. The bays were 6 feet deep by 10 feet wide, and within the confines of this space the exhibiting clubs staged a floral display which portrayed a theme of their own choice. The themes were usually highly original, and often required a good deal of skill in their interpretation. Some were moderately straightforward — for example 'Village Flower Show,' or 'The Flower Shop,' but when it comes to portraying 'Felicitations' or 'The Dancing Years,' then things become rather more complex. Usually the portrayal was aided by the careful choice of gracious fabrics, beautiful antique furniture, and occasionally carpets, but an amazing variety of sundries was brought into use, from violins and dress display models, to cane barrows for holding flowers. But it was all most skillfully done, and excellent taste was a feature of every exhibit. The convenor for each club exhibit really deserves a medal, for it must be a most difficult task organising a group of helpers, each with their

own ideas, to produce a unified and tasteful result — and yet not hurt anyone's feelings!

In the same tent was a display by Interflora and also a series of 'free expression' arrangements. These displays were by leading floral artists, and entry was by invitation only. Absolutely superb craftsmanship was seen here, and considerable comment was made by visitors upon this feature. It is invidious to single out one entry for comment from this galaxy of beauty, but the entry which appealed most to the writer was carried out by Barry Ferguson. His arrangement was green foliage and flowers, relieved by scarlet gladioli and zinnia in a green and black urn, surmounting a pedestal of the same colour, entwined with a garland of flowers, foliage and fruits.

The highest awards at the show were gold medals given to exhibits staged by Lincoln College and by the New Zealand Lily Society. The Lincoln College exhibit, carried out by horticultural students and staff, filled a complete tent 60ft. x 25ft. An informal garden layout, it emphasised continuity of house and garden, and showed ideas which could be used in a small garden. An outdoor living room decorated with suitable plants, looked across a lawn to a rock garden and waterfall, the vista framed by conifers which made a break between the formal and informal parts of the garden. Heathers, *Pernettya*, *Androsace*, dwarf conifers, *Geranium subcaulescens*, *Sedum*, *Sempervivum* and other plants provided colour on the rock garden, whilst the pool had marginal planting with dwarf *Astilbe*. From the rock garden a path led back to the lawn through a woodland planted with a collection of some of Dr. Yeates' new *Lilium auratum* x *speciosum* hybrids. As an exercise in garden planning and planting, the staging of the exhibit was enjoyed by the students taking part.

The New Zealand Lily Society staged a woodland garden as a setting for their beautiful collection of lilies, which included *L. speciosum* and *magnificum*, *L. auratum* x *speciosum* hybrids, *L. formosanum*, and some giant stems of *L. giganteum*, holding their plump seed pods 9 feet in the air. Associate plants, such as Japanese maples, *Rhododendron*, *Camellia* and silver birch added to the air of reality. An attractive garden shelter made of bark slabs and roofed with cedar shingles was the focal point in the plan, and a quiet resting place from which one could gaze onto the garden and the pool nearby. Surrounding the whole display an attractive dark brown woven wooden fence gave additional unity.

The organisers of the Christchurch Beautifying Society exhibit had been really ambitious and transported a prefabricated house to the site before arranging a garden layout of bedding plants and shrubs around it.

Outdoor gardens by the Botany Division, D.S.I.R., and Wilson's Hardy Plant Nursery, both obtained silver medals for their attractive displays. The Botany Division used New Zealand natives as garden

plants, and by growing all their material from seed or cuttings emphasised the wastefulness of collecting from the bush. The exhibit by the Canterbury Native Flora Society also emphasised the same idea. Messrs. Wilson's rock garden contained heathers, campanulas, *Sedum*, *Achillea* and dwarf conifers, all used to advantage.

An exhibit which brought a lump to many throats was staged by North Christchurch Garden Club, and entitled simply 'Memory, hold the door.' Those who knew Mr. Percy Browne, the late Secretary of the Society, were all a little quieter as they left this touching exhibit, which gave a feeling of closeness to a man who was a friend to all.

Other exhibits arranged as natural displays were staged by the Canterbury Rose Society, with a garden of flowering roses, including 'Korona,' 'Perfecta,' 'Montezuma' and other varieties, the New Zealand Cactus and Succulent Society, the Christchurch Dahlia Circle, and the Canterbury Orchid, Begonia and Fern Society. These exhibits were awarded bronze, silver, bronze and silver medals respectively.

The Christchurch Dahlia Circle produced an old world effect with yew hedging and beds of dahlias, and a model most attractively dressed in an ankle length gown whose skirt consisted entirely of dahlia blooms. Orchids, begonias and ferns exclusively formed the materials used in the exhibit arranged by the Society interested in their culture. Stag's horn fern (*Platyserium*), *Miltonia*, *Cattleya* and *Odontoglossum* orchids all made attractive features in this display.

Much interest was aroused by the excellent exhibit of vegetables staged by the North Canterbury Hospital Board, which was awarded a silver medal. Displayed on cones and in baskets, the vegetables made a striking feature with their bright colours and careful arrangement. The chestnut-brown backcloth was a departure from the normal dark green or black and gave quite a warmth to the display.

Trade exhibits of formally arranged flowers were staged by several nurseries. Roseneath Nurseries, with an attractive tiered display showed modern roses, and Conway Nurseries showed an up-to-date collection of dahlias. This latter exhibit was awarded a silver medal and used a whole series of excellent floral arrangements, blended with careful attention to colour into a unified whole. J. A. Hollows & Son and Shailer's Nurseries, both of Palmerston North were two of the exhibitors who had come a considerable distance to support the show, and whose interest was greatly appreciated. Chrysanthemums and dahlias were shown by these firms. The Christchurch chrysanthemum specialist, L. A. Clark, had a display of house plants, and also a novel feature — a small trolley suitable for the home on which selected house plants were being grown under fluorescent lighting.

Trade displays showing the many sundries which made horticulture an easier, or more complex process, depending on your point of view, offered many suggestions. Kit set greenhouses, displayed by C. E.

Gibbons & Co. Ltd., power tools of all types, shown by D. A. Rice & Co. Ltd., pest and disease equipment and chemicals exhibited by N.Z. Farmers' Co-op. Ltd., and Tri-mol Laboratories, were some of the many exhibits of this type which helped to make the show a balanced shop window of modern horticulture. Space, unfortunately, does not allow mention of all exhibitors, but, large or small they all contributed to make the Canterbury Horticultural Society's 'Big Show' the most notable which has been held in New Zealand.

BAMBOOS FOR N.Z. GARDENS

HAROLD E. ISAACHSEN (*Oratia*)

(2) The Spreaders:

The wind took a 'bus or tram stop shelter shed in Remuera, plus its occupant, 30ft. up in the air. Over the world are tornadoes, smashed houses, floods, droughts, deserts, famines. I had 14 landslips in one week. The suckering bamboos are the swiftest cure.

The tuft non-spreaders have stems swelling out below ground like hockey sticks, some as big as footballs, all short, keeping the clump dense like a tuft of grass.

The spreaders, or suckerers, have an underground horizontal stem, often sending up vertical shoots up to 15ft. from the parent clump, though sometimes only 6in. sideways. This rhizome can, like a wire rope branching out into an underground network, tie up landslips and dry up the surplus water causing the whole trouble. The strength is amazing. *Dendrocalamus hookeri* had a horizontal branch, $\frac{1}{4}$ in. thick, 2ft. above ground, and at 24ft. away it was still 2ft. up. Kingdon Ward in Tibet had a single plaited rope bridge of bamboo, costing 1/10, $\frac{1}{4}$ in. thick only, and 50 porters and luggage slid over it one by one. I have seen *Pleioblastus hindsii* rhizomes 5ft. deep in slips, and $1\frac{1}{4}$ in. thick, solid and unbelievably tough, prevent slips in real topsy-turvy country. I have seen its leaves at dawn exuding water, before the sun could make it invisible. Each leaf tip let loose a drop of water every three seconds, like a vertical pump.

Then think of 3in. of dead leaves and sheaths in three years enriching the subsoil slips, or binding sand dunes, or invading a desert from its edges. The rhizome tip pours out water where necessary and sluices its way through dry clay. So suckerers take food and water from where it is, or from the air or from spindrift if needed, and put it where it is most wanted. Having no waterproof cuticle to their leaves like other plants, it is as easy for them to leaf feed by absorption, as it is to exude surplus. They go straight to a rich spot even though it is 20ft. away.

They just love loose soil. I have seen *Phyllostachys aurea* travel 80ft. sideways in two years where trees had been pulled out by a tractor. So spreading, they cool the ground and air and help rain to fall.

The shoots, arising some distance away from the others, hence grow straight, though dense, making excellent stakes, and from such an extensively feeding root system, produce the maximum number of canes. *Phyllostachys mitis* gave 200 in four years on subsoil, and water. They are hardy, as they naturally grow, the *Arundinaria* below snowline, and *Phyllostachys* below them again.

Each variety has its own habit of spread, quick or slow, wide or merely turning up its rhizome tips like an *Iris*, so we can pick just what we want for slips, humus, shelter, edible sprouts for human consumption, stakes, or good grazing sorts on farms.

The white powder on stems is silica. The stiffening that keeps bamboo leaves flat and poor sand and clay are both rich in it. Hence even where grass fails, bamboos thrive, though they do better still on rich soil.

In gardens, a spreader needs its own special depth control trench, cleared out each autumn, depending on variety and soil. Tubs or pots are also used. Being so easy to grow, they are good for beginners to study, and are the main sorts for South Island conditions.

Phyllostachys mitis: 25ft. by 2½in. Most productive of all, on poorest subsoil and neglect. Tender edible sprouts, lovely soft foliage, yet good hard stakes when mature (turned golden), and cut in the winter. Makes a lovely dense play place for children, with its soft carpet of leaves, smooth stems, and indefinable blessing. Good farm shelter and grazing, needing only a moderate trench to control.

Sasa senensis: 6ft. Spreads very slowly a foot wide on medium soil, and never even tried to cross a spade deep trench in 11 years. Leaves 6in. by 1in., upright and stiff. Canes nearly solid. Splendid low hedge in toughest places for wind or snow. Shallow roots, dislikes droughts.

Phyllostachys edulis: Needs a 1ft. trench around a 25ft. square, and gives canes 40ft. by 4in. Excellent for school and home playgrounds to protect children from sunstroke. It is open, smooth several feet up, small leaved, and almost deciduous in winter, giving perfect visibility. It shot 38ft. in 31 days. Chinese feed it for edible sprouts, resulting in canes 114ft. by 12in., gamboge coloured when mature. Synonyms: *P. flexuosa*, *P. viridi-glaucescens*, and *P. pubescens*.

Phyllostachys castillonis: 70ft. near Egmont. Canes yellow with alternate green stripes, extremely hard, lasting up to 15 years as stock-yard rails. Loves glades, rich soil, and partial shade for its fairly large leaves.

Sinarundinaria nitida: 5ft. by $\frac{1}{4}$ in. Spreads extremely slowly as a clump on poor ground. Must have shade, rich soil, and water, to keep its leaves a lovely glowing green, long graceful yet refined and dignified branches, and gray stems. Stands snow.

Phyllostachys nigro-punctata: Up to 85ft. in China. Lovely masses of foliage. Yellow with dark spots, Curtain Rod Bamboo.

Pleiolblastus simonii: 15ft. by $\frac{3}{8}$ in., needs a 2ft. trench. Gray stems, and dark green grassy leaves up top like ostrich plumes.

Sasa veitchii: 6ft. by $\frac{3}{16}$ in. dark violet canes. Spreads rapidly and deeply. Needs a 2ft. trench cleared annually. Dark green leaves fading by a clear definite band of yellow in autumn, turning white-edged in winter. May be grown in tubs.

Sasa palmata: 10ft. by $\frac{3}{8}$ in. Spreads rapidly and deeply. Needs 2ft. trench cleared annually. In shade does not spread so much. Leaves up to 15 by $3\frac{1}{2}$ in., fresh green, with clear parallel veins, and handlike on top of the canes. Very hardy. Edible, with extra good oats and chestnut flavour, and grazing for farms.

Phyllostachys nigra: 8 to 40ft., spreading slowly. Black. Most even taper. Needs rich soil to do well, water, and partial shade.

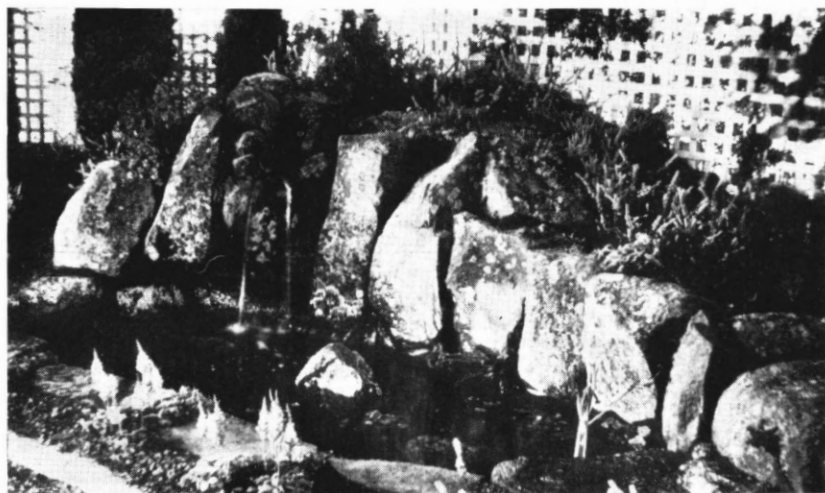
Phyllostachys puberula: 20ft., upright. Spreads deeply; tough and hard. 2ft. trench. In hard soil stays a block for years; in loose soil it wanders. Fairly good bare canes for tomatoes and beans. Makes a noble clump on clay, with dense bent leaves. Sheaths smooth and shiny inside, with a violet glow.

Arundinaria pat: 10ft. by $\frac{1}{4}$ in. solid canes. Tips of leaves so fine we can hardly see them. Pseudophylls on top of sheaths overlapping, 6-9in. long. Pleasant light green leaves; bending. A good low garden hedge, and tough basket handles.

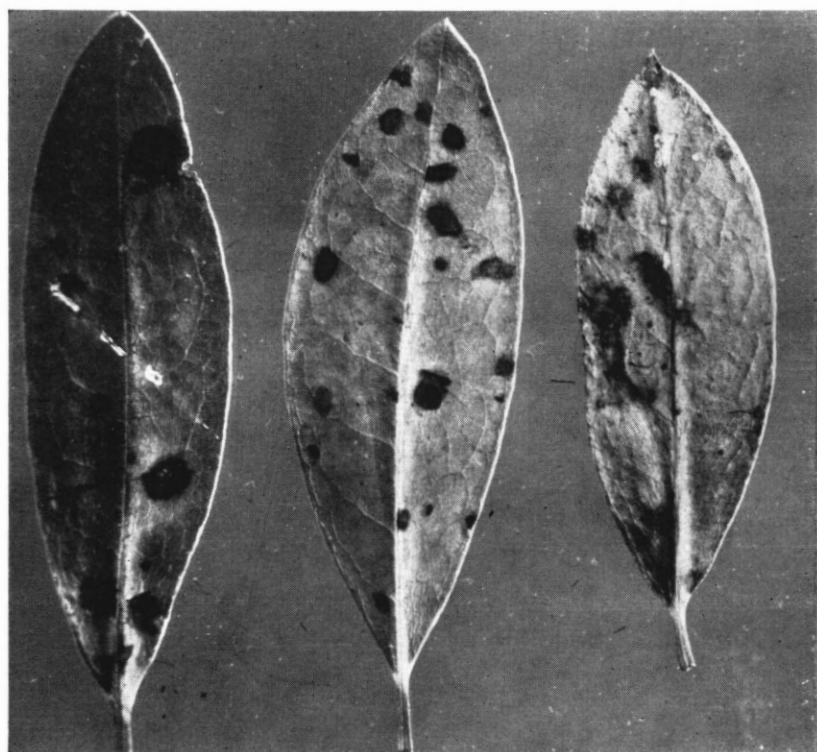
Pleiolblastus variegatus: Spreads rapidly, deeply, and widely, even coming up through 10ft. high *Eleagnus*, gaining all the larger, lovelier, unscorched coloured leaves in the shade. Stems often 2ft. by $\frac{1}{8}$ in. Leaves to 6in. by $\frac{1}{2}$ in., yellow striped green in autumn, white stripes in winter, no two alike. Lovely, fresh, and hardy, but best in partial shade.

Pleiolblastus hindsii: 20ft. by $\frac{3}{8}$ in. Spreads deeply and strong, Best of all for landslips. Good for cattle feed where shallow sand over ironstone stops it diving. Thrives almost anywhere. Takes a 3ft. trench or more to control it. Very hardy. Dark green and dense in time as it builds up humus, and gets down to water. Stiff and straight; good stakes for tomatoes, beans, or sweet peas.

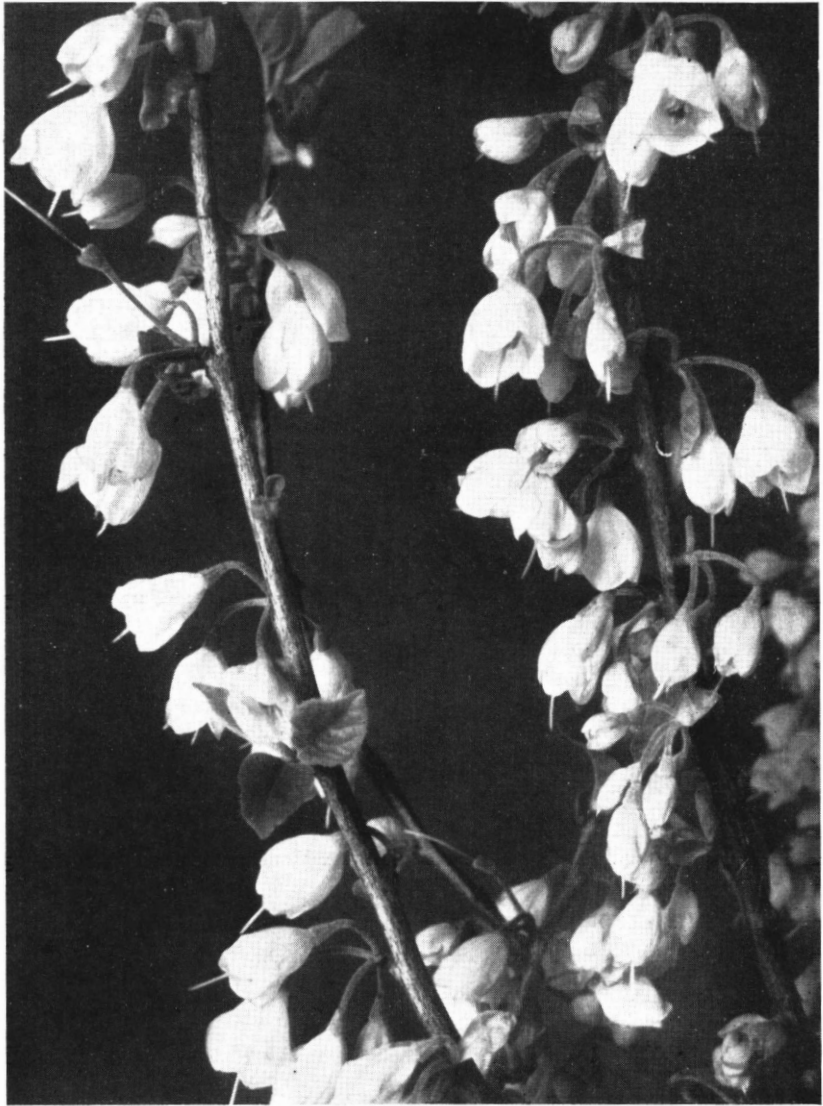
Phyllostachys bambusoides: 25-70ft. by 7in. Slow shallow spreader. Hard gramophone needles. Excellent canes for strength and lasting. Large leaves.



Canterbury's Big Show: Part of Lincoln College's Exhibit. (See page 112)



Rhododendron Leaf Spot: Cercospora handelii. (See page 122)



(Douglas Elliott)

Halesia carolina: 'Carolina Silver Bell.' (See page 123)



(N.Z. Herald)

'Akarana' the champion lily at the Auckland Lily Society's Show in February, 1958. This lily was raised by Mr. W. A. Christensen, of Takapuna by crossing *L. speciosum* 'Gilray' with pollen from auratum hybrid 'Manawatu.' It has flat outwardfacing florets of a deep crimson with fine white edge to petals.



Fig. 1—
*Spread of Russian
Comfrey by root
cuttings.*
(See page 124)

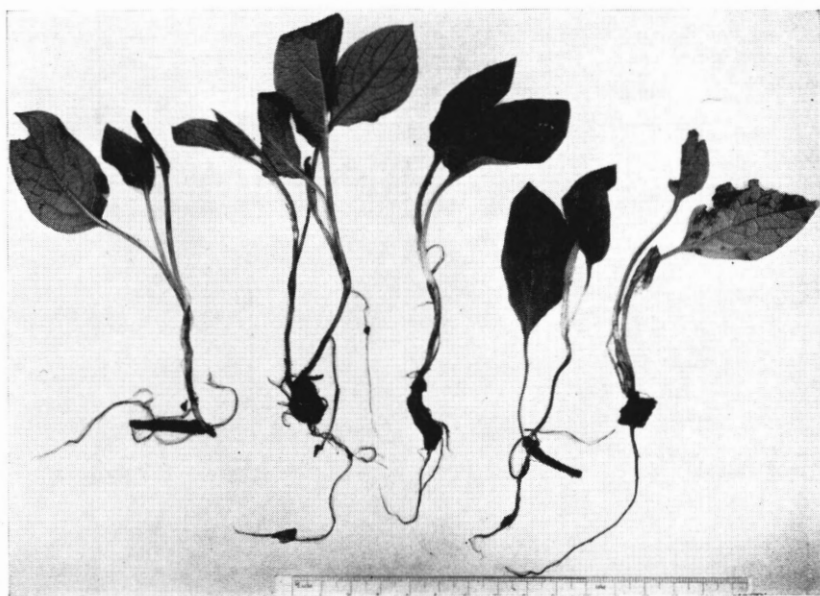


Fig. 2—*Depicting the small pieces of root of Russian Comfrey which are capable of growth.* (See page 124)

Shibataea kumasasa: 3ft. by $\frac{3}{4}$ in. Slow spreader in a block. Shallow trench. Roundish leaves about 2 by 1in. Site moist, rich, and partially shaded.

Bambusa angulata: 10ft. by 1in. square stems, straight, almost solid, and very strong. Tibetans use it for crossing the Himalayas. Has thorns, falling off at maturity. Spreads rather slowly, almost imperceptibly, needing a deep trench to control, though young canes pull up easily before branching.

Pleioblastus distichus: Spreads so quickly that it needs a deep trench to control, all around it, before planting. 7ft. by $\frac{3}{4}$ in. Leaves 1-4in. by $\frac{5}{8}$ in. Always fresh green. Soft but hardy. Drops branches as well as leaves annually, and so soon makes a foot of good humus.

Phyllostachys marliacea: 40ft. by 4in. Slow spreader in a block only, hardly needing a control trench. Dense foliage. Canes fluted on all sides, very thick walled, heavy, strong and hard. Excellent furniture.

Phyllostachys aurea: 10-25ft. by 2 $\frac{1}{2}$ in. canes, knobby at the base, sometimes brittle tops in wet districts. Rapid spreader in loose soil, but on clay, a 1ft. trench controls it easily. Dense branching, good pea sticks, also lasting up to five years for beans and tomatoes in dry districts. Good grazing for cattle. In orchards, tractors easily plough the suckers. Hardy.

Pseudosasa japonica: 5-30ft. by $\frac{3}{4}$ in. Takes five years to get established, then spreads shallowly, hence dying in patches in droughts. Shallow trench controls it easily. The commonest of all bamboos in the world. Leaves 6in. by 1in., horizontal at tops of smooth canes. Dense clumps. Ten miles of hedges at Aka Aka, and not a stray shoot; the cattle, sheep, and horses eat every one.

Phyllostachys violascens: 15-30ft. by $\frac{1}{2}$ -3in. Spreads 15ft. first season, and needs a moderate trench. Stands drought. Hedges in South Africa; parasol handles in France.

On forest edges, creepers mass to exclude wind. Moss and lichens perch, and even collect spindrift from the ocean 10 miles away, until they smell like seaweed, to hold water. Growth was retarded to 71 years for a pukatea to grow 5in. thick. Black smut is common, especially on *Leptospermum ericoides*. It has spread on to *Phyllostachys bambusoides*, *P. castillonis*, *P. marliacea*, and *P. aurea*. This is caused by a white aphid. There are many yellow and black ladybirds here, assiduously hunting those aphids in autumn. I have noticed aphids are common in droughts. Maybe more sprinkling with water would keep them away. I once saw a lovely healthy hedge of *P. bambusoides* beside permanent water at Aka Aka School. New Zealand bamboos have no other pests so far as I know.

To get best results we need to remember that they are jungle plants, so most need partial shade, with ample running water, at least

in their growing season. Shelter is easily obtained by planting more bamboos. The water level is very important, 6-18in. down, remembering that a ditch in winter, often dries up in summer, nearly killing the plants. They cannot stand stagnant water, and I have never seen them cross permanent running water. They need extra nitrogen, and thrive on dead animals, weeds, rubbish, sawdust, animal manures, slag, lime, magnesium and potash, almost anything in the nature of plant food. They grow quickly, so need much food, and repay it generously. Give a new plant 4 gallons of water to saturate the soil around its roots, and give it 2 gallons daily when no rain falls.

Our native plants being evergreen, we should plant more bamboos, as the environment should suit them, and trials have proved their reactions. Several Chinese species here are already two or three times the size they attain in their native land.

A D4 Cat. angledozer, with a good driver, easily roots out suckers, once the blade goes underneath.

These notes are the results of 10 years' research, with subsoil, hand labour, and drought. Over the next 10 years, many more kinds will be tested, fed, watered, and used in ways yet to be discovered. Machinery and automation will reveal their capabilities.

NOTES FROM THE CHRISTCHURCH BOTANIC GARDENS

L. J. METCALF (*Asst. Curator, Christchurch Botanic Gardens*).

Although generally conditions continue to be warm and rather dry, rainfall to date is about average, and March was the first month since April, 1958, in which rainfall exceeded average. With the soil in good condition and the continued absence of frosts much growth is still taking place and if the disastrous effects of last winter's frosts on some plants are not to be repeated, this growth will have to harden up rather quickly.

With the hot and dry summer which has just been experienced, it might have been reasonably expected that the autumn colours would have been extra good this season. However the cool nights in the early part of the autumn which are considered to be one of the necessary factors in the production of autumn colour were lacking, with the result that only a few trees and shrubs showed good colouring. Brief mention will here be made of a few plants that have coloured satisfactorily in the Botanic Gardens this year. The first tree to really show autumn colouring is the Golden Ash, *Fraxinus excelsior* var. *aurea* which every year towards the end of March never fails to turn a bright golden-yellow. Of the three specimens in the Gardens the one near the Art Gallery and another on the Archery Lawn are the best

known. Several fine maples may be seen in various parts and undoubtedly the most outstanding one in the Gardens at present is the specimen of Norway Maple, *Acer platanoides*, near the Cherry Mound, which turns into a sheet of clear yellow. There are many forms of this maple and *A. platanoides* 'Walderseei' which has leaves so densely speckled with white that they have a pale creamy appearance is one of the best. In autumn the leaves turn a pale yellow. Another fine form is the upright growing one, *A. platanoides* var. *columnare* the habit of which is columnar, and the smaller leaves turn bright crimson in the autumn. Another maple which is not seen enough in local gardens is *A. japonicum*. Its place is always taken by *A. palmatum* and its forms, and although they are probably more attractive in growth they seldom get the rich autumn colours of *A. japonicum*.

Other plants which have coloured well are *Vaccinium corymbosum* the Swamp Blueberry, the foliage of which turns many shades of crimson in April and May. The group of viburnums near the Townend House has been rather good and some of the species which coloured well are *Viburnum carlesii*, *V. bitchiense* and *V. tomentosum*. The Scarlet Oaks, *Quercus coccinea*, in the front of the Gardens nearly always provide a good display, and a small specimen of the Sorrel Tree, *Oxydendron arboreum* in the Woodland was very attractive with foliage in various shades of bright scarlet.

With the coming of winter, attention naturally turns towards those plants which brighten the winter landscape in the garden and undoubtedly one of the best groups of such plants comprises the various species and varieties of *Ilex*. In New Zealand gardens the hollies are very much neglected, presumably because there are so many other plants which can be used to similar effect but nevertheless a holly tree well laden with berries or a well grown specimen of one of the variegated forms is an acquisition to any garden in the winter. In the Botanic Gardens several species of *Ilex* are in cultivation together with quite a few cultivars of the common holly, *Ilex aquifolium* many of which are not generally available in this country nowadays.

Ilex aquifolium has been in cultivation for several hundred years and has sported into an enormous number of forms many of which are similar in appearance, sometimes the difference depending on whether the plant was male or female. Bean lists 41 of these forms and many more are listed in some other works, 153 being listed in the 'Gardener's Chronicle.' *I. aquifolium* var. *heterophylla* is one of the best of the green-leaved varieties. It has large oval leaves which are entire or with a few weak spines and is a large growing spreading tree. *I. aquifolium* var. *bacciflava* is the same as the type but with yellow berries, and when well berried is most handsome.

One of the best variegated hollies is *I. aquifolium* 'Argentea Marginata' which has leaves up to 3 inches long, dark green in the centre with a silvery margin. It is a female form which berries well and has a handsome pyramidal habit of growth. Another form which used to

be popular is the variegated hedgehog holly, *I. aquifolium* 'Ferox Argentea.' This variety has the usual spiny leaves and is also armed with clusters of spines on the surface. The spines and margin are creamy white and the centre dark-green and grey-green. It is a male form. Other variegated forms are, *I. aquifolium* 'Wateriana,' the leaves of which are spineless or nearly so, mottled with green, grey, and yellowish-green and margined with an irregular golden band, and *I. aquifolium* 'Scotica Aurea' which has oval leaves, usually blunt and dark lustrous green with a central yellow blotch.

Among the species the Tarajo, *I. latifolia* is the most outstanding. It has large, dark lustrous green leaves up to 8 inches long and 3 inches wide, tapered equally at both ends and with shallow marginal teeth. The red fruits are about 1-3 inch in diameter and clustered in the axils. It is regarded as the handsomest broad-leaved evergreen of Japan. *Ilex pernyi* is a small evergreen tree from China, somewhat reminiscent of a miniature *I. aquifolium*. The leaves are squarish at the base with a long triangular apex and two or three pairs of spines at the sides. The horned holly, *I. cornuta* is another Chinese species, rather slow growing and about 10 to 14 feet or more high. The leaves are dark glossy green, more or less rectangular with four large spines at the corners and a terminal spine which is usually much deflexed. The fruit is not freely produced. An *Ilex* which is often confounded with *I. aquifolium* is *I. perado* which comes from the Canary Islands and Azores. In the Botanic Gardens *I. perado* var. *platyphylla* 'Variegata' is the only form grown. It has broad oval leaves from 2 to 3 inches long with a dull surface, spine tipped at the apex, and the margins set with short spines but often entire. The margins of the leaves are dark green and in the centre is an irregular yellow blotch mixed with pale green.

Lastly there is *I. verticillata*, a North American species which is deciduous. It is a small shrub 6 to 10 feet high with lanceolate leaves, tapered at both ends and often doubly toothed. It is supposed to be a showy species with glossy scarlet berries which are often fully coloured before the autumn. However in the Botanic Gardens it has so far failed to berry so that its usefulness as a garden plant can only be imagined.

A NEW LEAF SPOT ON RHODODENDRONS IN NEW ZEALAND

G. W. F. MARIS MACARTHUR

Cercospora handelii

* Since October 1957, a leaf spot disease on Rhododendron has been recorded from several districts: New Plymouth, Palmerston North and Paraparaumu.

The spotting is caused by a fungus *Cercospora handelii* Bubak. The symptoms on the plant are: brown, mostly angular spots on both

sides of the leaves, $\frac{1}{8}$ - 1 inch in diameter. Separate spots may join together and then the greater part of the leaf may become necrotic, especially round the edges. The leaf-stalks can be affected too. On some varieties of rhododendron the centres of the spots become silvery-white, due to lifting of the epidermis.

The disease is usually most severe on the lower foliage of young stock. Under moist conditions, a greenish-brown down can be seen on the spots, due to the fructifications of the fungus. The down consists of tufts of hairlike spores.

Several varieties of *Rhododendron* were found to be infected. It is most likely that all varieties are more or less susceptible to this disease.

Control: It is worthwhile for rhododendron growers to inspect their plants from time to time. If symptoms such as those described are found, it is very important to remove and burn all the infected leaves and spray the plants with a fungicide. The best fungicide to prevent infection is not yet known.

Although mercury sprays are recommended in the Netherlands, damage has occurred under New Zealand conditions.

Bordeaux 6-8-100, ferbam or thiram should be satisfactory sprays. It would be an improvement to add a spreader with ferbam and thiram.

Illustration: Leaf spots caused by *Cercospora Handeli*; Bubak, on rhododendron leaves.

NOTEWORTHY PLANTS

DOUGLAS ELLIOTT (*New Plymouth*).

Carolina Silver Bell

'Snowdrop Tree' is a name that makes you at least want to see this plant but 'Carolina Silver Bell' makes you feel that you must have one of your very own just for the pleasure of telling your friends what it is.

'Carolina Silver Bell'; it has quite a ring to it, hasn't it? And how much better than its botanical title of *Halesia carolina*, especially when the gardening books can't make up their minds whether the generic name should be pronounced HALES-ia, ha-LEESE-ia, or ha-LEEZE-ia. I understand the latest ruling is that a word like this should be pronounced as nearly as possible like the name from which it is derived. This would make HALES-ia correct because the genus was named in honour of Stephen Hales, 1677-1761, who wrote a book called 'Vegetable Staticks' which sounds as though it might have been an early study into radio-activity in the kitchen garden.

'Carolina Silver Bell' is a small tree seldom more than 15 ft. high in this country though it reaches 20 to 30 ft. in England and

40 ft. in its habitat in south-eastern United States. Generally it has several stems and looks more like a large shrub than a tree. The white bell-shaped flowers are abundant and they come out in October, usually just as the leaves at the ends of the branches begin to unfold. As they mature, a pink tinge appears which has misled people into thinking they had a new variety. Unfortunately the flowers last little more than a week or 10 days. However, the leaves are attractive: 2 to 5 inches long, they are thickly covered on the underside with a grey down. On a mature specimen the bark is handsomely striped, providing an additional attraction that shows well in the winter when the leaves have fallen.

Another species, *H. monticola*, is sometimes obtainable. Its flowers are a purer white, its leaves smaller and rounder, and it is a taller grower, reaching as much as 80ft. Both kinds are propagated from seed or layers.

NOTES FROM MEMBERS

IS RUSSIAN COMFREY A 'WOLF IN SHEEP'S CLOTHING'?

With the excellent article of our September issue, 'Horticultural Discards may become National Weeds', by Mr. A. J. Healy, still fresh in my mind, I recently walked over a piece of land in which had been planted a small pilot plot of Webster's variety of *Symphytum uplandicum*.

Small root cuttings were planted in October, 1957, in a row 4ft. long, exactly where the line is stretched in the illustration. During July, 1958, the crowns were lifted for replanting in another area, and a rotary hoe run over the ground. The illustration, taken 30th October, 1958, depicts the extent of spread during this time, the plants shown having originated from pieces of root left in the ground when lifting the crowns. These roots were later cut by the revolving knives of the hoe. The divisions on the measuring rod are in feet. Fig. 2 illustrates the small pieces of root which are capable of growth if left in the soil.

It would therefore seem that, in a cultivated area, especially where a rotary hoe is used, careful consideration should be given before establishing this plant. Fortunately this variety of *Symphytum* does not seem to set seed.

—Jas. A. Hunter, Auckland.

THE AUCKLAND LILY SOCIETY

(This is the first of a series of supplements by leading Specialist Societies. All the articles contributed are from members of the Auckland Lily Society.)

Cross Fertilisation in *Lilium auratum*

DR. J. S. YEATES, Ph.D.(Cantab.), Ph.D.(N.Z.), A.H.,R.I.H.(N.Z.),
(Palmerston North)

Most keen gardeners are would-be plant breeders. The sight of an especially good flower brings at once an urge to take seed and grow more like it — or better if possible.

Occasionally the seedlings come true to the flower type from which the seed was taken, but usually they are a horrible mixture, with none at all, or a very rare specimen equal in quality to the selected flower.

Lilies represent a good example of this. How many optimists have taken seed from the flowers of a red-banded *auratum* and grown it, hoping to produce a whole crop of similar red forms? The result is usually the same — a fine crop of quite ordinary *auratum*, none with the colour of the plant from which the seed was taken.

The reason for all this trouble is that the red form has been cross-fertilised by pollen from ordinary types, which may be growing nearby. The obvious remedy is to protect the flower of the red form against stray pollen, and to pollinate it with its own pollen. Here again, failure is almost certain, because in lilies as a whole, no flower is capable of setting seed as a result of pollination and fertilisation by its own pollen, or by the pollen of any flower on the same stalk or on any other stalk of the identical variety. This behaviour is called 'self-sterility,' or 'self-incompatibility,' and is very widespread amongst plants.

It appears to be a type of behaviour which has proved an advantage to most plants, because it ensures that cross-fertilisation takes place, producing 'hybrid' seedlings which are more vigorous than would be produced by self-fertilisation.

It should be pointed out that pollination and fertilisation are not one and the same thing. Pollination means simply placing pollen on the stigma, whether or not it has any effect. Fertilisation, however, means what most gardeners would call 'successful pollination' in other words, the production of an embryo and seed as a result of an actual union taking place between the pollen placed on the stigma, and the ovule in the flower, which then develops into a seed. One can cross-pollinate a pumpkin with a pine tree, but cross-fertilisation would be most unlikely to result.

When breeding lilies in general, and *auratums* in particular, the failure of plants to self-fertilise even when they are self-pollinated

by hand, introduces much difficulty. But for this self-sterility, we could secure a choice form, self-pollinate it, and grow a large number of its self-fertilised seedlings. From these we could select the best, self-pollinate each one, and raise a second generation. Repeating the selfing and selection, we should end up in a few generations with a true-breeding type, so that we could raise any number of plants.

In practice of course, we can do nothing of the sort, since lilies as a whole are self-sterile. We can get seed from one variety only by allowing it to be cross fertilised by another. We know remarkably little as to how the lilies are cross-pollinated, but a few observations can provide useful leads. I have noticed that in nearly every case where I have a whole large bed of one clone of lily (i.e. all grown by scales from the original one), practically no seed is set. Where a similar bed is planted in a mixture of *auratum* seedlings, no two exactly alike, then they set seed from nearly every flower. This appears to happen because cross-pollination in nature takes place as a rule only over a distance of a foot or so, too short a distance to allow much pollination to happen even over the three or four feet from one bed to another. If a few flowers in a bed of one clone are cross-pollinated by hand, they usually all set seed. The *auratum* pollen is rather sticky but becomes less so when thoroughly dry. It is possible that dry pollen could blow a foot or so to cross pollinate different types in one bed, but the strong perfume and light colour of most *auratums* suggest that moths or other flying creatures at night time might transfer the pollen. In this country we may lack the particular insect which is responsible in the Japanese home-land of *auratums*. However, a moonlight January evening might well be spent in watching for the pollinating agents.

To the practical plant breeder it is important to know as much as possible about the care which must be taken in crossing to ensure that no stray pollen interferes with the results; and also to find out which varieties can be successfully crossed, and which varieties if any, are self-fertile. A few trials for this purpose were carried out in the past autumn, and a brief outline of methods and results is given below. It is hoped that others will do similar work, because no one person can afford enough time to do all that should be done.

In a bed of one clone (Crimson Queen 'Philippa') 89 flower buds were chosen, which were all judged as ready to open within 24 to 36 hours. A safety razor blade was run round each bud about $\frac{1}{2}$ inch from its base, cutting through the perianth members so that they were simply slid off. Then the stamens were cut away at the same level, leaving only the style and stigma projecting from the mutilated flower. All the other buds were cut off these plants. Each mutilated flower was tagged and they were treated as follows:—

10	were	left	unpollinated	(control).
9	,,		pollinated	by 'Philippa' pollen (selfed).
10	,,			by 'Apollo' pollen.
12	,,			by 'Pictum No. 2' pollen.
11	,,			by 'Clone' pollen.
12	,,			by 'Pictum No. 2' pollen.
12	,,			by 'Walter Ward' pollen.
13	,,			by 'Judas' pollen.

89

No seeds were set by any of the unpollinated (control) flowers nor on any of those which were self-pollinated, but a complete set of seed was obtained from each flower crossed by the other six clones. Similar experiments were carried out on six other clones: Clone 1, 70 flowers; 'Apollo,' 25 flowers; 'Judas,' 45 flowers; 'Walter Ward,' 18 flowers; 'Pictum No. 2,' 18 flowers; 'Pictum Wide,' 22 flowers. The total number of flowers used in these experiments was 287.

The results as a whole were remarkably uniform. With two exceptions, no unpollinated or self-pollinated flowers set any seed, but without any exception all the crossed flowers set fat seed capsules. This means that, apart from the two exceptional cases, flowers treated in the way described need not be protected by bags or otherwise from stray pollen in another bed. Any crosses that produce seed can in these cases be assumed to be true crosses.

The most interesting exception was the variety 'Walter Ward.' None of the three unpollinated (control) flowers set any seed, but all four self-pollinated flowers set good capsules of seed, containing fully developed embryos. To the plant breeder this is a most interesting result, because it may well be possible to grow this seed, self-pollinate again in the next generation, and develop a relatively true breeding strain of this variety. The main risk is that these inbred plants may be lacking in vigour.

Further fertilisation trials are likely to lead to the discovery of other self-fertile clones in *auratum* and in other species of lilies. It is a simple but useful type of work which can be carried on by anyone who has a sufficient number of varieties and the required keenness. The results could be of great use to breeders all over the world.

The other exception in our results must be mentioned, but it may be due to some accident. Two out of six unpollinated flowers of 'Pictum Wide' formed partially swelled capsules containing a few fertile seeds. None of the self-pollinated flowers produced any seed. Further trials next year are necessary with this variety.

Classification of *Lilium auratum* Hybrids

HUGH B. REDGROVE (*Auckland*).

The crossing of *L. auratum* with *L. speciosum* and the various forms of both species has been carried out successfully on many occasions

and probably more frequently in New Zealand than elsewhere because of the ease with which these lilies can be grown here. Numerous back crossings have also been made between hybrids and their parent species.

The result is that numerous forms are exhibited, and it was becoming increasingly difficult for judges of these flowers, when called upon to compare a seedling with large flowers like a true *L. auratum* with another which had more refined flowers nearer to the shape of *L. speciosum*. And yet both these could rightly be classified as hybrids of the two.

In facing this difficulty some two years ago, the Auckland Lily Society, dealing with revision of its show schedule, decided upon the following classifications to cover the various forms at present appearing in these hybrids.

L. auratum x *L. speciosum* hybrids

- Class 1. Forms favouring *auratum*, coloured.
 „ 2. Forms favouring *auratum*, white or cream ground, with or without spots.
 „ 3. Forms favouring *speciosum*, coloured.
 „ 4. Forms favouring *speciosum*, white or cream ground, with or without spots.
 „ 5. Forms having flat-petalled flowers, coloured.
 „ 6. Forms having flat-petalled flowers, white or cream ground, with or without spots.

As in any attempt at classification (e.g. *narcissi*) there are always some hybrids which are difficult to classify, but these six groups seem to cover the ground quite adequately at the present time, and if generally accepted by lily societies everywhere, it would simplify and standardise the description of these hybrids in a satisfactory manner.

New Lilies Granted Awards of Merit in New Zealand

A. I. C. McKILLOP.

In 1954 the New Zealand Lily Society decided to grant Awards of Merit to outstanding seedlings raised in New Zealand. A panel of six judges was appointed, three judges being a quorum. During the four seasons since, the following lilies have been granted the A.M. The raiser's name is shown in brackets.

1954-1955 —

'Lady Freyberg' (Dr. A. C. McKillop).—A deep apricot seedling having pendulous semi-reflexed flowers numbering up to twenty or more on the head, and arranged in a pyramidal inflorescence on a stem rising to 10 feet or more. Parentage was 'Sulphur Queen' x *aurelianense* seedling.

- 'Olive Isabel' (Dr. A. C. McKillop).—A dark apricot seedling, very like *L. chalcedonicum* in form, but larger in the flowers which may be up to nine in number. It has markings similar to *L. maculatum*, and its parentage was *chalcedonicum maculatum* x 'Hughes' Apricot.' It was adjudged the best bloom in the N.Z.L.S. Show in January, 1955.
- 'White Jade' (Dr. A. C. McKillop).—A seedling selected from de Graaff's 'Olympic Hybrids.' A very tall pyramidal head which carries 15 or more beautiful round-fronted trumpets. The tips of the petals are reflexed as in a duck's tail and there is no sign of twist in the petals. The colour is greenish-white.
- 'Mimosa' (Mr. L. Tuffery).—Large yellow reflexed flowers of *dauidii* type. It is true mimosa-yellow in colour, with larger spots than in the type. Parentage *dauidii* x 'Black Prince.'
- 'X 451' (Mr. R. K. Gray, Martinborough).—An *auratum* x *speciosum* hybrid with a wide-open flower, light pink in colour, with a few crimson spots. It is a second generation seedling from 'Crimson Picture' raised by the same grower.
- 'Kathleen Stewart' (Mr. A. V. Stewart).—An *auratum* x *speciosum* hybrid with bowl-shaped flowers of deepest red. The flowers retain their colour well without fading.
- '53-26' (Dr. A. C. McKillop).—Large, wide open trumpets which open yellow but fade quickly to cream. Parentage 'Crows' Hybrid' x 'Sulphur Queen.'

1955-1956 —

- 'Supreme Command' (Dr. A. C. McKillop).—A pink trumpet of good shape, which holds its colour well without going 'muddy.' It is bred from de Graaff's 'Olympic Hybrids.'
- Seedling (G. Weekes).—A tall erect hybrid with upright chalice. Flowers dark orange in colour. Parentage 'Grace Marshall' x 'Lord Melbourne.'
- 'Maori Maid' (Dr. A. C. McKillop).—This outward facing lily is deep blood-red with a few black spots. The flowers have a beautiful sheen on them which seems to intensify the colour. Parentage 'Grace Marshall' x 'Lord Melbourne.'
- '50-33' (Dr. A. C. McKillop).—This is a typical 'Preston Hybrid' in form, the flowers facing sideways, and having two or more buds on each pedicel giving the plant a long blooming period. Parentage 'Grace Marshall' x 'Lord Melbourne.'

NOTE: All the 'Grace Marshall' seedlings mentioned above remain in bloom for a long period. In some cases it is as long as six weeks from the first to the last bloom.

1956-1957 —

- 'Exquisite' (Dr. A. C. McKillop).—An upward-facing lily, light orange-yellow and profusely spotted. The flowers open to $7\frac{1}{2}$

inches diameter. Parentage 'Enchantment' x red *martagon*-type seedling.

'Dieppe' (Mr. J. O'Toole).—A dark red 'Dunkirk' seedling of good form and substance. It develops several shapely upright flowers on a well-balanced head.

'Conflict' (Dr. A. C. McKillop).—An upward-facing lily reaching 5 feet. The flowers are bright blood red. 'Grace Marshall' x 'Lord Melbourne.'

'Golden Tan' (Dr. A. C. McKillop).—Of typical *centifolium* form, this trumpet lily is a deep yellow. Parentage 'Sulphur Queen' x 'Golden Clarion.'

1957-1958 —

Two lilies were submitted, but no awards were made.

1958-1959 —

No lilies submitted to date.

Random Notes of an Amateur Lily Grower

NORA COPSEY (*Auckland*).

Seed catalogues are an invitation to adventure but not all seeds grow happily into good garden plants. Experience in handling them can only come by trial and error no matter how much reading is done before one begins.

Lily seed is particularly interesting as one can see the germ from which the lily will grow. Mixed with dampened sand and placed in a hot water cupboard one can see the bulb growing. It will withstand cold, dryness, moisture, frost.

The first flat of lily seeds I essayed was not a success. The method was elaborate and consisted of a bed of vermiculite with a feeding funnel in the centre. I overfed and overwatered. I was so ignorant that when some of the seeds came up waving their capsules I pushed the capsules in again in the mistaken belief that I had sown the seed carelessly. I tried deep boxes with little better result. Luckily while I played about with my expensive seed I sowed more common varieties in more natural surroundings. These did well. I still revert occasionally to methods more elaborate than any chef would tolerate in his kitchen, sometimes happily, sometimes disastrously, but by and large I grow all my seed in an open bed. The weaklings soon succumb and I am none the wiser, but those that do germinate are strong and healthy.

Gardening is a most enjoyable hobby, but looking after invalids in the garden is time consuming and one's efforts are seldom successful. I like my garden to be a happy one. I do not like poison sprays which kill friends and enemies alike. If the plants are happy they will be

healthy. If unhappy they soon become diseased. I spend a good deal of time giving them the environment they like. My beds are made with a most generous layer of newspaper, topped with bracken fern, dusted with a good fertiliser and covered with top soil. When I burn garden rubbish I bring the ashes whilst still hot to top the bed. The ashes usually have a good deal of charcoal in them, which is all to the good. If the rain comes the work is done. If it doesn't I roll the bed with the garden roller or stamp vigorously up and down. Then I rake it level to a fine tilth. Then and only then do I sow the seed.

I take out a 2 inch trench, put in a generous layer of sand, dust with Thiro, plant the seed thickly, cover and press down the soil firmly. I label with used Perfection seals from the kitchen firmly nailed to a stick. The seal gives ample room to scratch the name, date and source of the seed. The weather rusts the scratchings and the label shows up clearly. I top the bed with partly decayed pine needles. A few weed seeds germinate and for a week or two I keep a vigilant eye on the bed to remove them. After that the seedlings are on their own. They thrive. Sometimes they come up with such a rush that they crack the soil. If at the end of a year they appear to be overcrowded I transplant them. Otherwise I do not disturb them till they flower.

It is to be expected that some will do better than others. A seed has a better chance of adapting itself to its environment than a bulb and the best growing seed is harvested in one's own garden. It is already acclimatised to its surroundings. These however, are not always the best seeds to give the best flowers. The *R.H.S. Lily Year Book* and the *N.A.L.S. Year Book* and our own lily societies list seed of good crosses. For a comparatively small outlay rich treasures may be obtained. Rarer seed comes direct from lily growers in many parts of the world. If it is difficult or impossible to obtain the kind of currency one wants, the old system of barter is no bad substitute. For example our double gerbera seed is second to none. Some of our native flora is eagerly sought after. Often the seed wanted is difficult to obtain but it can be found.

The subject of diseases to which lilies are prone always seems to raise its ugly head in any discussion on them. I believe that too much is made of it. Recognition of virus disease in tobacco was established in 1885. It attacked tomatoes, too. We went right on growing tobacco and tomatoes. In Great Britain alone it has been calculated that a million tons of potatoes are lost yearly through virus disease. Cabbage, broccoli, wall-flower, stocks — the list seems endless — all suffer from virus attacks but we do not exclude them from our planting programme. Why, then, are lilies often considered difficult?

The Waite Institute of Agriculture in Adelaide established the fact that virus cannot be transmitted by an infected plant through its seed. The experiment was interesting as an extract of seed was added to a

concentrate of tobacco virus and healthy plants were inoculated with the mixture. Nothing happened.

When I first began to take an interest in lilies I read that *L. tigrinum* frequently carried a virus which caused no debilitating effects — distorted flowers, squat stems, sub-leaves under true leaves, etc. — but it was capable of passing on the virus to other lilies when it might easily run amok. I did rather a stupid thing. I burnt all the bulbs I had. Luckily it is rather difficult to rid oneself of this lily as it increases in so many different ways. Two or three years later there were *L. tigrinum* in the garden again. Since the virus is present in *L. tigrinum* and can apparently do it no harm, surely this is a lily to use for breeding purposes. It will pass on its immunity to its offspring. It makes a very good parent indeed. Witness 'Enchantment' and the host of other named lilies with *tigrinum* 'blood.'

Nature's substances, such as blood, fruit juice and milk have an anti-viral effect — milk spraying, for example, can cut down virus infection in tomatoes from 100 to 5 per cent. Instead of poison sprays might it not be an interesting experiment to try natural substances?

I seem to have wandered far from my subject. If one has the patience to start from seed and to take reasonable precautions in growing it there seem to be no valid reason why one's garden should not be a mass of glorious colour for five or six months of the year.

PUBLICATIONS RECEIVED

CURTIS'S BOTANICAL MAGAZINE, Vol. CLXXII, Part II, edited by W. B. Turrill, O.B.E., D.Sc., V.M.H., F.L.S. (Published by the Royal Horticultural Society, London.)

In this part is pictured *Daphne x hybrida*, a lovely low growing bush with flowers of rosy purple, that I used to grow without difficulty in Warwickshire, but which refuses to acclimatise itself to the Kapiti climate although I have given it three chances. Plants from many parts of the world are here, ranging from the flamboyant beauty of *Ruttya fruticosa*, from Kenya to the lavender trumpets of *Pentstemon bradburi*, from the central States of North America, and the curious exotic *Hedychium densiflorum* from the Eastern Himalayas. From the Levant there is *Convolvulus oleifolius* var. *pumulus*, the winter flowering German hybrid *Lonicera x purpusii*, *Acacia cultriformis* from New South Wales, *Macleaya kewensis*, a garden form of the plume poppy, the lovely *Camassia cusickii*, with its graceful spike of spidery blue flowers from Oregon, *Cytisus stenopetalus*, a yellow broom from the Canary Islands and the pretty pink *Silene integrifolia*, a herbaceous perennial from Greece.

THE LILY YEAR BOOK, 1959 (Published by the Royal Horticultural Society, London).

So often is the warning given that lilies should not be fed that it is refreshing to find the judicious use of organic manures recommended by such horticultural authorities as Mr. T. H. Findlay, of Windsor Great Park, Mr. J. Newell of the John Innes Horticultural Institution and Mr. A. Turner of the R.H.S. Gardens, Wisley. In this most interesting book other members of the *Liliaceae* are included such as *Chionodoxa*, *Fritillaria* and that lovely genus *Nomocharis* that has been seen in New Zealand gardens but by no means as

frequently as its orchid-like charm deserves. The illustrations are excellent particularly those of *Lilium x testaceum* and a group of hybrid trumpet lilies from the Oregon Bulb Farms; among these latter are purple, cream and deep yellow tones. Norah Copsey writes of lily growing in her Auckland garden.

THE RHODODENDRON AND CAMELLIA YEAR BOOK, 1959 (Published by the Royal Horticultural Society, London).

Gardeners in the Southern Hemisphere will be particularly interested in the list of new varieties of camellias from Australia and New Zealand, reprinted from the *Camellia Annual* published by the Australian and New Zealand Camellia Research Society. The relationship of rhododendrons and lime is the topic of an article of considerable interest by Dr. H. Tod. The full list of the fifty kurume azaleas collected by E. H. Wilson being grown at Wisley is given here with details of hardiness; these comprise some of the loveliest dwarf azaleas in cultivation. There are articles on camellias by well known authorities with some interesting notes on *Camellia rusticana* by Mr. Ralph Peer of Los Angeles. Among the charming illustrations are Rhododendron 'Beefeater', an *elliottii* hybrid and the R.H.S. group of Kurume Evergreen Azaleas at the Chelsea Show, 1958, both in excellent colour.

THE NEW ZEALAND CAMELLIA BULLETIN, Vol. 1 Parts 1 and 2, edited by Colonel T. Durrant (Published by the New Zealand Camellia Society).

The publications of Specialist Societies containing, as they do, articles by specialist growers, both amateur and professional, provide a valuable contribution to horticultural literature by focussing attention on many aspects of a single genus. Apart from stimulating reports on the progress and activities of this new society devoted to one of the most popular genera among shrubs, there are articles covering a wide range of subjects relating to the *Camellia*. These range from *Camellia Culture* (A Note for Novices) and descriptions of camellias growing in a New Plymouth garden and to more advanced subjects such as *Camellia Research*, *Camellias in Australia*, *Revised Views on Shade for Camellias*. These bulletins are well produced with pleasing format and the fact that membership by 1st January last had almost reached 500 augurs well for the future. Particulars of membership may be obtained from the Hon. General Secretary, Miss P. M. Bates, 14, Anglesea Street, Hamilton.

DISTRICT COUNCIL REPORTS

NORTHERN WAIROA — MARCH

The Northern Wairoa district council of the New Zealand Institute of Horticulture held its first exhibition in the form of a dahlia display, in the Royal Theatre on Friday.

The president, Mr. P. R. Walden, welcomed the mayor and mayoress, Mr. and Mrs. S. S. Green, and thanked fellow members for the work put into the show. He called upon the mayor to officially open the show, Mr. Green stating that he regarded it as an honour to be so doing.

He paid tribute to members who had contributed in any way towards beautifying the town and expressed the hope that the next show would be an even better one and that it would be held in the new town hall.

The display itself was non-competitive and all growers were invited to display their blooms, with the result that entries far exceeded expectations. Blooms were of high quality, proving how well these flowers can be grown in this district.

There were many varieties of all colours and sizes, from tiny pompons to the large, over 8-inch size. Decorative, cactus, charms and pompons were

all much admired, demonstrating how these types have been improved over the years. In the decorative section, arrangements in shades of one colour were particularly outstanding.

WANGANUI — FEBRUARY

The attendance at the February meeting surpassed the many records we have accomplished with over one hundred and sixty persons. This enthusiasm was well rewarded with the splendid address and supporting colour slides presented by Mrs. Hawken, a member of our executive, who told of her tour of Canada.

In her opening remarks Mrs. Hawken said she found Canada a most difficult place horticulturally mainly because of the great temperature variation from 10 degrees below zero to 103 degrees Fah. Many parts of the country were under snow for 7 months of the year but irrigation was usually necessary to secure a summer display. There were two outstanding features, one the intense display of wild flowers in their season and the efficient extensive and colourful displays arranged by the public parks.

Mr. and Mrs. Hawken's first port of call in Canada was at Corner Brook in Newfoundland. Sir Eric Bowater, a former Lord Mayor of London and of paper making fame, resides in and controls a large part of this city including the power supply. Sir Eric's residence is of modern construction and cost £250,000. The grounds are nicely landscaped and features dwarf conifers which carry an intense colouring in this hard climate. Mrs. Hawken was also very impressed with the display made by a variety of honeysuckle or *Lonicera*, which in Spring is covered with showy pink blooms, followed by red berries. The display of lilacs was also outstanding as these bushes the size of large rhododendrons were covered in bloom.

From Newfoundland the trip was continued by steamer up the St. Lawrence waterway to Quebec on June 19th just one day after the last iceberg warning for the season. Little was seen of the French speaking city of Quebec apart from the massive Chateau Fontenac, which is a citadel towering above the river. The people of Quebec refuse to assimilate the British way of life and this attitude is met with in most parts of Canada but gradually tapers off as one travels towards British Columbia.

Montreal was really the shipping destination of our travellers. Montreal is virtually an island dominated by the high point of Mount Royal which is part of a vast park of 2700 acres. In this park cars are not allowed, the only vehicle for public hire being a horse drawn cab which tourists patronise to reach the summit which is crowned with a pretty crater lake with an attractive concrete surround. It was here that Mrs. Hawken first became acquainted with the Canadian maples and a ground cover of scillas and primroses with the busy squirrels adding further interest to this wildflower scene. Also in Montreal is McGill University with most attractive and well established grounds which feature the *Ginkgo* or maiden hair tree. The first of many carpet bedding schemes in the form of a Coat of Arms was also displayed here. These and floral clocks are frequent and attractive features.

The next city visited was Ottawa, the capital. This city of the plains has good landscaping and town planning and most of the fine buildings are roofed with copper, which with age, gives a dull green appearance to the skyline. The city has a population of 400,000 and tree planting is a distinct feature of the landscape. Mature trees are zealously guarded and services are not allowed to interfere with the growth of the trees in any way. The Federal parliament buildings are most extensive and massive; they have been under construction for some years and the interior carving will not be completed for another 70 years.

At the agricultural college in Ontario Mr. and Mrs. Hawken stayed with friends. At this college in the horticultural section was a fine specimen of

Iris, variety 'Pinnacle' in flower, a gift from Mrs. Stevens in Wanganui and now the pride of their collection. Like specialists in New Zealand hybridising of liliiums is being extensively carried out but the aim of the Canadian raisers is to secure a clear buttercup yellow whereas the aim here is to produce good reds. From Mrs. Hawken's observations both ideals are being attained through the use of parent species which flourish in the respective countries. Also in this part of Ontario are extensive vineyards bordering the highway without protective fencing as is the custom in all the Canadian fruit growing areas.

The next scenes were of the Niagara Falls. These are becoming quite familiar to our members but we gained more information from Mrs. Hawken's commentary. The American section of the Falls are 1000 feet wide and the Canadian or Horse Shoe falls 3000 feet wide. The principal vantage point of the Horse Shoe Falls is from the Sir Harry Bearded *Iris* garden. This noted British benefactor, who was murdered in the Bahamas, endowed the lovely 20-acre garden for maintenance in perpetuity.

We were then favoured with scenes of the Hamilton Botanic Gardens, also in Ontario. These gardens are of 1700 acres in extent. Much of the display is set in punch bowl areas and comprises gardens of distinctive features of outstanding beauty. There are extensive trial grounds for the testing of new introductions and one scene depicted a group of four blocks each of $\frac{1}{4}$ -acre of *Hemerocallis* in separate colours. These and bearded *Iris* are two of the most popular plants of the region. Much of the beauty of the Canadian scene is the autumn colouring but unfortunately our friends were not there at that season. However, Mrs. Hawken had some slides she had purchased of lake and forest scenes which conveyed the beauty of the scarlet oaks, dogwoods or *Cornus* and the silver birch.

After leaving Hamilton our travellers entered the vast prairie lands, with the first stop at Regina the city of the plains in Saskatchewan and to arrive in a heat wave of 103 degrees F. in the shade. This city is monotonously flat and has a main street 12 miles long. A new museum has recently been completed which is of outstanding design and features dark corridors with lighted bays to stage the exhibits in really life-like arrangements. The parks and gardens of Regina were specially colourful for the approaching visit of Princess Margaret.

After a good look at Regina the tourists made their way to Calgary in Alberta, the province of wheat, oil and ranches. It was in this countryside that Mrs. Hawken was so disappointed to see farm-houses isolated in the countryside without gardens or shelter and seldom with a coat of paint but yet television aerials were installed and usually two cars were parked near-by, not in garages as the Canadians seldom bother because the life of a car is seldom more than two years but in this short life these cars are subject to hard wear as even our friends who are careful drivers travelled 100 miles in 78 minutes across this country with no hills and dead straight roads.

At Calgary Mr. and Mrs. Hawken arrived in time to witness the great annual event, the Calgary stampede, which combines all forms of outdoor entertainment with a wonderful panorama of colour and Western atmosphere. The display by the 'Mounties' was really a world event. Even the North American Indians assemble for this annual event and compete for tent layout, etc. Apart from features like this the 'redskins' as a people held little appeal to Mr. and Mrs. Hawken.

From the prairies the journey continued to the Rockies with the many grand scenes of mountain and lake and the vast fields of wild flowers which include the iceland or arctic poppy as it is known there. The wild delphiniums grow 4 and 5 feet high and the ever present Indian paint brush brightens many a hillside with its splashes of red.

WANGANUI — MARCH

Mr. Cox, our President, took as his subject for Current Garden Topics, the lifting and storing of *Gladiolus* corms. His remarks were endorsed by Mr. A. W. Larsen, a leading New Zealand commercial grower of these popular flowers. As Mr. Cox remarked, many home gardeners are convinced that over a period of years *Gladiolus* varieties run back to weak and unattractive colours, but this is not correct as a *Gladiolus* variety will keep its original form through the years unless it is a seedling grown from it. Corms and pips will resemble the parent, but not seedlings. Most confusion arises from the effects of survival of the fittest which favours the growth of seedlings or the more prolific production of corms or pips from less attractive varieties.

Lift your Gladioli 6 weeks after flowering, cut the stems and foliage down to the top of the corms and store in boxes or containers away from rain or dampness. At the first opportunity clean the husks and decayed corm from the sound corms, dust with D.D.T. 2½% concentrate will do; to prevent over wintering of aphid or thrips, leave base of corms uppermost until thoroughly dry, then store right side up till required for planting.

Mr. Flint, Quarantine Officer of the Horticultural Division, stationed at Palmerston North, then addressed the meeting. Mr. Flint in his opening remarks, stated that the New Zealand Quarantine Service was established in 1952, following regulations framed with the full co-operation of those in the horticultural trades and Mr. Larsen, of Wanganui, had been one of those commercial growers responsible. Quarantine is derived from the word 'forty' which has a connection with being held 40 days. In actual fact it refers to the legal restriction of the movement of plants from one area to another for the control or exclusion of pests and diseases. Before the advent of scheduled air services, New Zealand had a reasonable natural barrier to the introduction of pests and diseases. Growers realise that the initial inconveniences of quarantine regulations are to be preferred to the high cost of combating pests and diseases once introduced. As an instance, wheat rust in Russia is responsible for an annual loss of £20,000,000 a year. The spray programme for the control of apple pests in New Zealand costs £60,000 a year. Fruit fly and other pests of which we are at present free would be much more costly to combat.

Quarantine regulations are based on and administered internationally by the Food and Agricultural Organisation with headquarters in Rome. This organisation is part of United Nations and 66 countries are signatories to the Convention. In New Zealand, Quarantine Officers are based at ports of entry, including airports. Mr. Flint is the officer responsible for Ohakea and Wanganui. Quarantine control may be effected by subjecting good food and produce to gas treatment followed by air-washing, inspection and isolation of plants in approved nurseries or gardens or as in the case of commercial fruit varieties, held in quarantine at the Plant Diseases Research Station at Mount Albert, Auckland, until a certificate of freedom from disease is issued — usually two years. In conclusion, Mr. Flint said that since horticultural quarantine regulations had been introduced in 1952, no serious pests or diseases had been introduced, but the department had had occasion to isolate the spread of several troubles which had developed in restricted areas, but which were not of a serious nature overseas. Mr. Flint had a number of specimens on display which his department had good cause to keep from these shores such as the African snail and the Colorado beetle.

WHANGAREI — NOVEMBER

At the November Meeting our guest speakers were Mr. and Mrs. Pettersson (Fuchsias). The speakers are specialists in fuchsia growing and have recently transported over a hundred varieties to their new home in McLeod's Bay and the talk was illustrated with coloured slides showing the garden left behind in Cockle Bay, Auckland.

Mrs. Petterson dealt very ably with the cultivation of fuchsias.

1. *Propagation*: Mostly from cuttings, spring and autumn cuttings are best; Spring — soft tip growth 2in. - 3in. long cut at node with bottom pair of leaves removed, shade from sun and spray with water during day if any sign of wilting. Autumn—mature wood of current season's growth, $\frac{3}{4}$ in. thick and 6in. - 9in. long. Take straight pieces without leaves, cut off soft green top just a fraction above a node and just a fraction below for base.
2. *Position*: Some protection from fiercest of sun in summer. Do not like full shade — light shade.
3. *Soil*: Good mixture is one third cow manure, one third compost, and one third good soil.
4. *Treatment*: Plant firmly, do not dig deeply round them. Mulch to a depth of two inches, overhead spraying keeps them refreshed, and is almost as useful as watering, do not let dry out.
5. *Pruning*: Cut hard back when new growth appears, cutting stems for two thirds of length, usually in autumn.
6. *Pests*: Thrip and caterpillars worst enemies — spray with Lindane 20% emulsion, 2 teaspoons to one gallon of water. The spraying overhead with water after hot days will discourage thrips and aphids.

Good Varieties to grow—

Bush types — 'Abbe Farges,' 'Display,' 'Jubilee Queen,' 'Duke of York,' 'Nancy,' 'Scarcity,' 'Flying Cloud,' 'Pastel Roola,' 'Whitemost,' 'Morning Flory,' 'Aunt Luliana.'

Standards — 'Victor Hugo,' 'Falling Stars,' 'Beauty of Exeter,' 'Pink Pearl,' 'Phyllis,' 'Don Paralta,' 'Mazda,' 'Pink Quartet,' 'Violet Gem.'

Basket—'Cavalier,' 'Cascade,' 'Marinka,' 'San Pablo,' 'Meteor,' 'Tricolour,' 'Carter's Meteor,' 'Potentate,' 'Red Spider,' 'Trailing Queen,' 'Tumbling Water,' 'Muriel,' 'Du Barry,' 'America.'

Trellis or Espalier — 'Carnival,' 'Utopia,' 'Violet Gem,' 'Fanfare.'

Mrs. E. M. Sands contributes the following — "Plants that could be used more in Northland":—

AGAVE (Amaryllidaceae)—

Agaves have long been considered attractive plants. They take many years to reach maturity, the flowers appearing after the plant has attained considerable size. After flowering the inflorescences form bulbils which are the main means of reproduction and the rosettes die, but there are many offsets used for propagation.

The numerous species of *Agave* (mostly native of Mexico) all have their practical uses in addition to the ornamental effect. *Agave sisalana* is cultivated for the fibre, other species for the abundant sugary sap (some plants are said to yield as much as 220 gallons) which when fermented produce pulque, the national drink.

Small plants of *Agave sisalana*, *A. parrasana*, *A. americana*, and *A. americana* 'Luteo Marginata' (particularly attractive with broad yellow edged leaves), were planted on our very warm dry bank about 10 years ago. This situation is ideal for succulents and they have grown to a large size and are outstanding as decorative plants in the garden.

Agave sisalana is now a magnificent plant with leaves 6 feet long, light to dark green in colour running out at the end into $\frac{1}{2}$ to 1 inch long spine.

This plant is now showing signs of blooming and is our pride and joy. In January a flower stalk appeared in the centre of the rosette and has grown 6 inches a day. It is now 17 feet high and still growing! The stem is 6 inches in diameter at the base tapering off to 3 inches at the top and numerous flower branches are beginning to grow. I have read of one specimen which reached 36 feet in height and had 40 flowering branches, we are watching ours with some trepidation and being thankful that no stakes are required.

YUCCA (*Liliaceae*)—

These plants are quite robust with rosettes of leaves at the top of woody stems. They are fairly common in Northland and the panicles of creamy white flowers are much admired.

Flowers of the various species closely resemble each other, *Y. gloriosa* and *Y. filamentosa* are blooming now in Mr. and Mrs. Hannings' garden in Parua Bay, an outstanding display which can be seen from the road.

WHANGAREI — MARCH

The Annual General Meeting took place on Wednesday, March 25th, and was moderately well attended.

Before the formal business began, our Patron Mr. F. Holman, F.R.I.H. (N.Z.), presented to two of our members, Messrs. A. Cameron and J. Fyfe, their certificates of fellowship of the Royal New Zealand Institute of Horticulture. In doing so Mr. Holman mentioned the outstanding qualifications possessed by the recipients, their extensive knowledge of their particular fields of interest, and their long and generous service in the cause of horticulture.

Our gardening year began most successfully with a lecture by Mr. V. C. Davies, O.B.E., A.H., R.I.H.(N.Z.), who is the Chairman of the North Taranaki District Council of the Institute.

For this very special occasion your Council combined with the Ladies' Gardening Club and arranged a public meeting in the very commodious and beautiful hall of the Whangarei Intermediate School.

A happy introduction to the meeting was made when Mrs. Katie Reynolds was introduced to the meeting by Mr. Arcus, and was then presented with the Certificate of Fellowship of the Royal New Zealand Institute of Horticulture by Mr. Davies who congratulated Mrs. Reynolds on the good work done in many places and over many years, knowledge gained and given out generously which well merited the award.

Mr. Davies then emphasised the importance of the Royal N.Z. Institute's work in training young men and women for the National Diploma of Horticulture — a diploma recognised throughout this country and giving a valuable status to the holders.

Then followed the lecture on a recent visit to Californian nurseries and gardens, to Walt Disney's Show gardens, created at enormous expense, and then the visit to the gardens and volcanoes of Hawaii — a talk full of interest and information, often quite surprising to us in our small country.

Many lovely slides were shown of beautiful shrubs suitable for Northland. Camellias, rhododendrons, magnolias and azaleas were shown in lovely colour and profuse bloom. Though we in the North are a little afraid of trying rhododendrons in our rather warm climate there are several which experience has shown are safe to try and do well here. Best of all is the glorious red 'Cornubia' and a number of newer hybrids which have as one parent *R. griersonianum*. Some lovely forms are available in brilliant colours, but perhaps the real highlight among shrubs shown was a plant of *Michelia doltsopa* coming from the Himalayas and Tibet and related closely to the *Magnolia*. It has large semi double flowers, cream with pale green centre and beautifully perfumed. It finally grows into a tall tree, but blooms at four years old. The plant in bloom in Taranaki was a most impressive sight. So successful was this combined meeting that it is hoped to arrange similar events in the future.

WHANGAREI — APRIL

The speaker at the April meeting of the District Council was Mr. J. Fyfe, F.R.I.H. (N.Z.) and his Rose talk was provocative of some interesting conclusions. First, that rose growing in Whangarei is by no means the difficulty that has been assumed in the past. Proper tillage and mulching plus the selection of proved varieties offset the handicaps of light soil and high temperatures.

Secondly, that rose hybridisation and the selection and reselection of the resultant seedlings can be a fascinating hobby, and sometimes a very profitable one as well. If one is very fortunate a real treasure may be obtained from a sport, if such happens to be of superior quality to those other blooms on the bush which produces it. Camellias, as well as roses seem prone to sport in this way. They are usually reproduced vegetatively by cuttings.

Our last conclusion was strongly in favour of growing florabundas in the ordinary small garden where space might not permit indulgence in a large collection of these lovely flowers. The quality and the quantity of the third blooming was a surprise to many, and the 60 or more varieties staged at the meeting were the most convincing argument for Mr. Fyfe's methods of culture and feeding. Those who did not see them missed a very great pleasure.

Mr. Fyfe's recipe for his basic feed:—

First Year: A medium dressing of Blood and Bone *before* mulching in December.

Second Year onwards about *August*, a *heavy* dressing of Blood and Bone plus the following mixture:—

Saltpetre	- - - - -	6 parts
Sulphate of Ammonia	- - - - -	3 parts
Superphosphate	- - - - -	16 parts
Sulphate of Potash	- - - - -	8 parts
Epsom Salts	- - - - -	2 parts
Sulphate of Iron	- - - - -	$\frac{1}{2}$ part

Most nurserymen stock this special rose manure.

Warning: If mixing it yourself *do not* substitute Muriate of Potash for the Sulphate of Potash.

Dose per plant: One good handful — enough to show plainly on the soil surface. Rake mulch aside when applying unless a fresh mulch is being put on.

An interesting bloom from a rather unusual climbing plant was identified as *Mutisia clematis* a lovely thing from tropical South America (Ecuador and Colombia). Its second name, *clematis*, was given because it resembles in habit a *Clematis* but is not even distantly related to that genus. It is in reality a climbing daisy with orange scarlet flower $2\frac{1}{2}$ inches wide, nodding at the end of a silvery haired calyx. It climbs by means of long tendrils at the apex of the silvery compound leaves and may go 20 to 30 feet, but should be pruned and thinned in spring.

Note: It is very unusual for plants of the daisy family to climb but we have one solitary example of this in N.Z. It is *Senecio sciadophilus* (the shade loving *Senecio*) and was formerly plentiful on Banks Peninsula, but is now rarely seen.

1960 ANNUAL DOMINION CONFERENCE
OF THE
ROYAL NEW ZEALAND INSTITUTE OF
HORTICULTURE (INC.)

THE 1960 ANNUAL DOMINION CONFERENCE
will be held in Rotorua on
THURSDAY, 11th FEBRUARY, 1960.

Delegates and others intending to be present at this Conference are strongly advised to make early application for hotel reservations. Write for these direct to the PUBLIC RELATIONS OFFICER, Borough Council, Rotorua.

A further announcement will appear in the next issue.

K. J. LEMMON,
Dominion Secretary.

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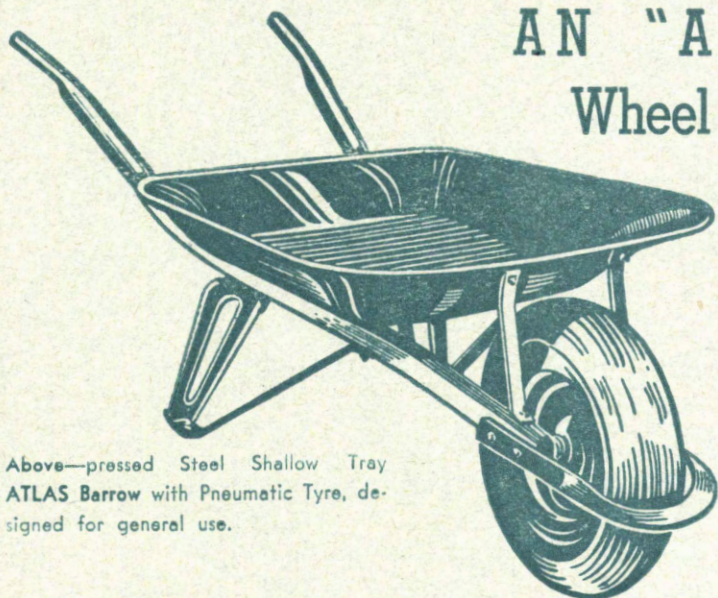
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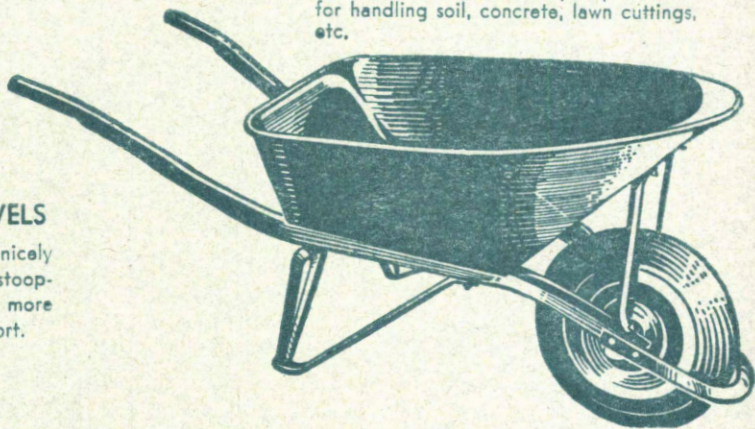
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