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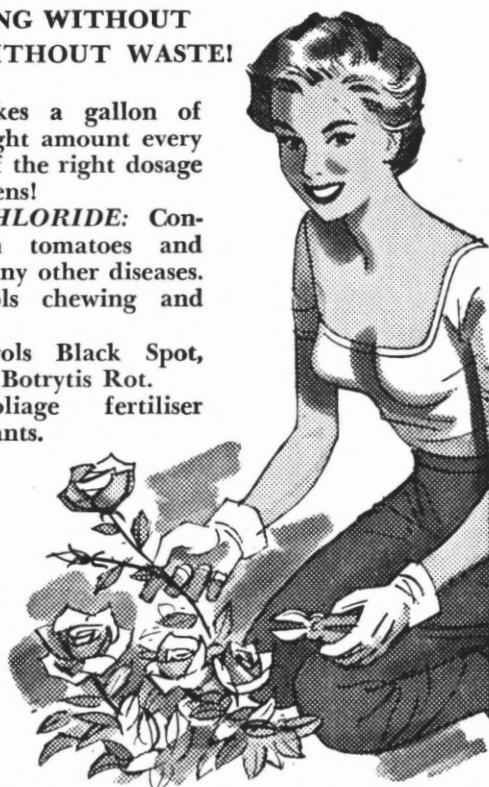
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NEW ZEALAND PLANTS AND GARDENS

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GARDENING LITERATURE

Anyone who has pursued horticulture, for either a livelihood or as a hobby, in both hemispheres must have realised one thing, viz., that it is impossible to translate the practical precepts of a gardening book into the terms of a different hemisphere. In the North Island narcissi flower for five months as compared with two in Britain. Certain perennials flower in early autumn in Britain and are cut by an early frost. The same perennials flower at mid-summer in New Zealand and continue to bloom for some months. Shrubs of certain types reach the flowering age in New Zealand considerably earlier than in Britain. Seedlings of genera like the narcissus flower at a very much earlier age than they do in Northern Europe. Oxalis and Gorse are obnoxious weeds throughout the Dominion. In Europe they are cultivated for sale. Pests and diseases are greater or lesser problems than in the Northern Hemisphere. These and many other instances are proof that it is only after having had actual experience in a particular country that one is qualified to write authoritatively on horticultural matters for its gardening enthusiasts.

From North Auckland to the Bluff, there is a wide variation in climate. In the warm climates plants from tropical countries thrive out of doors, but a number of the hardy genera give a poor response. Where there are severe winters and hot summers the hardier genera grow magnificently and at the high altitudes where alpine conditions persist through the year, there should be opportunities for the cultivation of the more difficult alpine plants. Could there be a wider scope for gardeners? What a wealth of material there is then for the Dominion to develop a horticultural literature of her own, a literature from the pens of practical gardeners, born of their own experience and not a mere re-hash of someone else's work.

In general literature we have Mr. R. E. Harrison's "Handbook of Bulbs and Perennials", and Mrs. Jean Stevens' "Irises and Their Culture", both pioneer efforts, and worthy ones, in the gardening publications of New Zealand. Two books by Mr. A. W. Anderson of quite a different character to either of the above are reviewed in this issue. Articles appear, at various times, in New Zealand agricultural and horticultural journals that give evidence that there are men and

women who, in addition to being keen gardeners, can also write. Some hundreds of lectures are given annually to various horticultural groups by people who are specialists in some branch of horticulture. It is high time that some definite steps are taken to encourage such practical horticulturists to record their knowledge, gained by personal experience, in book form. We need books dealing with the cultivation of trees, shrubs, plants and bulbs that can successfully be cultivated throughout the varied climates of the Dominion.

The past gardening literature of Britain is our heritage, from the old herbalists down to those two pioneers of modern gardening, Gertrude Jekyll and William Robinson. There is still a stream of valuable garden literature coming regularly from Britain, South Africa and the U.S.A. The best of these books have been written by people who were gardeners long before they were writers, a point of vital significance so far as garden literature is concerned.

G. A. R. PHILLIPS,

Editor.

SOME COMMENTS ON DAFFODILS

GUY L. WILSON, M.Agr., V.M.H. (Northern Ireland).

The Editor has asked me to send him something about daffodils. Having spent all that I can remember of a fairly long lifetime amongst daffodils, loving them from earliest childhood, thinking of them and growing them, it is difficult to know where to begin, so I fear that this will consist mainly of rambling remarks and comments.

First I would like very briefly to recall that one of the most vivid and cherished memories of my life is that of a trip to your indescribably lovely country for the daffodil season of September and October, 1929, when I toured daffodil shows and gardens from Auckland to Dunedin, and made many never-to-be-forgotten friends. Even before that time I had been keenly interested in all that I could hear of daffodil growing in New Zealand and of course ever since then have followed all reports of New Zealand daffodils with increased eagerness, and it gives me the utmost pleasure to know that interest in cultivation and breeding has developed extensively since the time of my visit.

It was obvious to me even at the time I was in New Zealand that in nearly the whole of both islands daffodils have found a very happy home from home, and congenial conditions in which to grow there. Quite a number of bulbs of British raised daffodils, chiefly novelties I fancy, still emigrate from here to your country, year by year. I wonder if it is now better realised than it seemed to be in 1929 that they normally require quite a few years to acclimatize and adjust themselves to the opposite season of flowering before really good and representative flowers can be expected. It is a fact probably only appreciated by comparatively few, that bulbs, or indeed probably any

plant moved from place to place within the relatively small area of their home country require around five years before they really become fully acclimatized and adapted to a new hemisphere. After the bulbs have broken up and developed completely new stock from young offsets grown as it were from infancy in their new surroundings and adapted to them, any closely observant person will notice great improvement in their quality and vigour. It may well be that importers are by their own experiments finding out improved methods of dealing with imported bulbs. Our Dutch neighbours over here are, through their Dutch Bulbgrowers' Association, and I think with the help of their wise Government, under the direction of their famous professor Dr. Van Slogteren, continuously conducting experiments in every possible aspect of bulb treatment. It is now quite a number of years since Professor Van Slogteren found that by keeping well matured bulbs of daffodils in a special cabinet at a controlled temperature of around 80 deg. Fahn., he could hold the bulbs completely dormant and could, by planting them at monthly intervals right round the year, produce good or fairly good flowers in any one of the twelve months.

Odd bulbs are occasionally sent me by friends in New Zealand or Tasmania, and although I have no laboratory equipment for dealing with them, I have come to the conclusion that if they reach me in their most dormant condition, as they usually do, the best treatment I can give them is to place them at once in the warm dry household linen cupboard which is situated over a hot water cistern, and keep them there, as nearly dormant as possible, till quite the late end of our own planting season, say the end of October; they will then make their first season's growth in our spring, and develop more vigorous bulbs than if they had been planted on arrival around March or April in our spring season. Some people I believe have tried keeping imported bulbs in cold storage, but there are probable risks in complete freezing, while temperatures a little above freezing applied to well ripened bulbs will very often be found to have a vernalising effect and soon stimulate top and root growth before it is wanted.

This brings me to a point which it would be well that breeders should realise and which they are scarcely likely to have observed without a good many years' experience, and that is that many seedlings may require as long as six or seven years after first flowering before they reveal their full development and character. I have had a number of cases of this happening, the most notable example being that of the high quality bicolour trumpet "Preamble", which when it first flowered was so small and short that it was merely marked for further trial with a wooden peg and not given a number or description in my field book: it continued as a very neat and perfect little flower for a number of years, but was so small that I was more than once on the point of discarding it, feeling that it could never be of much value, when one season without any warning, it just about doubled its size, substance and stature, and showed up as the most perfect exhibition bicolour trumpet I had ever seen, and proceeded to gain the A.M., and F.C.C., at the Royal Horticultural Society's shows in London!

I could, of course, mention others. I was very much interested in reading through some articles sent me not very long ago, written by that great breeder, the Rev. G. H. Engleheart, M.A., V.M.H., in early issues of the "Gardener's Chronicle", in which he said that he had observed exactly the same thing. He stated that he sometimes found that when he had grown a seedling on from the single bulb stage to a row or more, he found a sudden surprising advance in quality. The obvious moral, of course, is "Do not too hastily discard seedlings that show any promise or specially attractive features". I am sure that in practice lack of space for cultivation does lead to the loss of a good many potentially fine flowers which have not seemed outstanding when they first appeared in the seedling beds; but perhaps it is just as well that we lose some, as I fear we keep too many as it is.

Talking of breeding, I feel the time has come when more and more attention should be paid to high quality of form, balance, texture and colour, combined with good habit and vigour of constitution. Our Dutch neighbours are still somewhat addicted to mere size and gaudiness of colour. I think they find a market for such flowers in the U.S.A., but I can state definitely that our American cousins are rapidly becoming more alive to, and highly appreciative of good quality. Individual breeders in widely separated localities might give some special attention to working on types and strains that are obviously well suited to their conditions. When in Virginia, U.S.A., last April, I saw the very attractive jonquil hybrid, "Trewithian", growing and flowering with more lavish freedom than I have seen it, and was also told that the lovely *triandrus-tazetta* hybrid, "Silver Chimes", thrived amazingly there, and I thought here was a district where some more of these attractive hybrids could be used with advantage, as not all other types were at their very best.

In Great Britain and Holland, growers are keenly on the look-out for really high quality first early, golden trumpets of sound constitution, especially those that will make good forcers. Many years ago, however, that very great breeder the late P. D. Williams of Cornwall, England, said to me that the most difficult of all daffodils to produce and establish was a good yellow trumpet of really sound and reliable constitution, and, so far as we here in Great Britain are concerned, he spoke the truth: I can think of very few of which it could be said that they have the indestructible constitution of the old yellow trumpet "Emperor". Even the universal favourite "King Alfred", a noble plant at its best, is not fully happy in all districts over here, and I think it has now deteriorated a little owing to large scale rough commercial cultivation, continuous heavy cropping and forcing. Many very beautiful newer golden trumpets have been bred in Britain, but few are really first early or of really cast iron constitution. I have read or heard that New Zealand breeders have been turning out some magnificent yellow trumpets; it may well be that parts of the New Zealand climate are better adapted to them than any of ours, so it might be well worth while for New Zealand raisers to give some attention to the pro-

duction of really high class, good quality, vigorous, free flowering, first early golden trumpets to supersede "King Alfred" (which is not quite first early), and such things as "Golden Harvest". Growers in the early districts of South-western England and the Scilly and Channel Islands are eagerly looking for them, as I have no doubt so are our Dutch neighbours who will also require them to be good forcers. For the English speaking people the world over, the daffodil is beyond question one of the most dearly loved of all flowers, coming as it does just as we begin to emerge from the darkest days of winter; but for the ordinary man or woman who is not a daffodil fan, the daffodil is still a yellow flower, and the big market growers still say that with the flower buying public in our big grimy cities the yellows are still first favourites. The so-called red and yellow and red and white flowers, in the production of which our Southern Irish breeder, Mr. J. Lionel Richardson of Waterford, is the greatest living exponent, are also highly esteemed in the flower market for their brilliantly attractive colour, and of course at least equally so with exhibitors and connoisseurs for their splendidly telling effect at shows. Generally speaking they are more vigorous in constitution than the majority of self yellow trumpets, but their chief fault in the past, as we all know, has been that most of their bright cups fade more or less readily in the sun. But of late years, no doubt as a result of careful inbreeding, a few comparatively and indeed almost completely sunproof varieties are now appearing and will probably continue to appear in increasing numbers. These, of course, will have much added value as garden plants. Moreover, some very early things are now turning up amongst the red and yellows, but we still almost entirely lack really good early white and red flowers: many superb flowers with perianths of *poeticus* whiteness and eyes or cups of jewel-like splendour have appeared in Division III, but all the rest are comparatively late bloomers. He who produces a first early variety of high quality and pure white and red colour which will also force easily may expect substantial financial reward.

My own chief favourites have perhaps always been the whites, upon which I have worked for many years, not only white trumpets, but also medium and small crowned whites. Except for the high class florists' work they are not so highly valued by the great market growers in this country as, of course, they are more easily damaged by smuts, especially in costers' barrows in the streets of cities, than the yellow and bright coloured flowers. There can be no question about their supreme loveliness when grown in a cool greenhouse or used for house decoration: or if you can see them grown in the pure air of a country garden well away from smuts and towns, and look at them in the evening light after the sun has gone below the horizon on a calm mild spring evening you at once feel yourself in the presence of something quite unearthly, as they seem to distil a soft celestial radiance around themselves. When in New Zealand nothing struck me more forcibly than the purity and beauty of its atmosphere, where even the sheep are pure white! There, and no doubt also in Tasmania, you have an ideal setting for white daffodils, or white flowers of any kind.

Engleheart, who raised the very beautiful white trumpet "Beer-sheba" and other notable whites, together with the late Ian Brodie of Brodie, provided valuable material upon which still further advances have been made. Of late years a beautiful purity of whiteness with enchanting tints of green rather than yellow has been attained in some of our largest white daffodils. Intensely white flowers also appear in increasing numbers amongst medium crowned flowers belonging to Division IIC; while some of the most enchanting of all are quite small crowned flowers, such as "Frigid", belonging to Division IIIC, which are ice white throughout with vivid green eyes in the centre of their crowns, every trace of red or orange having been eliminated from the rims of their cups. Indeed so many fine whites are now becoming available that it should be easily possible for Antipodean breeders to produce still more and even better ones. I have found that in breeding, white seems to be a dominant factor, and it is now easy to breed plenty of fine whites. "Empress of Ireland" shown in the accompanying photograph, is perhaps the finest very large white trumpet that I have had up to date: its seed parent was "Guardian", which was bred from "Niphotos" and "Trostan", while the pollen parent was my big white trumpet "Kanchenjunga", which has proved very valuable in breeding. I attribute the perfect formation of the perianth of "Empress of Ireland" in some measure to the influence of the grand-parent "Niphotos" which is a particularly well built flower.

For some years past flowers with pink tinted crowns have been greatly intriguing daffodil lovers the world over. I think this is due to the splendid and specialised work done amongst these in Tasmania by my late friend C. E. Radcliff.

Tasmania is probably the leading country in pinks; I hear enthusiastic accounts of some flowers raised there, and recently heard the astonishing report of a flower with a purple tinted crown! Over here Mr. Richardson and myself are finding increasing numbers of so-called pinks amongst our seedlings. For the past two seasons Mr. Richardson has shown one that he has just named "Debutante", a IIB that has got easily the strongest coloured pink cup I have yet seen. Development in pinks, however, seems a somewhat slow process; so many come not truly pink, but with tints of pinkish buff or coppery pink and even some of the best are faintly reminiscent of pink scented soap! We do not yet seem to have attained a really fresh, clear, delicate pink like a "M'me Abel Chatenay" rose, with a green base! But I dare say such will appear. Meantime there are many very charming flowers amongst these with pink tinted crowns.

The colour range of this so-called yellow flower is certainly expanding. As I have just said, I have heard of purple tints. Years ago the possibility of blue in the eyes of small crowned flowers was hinted at by at least one eminent raiser, while a few, it must be admitted rather unreliable things, with eyes that are wholly grass green have turned up in Division III. Speaking of greenish tinted flowers, a number of years ago, by using pollen of the late P. D. Williams' large faint lemon trumpet

"Content" on a now obsolete yellow trumpet called "King of the North" which probably had white or bicolour blood in its pedigree, I got a surprising and very charming break of limey-green-lemon flowers of which "Spellbinder" and "Moonstruck" are perhaps the best known examples, although the very attractive IID or reversed bicolour "Binkie" which came some other way and was raised in Tasmania, shows similar colouring. I believe the late Mr. Ahrens in the North Island of New Zealand was also producing a few of a somewhat similar attractive type of colouring. So who knows what surprises and delights may yet await the efforts of young breeders? But if I may give them one parting word of advice it is, "Do be careful not to lose the natural inherent grace and dignity that is one of the chief charms of the daffodil; do not try to make daffodils look like collarette dahlias or some other flower far removed from the narcissus in character."

OLD WORLD ROSES IN AN AUCKLAND GARDEN

(2) THE DAMASK ROSES

NANCY STEEN (*Auckland*).

Rosa damascena is a natural hybrid of *Rosa gallica* with a history that reads like a tale from the Arabian Nights. Drawings, found by archaeologists during excavations at Cnossus in Crete some years ago, indicate that this rose was in cultivation centuries before the birth of Christ. Its original home was in Asia Minor; but, trade along the old caravan routes, as well as invading armies, helped its distribution to many other countries. From Syria, Turkey and Persia, where it was held in great esteem and poets sang its praises, it was carried eastward through the famous trading centre of Samarkand to Afghanistan and India. There, the red Autumn Damask was highly prized as most of the roses native to those parts were of pale colouring.

Many forms of *Rosa damascena* were found, and are still being discovered today, in the Guilan Mountains that guard the southern shores of the Caspian Sea; and, in Kurdistan, further westward, and also in the Crimea, the Damask Rose must have grown, as it was one of the parents of *Rosa alba*, the other being a white-flowered form of *Rosa canina* that was indigenous to those two countries. This parentage was discovered by the late Dr. Hurst when he was doing research work on the genus *Rosa* at the Cambridge University Botanic Gardens. In Bulgaria, where attar of roses has been distilled for centuries, forms of *Rosa damascena* and *Rosa alba* are cultivated commercially. The principal town in the centre of this rose growing area is Kazanlik; and several forms of the Damask Rose which are now known as "Kazanliks" will be described later.

That this rose flourished in the Balkans from times of antiquity is indicated by the fact that it was grown in the fabulous gardens of King Midas, who is thought to have introduced it into Macedonia from Asia Minor. Greece also grew it in vast quantities for feasts

and festivities. The flowers were made into garlands and, as well, were scattered over the floors and the streets, and lavishly sprinkled with rose water. The form, principally grown was *Rosa bifera* or the Autumn Damask because it was the only rose then known that had more than one season of blooming. Greek gardeners settled in Italy near Paestum and Pompeii and grew the Damask Rose for the Roman markets, as Nero thought nothing of spending fabulous sums on roses for one night's orgies. When these places were completely destroyed by fire, flood and eruption, all trace of the Damask Rose was lost in Italy until it was reintroduced during the sixteenth century. Frescoes brought to light during excavations at Pompeii, depict *Rosa damascena* as it was grown in those far off days.

Phoenicians, trading along the Mediterranean Coast, probably were responsible for introducing it into Egypt at a very early date: and there it did so well and produced so many valuable winter flowers, that a flourishing trade in cut flowers was established between Alexandria and Rome. Edward Bunyard in his book "Old Garden Roses" gives an interesting account of how these rose blooms were carried across the sea. In the bottom of a large earthenware crock, a layer of bay salt was placed, and on this bed, rows of rose buds, showing colour, were laid. These were then sprinkled with wine and another layer of bay salt was added to the crock. This was repeated till the jar was full, when it was sealed with a leaden lid and placed in as cool a place as possible, either in the hold of a ship or the cellar of a house. This successfully preserved the roses until they were to be used, when they were removed from the jar, either singly or all at one time. To allow them to open out, they were placed in a warm oven or tepid water for a few minutes; the petals were gently worked by the tips of the fingers till they commenced to open up. A feather was dipped into attar of roses and the scent was restored by brushing this perfume lightly into the heart of the flower. A similar method was used to restore a gloss to the leaves, only this time, the feather was dipped into wine. It was an amazing, though most successful, method of transporting and preserving cut flowers when small sailing vessels took days to cross the Mediterranean.

The Phoenicians, who traded as far afield as the Atlantic Coast of North Africa, were responsible for taking the rose to Carthage; and later, the Moors took it with them to Spain. Later still, when the Spaniards set out to colonise the West Indies, they carried with them to Cuba the Damask "Quatre Saisons Rose" and called it the "Alexandria Rose", as they thought it was of Egyptian origin. In 1645, the founders of the Spanish missions in America introduced the Damask Rose there and called it the "Rose of Castile", and so this ancient rose arrived in the New World.

This gives a very brief outline of how and when *Rosa damascena* was distributed over quite a large area and many countries. All new forms, up to the middle of the eighteenth century, were natural hybrids; but after that, artificial hybridisation began to be practiced in Holland

and France. Many of our most charming old garden roses were produced during this period, though quite recently others have been added to the list.

The Damask Roses are divided into two distinct groups, one being the Summer Damasks, which flower only once in the season; and the other being the Autumn Damasks, which bloom again later in the year. In this group are roses that are eminently suited to the small garden as the growth is upright and compact and not too tall, and they make a good display of colour when in full flower—an added advantage being that, even in a hot summer, they keep very healthy and have strong luxuriant foliage.

The first group contains some very famous roses, several of which were painted by Redouté. They are listed under the name *Rosa damascena* and were derived from a cross between *Rosa rubra* (*gallica*) and *Rosa phoenicea*. All are back border or shrubby plants, as they are tall growers. Practically all have clusters of pale coloured flowers, taking after the second parent in this respect. The arching stems are clothed in reddish thorns and soft pale leaves. A typical and famous example of a Summer Damask is *damascena versicolor*, more commonly referred to as "York and Lancaster" or the "Rose of the Wars". Shakespeare was thinking of it when he spoke of "Roses damasked red and white". Redouté gives an excellent picture of this rose with its medium sized muddled-looking flowers, some white, some pink, and some pink and white. It is quite distinct in form from *gallica versicolor* or "Rosa Mundi", though the two are often confused. In the latter, the flowers are larger and of better shape, with definite striping of soft crimson on a pale pink ground and masses of yellow stamens. However, with all its historical associations, it is an interesting rose to grow.

Celsiana, also marvellously depicted by Redouté, is referred to by Mr. Graham Thomas in his delightful book, "The Old Shrub Roses", as one of the really old Damasks. It has been seen in pictorial form by many since the Ariel Press recently brought out reprints of some of Redouté's famous paintings. Its pink flowers fade out to blush and the centre of the flower has the typical damask characteristic of small petals and stamens intermixed. "Whitemost" and "White Spider", both tallish pink and white fuchsias, would be lovely to grow in conjunction with these two old roses, and for ground cover, use could be made of the long-spurred pink and white aquilegias.

There is a lovely white Damask hybrid "Madam Hardy", with the look of a really old rose, raised in France just over a hundred years ago, and named after the wife of the keeper of the Luxemburg Gardens in those days. It has been confused with another beautiful white rose with a lot of Damask in its make-up—the *noisette* "Madame Plantier". Both have the green eye in the centre of a lovely full flower, pink tinted buds, long attractive sepals and pure damask scent; but there the resemblance ends as in "Madam Hardy" the upright

stems are clothed with typical thorns and the leaves are large, whilst in the *noisette*, the stems arch and are practically thornless, and the leaves, also pale green and very disease resistant, are much smaller. Another confusing point is that most *noisettes* are remontant; but "Madame Plantier" is not, and this is the case also with "Madame Hardy", a Summer Damask. Lovely white fuchsias can be used effectively with these roses, "Ave Maria", "Flying Cloud" and "Snowball" being a delightful trio. Useful perennials to associate with these are the *Campanula persicifolia* "Boule de Neige", *carpatica alba*, and *alliaria-folia*, which flowers consistently all the season. Dwarf white candytuft, armeria, dianthus and ageratum are pleasant plants for the front of a border with dwarf white bulbs popping up amongst them. For the spring, *Muscari botryoides album*, *Scilla siberica alba*, *Lachenalia contaminata* and freesia "Leinav's White" can be planted, with *Acis autumnalis*, *Zephyranthes candida* and the tall *Galtonia candicans* for giving added colour later in the season.

A name that conjures up pictures of Persian bazaars, camel caravans and all the mysteries of that ancient land, is Omar Khayyam, the poet who sang of roses and on whose grave at Naishapur a Damask Rose was planted. Centuries later, after the death of Edward Fitzgerald, who immortalised Omar Khayyam in his poetry, cuttings were brought from Persia and planted on his grave in Suffolk. This pink flowered, grey foliaged rose is known by the Persian poet's name and is a summer flowering Damask.

Miss Nancy Lindsay, who is a present-day collector of roses, recently brought back from the Guilan Mountains of Persia, several beautiful new "old" Damask Roses, which are going to prove valuable additions to this not very large group. One is called "Gloire de Guilan" and is not as tall as some of the earlier Damasks, which will add to its usefulness. It has a ravishing perfume, clear pink flowers and light green leaves. *Platycodon grandiflora rosea* and *Pentstemon* "Evelyn", an 18-inch plant, would be useful to grow near "Gloire de Guilan" with pink ixias, rose pink zephyranthes, and pink and rose freesias.

A larger flowered and more modern type of Damask is "Marie Louise", which has blooms of a rich lilac-pink that reflex almost into a ball; and more recently still a lovely rich rose semi-double flowered form occurred spontaneously in a garden at Richmond, Yorks. It has been called "St. Nicholas" and Mr. Thomas speaks of it in very glowing terms though it has not flowered here as yet—probably due to wrong pruning. Twiggy stems should be removed from ground level after flowering and the long arching branches left unpruned or only very lightly cut back. "Kazanlik" or *trigintipetala* is another one that behaved badly and in England this rose is known as a shy and temperamental bloomer. It is one of the taller Summer Damasks and has pink flowers—when it flowers.

Strangely enough, the other "Kazanlik" roses flower most profusely, even out here, so far away from Bulgaria. It is possible that

these plants will do better in the North Island where the climate is warmer, as they are of Syrian and Persian origin. Mr. Thomas recently sent to Bulgaria for pressed specimens of the roses grown there commercially; and when they came back and were examined botanically, it was discovered that one of the really delightful damasks, "Ispahan" or "Rose d'Ispahan" was one of the two grown most extensively at Kazanlik for the production of attar of roses. This glorious rose has everything to recommend it—health, vigour, compact habit, and corymbs of small but exquisite rose coloured flowers. The buds are sheer perfection and it goes without saying that the perfume is all that could be desired. A paragon among the damascenas with the longest flowering season of any of the Summer Damasks.

To come at last to the Autumn Damasks is to think first of the most famous of them all, *Rosa damascena bifera*, or the "Quatre Saisons Rose". A lovely illustration of this can be seen in Redouté. It has typical leaves and thorns but the growth is shorter, though the branches still arch over with the weight of the cluster flower heads. The central rose opens first, deep pink in the heart of it, with yellow stamens peeping out from amongst the short curled inside petals. The outer ones pale a little and when fully open show a loosely arranged bloom. The buds that surround this flower are decorative with their long pointed sepals—actually, these and the half open flower are more attractive than the fully open one. This rose sported back recently to the Damask Moss—the perpetual "Blanc Mousseux"—a white rose, sometimes called "Rose de Thionville". In Shepherd's "History of the Rose" he says that the origin of this white variety is in doubt; but this sporting back has proved its ancestry decisively. A trio of soft coloured fuchsias that would make good companions for this old rose are "Seventeen", "Flirtation" and "Blue Horizon", with Aster "Harrington's Pink" in the background and *Veronica spicata rosea* in the foreground.

"Rose de Resht", an Autumn Damask, and another of Miss Nancy Lindsay's recent discoveries in Persia, is a type of the old "Scarlet Four Seasons" referred to by Dr. Hurst. It was also discovered that *Rosa centifolia* was not in existence as early as had been thought, the double rose referred to in ancient times being one of these Damasks. This rose grows into a strong, compact and healthy bush well clothed with leaves, and the flowers, which are held very erect, appear on and off all season. The colour of the blooms is a rich cerise, which develops a lilac under-tone with age, while the petals are closely packed and slightly reflexed, giving the effect of a pompom. This is a rose with very definite garden value for those who can appreciate one which does not conform to modern standards.

There is another type of rose that is very uncommon today and that is grouped with *damascena bifera*, or the Autumn Damask. This is the Portland Rose. It has the "Scarlet Four Seasons" rose as one of its parents and has been aptly described as a rose, "high-shouldered, short-necked, with flowers that sit tightly upon a rosette of leaves".

This is an excellent portrayal of a type of rose that was produced at the beginning of the nineteenth century and called after the Duchess of Portland, an enthusiastic gardener of those days. This first one was bred from a Damask x *gallica* cross; but later ones, produced about the middle of the century, had *centifolia* and China strains included in their parentage, though the Autumn Damask characteristics predominated. Some of these roses are still in existence: and it is interesting to know that the early Hybrid Perpetuals were bred from these Portland Roses. A very double rose pink form with a tight eye grows well in the northern part of the country and flowers profusely during the hottest and driest months of the year.

Damask Roses are still of good garden value, particularly the remontant autumn varieties; and their history and the place they held in the hearts of people thousands of years ago adds to their fascination.

AN ENGLISH GARDEN IN WINTER

WILL INGWERSEN (*England*).

Although these words are written in early January, when, in England we are still supposed to be in mid-winter, signs are not lacking that, whatever we may yet have to endure by way of snow and frost, spring is on the way. January can be, and often is, the worst month of winter, and here in the Weald of Sussex I have bitter memories of zero frosts and bitter east winds persisting throughout this month. Somehow, though, it does not matter so much now that we have passed the turn of the year. It is so much easier to endure weather which would fill us with gloom and despondency before Christmas when sturdy noses are thrusting upwards through the soil, and many trees and plants are actually in flower. A tour of the nursery today filled several pages of my notebook with comments, which I feel might well be taken as the basis of my garden story for this issue of "New Zealand Plants and Gardens".

This has been, on the whole, a mild winter, with no more than two brief spells of frosty weather, and a mere powdering of snow which came on Christmas Day and lasted for no more than a few hours. Without doubt we shall receive our portion of snow and frost before winter finally departs, and some of the precocious growths and early flowers will probably regret their eagerness. Looking at the whirling flakes through my window as dusk fell on December 25th I saw the light from within reflected on the glowing petals of the first cup-shaped single flowers of a rich red form of *Camellia sasanqua*. No camellia offers a more complete renunciation of the fallacy that these handsome shrubs are tender, for *C. sasanqua* has lived in this east-facing corner of my house walls for five years now, and the flowers have often been encased in ice for weeks on end. It flowers from December to April, and this fine 6 feet specimen is now bearing at least a couple of hundred fat buds, and a couple of dozen fully expanded flowers.

In a narrow, west facing border nearby grow a number of hellebores, and two of them, *H. corsicus* and *H. foetidus*, have been in flower for some weeks now. *H. corsicus* is not only a highly ornamental ever-green, with its leathery, deep green leaves, but the great clusters of apple-green flowers, individually as much as 2 inches in diameter, are really beautiful, and are in great demand as cut flowers for floral decoration, now so universally popular in its modern aspect. The flowers of *H. foetidus* are smaller, but I find them most attractive. The small green cups are margined with brownish-purple and borne in great abundance. Close at hand is a colony of what is possibly the most beautiful of all the hellebores, *H. niger altifolius*, the ever-popular Christmas Rose (Winter Rose in the Southern Hemisphere). This, for some unexplained reason, is staying abed longer than usual this year and the first flowers will not be open for a week or two yet, although we can usually count on them for the Christmas table. This is the form which carries 3 inches wide flowers of purest white boldly aloft on sturdy stems, well above the sombre green leaves.

The white, green-tipped lampshades of the vernal snowflake, *Leucojum vernalis* are cheerfully hung out to greet the occasional glimpses of January sunshine. Come storm, come blast, come rain, come fine, this happy harbinger of spring flowers unperturbedly and yearly increases its little colony, growing in the corner of a border packed to overflowing with bulbs. I never cease to marvel at the miraculous ability displayed by some of the apparently so frail flowers of winter and early spring to stand up to the terrific battering they receive. *Iris histrioides*, of which I cherish a magnificent form of the variety known as *major*, will open its glorious blue and gold flowers, only to have them beaten by rain and encased in icy slush. I always expect them to lay in shattered ruins, but lo and behold! as soon as conditions improve they stand perkily erect, unharmed by storms which have laid low mighty trees.

In a week or two the first of the spring shows of the Royal Horticultural Society will be held at Vincent Square in London. This is a great event in the year, and it is a wonderful experience to walk through the streets of London on a murky winter day and to turn through the doors of the New Hall and straightway enter into a fairy-land of flowers. Here we have a number of plants being prepared for this first exhibition of the year, among them many of the earliest flowering *Kabschia saxifragas*, spring bulbs in wide variety, and a fine lot of that other charming green flowered hellebore, *H. viridis*. These are collected plants which, less than a year ago were growing in woodlands in the Italian alps. They are flowering unusually early this year, probably due to the mild winter. They will look at their best when springing from a carpet of the early snowdrop, *Galanthus graecus*.

Prunus subhirtella autumnalis is in full flower, the bare wood of its stems wreathed in countless clusters of small pale pink flowers. It is accompanied by a tree of *Cornus mas*, similarly leafless, and crowded with myriads of primrose-yellow blossoms. A carpet of deep pink

forms of *Erica carnea* beneath, and a few early flowers of gentian blue hepaticas combine to form a picture of great beauty and prove beyond doubt that colour is not lacking, or need not be, in an English garden during the winter months.

Although they have no great beauty of flower to recommend them I value highly the dwarf, evergreen bushes of species of *Sarcococca*, such as *humilis* and *ruscifolia*. They are evergreen, and pleasant to look upon with glossy, leathery leaves. The flowers are small, and usually whitish or greeny-white, and carried in tiny clusters which are apt to be hidden among the leaves, but they exhale a strong and delicious perfume into the cold winter air and are to be esteemed even if for this alone. They also have the virtue of growing contentedly in even poor soil and flourish in the shade of taller trees and shrubs, in positions where it is not always easy to establish ground cover. For similar reasons I cherish all the forms of the lowly Periwinkle I can discover. There are varieties of *Vinca minor* with blue, white, or burgundy coloured flowers, and *V. major* with its inch-wide clear blue blossoms, and some of them will usually produce flowers during the winter months to enhance the pleasure of their close mats of green leaves.

There is little doubt in my mind as to which is the best of the Witch Hazels when, in mid-January, I look at our old trees of *Hamelis mollis*, garlanded from tip to base with countless thousands of yellow petal clusters. When one adds to its beauty the charm of rich fragrance it becomes one of the best of all winter flowering shrubs. Close beside one of the best bushes is a small colony of *Rhododendron dauricum*, which will soon open the first of its purple flowers. One has only to handle this little shrub to elicit the aromatic fragrance of its stems and leaves.

In the woods around the nursery primroses have flowered the winter through in a sheltered, sunny corner, but primroses in the garden, for some reason or other, do not look as happy as they should. I have assiduously collected as many as I could of the old-fashioned doubles, the parti-coloured and the crazy Jacks-in-the-Green and Hose-in-Hose, as well as the innumerable hybrids which shelter beneath the blanket name of *Primula juliana*, and they usually do well enough in our heavy Sussex soil. I think the time has come when they must be uplifted and divided and replanted. I have found it a mistake to provide them with rich, indigestible soil—they much prefer pure loam, and on the heavy side at that.

LILIES

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Having been asked by the Editor to write on lilies, I am somewhat at a loss as to what aspects to write about. There is a strong tendency to cover the whole field of lily growing in this country—resulting chiefly

in a superficial recording of many facts or theories already well known or available in books such as Woodcock and Stearn's "Lilies of the World", or in the Lily Year Book of the R.H.S. After some thought, it seemed best to make this a more personal article, which would in effect give the writer's views on some lily matters more or less as he would write in a letter to a fellow grower, together with some account of his own experience in growing and breeding lilies.

To begin with, it should be explained to those who do not know me, that I grow lilies as a hobby and that I specialize in growing and breeding *auratum* lilies and their hybrids with *L. speciosum*. To that extent my knowledge of lilies is a narrow one, but I do grow or have grown quite a few other species and hybrids of lilies—amongst them *L. regale*, *L. szovitsianum*, *L. tenuifolium*, *L. sulphureum*, *L. pardalinum*, *L. tigrinum*, *L. philippinense*, and an assortment of hybrids such as Crow's Hybrids, and the lovely new yellow and apricot trumpets.

From these types it would be hard indeed to name my favourites, but to anyone wanting to start lily growing in his garden, the Regal Lily would be my first recommendation. Like most of the trumpet lilies, it is really easy to raise from seed, flowering some two years after sowing, and its beauty of flower is, if anything, excelled by its lovely perfume. If you have room, grow them by the hundred. They are hardy as to soil and wind, and usually flower in the Xmas—New Year period. The Crow's Hybrids and Olympic Hybrids are rather similar to Regal Lilies but tend to flower a week or two later. Though some people think them superior to pure *L. regale*, I have a rather vague feeling that they grow too tall and produce such over-large heads of flowers in their later years, that they lose the delicate charm of pure *regale*. However these hybrids are so much like *regale* itself, that seed of the hybrids and of the species are likely to be substituted quite unintentionally for one another.

The coloured trumpets do offer something not found in *L. regale*. The "green" and "pink" trumpets started off as selections from mixed Olympic Hybrids. "Green" is almost too strong a term for the former. The best that can be said is that they have a greenish tinge which is cool and most attractive when placed in contrast with "pinks" or "yellows". The "pink" trumpets are as yet rather heavy in general effect, the pink colour being strongest at the margins of the petals.

The "yellow" and "apricot" trumpets are a distinct race of hybrids, getting their colour from *L. henryi*. They flower in late December and January, and include some really beautiful flowers of clear yellow or of rich apricot shades, carrying scent like that of *L. regale*. As grown from seed they are a mixed lot and only a small proportion are really good. If you can get seed from good types, grow it and select the best. Otherwise get bulbs of only the best selected types. Many enthusiasts are breeding these in New Zealand, and there should soon be plenty of good ones available. All these trumpets are easily grown from seed. Sow it in September in shallow drills, just as if it were

onions or carrots. After covering the seed with soil and making the bed smooth, I spread about 1 inch of sawdust over it, to keep down weeds. Leave the small bulbs in place for two growing seasons and then transplant into permanent places.

The little *L. tenuifolium* (*pumilum*) deserves special mention. It is a dwarf lily, growing ultimately to about 2 feet in height, and carrying turks-cap shaped flowers of sealing wax red or of golden yellow. Perhaps its greatest attraction is that it flowers very early in the season—from October to December with me. It is very readily and quickly grown from seed in the same way as the trumpets are. Its seed is ripe so early in autumn that it could probably be sown as soon as ripe, gaining one season.

L. tenuifolium would be almost unnoticed if only a single plant were grown. I have found it very easy to use in effect for bedding. Scores of the tiny inch long or smaller bulbs can be scattered on a bed and covered about an inch deep with soil—maybe with an equal thickness of sawdust, too, as a weed control measure. The same principle of mass planting appeals to me for most other lilies and especially for those which are easy and cheap to raise from seed. You may not have a whole bed available, but there may be a patch a yard or two square in amongst shrubs or other plants, where a dozen or two bulbs of one sort can be planted. The taller lilies, viz. the trumpet types, auratum and speciosums, are well suited for this type of planting. Set in a bed of shrubs—in my own case mainly rhododendrons, azaleas and camellias—they seem to benefit from having the roots shaded, and help to make a garden which has something in flower most of the year—camellias through winter, rhododendrons and azaleas late winter to late November, and lilies from December to April. The late flowering lily, incidentally, would be *L. philippinense*, another very easy one from seed, and flowering about Easter. The dwarf lilies, if they are being grown in a shrubbery would be at the front, where they would not be hidden by large shrubs.

The lilies, which are quick and easy to grow from seed, have so far been emphasised. What about the other types? *Auratum*, *speciosums*, *szovitsianum*, and other species are slow to germinate, suffer many deaths as seedlings, and will generally take four or five years from seed sowing to flowering. That is one reason why these are more expensive to buy. Instead of sowing the seed in the open ground, it is better to mix it in damp sand or bulb fibre about November and put it in a polythene plastic bag in a warm dark place all the summer. By May there should be hundreds of tiny bulbs, but no leaves. Sow it then as already described for the other lilies and the leaves should appear the following spring. These types suffer much from the fungus leaf-spot (*botrytis*), and in spite of sprays there are many deaths. A "tent" of heavy scrim or split manure bags to keep off strong sun and dew ought to help them. The frequent dampness on the leaves as a result of dew may well give the fungus a chance to attack. We gen-

erally leave these seedling lilies undisturbed for about three years, even though they may be sown very thickly. The less they are disturbed when small, the better are they likely to grow.

Once they flower, the choicest bulbs of these types are increased in any one or more of three ways—by allowing natural increase for four or five years and then separating them; by “scaling” the bulbs; and by planting the stem and basal roots in the autumn. These same methods, of course, can be applied to most of the trumpet and other lilies, but are more important in the case of lilies which are slow to raise from seed.

Separating the bulbs resulting from natural increase every five years or so, is quite a good method when the gardener is in no great haste. Under good growing conditions, especially if there is no close crowding and shading, many lilies at about five years produce flattened (fasciated) stems and large flower heads closely crowded with smallish flowers. After flowering, such a bulb should be dug up and any small bulbs planted out. The large main bulb may be “scaled”, and the stem with its stem roots should be planted. The over-sized bulb, if replanted, is liable to go on producing fasciated stems and is much better utilised by breaking off the scales and propagating from them.

The easiest way of growing bulbs from the scales is to plant them in February or March just as you would peas. The soil should be loose and well-drained. If the scales are planted early in the autumn, small bulbs and roots will form before winter, and small stems should come above ground the following spring.

Planting the flowering stem and its roots is an easy way of increasing good types. Once more, good loose soil is best. We generally use a raised bed about 9 inches high and 3 or 4 feet across. Dig a wide trench across this bed, big enough for the bunch of stem roots to fit comfortably, and lay the stem down with its roots in the trench and its upper part lying along the bed. Cover the roots and one half or two thirds of the stem with an inch or two of soil. Large stems 5 or 6 feet high will often produce eight or ten new stems in the next season, and some of them will flower in that season.

The best time to transplant bulbs is a matter on which there is much difference of opinion. Frequently it is said that the best time to transplant lilies is as soon as possible after flowering. That is quite all right if one transplants the whole plant—bulb and stem, together with leaves and all roots. For most practical purposes that sort of transplanting is out of the question, and the bulb must be detached from the stem for convenience of handling. In this case I much prefer to leave my transplanting as late in the autumn as possible up to the stage where the tops begin to die off. It is well-known that the effort of flowering uses much of the food material produced at that time by the leaves. After flowering is over the bulb commences in earnest to store food and build up for next year's flowering. The

longer we can allow green leaves to remain on the bulb, the better the bulb should be. With our mild autumn and winter, a bulb planted in late autumn still finds the soil warm enough for root action to start. In colder climates, earlier planting may be necessary before the soil becomes too cold.

The breeding of lilies is a most interesting hobby and one which is well within the ability of the average gardener. There are few things more thrilling to the keen grower than watching the progress and flowering of plants raised from his own crosses. Naturally, the crosses will be expected to give better results if the parents have been selected and crossed in the hope of securing something new and different, whether it be in flower colour, form and texture, or a new combination of these. Simply raising of seed from good types often produces even better types, but one must be prepared to raise large numbers of seedlings and select the one-in-a-thousand type. Crosses between different species or hybrids are less certain to succeed, but the results are often most unexpected. There are records in lily year books and elsewhere of crosses that have been attempted and have failed. Do not be deterred by that. As a rule a cross attempted "between two species" has been tried only between two plants representing the species. Two other plants from these species might be found to intercross readily.

A brief account of some of my own experiences in breeding and growing lilies of *auratum* and *auratum* x *speciosum* hybrids may be of interest. Beginning first with *L. auratum*, we had two or three fairly ordinary *auratum* lilies in the garden, and a number of *L. regale*. The effect was of too much white, and pollen of *L. auratum* "Crimson Queen" from friends' gardens was used on our own *auratums*. The result was a good batch of seedlings, including "Crimson Queen", *rubro-vittatum* and *pictum* varieties. The best of these—some five or six—were increased later by scales and stem bulbs, to build up clones. The term "clone" seems to puzzle many gardeners; it simply means a number of identical plants which have been multiplied from the original one, not by seed, but by vegetative means—by cuttings, layers, grafting, budding, use of scales or stem bulbs in lilies, and so on. Very few plants come absolutely true from seed and with many choice plants, vegetative propagation is the only means of ensuring that a gardener secures the desired type. The common description of a plant as "just as good as so and so" never satisfies the keen gardener who has seen a particular plant and wants one "just the same". It is for such reasons that we have built up clones of the best selected *auratums*. Over several years the total number of *auratum* seedlings raised and brought to flowering stage has run into thousands. Each year a few of the most striking are kept and grown for another year or two. Frequently they are not so impressive the next year, and are thrown out, but those which continue to please ourselves and others are kept and gradually built up into clones.

One of the most interesting types of *auratum* that has arisen is what we call "Dwarf". About a dozen "Dwarf" types have shown up

in the seedling beds. They are very short stiff plants with short, broad leaves and small flowers of excellent quality. Sometimes a plant not yet 6 inches high will carry a flower 4 or 5 inches across. The oldest bulbs we have—now six or seven years old and apparently fully grown—are less than 3 feet high and carry from twenty to forty flowers. The stems are so thick and stiff that they appear capable of standing up to very strong winds without damage. The bulbs are small and for that reason these types are very slow to increase. Mr. A. W. Wastney of Nelson tells me he has been growing this type for some twenty years. The highly coloured varieties of *auratum* are prized because they occur rarely, but I would not agree that one type is better than others. The odd red bloom in a mass of whitish ones is very striking, but so is a white one in a bed of red flowers. It is the mixture and the contrasts of colour which show the different types one against another. How beautiful the white of *auratum* "Virginale" looks after seeing a mass of strongly coloured types!

The hybrids between *L. auratum* and *L. speciosum* are good examples of what new and beautiful flowers can arise from inter-specific crosses. According to the rules of nomenclature, the first cross is called *Lilium* x *parkmani*, as also are plants raised from intercrossing the hybrids or from crossing them with either of the parent species. These *parkmani* hybrids then, include a wide range of types mostly with pink or red colouring, but in the "Lavender Lady" group the only colour, if any, on the petals consists of pink or lavender spots, with sometimes a lavender flush near the tip of the petals. Our own preference is for the almost pure white type with green nectary and a very few delicate markings.

The "red" and "pink" forms of *parkmani* are of course very striking and many are very beautiful. Here again tastes differ, some gardeners preferring the softer pinks, others the bold red colourings. There is a wide range of flower shapes in these hybrids, ranging from narrow petalled flowers which mostly do not hold a good shape, to shapes with wide, heavy-textured petals which retain their form well. In general, these hybrids flower about two or three weeks later than the *auratums*. This is a very satisfactory position, as it gives a continuity of flowering lasting here until late February.

Of course, many other lily growers in this country and overseas are breeding these *parkmani* hybrids, but I have seen very few of them, being tied to my own garden at flowering time. Mr. Reader of Tauranga showed me one of his hybrids about fifteen years ago. Dr. B. W. Doak, Mr. L. E. Tuffery, Dr. McKillop, and Mr. L. E. Jury are some of the other growers of whom I know. It is a most fascinating hobby and not its least attraction is the spirit of fellowship which one finds amongst those of similar interest.

One final word of advice: if you are a novice, join a Lily Society to get advice and seeds; if you are more advanced, join up to help the novices, remembering the help you had when you started.

Some Notes concerning Dr. Yeates' Hybrids by THE EDITOR.

During a visit to Dr. Yeates' lily plantations and trial grounds in early February I was fortunate in having chosen a time when they were probably at their best. Some were over but the majority were either in bloom or on the point of bursting. I do not recall ever having seen quite so many *Lilium auratum* in bloom before and the effect was spectacular. To the keen plantsman, however, it is the detail rather than the mass that attracts and immediately we set about a thorough examination of the named varieties and others that were in the stage of being selected for trial. The world's best plants eventually find their way to the world's leading flower show at Chelsea. I can remember well the sensation caused when "Jillian Wallace" was first exhibited there, but I should be intrigued to watch the reaction of the visitors to that great show to a large exhibit made up only of Dr. Yeates' *auratum* and *auratum* x *speciosum* varieties.

In the early stages of a flower's development where there is considerable variation among the seedlings, a plant breeder can select quite a number of types that offer possibilities. But, as development reaches a higher stage, selection becomes increasingly more difficult and hundreds, even thousands of excellent seedlings have to be discarded. Only those that are really distinct or show definite improvements on existing varieties can be retained. It is not always possible to judge a seedling lily at its first flowering. As with daffodils and other flowers it can improve almost beyond recognition after it has been allowed to grow on for a few years. It is only the skilled eye of the plant breeder that can estimate the possibilities and, even then, he is not infallible.

Of the varieties already in distribution I found "Pink Delight" particularly pleasing and if I had the choice of one only it would be this. The wide, substantial petals of firm texture open nearly flat but still retain the cupped form of typical *auratum*. The flowers are fully 10 inches in diameter and of a good dark pink. It was the result of an *auratum* x "Jillian Wallace" cross. For a striking flower of large size "Excelsior" is impressive. The petals are broad and substantial and of an arresting red colour. Although the form may not be so good as some of the others, it will be a wonderful garden plant. In this class a new variety that attracted my attention was "Elizabeth", a second cross from "Jillian Wallace" x *auratum*. This may best be described as a paler variation of "Pink Delight" with a dark stigma. The flowers are large, of perfect form and make a noble pyramid on a sturdy stem.

Of quite a different type is "Lavender Queen". The flowers retain the size and texture of the other varieties but are a white ground flushed with lavender pink. A new form with very definite possibilities has not yet been named, being known for stud book references as the Pink Star Type. In form it is definitely *auratum* but the flowers tilt upwards which lends a happy variation to the contour of the spike.

"Virginal" has always been a favourite of mine and I was pleased to see flowers of the same class of colouring in "Rangitira", pure white with lavender spots, "Goldie", white with a daffodil yellow band, sparsely spotted brown, and "Ward", similar to the last mentioned but with barely perceptible spots.

The dwarf forms of *auratum* possess very wind resistant stems and, apart from their value to florists, they should be welcome in gardens that are too windswept for the taller varieties.

Among the seedlings, one in particular impressed me with its brilliant colouring, lovely flat form of its flowers and its magnificent pyramid of flower. It has not yet been named but is the result of a cross between the *auratum* variety "Philippa" and *speciosum*. Its size is between *auratum* and *speciosum* but the flowers are crimson with no white shading and the colour goes right through to the reverse of the petal. Unless I am mistaken, and I do not think I am, we shall hear more of this lovely flower.

PRESENT TRENDS AMONG CAMELLIAS IN THE U.S.A.

RALPH S. PEER (*Los Angeles, California*).

That interest in camellias in the U.S.A. is increasing at a rapid pace, is easily demonstrated by the increasing number of members of the more or less two hundred Camellia Societies and the fact that new societies are being formed almost every week during the winter season. It must be remembered, however, that this noble flower, because it blossoms during the winter months, may not be grown out of doors in the states which customarily have ice and snow during the winter. Unfortunately, more or less 60 per cent. of our population is to be found in such areas. It is improbable, however, that there is any state which does not produce some camellias, under glass if necessary.

Starting at Washington, D.C., and continuing southward along the Atlantic Coast, we find, as we approach the warmer climate, more and more camellias in the local gardens. Continuing southward, however, it must be noted that camellias do not grow well in the southern half of Florida—the weather is too warm and too equable. In Atlanta, Georgia, and Birmingham, Alabama, camellias are normally grown in glasshouses because of their winter weather. South of these cities, however, in both Georgia and Alabama, one finds camellias growing in every garden and often along the roadways. Interest in camellias continues westward through Louisiana and into south-eastern Texas.

One picks up the camellia trail again in San Diego, California's most southerly city. They are most popular along the Pacific Coast as far north as Seattle, Washington, excepting only the mountain and desert areas. Growing camellias in most of this region is, however, a matter of faith and love. The soil is normally alkaline and must be replaced with earth brought in from the mountain forests, and artificial watering is required in this entire area.

The original introductions on the East Coast came from Europe and were propagated in greenhouses in Boston, New York and Philadelphia. Subsequently, some of these plants were brought direct from Europe to Charleston, South Carolina, and became naturalized. At Middleton and Magnolia Gardens, just outside of Charleston, there are thousands of camellia trees, now about one hundred and twenty-five years of age.

The first camellias reached Sacramento, California, about 1852, arriving by boat, presumably from New York. In later years, however, many camellias were brought from Japan. In Southern California, there are very few trees more than forty years old.

As in Europe, Australia and New Zealand, a majority of both old and new varieties are *C. japonica*. Some years ago, however, it was noted in the Alabama area, that due to the dampness of the climate there, *C. japonica* if grafted on *C. sasanqua* understock, would thrive better. This led to the growth of thousands of seedling *C. sasanqua*. It is the common practice of the nurseries to permit these seedlings to blossom before using them for any purpose and this has led to the discovery of several very good new varieties. For example: "Agnes O. Sullivan", loose, semi-double paeony form of light pink; "Charmer", large single white edged pink; "Gulf Glory" (*grandiflora alba*), very large single white; "Jean May", large double shell pink; "Lavender Queen", large single lavender pink; "Ocean Springs", medium single white with wide red margin; "Pink Lassie", large paeony form of light pink; "Pink Princess" (Plant Patent No. 1328), large semi-double deep rose pink; "Pink Snow", light pink with lavender trace; "Singing River", medium single white shaded pink; "Velvety" ("Crimson Velvetti"), single crimson with velvet overcast.

C. reticulata "Captain Rawes", has of course been in this country as an importation from Europe for many years. In 1949, however, twenty new varieties of *reticulata* were discovered growing in Kunming China. All but two items were transferred successfully to California and have now spread to all parts of this country.

Soon after the ending of the Second World War, *williamsi* varieties (*saluenensis* x *japonica*) were brought over from England and are now generally available. The most popular variety in this group is "Donation".

During the last five years, interest has grown in interspecific hybrids and in the development of species which have been introduced only recently.

Throughout our "camellia territory" it is customary for nurserymen and amateurs to grow thousands of *japonica* seedlings. One nurseryman in Georgia plants from five thousand to ten thousand seeds annually, and always has forty to fifty thousand plants growing on his premises. After the seedlings have blossomed, those which are worthwhile are set aside and the remainder of the plants are used

as understock. Usually not more than one in ten thousand seedlings will produce a bloom having any commercial importance.

In addition, nurserymen and amateurs watch for mutations or sports, and occasionally find good new varieties in this manner. An outstanding example is "Cinderella" which was offered for the first time this year. Approximately sixteen thousand plants have been sold. This is a sport of the very old English variety, "Fred Sander", one of the very few fimbriated camellias.

The year 1955 was noteworthy because of the introduction of "Mrs. D. W. Davis", producing pink semi-double flowers ranging in size from 7 to 8 inches—the world's largest *C. japonica*. During the last three years, various other large flowering *japonica* varieties have appeared, for example, "Red Ragland", "Giulio Nuccio", "R. L. Wheeler" and "Guest of Honour". Blossoms from each of these varieties will normally be from $5\frac{1}{2}$ to $6\frac{1}{2}$ inches in diameter.

An organisation founded by camellia nurserymen, known as All American Camellia Selections, selects one outstanding new variety each year. Its first selection occurred in 1956—"Cinderella". This device focuses attention on any outstanding variety and serves to increase public interest.

Because of the soil alkalinity, the California nurseries normally propagate and grow all plants in containers—usually discarded oil tins. It is quite customary to see advertisements for a "five gallon camellia" or perhaps a "one gallon graft". Purchasers, normally, but not always, replant in their own especially prepared soil. One occasionally notes, however, very large camellia collections which have been grown for many years in containers.

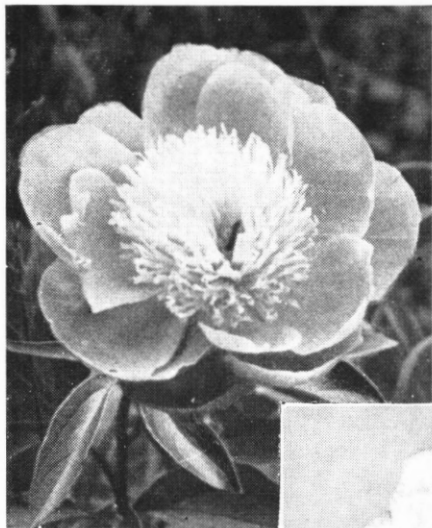
Every one of the two hundred or more Camellia Societies will normally produce a Camellia Show sometime during the months of January, February or March. In Sacramento, California, there is a week long festival held during February, and throughout the camellia area the Camellia Ball is an outstanding social event. Next to roses, camellias are definitely the favourite flower of our most important class of citizens—the small home owner.

BULBS FROM THE CAPE OF GOOD HOPE

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

In choosing the above title for an article to be presented to the keen gardening fraternity of New Zealand, I find that, on going over the list, it is a much more formidable subject than at first I imagined.

The smaller types such as freesias, ixias, sparaxis, babianas and tritonias are perhaps well known to your readers. I will therefore say that in general terms of cultivation, the species of these genera are for the most part found in the winter rainfall areas of the Western and Eastern Cape. That is to say, from winter to the end of October, they receive copious rain and for the remainder of the year, the climate



Single herbaceous Paeony,
"Mrs. G. F. Hemerik"
(see page 78).

(Photo: C. Lewis)

New fimbriated
Camellia "Cinderella"
(see page 66).

(Photo: Sage Studio)

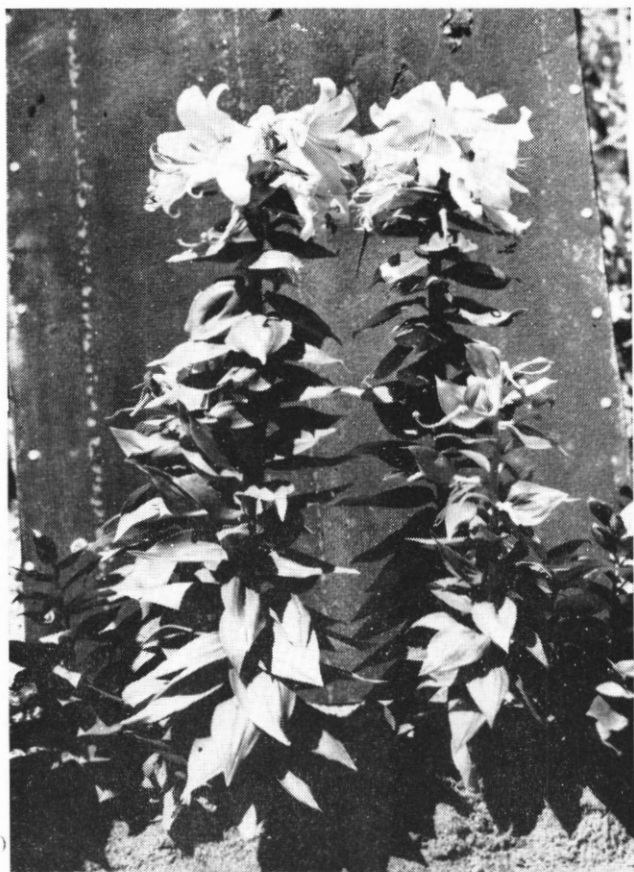


Bud of Rosa bifera
(see page 51).

(Photo: Bruce Grace Ltd.)

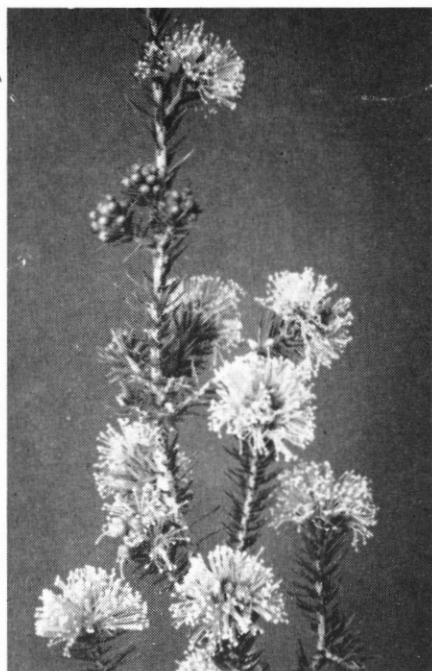
Two of Dr. Yeates' dwarf Lilium auratum hybrids (see page 61).

(Photo:
Bruce Watt Studio)



Single herbaceous Paeonies en masse (see page 77).

Melaleuca squarrosa (see page 85).
(Photo: Douglas Elliott)

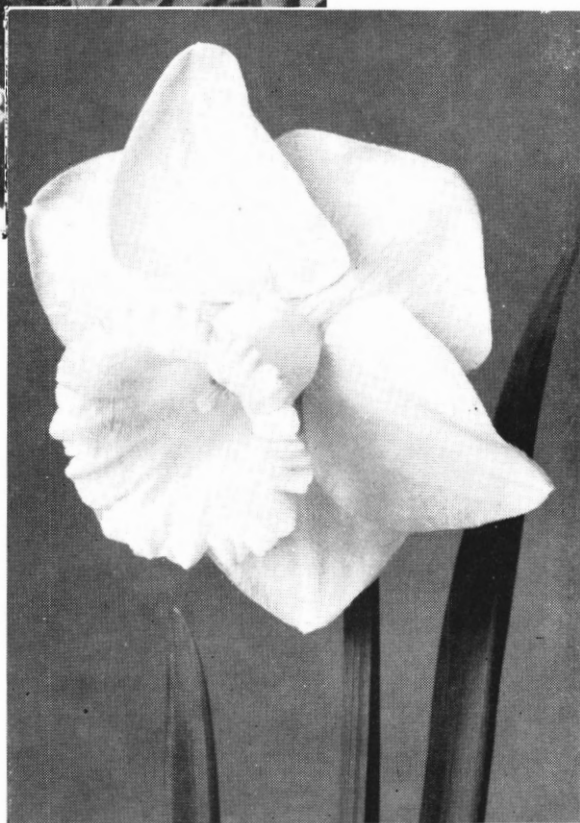


Veltheimia viridifolia (see page 69).
(Photo: Douglas Elliott)

Helleborus corsicus (see page 56).
(Photo: D. F. Merritt)



*Guy L. Wilson,
V.M.H.,
among his daffodils
(see page 45).*



*Narcissus "Empress of
Ireland"*
(see page 49).

(Photo:
J. E. Downward, F.I.B.P.)

is hot and dry. This is in sharp contrast to conditions found in the Orange Free State and the Transvaal where it is bone dry in winter with rains commencing in November and continuing till March.

Gardeners in other parts of the world should always bear these peculiar conditions of the climates in South Africa well in mind. There are of course exceptions, such as continuous moist conditions in some mountainous areas in Natal and the constant heat and sun with only sporadic rain in the Karoo and in South-west Africa.

So, in cultivating bulbs, study and do your best to reproduce the climate of the area from whence they originate.

In freesias there are now a glorious range of coloured hybrids. They need a cool and partly shady aspect. They are found in banks of well drained gravelly soil and the bulb is usually some 6 to 8 inches deep. For years the only species known in gardens was *F. refracta* with its white form var. *alba*. Then later, my predecessor, J. T. Butters, and a local (Port Elizabeth) auctioneer, W. Armstrong, two keen naturalists in the late 1800's, discovered a taller, wiry stemmed species in a beautiful shade of pink-carmine at a spot some 50 miles from Port Elizabeth at Klein River, Humansdorp. This proved to be a new species and was named *Freesia armstrongi*. Bulbs were duly sent over to a well known firm of bulb merchants in Holland. Eventually a whole range of hybrids were raised by cross fertilising this new species with *F. refracta*. Freesia seed does well and will give a percentage of flower the first year. Bulbs will flower many years if left undisturbed, say, tucked alongside a rockery stone.

Babianas or the Cape Crocus are found in the open veldt grass in gravelly soil. Many are scented.

Ixias with their tall wiry stems are found under similar conditions. The beautiful green flowered *I. viridiflora*, is an unusual coloured species and well worth growing. It is often 2½ feet tall.

Next to come to mind is *Dierama pendula*, that graceful pink flowered bulbous plant, with flowers that look too heavy for the thin but wiry stems, swinging in the wind. I shall never forget my first sight of this plant in the wild on the Zuurberg Mountains, some 50 miles inland from Port Elizabeth. A collecting friend and I were due at Somerset East (150 miles) for lunch, we left the Zuurberg hotel at 6 a.m. with the idea of a good morning's hunt. I think we forgot breakfast for the excitement of finding *Haworthia glauca*, *Oldenburgia arbuscula*, *Aloe pratensis* and other rarities for the first time was too much to think of food. Then we spotted my first dierama and began to dig for a few bulbs. These were in a sandy bank, in full sun, but the bulbs were at least 12 inches deep. I happened to look at my watch, 11.40 a.m.!! and we were due for lunch at a friend's house 100 miles away!!! (There are several more species besides *D. pendula*.)

Later on on that same trip, I was passing by a small sheet of water or vlei and caught sight of one mass of beautiful pink flowers, some 10 inches, standing out of the water. My brakes went on with a jerk, almost sending us through the windscreen for here was *Crinum campanulatum* in October (or *C. aquaticum*). Now a vlei in the Cape is a pond in the winter-spring but a baked hot and dry mud flat in the summer-autumn. So under park cultivation in the ornamental ponds, we grew this crinum in flat tins, submerged them under 4 inches of water in early spring, but as soon as they had flowered and the leaves had yellowed in summer, the receptacle with the crinum bulbs, just as they were, was taken out of the water and placed on a hot galvanised iron roof for the next five months or so of summer, then topdressed and replaced under water, and so on, year after year. Successful flowering was thus assured.

Other crinums such as *C. macowani* and *C. longifolium*, are found in the O.F.S. and parts of the Transvaal with the alternate climate, namely dry winters, rainy summers. These are sometimes found in full flower growing in depressions with 6 inches of water, in mid-summer.

The nerine is a genus of Cape bulbs well worth growing. *N. sarniensis* or the Guernsey Lily (so called because bulbs were washed up on that Channel Island of Sarnia from a Cape ship wrecked there and were, for many years, thought to have originated in Guernsey) is perhaps the most beautiful species from the Western Cape with its crimson-red flowers covered with a sparkling iridescent gold dust. There are several varieties and now many hybrids. *Nerine bowdeni* is another beautiful species with pink flowers on stems some 20 inches in height, each bearing eight to ten flowers to a head. These grow on the hillside in full sun in the Eastern Province. In April last I saw a clump in full flowering glory at the Albany Museum gardens in Grahamstown. The curator informed me that they had been undisturbed for fifteen years. They were growing on a hump in a small rockery, well drained on all sides, in fact the surface sloped away so that the bulbs could not have received much rain or artificial water. Yet they were flowering perfectly with their bulbs just peeping out of the ground.

Another long suffering Cape bulb but perhaps the most handsome and colourful species to come from the Western Province is *Amaryllis belladonna*. I purchased large well ripened bulbs last January and planted them in full sun, not deep but more or less on the surface of the soil. In March they shot up the strong 2-foot flowering stems, each bearing four or five gorgeous white to rose pink flowers 5 inches long by 3 inches wide. The flower is soon followed by the long leaves which remain green for several months. In 1930 I planted bulbs in a rockery bordering a public thoroughfare, facing south, and they flowered every year. In 1955 I returned to Port Elizabeth after an

absence of fourteen years and there, undisturbed between 1930 and 1955 were my *Amaryllis belladonna* in full glory with the minimum of attention during twenty-five years; almost unbelievable!

Next on my list come a group, unrelated it is true, but which love a little shade, plenty of surface leaf mould and some moisture but not so insistent over a complete drying off. The leaves are in some cases evergreen. They are: *Haemanthus magnificus*, *H. katherinae*, *Veltheimia viridifolia*, and *Eucomis undulata*. These are easy to grow if given shelter at the side of shrubs with some shade. *Haemanthus magnificus* in their hundreds, with the golden mop headed flowers surrounding every group of small trees and shrubs over many acres of veldt at Kenton-on-Sea last Christmas, was a sight not soon forgotten. Kenton is a seaside resort some 120 miles east of Port Elizabeth, with no frost. *Haemanthus coccineus* is a dwarf local species with crimson flowers which pop out of the ground in Autumn before the pair of leaves appear. It is found in gravelly soil in the full open amongst grass and low growth. The flowers usually follow late autumn rains after the soil has become softened.

Another attractive genus of Cape bulbs that must not be overlooked, is lachenalia—there are some forty-five species and natural varieties. This will come as a surprise to most gardeners, I am sure. The bulbs can be grown in groups in rockeries, at the edges of paths, in pots and bowls and in window boxes. They are mostly dwarf, not exceeding 12 to 15 inches. Ordinary good soil with liberal addition of river sand will suit them. They are spring flowering. One local species, *L. algoensis*, is found within the municipal boundaries of Port Elizabeth on a gravelly slope facing south, rather sheltered. A beautiful scarlet flowered species, probably *L. rubida*, is found in sand on the Cape Town flats. Other beautiful species are *L. aurea*, *L. glaucina*, *L. tricolor*, *L. contaminata* and *L. pendula*.

Perhaps the most beautiful and dainty of the South African bulbous plants is the climbing Liliaceous gloriosa, *G. superba* and *G. virescens*. The bulbs have a peculiar shape, not unlike one's thumb and first finger with the growing point at the joint. They are easily raised from seed; they like their roots under low scrub or bushes with the trailing stem pushing up to produce the dainty flowers in full sun. I have found *G. superba* in the sea sand dunes outside Lourenco Marques (Portuguese East Africa) and *G. virescens* in the sand dunes near the Durban Airport, both in low scrub. The two species are very similar. *G. superba* is also found in the Transvaal and *G. virescens* just north of Port Elizabeth. They will only stand frost in the dormant months.

I find my space has been exhausted and still I have not mentioned watsonias (20 species), gladioli (100 species), ornithogalums, cyrtanthus or brunsvigia. It is so easy to become over enthusiastic with such an interesting subject. Perhaps at another time these genera can be dealt with.

AQUATIC PLANTS OF CHARACTER

FRANCES PERRY (England).

With very few exceptions aquatic plants are not characterised by large or brightly coloured flowers. Indeed the blooms are often small, or at best, not strikingly impressive, and at times when conditions are not entirely to their liking, they often fail to flower at all.

When considering this fact it should be remembered that water plants are most fortunate heirs to Nature's planning. Unlike land plants they rarely suffer the hazards of drought, starvation, strong winds and lashing rains, and so their whole energy goes out to produce more plants. Since the conditions for extension are so very suitable, many of these are obtained without an excessive expenditure of labour. It follows that the owner of a small pond should beware of introducing rampant plants with running rootstock, such as typha or glyceria, lest these eventually take over the whole pool.

With the exception of Water Lilies, nurserymen and plant hybridists have tended to neglect water plants and few natural forms of any merit have come along during recent years. The gardener is therefore frequently thrown back for the adornment of his garden pool upon species, and the number of really decorative plants is unfortunately limited.

One of the best and most fragrant aquatics for deep water is *Aponogeton distachyus*, the Water Hawthorn. Its name derives from the sweet vanilla fragrance which exudes from the strange, forked black and white flowers. This is so strong as to permeate the air all round the pool, especially towards evening. The plant grows from a bulb-like tuber which should be set in rich loam at the base of the pool or in a basket or pot dropped into a suitable position. It is an adaptable subject and will negotiate 2 feet of water as readily as the odd 6 or 9 inches. Strap-like leaves float on the surface together with the flowers. The latter bloom for months on end.

Marginal plants should have good habit, bright colours or some special character of interest. One of these with a historical flavour is *Acorus calamus*, the Sweet Flag. This emits a fragrant spicy odour when leaves or root are bruised. For centuries the plant was held in esteem in Europe for medicinal purposes. The rhizomes were cut into pieces 4 or 5 inches long, dried, and ground into powder. This drying process apparently improved the flavour and made the material valuable for scenting hair powder and as an ingredient in tooth powder. In Wolsey's time, before the days of carpets, cut rushes were strewn on the floors and when the worthy prelate fell from grace, one of the charges of extravagance brought against him, was that he "caused his floors to be strewn too frequently with the Sweet Sedge . . . which grew in Norfolk and had to be transported to Hampton Court at very great expense".

Orontium aquaticum, the Golden Club, is another plant for deep or shallow water. The roots, however, must have a good depth of

soil. The foliage, which stands erect in shallow but floats in deep water, is not unlike that of a giant Lily-of-the-Valley, each leaf being 5 to 12 inches in length and 2 to 4 inches wide. These show no distinct mid-veining and are of a dull, glaucous green colour above and silvery below, coated with protective wax covering which is impervious to water. The small bright yellow florets, crowded together on poker-like stems, are plentifully produced and protrude several inches above water level. Orontium is a Canadian plant and the dried seeds have been used for food by the North American Indians.

Houttuynia cordata is a Japanese subject for the wet margin of the water garden, growing 12 to 18 inches high. It has bluish green, rounded leaves, bright red stems and spikes of small white, cone-shaped flowers in early spring. In autumn the foliage assumes handsome autumnal tints and looks most attractive against the white inflorescences of Cotton Grasses and blue water Forget-me-nots.

A quaint beauty is *Saururus chinensis*, the Chinese Lizard's Tail. The blooms have a pleasant fragrance and appear from June until August. They are curiously shaped with a large white bract enveloping each spike of yellowish white flowers. The spike bends outwards like a reptile's tail which probably accounts for the common name. The leaves are oval, 4 to 5 inches long and smooth to the touch.

Blue flowered plants are scarce in the water garden and undoubtedly the finest of those available is the North American Pickerel Weed, *Pontederia cordata*. Growing 18 inches to 2 feet high it bears heart-shaped, smooth, shiny leaves and spikes of soft blue flowers. This is a plant which never becomes a nuisance or untidy in appearance. It is perfectly hardy. A taller growing variety known as *angustifolia* is inclined to be tender and should be wintered away from frost. This form may reach 5 feet in height but has longer and more slender leaves. This inflorescence is almost identical with that of *P. cordata*.

Echinodorus ranunculoides is a dainty plant which grows no taller than 12 inches, with loose panicles of rosy, single flowers. Planted in extremely shallow water it blends well with Marsh Marigolds and water Forget-me-nots at the edge of the pool.

In July and August, the most spectacular aquatics are the forms of *Iris laevigata*. These have the flat, umbrella heads of *I. kaempferi* but are distinct species and moreover more useful to the water gardener since they tolerate standing in water in winter. *Iris kaempferi* is always difficult because (although appreciating moisture during the summer) it is impatient of wet in winter. Apart from the type species, which has rich blue flowers, there is a white variety called *laevigata alba* and a pink one known as "Rose Queen".

Although beautiful, sagittarias or Arrowheads, drop bulbils from the rootstocks and are thus apt to get out of control. The tubers are therefore best confined in deep receptacles, such as boxes or cement pockets. Here their spreading propensities may be controlled. A notable exception to the fault is *Sagittaria sagittifolia* var. *japonica plena*,

the Double Arrowhead, a gem amongst aquatics, with handsome double white flowers borne on stout upright spikes. These are good for cutting. The leaves are also handsome in their own right being of a traditional arrow shape, cut to the centre with triangular wings. The plant flourishes in wet mud and 5 to 6 inches of water but should not be planted deeper.

Many gardeners know the common Kingcup, *Caltha palustris*, but not everyone grows the double form var. *plena* or its giant relative *C. polypetala*. The Double Kingcup is much more decorative than the type and in early spring is crowded with round, bright golden, double heads the size of a shilling. No plant of spring can vie with its beauty in the bog garden, for it is there, in the wet mud by the stream banks that it delights to grow and the blossoms show to best advantage. There is a white variety called *alba* which comes to us from the Himalayas. I like to have one or two plants growing amongst a clump of bright Forget-me-nots, with perhaps a low growing shrub of the fragrant Bog Myrtle, *Myrica gale*, just behind.

Marginal aquatics are often needed to mask the concrete edge where the pondside meets the garden. *Hypericum elodes* is a useful trailing plant for this purpose and will effectively hide the formal edges of the pool. It has bright yellow flowers and masses of grey, hairy foliage. A stronger growing plant but with identical uses, is the rambling, scrambling, rampageous Bog Bean, *Menyanthes trifoliata*. This snakes its way along the mud and water from smooth rounded stems. Upon these the large, trefoiled leaves are carried and spikes of beautifully fringed pale pink flowers. *Menyanthes* is a member of the gentian family and like all that tribe, shares its medicinal properties. At one time the root was used in the brewing of bitter beer and my father-in-law during one of his visits to Lapland before the last World War, told how he found the Laps scraping the rhizome and spreading it on bread as a tonic during the spring and summer.

Calla palustris, the Bog Arum, is another scrambling plant, with small shining heart shaped leaves and white, arum-like flowers. It has acquired an unusual interest through being one of the few plants known to be fertilised by water snails. The latter, attracted by its strange odour clamber over the blossoms, pollinating them as they go. In autumn, the plant bears bright scarlet berries which are extremely decorative.

Of *Butomus umbellatus*, Gerard, the old herbalist, wrote, "It is of all others the fairest and most pleasant to behold and serve us very well for the decking and trimming up of houses because of the beauty and bravery thereof". Whilst in all fairness I must say that I feel that this description is more enthusiastic than accurate, yet the fact remains that it is a useful perennial if kept in bounds. The sword shaped leaves are frequently bronze or purple in the young stage but become green with maturity. The showy flowers, borne in umbels on long, stout scapes, are of a rosy lilac colour and may have twenty or

more blooms to each stem. The art of the hybridiser would be well employed here, for one could do with larger florets and a richer range of colour.

The usual time for planting all these aquatics is in spring, when growth is just commencing, but providing the weather remains open, the season may well be extended until high summer. The planting compost can either be spread over the bottom of the pond, to a depth of 4 or 5 inches and the plants set directly into this, or the roots may be confined in pots and baskets and stood at vantage points on the floor. In either case, if fish are present it is advisable to place a thin layer of shingle over the loam to prevent these creatures fouling the water when rooting in the mud.

HERBACEOUS PAEONIES

G. A. R. PHILLIPS (*Paraparaumu*).

Somewhere far back in the mists of time lies the origin of the herbaceous paeony. It was given an Olympic birth in Grecian legend. Pliny claims it as a cure for no less than twenty of those ills that flesh is heir to. The Queen of Flowers, in China the herbaceous paeony was called Sho Yo, meaning "most beautiful", but the tree paeony ranked higher as King of All Flowers. Sho Yo was an appropriate gift of remembrance. In England paeonies figure in the earliest literature of the garden. Gerard devotes four pages to them in his herbal, with eight woodcuts. Old John Parkinson, most famous of herbalists, writes of paeonies in his "Paradisi in Sole": "All these Peonies have bene sent or brought from divers parts beyond the Seas; they are endenized in our Gardens, where wee cherish them for the beauty and delight of their goodly flowers, as well as for their Physicall vertues." From which we gather that paeonies had been brought from overseas before Parkinson's time. There were, in those early Stuart times, white and red flowered kinds, with double flowers.

The modern paeony owes its origin to varieties imported from China and the fusion of the virtues of certain species. Of these we know the Chinese species *albiflora* to be one and as the various forms of *officinalis* are indigenous to Europe, it is practically certain that they played a considerable part. The greatest work in the breeding of paeonies of garden origin has been carried out in England, France, Holland and the U.S.A., where there is a society specially devoted to the paeony, which enjoys a very wide popularity in the states where the climate is not too torrid for its cultivation.

The herbaceous paeony has a number of advantages as a garden plant. It is very hardy and will survive the most severe winter, but it is not a good plant for very warm climates. The paeony is permanently perennial and, given the right conditions, it can be allowed to remain undisturbed in one place for many years. There, with annual dressings of organic manure, it will establish itself and produce an increasing number of flowers each year. The finest plant of a

paeony I can recall having seen was one that had been established for eighteen years. It was carrying twenty-seven huge pale rose and white flowers and the variety was Lady Alexandra Duff. I have it on good authority that single plants carrying as many as sixty flowers have been known. Choose a partially shaded spot for your paeonies. There their flowers will last longer than in full sun.

The time to plant is a very important factor in paeony cultivation. Being tuberous rooted, they will survive rough treatment well, but, like most plants, they will give of their best only if they are treated in accord with their preferences. Herbaceous paeonies are dormant for a short period only and the best months for planting in New Zealand are March, April or May, according to locality. This is immediately before new roots begin to form from the base of the eyes and the plant is enabled to become established during early winter and, if of a reasonable size and vigour, a few flowers may appear in the following spring.

One occasionally hears complaints about paeonies failing to flower, although the growth is otherwise satisfactory. This can nearly always be traced to planting too deeply. It is very important, when planting paeonies, to see that the crown does not lie more than 2 inches beneath the surface of the soil. If the crown lies at a greater depth there will be plenty of foliage but very little, if any flower. Another factor that has been known to affect growth generally, as well as the freedom of flowering, is soil acidity. Paeonies dislike overmuch acidity. On a number of occasions, to my own knowledge, a plantation of paeonies growing in acid soil and not growing at all well, has been improved beyond recognition after they had been given a heavy dressing of lime in the autumn. But more of this anon.

It is just ordinary sense that, with a plant that is to remain so long in one position, every care should be given to the initial preparation of the planting site. The earth should be trenched as far as the subsoil. The subsoil must be broken up and plenty of humus forked into it to a full fork's depth. If the soil is heavy, plenty of coarse river grit or fine gravel should be introduced to induce porosity, good drainage being essential to prevent decay. Organic matter in the form of decayed humus, old farmyard manure and composted vegetable matter can also be used to lighten the soil texture. Old sawdust, so long as it is well broken down by being composted, is also very suitable, and it can be mixed with blood and bone. Leave the surface rough after digging and then give it a dressing of lime at the rate of $\frac{1}{4}$ lb. to each sq. yard. This is assuming the soil is acid. As an alternative to lime, basic slag is even better for its effect in breaking down very heavy clay soils. Use hydrated lime for lighter soils. They are warmer than clay soils and it is not desirable to use the stronger types of lime. In light soils there will be the same necessity for deep preparation and the introduction of humus, but there should be no need for the addition of drainage material for porosity. Should there be danger of the site becoming water logged in winter, a ditch may

be necessary to allow the rapid escape of surface water. Paeonies are less satisfactory in sandy or peat soils as there is a natural poverty of nutriment, extreme acidity and a tendency of becoming very dry in summer, a condition not at all conducive to the good health of paeonies.

The plants usually supplied by growers will have been propagated by division and will be moderately sized roots with three or four eyes to the crown. They must be planted in such a way that the tuberous roots do not come into direct contact with decayed humus or manure, this being likely to cause decay. Plant firmly and mark with a cane or short stake to protect them from damage if the border where they are planted is surface forked before their growths appear. A light mulch of well decayed manure or blood and bone should be given just as the growth begins to pierce the earth in spring. A light dressing of lime is also advisable each autumn, about 2 ozs. to each sq. yard. It is a wise plan not to allow the plants to flower in their first year following planting, so that the plant's sole energy can be concentrated upon becoming well established.

Although those varieties classified as *albiflora* hybrids dominate the herbaceous section of paeonies, yet there are a number of charming species that well deserve a place in the garden. The grumbling of gardeners against the use of Latinised names of plants are constant. While most of these are unreasoning, there is need for sympathy for others, particularly when they find themselves faced with some difficult name of foreign origin. I am thinking, in this particular instance, of that septisyllabic tongue twister, notorious in horticultural nomenclature, *P. mlokosewitschi*, a plant far more delightful and easier to enjoy than its name, made obligatory by the Russian botanist who introduced it more than half-a-century ago.

This species finds its home in the Caucasus. In every way it is a charming plant and enjoys the great distinction of being the most yellow of all the herbaceous species. In fact, if I were to say it was the only yellow, this would be no exaggeration, for the nearest approach is a suggestion of cream occasionally in some of the *wittmanniana* hybrids. The flowers are single, broad petalled and form a goblet enclosing a bunch of golden stamens. It is one of the earliest to flower and the colour is retained until the petals fall. The elegant foliage is glaucous green with bronze-red shading, and the stems are bronze red. Among seedlings there is occasionally some variation in the toning of the leafage and the colour of the stems. This species may be raised from seed and the seedlings will, in the main, be true to type. But beware of sterile seeds. The fertile seeds are dark blue and the sterile ones are rosy red, and both appear in the seed pods. So far as I know, although many attempts have been made to use *P. mlokosewitschi* as a means to bring the much desired yellow colouring to our herbaceous paeonies, no success has yet attended the efforts of plant breeders in this direction. This species appears to grow best in heavy clay soil, but needs good drainage. It very definitely prefers a cold climate to a mild one that disturbs its deep winter sleep.

From a wider region centring on the Caucasus comes that treasure for the alpine garden, *P. tenuifolia* and its forms. It is quite a miniature replica of the larger paeonies and grows only 1½ feet high. The flowers are 3 to 4 inches across and the most desirable forms are crimson; others can be a less intriguing purple. The foliage is finely cut and balances well with the tiny flowers that lie enthroned at the top of the leafy stems. There are single and double flowered forms. There is also a great rarity with single pink flowers, an exclusive charmer that I have been privileged to see only once or twice when it was grown in England by the late Mr. Amos Perry. The single flowered form sets seed but sparingly, and the double not at all. For such a gem the rock garden is the only possible home. In the flower border its beauty would be overpowered by the blaze of colour from its more garish cousins, the *albiflora* varieties.

The island of Majorca, one time the home of musical genius, has yet another claim to fame. It is the native habitat of one of the most delectable of all paeony species, *P. cambessedesi*. This species occurs occasionally in other parts of the Balearic Islands. Its hardiness in the more severe climates of the Northern Hemisphere is questionable, but it should be an ideal plant for New Zealand. Let me say here, lest I be charged with dangling an unattainable plum before keen gardeners, that seed is obtainable from Europe. The plant flowers very early in spring, in fact before *P. mlokosewitschi*, so that it is only suitable for cultivation where there are no severe frosts in spring. The plant will attain a height of 3 feet and the flowers are large and of single form, being a rich deep pink with the usual yellow stamens at the centre. The foliage possesses the usual elegance of the genus and is deep green with a reverse of purple.

P. wittmanniana, another Caucasian species, is usually described as a yellow flowered species. I have grown it on a number of occasions, both commercially and in my own garden in Warwickshire, but the flowers, beautiful as they were, were never more than cream, and certainly not in the same colour class as *P. mlokosewitschi*. This species flowers in spring and should be planted in a position facing west where it escapes the early morning sun. This will minimise the risk of frost damage. Its height is about 3 feet and the deep cream flowers are single, broad petalled, and form a charming globular flower enclosing a mass of yellow stamens. Grown well it compares favourably with the best modern single varieties.

The species that was familiar to us as *P. lobata* is now *P. peregrina*. It is a native of S.E. Europe and Asia Minor, and, with its various forms, comprises a group of valuable garden plants. Some of these are in distribution in New Zealand. I have known it reach nearly 3 feet high when established and the flowers, resembling a large cottage tulip in shape, are bright red and single in form. "Fire King" is the best of the various forms, being a brighter colour than the type. There are other forms that have been given varietal names, but only

"Sunbeam" is outstanding. This species must be grown in partial shade to enjoy its beauty to the fullest extent.

P. officinalis, native of Switzerland and the Balkans, has long been known in gardens and is probably the most familiar of all herbaceous paeonies. Its various forms produce single and double flowers and it is the latter that enjoy the greatest favour in gardens. These are in cultivation with double crimson, double pink and double white flowers. They flower a little earlier than the garden hybrids that go under the name of *albiflora*.

These are all the species I intend to mention on this occasion. There are others, many of them possessing considerable charm but not surpassing those I have described. Now, we approach the true aristocrats of the race, those beautiful types in a legion of varieties, both double and single flowered, that have gained for the paeony the proud position it holds today among garden plants. Varieties of garden origin are usually transient. They are continually giving place to the newer ones that supersede those that came before. But this is not so applicable to the herbaceous paeony. Two reasons account for this. The time between the sowing of the seed and the appearance of the first flowers is longer than with most perennials, usually from three to five years or even longer. The standard attained within the last fifty years is so high that, except among the single-flowered ones, new varieties exhibit only slight improvements. "Sarah Bernhardt," raised by Mons. Lemoine in 1906 is still the best and largest of the deep rose pink varieties. *"Kelway's Glorious", raised three years later, still stands very high as a free-flowering, large double white. "Duchesse de Nemours", a double white raised by Mons. Calot a century ago, is unbeaten as the best early white for garden display or for cutting. For freedom of flowering, "Lady Alexandra Duff", with semi-double flowers of pale pink shading to white, is still a very desirable variety and it first appeared in 1902. The double crimson "Inspector Lavergne", with its large frilled flowers on tall rigid stems, is one of the best today and it was raised in 1924.

A number of the very old varieties that had stems too weak to carry the large flowers have gradually been discarded, so that any up-to-date list comprises a collection that will leave little to be desired.

The most remarkable improvements of recent years have been among the single-flowered varieties. Many of those that were in cultivation twenty or thirty years ago lacked breadth and substance of petals. Now, there is no difficulty in finding all the colours represented by strong stemmed plants that produce freely substantial and large broad petalled flowers of unimpeachable quality. "Jan Van Leeuwen" stands high among these with lovely globular flowers of white that open flat and exhibit a central mass of golden stamens;

* Granted the A.M. at the R.H.S. trials, Wisley, 1956.

one of the most beautiful of all paeonies. Another good single is "Mrs. G. F. Hemerik" with large flowers of salmon rose. Others of equal merit are "Soshi", red; "Tomate Boku", larger than "Mrs. G. F. Hemerik" and of similar colouring; "Rosy Dawn", blush pink; "Rigoletto", crimson maroon and "Rembrandt", deep red with a centre of the same colouring. The latest variety is "Bowl of Beauty", with very large flowers, fully 9 inches across, and of a distinct shade of rose.

Care is needed in placing paeonies where they can be seen to best advantage. Of course, if there is space to spare for a display over a period of five to six weeks from the *albiflora* group a massed grouping can be a veritable paradise for the flower lover. Anyone who has visited the Paeony Valley at Kelway & Son's nursery, Langport, Somerset, will realise that. Where, however, only a few groups of plants can be accommodated, some forethought is necessary. When once planted, paeonies should not be disturbed for very many years, so that, when the Rubicon is passed, there must be no turning back.

In the flower border let them be associated with perennials like delphiniums, *Aster yunnanense* x "Napsbury", the perennial ageratum or shrubs like *Felicia angustifolia*, any of the early ceanothus species or beneath a bower of *Wisteria sinensis*. Interplant them with any of the stem rooting liliiums to obtain a later display from the same area of ground. The paeonies will flower in October, November or December, according to climate, and their foliage will provide a cool root run for the stem roots of the liliiums. Later, in autumn, before the leaves wither they will assume rich tones of red and amber, useful for autumnal floral ensembles.

The most usual method of increasing paeonies is to lift the roots carefully in March or April, and divide the crown into pieces, with the aid of a sharp knife, so that each piece contains two or three good fat eyes. Smear the wound with either sulphur or charcoal and allow it to stand for an hour before planting. Another method consists of cutting pieces of root, about 4 inches long, laying them in containers of either vermiculite or coarse grit and keeping them moist through the winter. A proportion of these will invariably produce adventitious shoots from the surface of the root and develop into flowering size plants in two or three years. I have propagated *P. peregrina* and its varieties in this way. This is a difficult species to increase by division and, when the swollen roots are lifted, there is often an indication of new growth sprouting from their surface.

Seed offers the most tardy method of increase, but it is often the only means of obtaining stock of the many species. Varieties that are the result of cross-breeding will not produce true progeny from seed. Paeony seed should be sown as soon as it is ripe. It may be sown in earthenware pots and plunged to the rims in the earth, or sown in drills with a covering of soil an inch thick. Even with fresh seed, growth does not appear normally above the ground until the following

summer, although a root will probably thrust itself 6 inches deep into the soil. This long wait makes it very necessary to provide permanent labels for the seed beds. They should be of metal, not wood. In districts where the winter is severe, it is wise to provide some protection for the seedlings during the first three winters. This may be provided in the form of a top mulch of litter or, in the case of pot sown seeds, the pots can be given the protection of a greenhouse or frame during the coldest period.

The reason for this slow germination is the fact that the tough seed coat or husk is slow in softening sufficiently to allow moisture penetration. Although this type of seed can often be induced to germinate earlier by subjecting it to immersion in scalding water, this has not been the case with the paeony, so far as my knowledge goes. A very interesting instance of germination comes from the U.S.A. A paeony grower, in the course of cultivating the soil among his paeonies, inadvertently broke off a seed pod in late summer, long before the seeds had ripened. However, as the seeds were of especial value, he opened the pod and sowed the yellow seeds out of doors without any previous treatment. In less than a month a good percentage had germinated and seedlings were showing growth. Another instance of the folly of being at all dogmatic in horticultural matters.

When the seeds germinate there is usually some variation in the stamina. Some will be robust right from the beginning, while others will appear to be weakly. These latter may be lifted and nursed in a plunged pit for a year or so, although in a well tended private garden this should not be necessary. Paeonies at all times dislike disturbance so the seedlings should be planted out at once in the positions they will occupy until they reach the flowering stage, from three to five years later or even longer. Single types usually flower earlier than double. I have known instances where seedlings have grown well for twenty years and never produced a flower. Tardy flowering types of this kind are usually discarded earlier, this being one of the most undesirable traits and one to be discouraged. The distance allowed between the seedlings should be not less than a foot in the rows. The distance between the rows will depend upon whether the ground is being cultivated by hand or by machine.

The climate of the milder parts of New Zealand is such that it causes a more rapid development to the flowering stage with the seedlings of certain genera. The narcissus is a good example. This may well be the case with paeonies. Should this prove to be so, there would appear to be immense scope in the breeding of new types from the hybridisation of species that have hitherto been passed by.

The future of the herbaceous paeony we do not know. It is the duty of the plant breeder to guide it into desirable channels, and, on many occasions, this duty has fallen to the lot of a private gardener.

SALVIAS I HAVE GROWN

A. W. ANDERSON, A.H., R.I.H.(N.Z.), (Timaru).

Salvia is an interesting genus of about five hundred species widely distributed over the warmer temperate parts of both hemispheres, and they include some of the most popular of our garden plants. The name comes from the Latin, *salvo*, "I save", and takes us back to the Roman gardens of 2,000 years ago, referring to the alleged healing properties of some, now unknown, species that may have been the Common Sage, *S. officinalis*, literally, the salvia of the shops, which is a native of the Mediterranean region. I suppose it is hardly to be classed as an ornamental, but I once had a fine variety with flowers of apple-blossom pink but, unfortunately, have since lost it.

The *Salvias* belong to the *Labiatae*, the fragrant lipped, or open-mouthed family and carry the typical characters to a very marked degree. The stems are square with leaves in opposite pairs and most species are more or less hairy. A few have oil glands that secrete volatile oils that give a distinctive aromatic fragrance when bruised. The flowers may be white, pink, red, blue or even yellow and are borne in terminal spikes which can be very ornamental. Most of them are highly adapted for cross-pollination by insects, but we are told that the familiar *S. splendens*, parent of the "Bonfire" group, is, in its Brazilian home, visited by small birds that are no bigger than some of the moths.

The flowers get their "open-mouth" appearance because the tubular corollas are divided into two distinct lips or labiae. The upper one is hooded to protect the style and stamens while the lower is usually modified to form a sort of landing stage for insects. When the visitors push themselves into the flower, the hinged stamens are forced down to brush their backs with pollen, and in older flowers where the stamens have withered the style elongates and is in turn depressed to scoop up pollen from the insects' backs.

There is a great deal of interest and delight in making collections of plants and in large genera like *Salvia* this is increased by the interest of comparing the various species with each other. As always happens, a great many turn out to be no more than worthless weeds, but every now and again something really worth while turns up. That was what happened when I began to make a collection of *salvias*; many were of no value, but with some five hundred species to deal with you are bound to strike some worth while plants.

There is the beautiful *S. carduacea* from California with its spiny whorls of fringed flowers and cobwebby foliage springing from pretty rosettes of thistle-like foliage; the dainty *S. jurisici* from Siberia whose hairy and finely cut foliage is always attractive at the front of the border; and the little known *S. quirita* with its inch-long, funnel-like flowers hanging down on either side of the wiry stems. They come from all parts of the world. But I never managed to grow any of the yellow ones, *flava* from China, *glutinosa* or "Jupiter's Distaff" from

Greece, and the superbly named *nubicola*,* "The Cloud Lover", from the high Himalayas. They sound interesting but I have been quite unable to get hold of any of them.

At one time I thought I should like to have a small formal garden of salvias and took notes of the colours, heights and times of flowering, with this end in view but nothing ever came of it. Undoubtedly, salvias form a very desirable contribution to the herbaceous border and they are indispensable to a "Blue Border" embracing violet, lavender and purple shades, as well as blue. The finest blue of them all is undoubtedly *S. patens* which has a very charming variety called "Cambridge Blue"; they are essentially plants for the front. Few are so worthy of a place at the back as is *S. azurea*, the variety known as *pitcheri* being distinguished by its downy appearance, larger flowers and denser spikes. No border is complete without that fine plant we have long known as *S. virgata* var. *nemorosa*, or simply as *virgata*, although it has little in common with the Palestinian species of that name. We are now told that it should be called *x superba* because it is a natural hybrid between two South European species, the weedy *villicaulis* and the purplish-violet *sylvestris*. *S. x superba* is a great favourite, not only on account of its long slender spikes that last for weeks during the hottest part of the year, but also because of the rich, maroon-coloured calyces that give a splash of unusual colour long after the flowers have faded.

When summer is giving place to autumn the "Baby Buddleia", *S. leucantha*, gives of its best. A native of Mexico, it came to us via Australia about 1930 and was known for a number of years as the "Mount Lofty Salvia" from the Melbourne suburb of that name, presumably because the plants came from there. Then we began to hear of it as *S. violacea* although the only plants with a right to that name are two bedding plants, varieties of *S. horminum* and *S. splendens*. When its true name was discovered, *leucantha*, "The White Flowered One", people found it very difficult to accept it because the glory of this beautiful plant is the rich amethyst-purple of its woolly flower heads that distract attention from the inconspicuous white flowers.

Biennials are a bit of a nuisance, here today and gone tomorrow, and if you overlook an annual sowing you wake up to find the plant is missing from the border. Such is *S. sclarea* which of itself is scarcely worthy of a place, but the best forms of the var. *turkestanica* are very striking with their large bracts which have been aptly described as silvery-lavender-pink. The plant masquerading in New Zealand as *vaticaniana* is obviously a form of this, and a good one. We are told that it originally came from the Vatican gardens; no doubt some visitor could not resist the impulse to "acquire" this plant, and you can see others at the same trick in our public gardens any day. Some even write and ask for the name afterwards!

Two of the best reds are *coccinea* and *fulgens*, both of which are more or less shrubby. The former will flourish in a very dry place

* According to the R.H.S. Dictionary *SS. glutinosa* and *nubicola* are synonymous.

under much the same conditions as geraniums around the foundations of a house, and the var *pseudo-coccinea* is even better for this purpose although it differs mainly in being rather more hairy. *Fulgens* is an old-fashioned flower that is in almost every garden but is rarely listed. It is easily recognised by the numerous heads of scarlet blossom, each flower nearly 2 inches long and clothed with a shaggy pubescence. It was originally collected at Tlalpuxahua in Mexico by Mr. J. G. Graham, a mining engineer, who sent the seeds to the Royal Horticultural Society's Gardens at Chiswick in 1829. The well-known *S. grahami* which bears his name was collected at the same time.

Following these notes is a Check List of thirty-seven salvias, showing flowering period at Timaru, height, colour according to the R.H.S. Chart and a few general remarks which should be a guide to anyone who is making a collection of these plants.

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CHECK LIST OF SALVIAS

Abbreviations: A—Annual; B—Biennial; P—Perennial; S—Shrub.

Species or Variety	Flowering Period	Height	Colour (R.H.S. chart)	Remarks
<i>africana</i>	February	2ft.	White, Campanula Violet, 37/1-2	Not hardy; fine aromatic fragrance. S.
<i>algeriensis</i>	Late Feb.-early April.	1½ft.	Amethyst Violet 35/1-2	Flowers in whorls. A.
<i>argentea</i>	Summer	2ft.	Pinkish white	Poor flowers; fine rosettes of woolly foliage in first year. B.
<i>austriaca</i>	November	15ins.	Uranium Green 63/3	Flowers in whorls. A.
<i>azurea</i>	Late Jan.-late Apl.	3½ft.	Gentian blue 42/1	Attractive. P.
<i>azurea</i> var. <i>pitcheri</i>	Late Jan.-late Apl.	3½ft.	Gentian blue 42/1	Flowers larger, denser. P.
<i>bulleyana</i>	Early Dec.-late Feb.	3ft.	Heliotrope 636/1	P.
<i>canariensis</i>	All summer	4½ft.	White or purplish	White form best. Loose shrub; stems white. S.
<i>carduacea</i>	Summer	15ins.	Lavender blue	Very attractive, thistle-like foliage, flowers in whorls. P.
<i>coccinea</i> and <i>pseudo-coccinea</i>	End Feb.-May	2/3ft.	Deep scarlet	Only difference is that <i>pseudo-coccinea</i> has more hairy bracts. P.
<i>dichroa</i>	Mid Dec.-late Feb.	2ft.	Violet 36/1-2	Good mid-season plant. P.
<i>farinacea</i>	Early April	3ft.	Methyl Violet 39/1-3 or white	} Both are good bedding plants. P.
<i>farinacea</i> var. "Blue Bonnet"	Early April	3ft.	Victoria Violet 738/2	
<i>fulgens</i>	Dec.-May	4ft.	Orient red 819/2	Needs care in winter. S.
<i>grahami</i>	Summer	4ft.	Crimson to purple	S.
<i>greggi</i>	Summer	3ft.	Rose red 724/1 with dark-er lip	S.
<i>haematodes</i>	Summer	3ft.	Lavender blue	Good mid-border plant. P.
<i>hians</i>	Summer	2ft.	Bishop's Violet 34/1-3	Peculiar inflected flowers. P.

CHECK LIST OF SALVIAS

Abbreviations: A—Annual; B—Biennial; P—Perennial; S—Shrub.

Species or Variety	Flowering Period	Height	Colour (R.H.S. chart)	Remarks
<i>horminum</i>	Summer	1½ft.	Violet blue	} Bracts only are coloured. A.
<i>horminum</i> "Bluebeard"	Summer	1½ft.	Violet blue	
<i>horminum</i> "Pink Lady"	Summer	1½ft.	Carmine red	
<i>involutrata</i> var. <i>bethelli</i>	Summer	4/5ft.	Bracts rosy crimson	Very showy sub-shrub.
<i>jurisici</i>	Early Nov.-Jan.	1ft.	Campanula Violet 37/1	Very pleasing little perennial. P.
<i>leucantha</i>	Late Jan.-May	2½ft.	Amethyst Violet 35.-/2	Whole inflorescence coloured. S.
<i>mexicana</i>	Mid Feb.-May	6ft.	Campanula Violet 37	Showy, bright green calyces. Sub-shrub.
<i>officinalis</i>	Summer	15ins.	Very variable	Common sage. S.
<i>patens</i>	Dec.-Apl.	1½ft.	Gentian blue	Best known blue salvia. P.
<i>patens</i> var. "Cambridge Blue"	Dec.-Apl.	1½ft.	Cobalt blue	Attractive form. P.
<i>pratensis</i> var. <i>alba</i>	Nov.-Feb.	3ft.	Nice white	P.
<i>pratensis</i> var. <i>baumgarteni</i>	Nov.-Feb.	3ft.	Campanula Violet 37-/1	A good form. P.
<i>quirita</i>	Summer	1ft.	Heliotrope 636/2-3	Striking funnel shaped flowers. P.
<i>splendens</i>	Summer	3ft.	Scarlet	Origin species of well known bedding varieties. Sub-shrub.
<i>sclarea</i> var. <i>turkestanica</i>	Summer	3ft.	Silver, rose and lavender bracts	B.
(The plant masquerading as <i>S. vaticaniana</i> in New Zealand is merely a selected form of this.)				
<i>superba</i>	Nov.-Feb.	3ft.	Campanula Violet 37	Handsome maroon calyces. P.
<i>uliginosa</i>	Dec.-late March	4ft.	Gentian Blue 42/2	Needs care in winter. P.

NOTEWORTHY PLANTS

MELALEUCA SPECIES

The Australian Tea Tree is one of the most ornamental shrubs for coastal gardens. The abundance with which it flowers, its brilliance of colouring and the plant's extreme hardiness are qualities that should make many of the lesser known species favourites with gardeners who have hot, dry soil conditions and a continual threat from air borne sea spray. The species *laterita* and *hypericifolia* are well known but other species recently brought over from Australia are well worthy of note. There is *elliptica*, with large carmine flower spikes and growth up to 10 feet. Other tall species are *ericaefolia*, the Bottle Brush Tree with fine, heathlike foliage and yellowish white flowers, 10 feet; *nesophila*, with petunia purple flowers of globular shape and an inch across and considered by some to be the best of the newer species, 10 feet; the tallest of all with a height of 20 feet, *stylphelioides* has white flowers and green foliage.

Among those whose height varies from 4 to 6 feet there is *erubescens*, of compact habit with light pinkish mauve flowers; *fulgens*, deep pink and responds to summer watering; *gibbosa*, with compact growth and innumerable clusters of tiny bottlebrush flowers of bright lilac, needs full sun and flowers in late spring; *hamulosa*, with attractive lemon yellow flowers; *radula*, with attractive mauve flowers enhanced with golden anthers and of a graceful pendulous habit; *squarrosa*, with a neat erect habit and yellow brushlike flowers and a height up to 8 feet.

Two species attain only 3 feet, viz. *thymifolia*, a dwarf, slender growth with purplish mauve flowers and *violacea*, twiggy growth with small lilac mauve round flowers.

BOOK REVIEWS

CURTIS'S BOTANICAL MAGAZINE, vol. CLXXI, part II, edited by W. B. Turrill, D.Sc., F.L.S. (Published by the Royal Horticultural Society, England).

Without a coloured portrait, the mere description of a plant is incomplete, even though it may be written by a Farrer. That is why the arrival, twice each year in April and October, of Curtis's Botanical Magazine must always be welcome to gardeners who are keenly searching for something new or little known. A glance at the eleven plants, illustrated in colour and described in detail with notes concerning their culture, that make up the second part of the present volume, will reveal some worthy but not at all well known species and varieties. The plate of *Rhododendron pseudochrysanthum*, drawn from a specimen grown at Exbury, must appeal to all, and there are many here in New Zealand, who have a deep devotion to this magnificent genus. *Arbutus menziesii* is quite different in its fruits from the familiar *A. unedo*. *Sinningia eumorphia*, an attractive member of the *Gesneriaceae*, suggests its possibilities as an outdoor plant for the warm, frost free areas of the North Island. The new *Chionodoxa lochiai*, discovered in Cyprus in 1953, seems to be a very desirable newcomer to this valuable race of hardy bulbs. Those who already grow *Gordonia axillaris*, will want *G. chrysantra*, with its flowers like exotic white

single camellias, when it is in distribution, as it should prove hardy in the mild climates of New Zealand. There are also excellent plates of such little known plants as *Adenium coetaneum* variety, *Aerangis rhodosticta*, *Arctostaphylos andersonii*, *Campanula davisii*, *Picrasma quassioides* and the more familiar richly berried *Cotoneaster x watereri*. All represent the high water mark of coloured reproduction of plants today.

THE LILY YEAR BOOK 1957, No. 20. (Published by the Royal Horticultural Society, England).

This volume possesses a general attraction for all gardeners and is of a specialised interest to those who specialise in liliiums. Its contributors comprise well-known liliium specialists from both hemispheres and therefore it possesses a world-wide appeal. The articles on "Lilies for the Rock Garden", "My Favourite Lilies and How I Grow Them", "One Dozen Trouble-Proof Lilies", "The Raising of Lilies from Seed" provide valuable information for the beginner and who is there who possesses a garden who does not want to grow lilies, among the loveliest of all bulbous plants? The success that has attended the efforts of our own New Zealand plant breeders is something for us to be proud of and that the importance of these activities is being realised is borne out by the fact that three articles deal solely with liliiums in New Zealand, and these are written by New Zealand authorities. Australia is well in the picture, too, being represented by two articles dealing mainly with the work of plant breeders. To the hybridist, the article by Lawrence Beane on "Some Undescribed Lilies from the Pacific Coast" (of southern California) will prove of interest and may offer new material for further work. Obituary notices are always sad, especially when we read of the passing of such famous gardeners as Robert Wallace, V.M.H., and Fred J. Rose, V.M.H. These serve as a stern reminder that the life of a generation is brief in comparison with the work that is to be done in the field of plant breeding. It behoves those of us who hold responsible positions in the world of plants to see to it that we shall be followed by an equally keen and enthusiastic younger generation. The illustrations are, as usual, excellent, but I feel that the majority of subscribers would be quite willing to pay double the present price, which would bring the book to only 20/-, if some coloured illustrations of the less familiar species and the new hybrids were included. Compared with the cost of publications of a far less pleasing format, these year books are extremely good value.

THE RHODODENDRON AND CAMELLIA YEAR BOOK 1957, No. 11. (Published by the Royal Horticultural Society, England).

This is the youngest of the three year books under review and the inclusion, since 1954, of camellias gives it a wide appeal to gardeners in the temperate climates of the world. The inclusion of camellias came about, I suspect, on account of the comparatively recent discovery that they were much hardier than was at one time supposed. I can remember during the very severe winter of, I think, 1945-46, when camellias, planted out in the Midlands of England, survived unscathed temperatures below zero that turned the foliage of the laurel black; and the hardiness of the laurel had never been questioned. The coloured frontispiece, in my copy rather lacking in sharpness, of the new yellow rhododendron hybrid "Bright", raised at Wisley, may herald something really new and desirable in this colour. The Crest variety of "Hawk", probably the best yellow hybrid yet, has not, I am told, responded to propagation here in New Zealand. "Bright" will be many years older before it becomes generally available but it is to be hoped that this variety will prove more kind. There are excellent articles by British and American authorities and the article on "*Rhododendron occidentale* on Alkaline Soil" by Andrew T. Leiser of the University of California is certainly provocative of thought in relation to the effect of

lime on the genus. There are details of "New Varieties of *Camellia japonica* and *saluenensis* Recorded in Australia and New Zealand". The classification of camellias is inevitable and it is good to see the Royal Horticultural Society have introduced a classification of camellias of the *japonica* group. Hsen-Hsu Hu, of the Institute of Botany, Yunnan, reports on a new genus, closely allied to *Camellia*, and suggests that a new species, *Camellia chekiangoleosa*, gives promise of rivalling *C. japonica* if improved. To amateur and professional growers of camellias and rhododendrons this book is essential and its modest price of 10/- should find for it a place on every horticultural bookshelf.

THE DAFFODIL AND TULIP YEAR BOOK, No. 22. (Published by the Royal Horticultural Society, England).

Daffodils in New Zealand are represented by an excellent article by Mr. J. A. O'More, one of our most successful amateur growers. There is also another article by the Rev. E. W. Philpott who deals with daffodils in South Australia. This highly developed spring flower enjoys a wide popularity, thanks to the efforts of plant breeders who are continually producing improved forms. It is fitting that these men should be honoured and no one will quarrel with the choice of Mr. Guy L. Wilson, V.M.H., for the dedication of this volume. With Mr. Lionel Richardson, of Waterford, South Island, Mr. Wilson has led, for many years, in the field of daffodil development. His article in this issue of "New Zealand Plants and Gardens" and the article by Mr. Francis Hanger, V.M.H., wherein he describes his visit to Mr. Wilson's daffodils, gives a fair picture of his activities. There are other articles that cover a wide field of interest for daffodil growers. Politically, Mr. C. R. Wootton's reminiscences "On Raising Daffodils", is of importance for in it he stresses the vital need of interesting the younger generation of gardeners so that they will follow our present breeders. It is on the success or failure of such an effort that the future of horticulture will stand or fall. It is significant to note that Mr. Wootton's admirable article was reprinted in the R.H.S. Journal of November last. A very readable account of the development of the tulip growing industry in Lincolnshire by Mr. D. van Konynenburg is included, and Miss Julia Clements deals with the decorative aspect of the flower for floral arrangements.

OFFICIAL ANNOUNCEMENTS

CORRESPONDENCE COURSE IN HORTICULTURE

The Technical Correspondence School of the New Zealand Department of Education provides courses in horticulture for students who are unable to attend classes at a local Technical College.

Among the horticultural subjects in which the School gives tuition is Commercial Gardening. The course was prepared at the instance of the Dominion Council of Commercial Gardeners to provide tuition for the Certificate in Vegetable Culture of the Royal New Zealand Institute of Horticulture. It deals with the elements of plant growth and structure, soils and their management, pests and disease control of vegetable crops, methods of cultivation and the production of the common vegetables, including glasshouse tomatoes.

Other horticultural courses include Principles and Practice of Horticulture, Botanical Classification, Principles of Plant Protection, and Horticultural Botany for the diploma examination of the Royal New Zealand Institute of Horticulture.

Although these courses were prepared to meet the requirements of candidates for the Institute examinations, they can profitably be studied by all who practise horticulture.

For horticultural apprentices there are at present first and second year courses of instruction in General Horticulture and Horticultural Botany.

Short courses are also offered in Fruitgrowing and Practical Horticulture.

Enquiries and requests for enrolment forms should be addressed to the Principal, Technical Correspondence School, 29 Wallace Street, Wellington, S.I.

ROYAL NEW ZEALAND INSTITUTE OF HORTICULTURE (INC.). 1956 EXAMINATIONS

LIST OF SUCCESSFUL CANDIDATES

The following list gives the names of candidates who were successful in passing the subjects indicated at the Institute examinations held throughout the Dominion in November, 1956.

Cockayne Gold Medal for most successful candidate in Diploma Section was awarded to G. N. J. Goldie.

NATIONAL DIPLOMA HORTICULTURE (N.D.H.) (N.Z.)

Junior Examination: 2—Book-keeping; 3—Horticultural Botany; 4—Principles of Plant Protection; 5—Oral and Practical Stage I.

Intermediate Examination: 6—Principles of Botanical Classification; 7—Principles of Horticulture I; 8—Practice of Horticulture I; 9—Special Subjects I; 10—Oral and Practical II.

Diploma Examination: 11—Principles of Horticulture II; 12—Practice of Horticulture II; 13—Special Subject II; 14—Oral and Practical III; 15—Thesis.

Ashburton: D. Collins, 10.

Auckland: L. K. Clark, 10, 15; B. R. Haggio, 12, 14; P. J. Hubbers, 12, 13; P. J. Jew, 14; R. F. Jordon, 11, 12, 13, 14; C. E. McInman, 3; J. W. S. Otto, 2, 3; M. W. L. Perkin, 7, 9, 10; G. A. Wood, 8, 9; C. M. Walker, 4, 5.

Christchurch: D. C. Bell, 10; D. M. Burns, 5; D. A. Cooper, 2, 3; T. I. Crossen, 5, 8, 9; D. Field, 6, 7, 10; C. J. Hicks, 13; B. E. R. Jones, 5; L. J. Metcalf, 10; A. C. Morgan, 6, 7; B. L. Nicholls, 3; R. J. Nanson, 6, 7; D. D. Riach, 11, 12, 14; F. A. Wilkinson, 2, 5; L. Visch, 6, 7, 10.

Hamilton: A. D. McArthur, 3, 4.

Invercargill: J. F. Sullivan, 10.

Palmerston North: P. F. Cadigan, 8, 9, 10; G. C. Jackson, 2; N. Trudgeon, 4.

New Plymouth: T. S. Wagstaff, 4.

Wellington: S. S. Foster, 4, 5; I. D. Galloway, 11, 12, 13; G. M. J. Goldie, 11, 12, 13, 14, 15; I. A. McGregor, 5.

CANDIDATES WHO COMPLETED A SECTION OF THE N.D.H. (N.Z.) IN 1956.

Junior: T. I. Crossen (Christchurch); I. A. McGregor (Wellington); T. S. Wagstaff (New Plymouth).

Intermediate: L. K. Clark (Auckland); I. D. Galloway (Wellington).

Diploma: G. N. J. Goldie (Wellington).

NATIONAL DIPLOMA FRUIT CULTURE (N.D.F.C.) (N.Z.).

Intermediate Examination: 6—Principles of Horticulture, Stage II; 7—Practice of Horticulture, Stage II; 8—Principles of Fruit Culture, Stage I; 9—Practice of Fruit Culture, Stage I; 10—Fruit Culture Oral and Practical Examination, Stage I.

Nelson: M. Crooks, 7, 8, 9, 10; M. Van Geldermalsen, 8.

Roxburgh: R. G. C. Davy, 6, 7; M. Van Geldermalsen completed the Intermediate Section.

CERTIFICATE IN SCHOOL GARDENING (C.S.G.) (N.Z.)

Part A: 4—Principles of Horticulture I; 5—Practice of Horticulture I.

Maungaturoto: M. G. Check, 5.

Stratford: N. O. Symons, 4, 5.

CERTIFICATE IN VEGETABLE CULTURE (C.V.C.) (N.Z.).

Part A: 1—Business Aspects of Vegetable Culture; 2—Soils and Soil Management.

Christchurch: R. H. Brown, 1.

Levin: N. D. Broadbent, 1, 2.

DISTRICT COUNCIL NOTES

WELLINGTON

Members of the Wellington District Council invited members of the neighbouring Hutt Valley and Bays District along with members of the Wellington Horticultural Society to their "Rose Evening" on 29th November when a very pleasant time was spent in the Victoria League Rooms listening to a chatty address by Mrs. F. J. Guinan, who is the Honorary Secretary of the Wellington Rose Society. Ably assisted by her husband, Mrs. Guinan brought from her own garden 50 to 60 blooms of various varieties to illustrate points of her talk. This lovely collection and her address were much appreciated by all.

At the North Island National Gladiolus Show held in the Wellington Town Hall on 7th and 8th of February, arranged by the Wellington Horticultural Society in conjunction with the National Gladiolus Council (Inc.), Mr. R. G. Wilson, specialist grower of Gladioli from Taradale and a member of the Institute, gave a very interesting and informative talk, lasting about 30 minutes, on the first evening of the Show. His subject was "Gladiolus Growing for Pleasure". This was arranged at the suggestion of the Wellington District Council Executive and proved a happy and profitable suggestion. The address was well advertised and attracted a very good attendance. The interest of hearers was very apparent by the questions asked at the close of the talk.

Further members' evenings have been planned for the ensuing months and in this way much help is being derived by our members in their gardening efforts and problems, besides providing happy social occasions.

Mr. A. Kettle, a member of the Wellington District Council Executive, has just returned from a holiday trip to Great Britain, and one other member, Mrs. H. L. Bennett, will shortly be leaving to follow in the wake of Mr. Kettle. Mr. E. Hutt, Director of Reserves, Wellington City Corporation, with Mrs. Hutt, will also shortly be leaving on a visit to England and we extend to Mr. and Mrs. Bennett and Mr. and Mrs. Hutt our very best wishes for a pleasant and enjoyable trip.

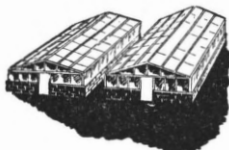
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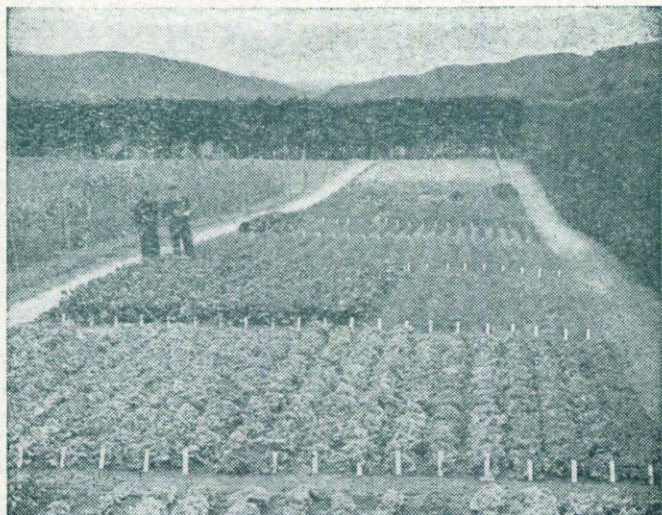


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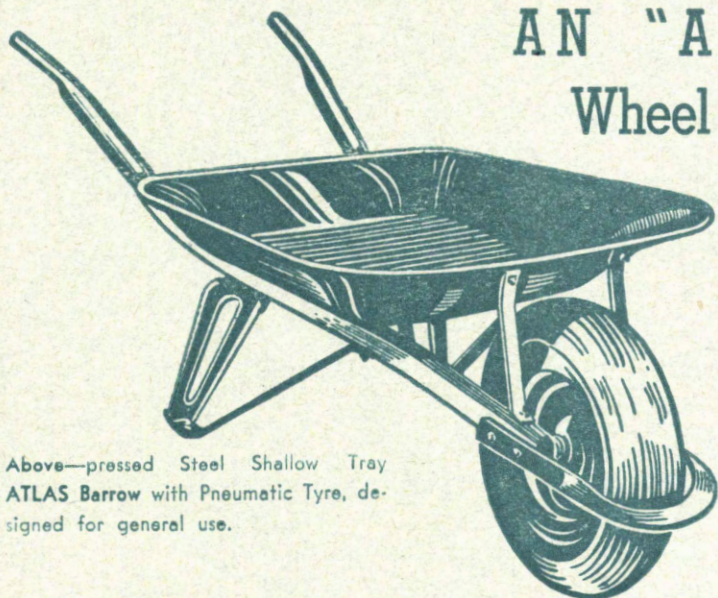
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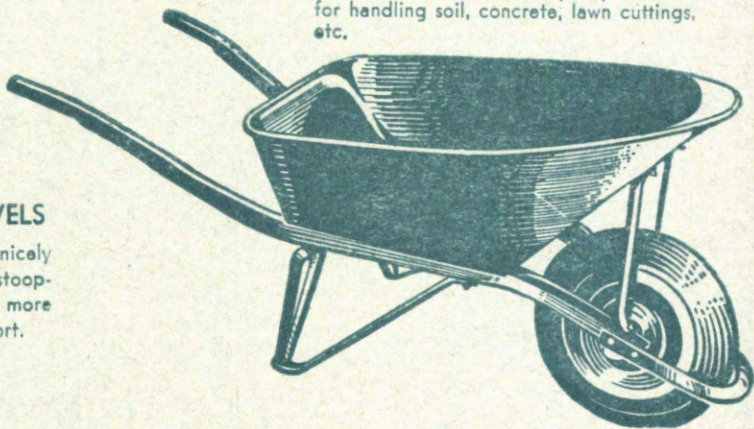
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