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NATIVE AND EXOTIC TREES AND SHRUBS AT THE CAWTHRON INSTITUTE.

(By William C. Davies, Hon.F.R.P.S., Curator of the Cawthron Museum, Nelson, N.Z.).

Nelson has long been noted for the luxuriance and variety of its vegetation, both native and exotic. Thanks to the vision and industry of the early settlers and their successors, aided by a kindly climate, with its abundant sunshine, ample rainfall, and freedom from violent winds, the city and its environs provide unique opportunities for the study and enjoyment of plant life.

In the adjacent hill country are large reservations of virgin forest; among them Cawthron Park, the Waterworks reserves, and the recently dedicated Abel Tasman Park, besides numerous areas of State Forest preserved for protection purposes. In the city itself, are the carefully tended slopes of the Church Hill, the Queen's Gardens, Anzac Park, the Botanical Reserve with its native section and fernery, and finally the small but interesting plantation in the grounds of the Cawthron Institute, the subject of this article.

A feature of the Instituté, specifically mentioned in the late Mr. Cawthron's will, is the museum, which serves a dual purpose. In addition to its function as a connecting link between the general public and the research workers, the results of whose labours are demonstrated within its walls, it illustrates the resources and natural history of the northern districts of the South Island. From the latter point of view the neighbourhood is outstanding, particularly in its botanical aspect, since it includes within its boundaries not only the "overlap" of the sub-tropical and sub-antarctic elements in the New Zealand flora, but also the very distinct types of native vegetation consequent on the climatic characteristics of the dry north-eastern and moist north-western botanical districts. It is fitting, therefore, that the museum should include—as it does—an already extensive and steadily growing collection of photographic records of the local indigenous and exotic plant life, many of them displayed in the form of window transparencies, together with polished specimens of timbers, both native and foreign.

A necessary adjunct to such a museum exhibit is provided in the grounds of the Institute, where, within the limitations imposed by available space, is being developed an arboretum containing a selection of trees and shrubs of special local and general interest. (Fig. 1). Such a plantation, apart from its attractions to visitors, furnishes useful data regarding plant habits and comparative rates of growth, as well as readily accessible material for photographic

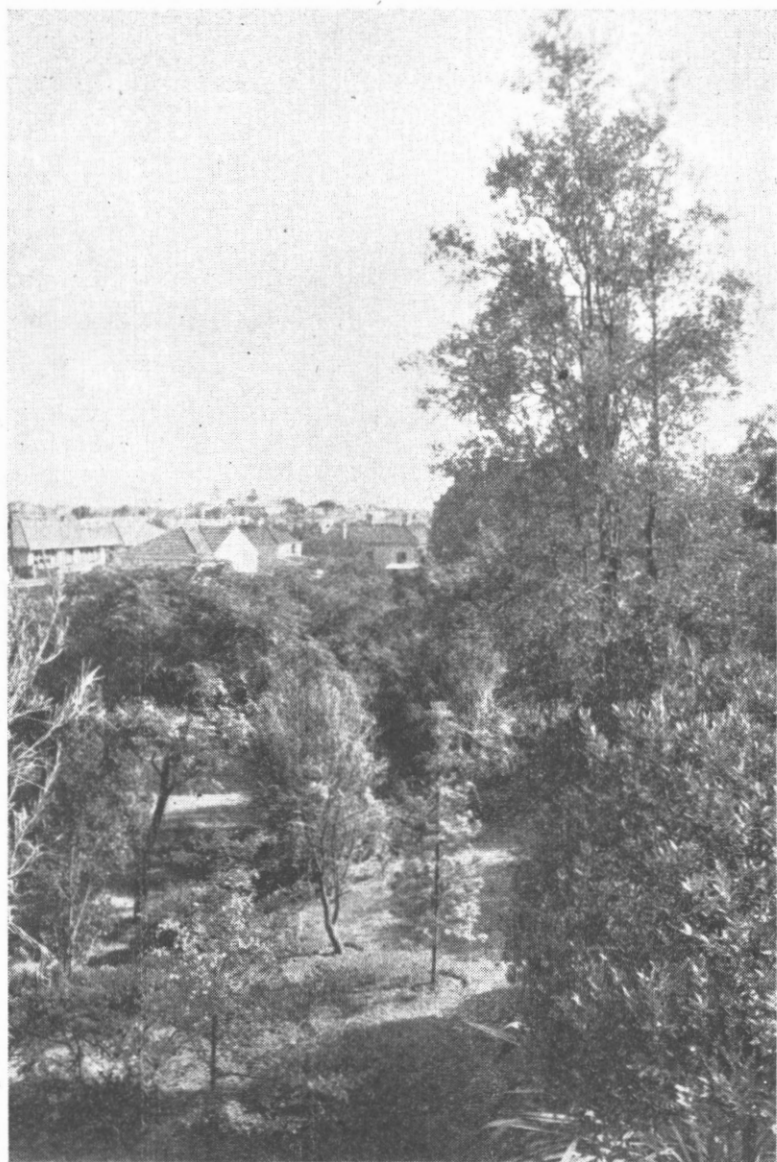


Fig. 1. View of part of Arboretum, 1944. Note the 55 feet high Chilean Soap-tree, *Quillaja saponaria*, planted in 1931.

purposes. The flowering periods of many New Zealand plants are of but brief duration, and, in the case of outdoor photography, only one or two days, perhaps even hours, may provide the optimum conditions required in the fickle weather of Spring. Hence the necessity for specimens which may be kept under close observation.

When "Fellworth," the home of the late Mr. John Sharp, was acquired by the Cawthron Trustees nearly twenty-five years ago, the garden already contained many fine exotic shrubs and conifers, some of them planted as far back as 1886. Prominent among these are the *Sequoia gigantea*; the Bhotan Pine (*Pinus excelsa*), a representative of the five-leaved group of pines conspicuous for its display of handsome pendulous cones; several species of Cypress and Spruce; a fine old South American "Pepper Tree" (*Schinus Molle*) with gnarled trunk and tortuous branches; and numerous examples of the glossy-leaved *Photinia serrulata*, brightening the hillside with their mass of white blossoms in spring, and crimson leaves in late autumn.

Planting operations, carried out since the inception of the Institute, have of late been devoted chiefly to the indigenous flora, including notable locally endemic species; but before dealing with these, mention should be made of a few of the more conspicuous exotics, planted in the earlier days of occupation.

Most attractive among these are the purple-flowered "Bead" trees (*Melia Azedarach*) shown in the illustration (Fig. 2). The Bead tree, known also as the Manna Ash, owing to the resemblance of its leaves, is a native of Syria, whence it early found its way to Europe, the grooved seeds being used by the monks in making their rosaries.

Another importation, responding readily to Nelson climatic conditions, is the "living fossil," as Darwin called it, the Maiden-hair Tree (*Ginkgo biloba*) of China and Japan. Several of these, grown from seed and planted out in 1931, have become well-established, the tallest being now over 15 feet in height. A further immigrant from the Orient is the *Paulownia imperialis* of Japan, with its panicles of lilac antirrhinum-like blossoms. Unfortunately, so rapid is its growth in this country that it seldom survives for many years, about thirty appearing to be its maximum span of life.

Other exotics, which catch the eye, are the leguminous Judas Tree, bearing beautiful pink pea-shaped blossoms and cordate leaves, and the *Rhus cotinus* or "Smoke Bush," aptly so named from the appearance of its feathery purple panicles. Both these are natives of southern Europe. Australian representatives include the Silky Oak (*Grevillea robusta*), the red-blossomed *Grevillea alpina*, flowering almost continuously throughout the year, and the handsome Australian Musk Tree (*Olearia argophylla*), distinguished by its silvery-backed leaves and masses of large white flowerheads.

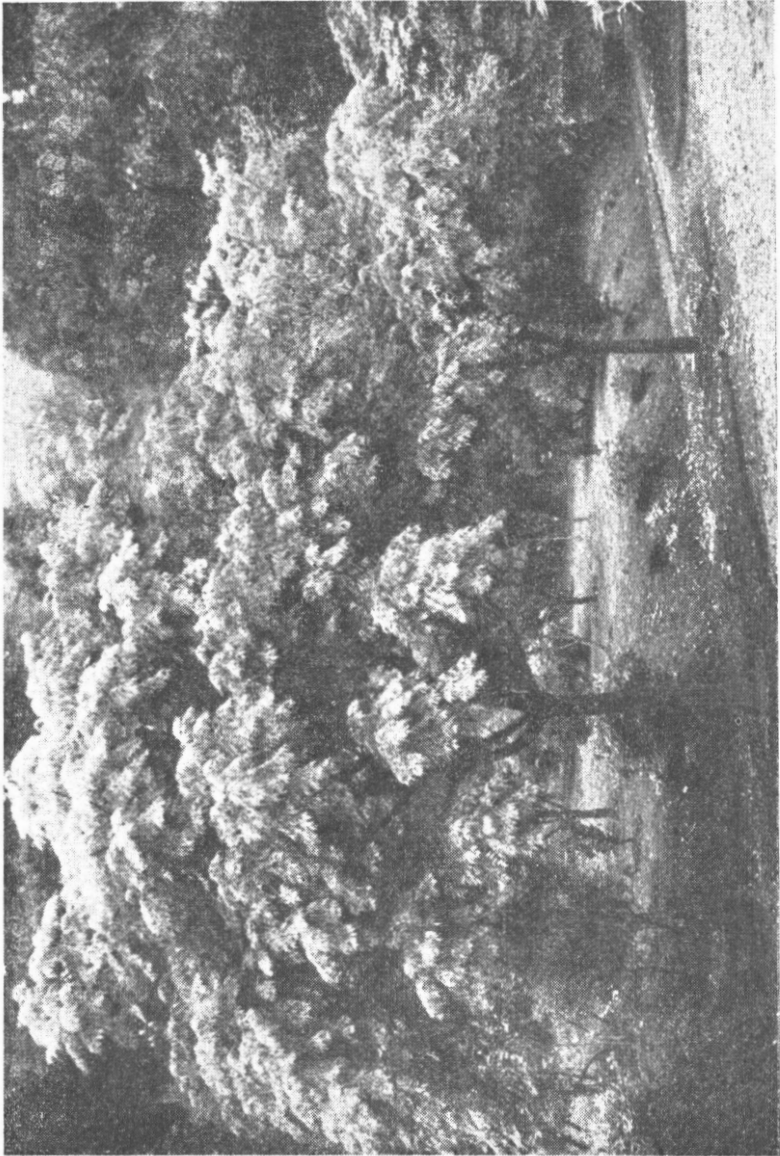


Fig. 2. Two eighteen year old specimens of *Melia Azadirach*.

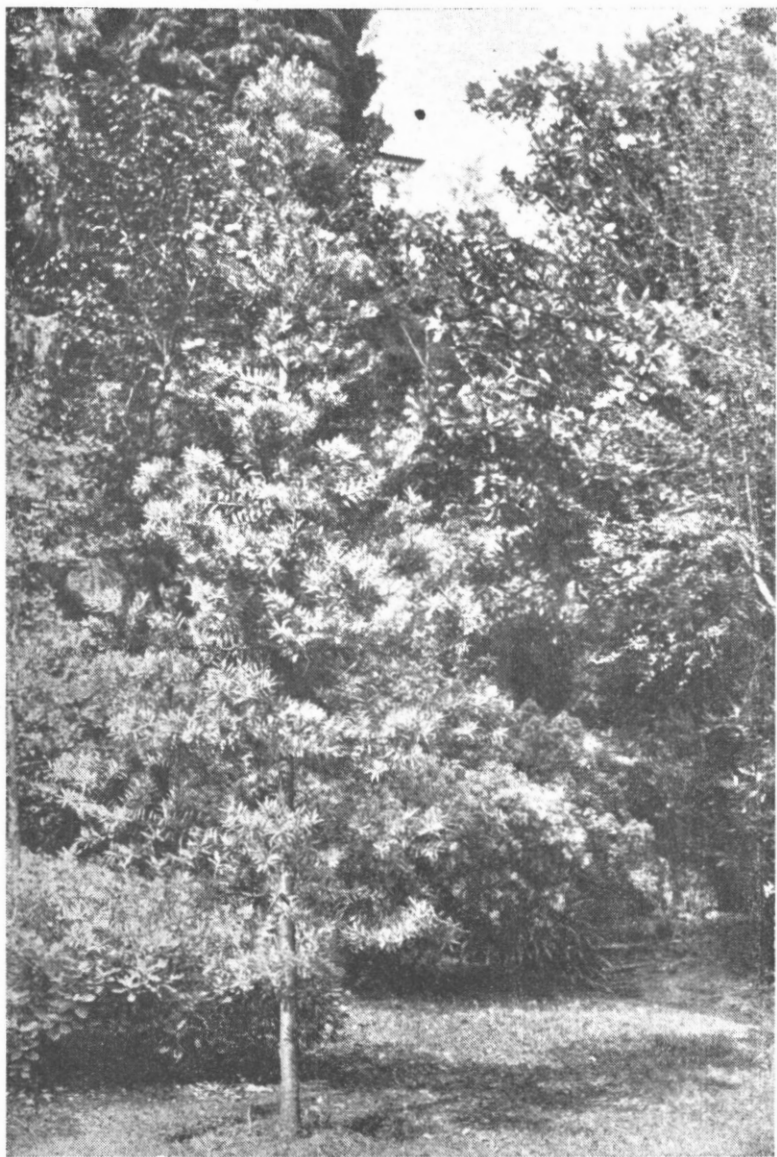


Fig. 3. Thirteen year old kauri bearing cones. On the right is *Olearia Hectori* planted at the same time.

Lastly, there should be mentioned some examples of the flora of Chile, which contains so many trees, shrubs, and smaller plants closely allied to our own. Most striking of the Chilean specimens is the Soap Tree (*Quillaja saponaria*), which has made the phenomenal growth of 55 feet since it was planted in 1931. A relative of our kauri, the "Monkey Puzzle" (*Araucaria imbricata*) planted nearby, has achieved only five feet of growth in the same time. A third Chilean tree, the *Aristotelia Macqui*, an ally of the New Zealand Wine-berry or makomako (*Aristotelia serrata*), is also making healthy growth and producing numerous flowers and berries.

We turn now to consideration of some of the indigenous trees and shrubs, planted from 1930 onwards. Amongst these, pride of place must be given to the kauri (*Agathis australis*) (Fig. 3), which in thirteen years of growth, has reached a height of seventeen and a half feet, and has borne cones for the past three years.

Then come the *Olearias* of various types, some twelve species being represented, including the three deciduous shrubs *Olearia Hectori*, *O. virgata* and *O. oleifolia*, the first of these being a South Island species found in isolated localities in Otago, and also in the neighbourhood of Pelorus Sound at the northern end of the island—a good example of discontinuous distribution. Other *Olearias* worthy of note are the two narrow-leaved forms of weeping habit (*Olearia lineata* and *O. laxiflora*) shown on either side of the photograph taken in the native section (Fig. 4). At the present time *Olearia Solandri*, a North Island shrub reaching its southern limit in the Awatere Valley in Marlborough, is conspicuous by reason of its persistent seed-heads, the silky pappi lasting far into the autumn and producing a most distinctive appearance.

All the above-mentioned species have small inconspicuous flowers, arranged often in fascicles on short arrested branchlets or at the bases of the leaves, and revealing their beauty only when viewed through a pocket lens. Much more spectacular in foliage and inflorescence are the New Zealand Holly (*Olearia ilicifolia*) and its larger-leaved relative *Olearia macrodonta*, both having prickly leaves and showy white corymbs of daisy-like blossoms.

Also growing here are the two members of the genus *Shawia*, formerly included among the *Olearias*. *Shawia paniculata* (syn. *Olearia Forsteri*) the akiraho, is too well known both as a hedge plant and garden shrub, to need further mention; but *Shawia coriacea*, with smaller leathery leaves, boatlike in shape, and a very similar inflorescence, is not yet in common cultivation, though quite worthy of it.

The xerophytic vegetation of the north-eastern district is represented by the prostrate kowhai (*Edwardsia prostrata*); the divaricating *Muehlenbeckia Astoni*—the only plant of its genus with a shrub-like habit—found also in the opposite shores of Cook Strait; and the Rock Daisy (*Pachystegia insignis*), whose natural habitat is confined to the coastal district between the Awatere and

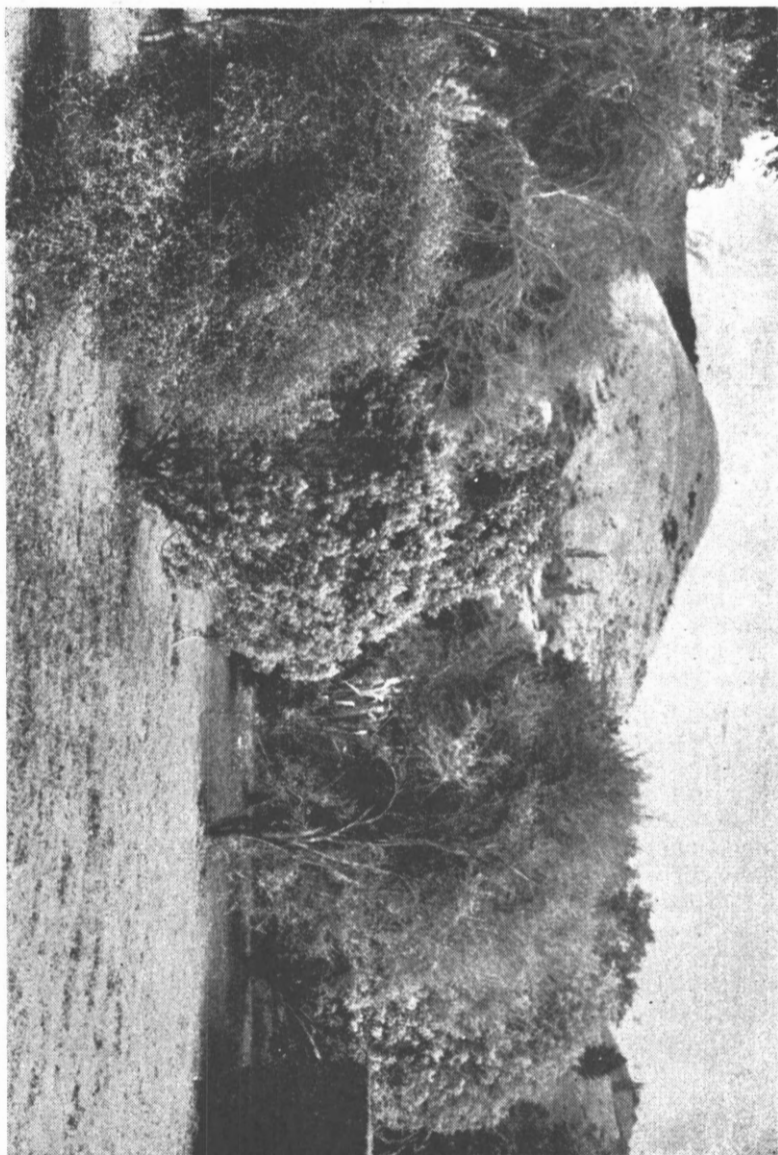


Fig. 4. A corner in the native plantation. Left foreground *Muehlenbeckia Astoni*, grown from seed 1934, planted out 1936, now 7 feet in height. In the background *Olearia lineata* on left, *O. laxiflora* on right.



Fig. 5. *Pachystegia insignis*, Marlborough Rock Daisy.

Kaikoura. The last, with its protective covering of woolly tomentum, has found a congenial home on the rocky bank beside the Fellworth building, presenting a pleasing appearance in all its stages, whether in leaf-bud, flower-bud, flower, or seed. (Fig. 5).

Another Marlborough plant, with tomentose protection against drought, is *Senecio Monroi*, which, with its yellow-flowered North Island congener, *Senecio Greyii*, produces a most decorative effect in early summer.

From the neighbourhood of Boulder Lake near Collingwood, in the North-western District, comes the rare *Pittosporum Dallii*, the only species of its genus with serrated leaves and white flowers. Three specimens, grown from seed kindly supplied by Mr. F. G. Gibbs and planted in a variety of situations, have made good growth, but none has yet shown any sign of flowering, although planted nearly ten years ago.

Finally, there should be mentioned the latest addition to the arboretum—a collection of Southern Beeches, which includes, in addition to our own five species of *Nothofagus* (*N. Menziesii*, *N. fusca*, *N. truncata*, *N. Solandri*, and *N. cliffortioides*), three from Chile (*N. Dombeyi*, *N. obliqua*, and *N. antarctica*) and two from Tasmania (*N. Cunninghamii* and *N. Moorei*).

In view of the present and future possibilities of the New Zealand beeches as a source of timber supply, this assemblage of the *Nothofagi* with records of planting and development, should prove both interesting and valuable in years to come.

This far from exhaustive account of a hand-maiden to the Cawthron Museum, concludes with an expression of gratitude to many friends who have made contributions to the plant collection, and in particular to Mr. A. W. Wastney, Chief Ranger to the State Forest Service in Nelson, whose assistance in procuring and personally cultivating specimens has proved invaluable.

NORTH CAPE VEGETATION.

(By A. D. Beddie.)

On Wednesday, 7th June, 1944, I arrived at Warkworth and, along with Norman Potts, stayed the night with Cameron Findlayson. On the 8th, we three arrived at Kaitaia and Potts and I stayed the night at Ross Michie's place. Next morning we met Mr. Shepard and Mr. McKenzie of Kaitaia, who accompanied us in a separate car. North of Te Kau the road was very bad, a greasy surface with many potholes. We worked our passage through some miles of pink and red *Leptospermum*, which was greatly admired, and we lost no chances of collecting seeds. We also saw *Todea barbara* at some distance. We finally arrived at Paua and went across Parengarenga Harbour by launch, landing near Dyson's Landing, and camped at a shepherd's hut. We walked up the beach to the eastward for some miles and collected *Todea barbara* by torch-light.

Next morning, as the packhorse had not arrived, we took what gear we could carry and tramped over the headland north of Parengarenga Harbour, and along a sandy beach to North West. We then had to climb over the cliff for some miles and here Mr. Sheppard cracked up and had to return, and Mr. McKenzie's leg began to trouble him and he decided to return with Sheppard. About this time the Maori with the packhorses arrived and took our swags to the next sandy beach, where we decided to camp and sent the Maori back for the tent and extra food. This arrived about dark and we got a much needed meal, after an eight hours gap somewhat similar to that of the previous day. Next day we tramped across country to Tom Bowling's Bay and along the top of the cliffs to Kerr Point and towards North Cape. As darkness was coming, we made tracks for a new camp at the northern end of the sandy beach. Next day we covered the North Cape region in two parties, dividing the work to some extent. Our job next day was to get back to Dyson's Landing, and after some adventures we got there and the launch took us back to Paua.

Next day we went back to Kaitaia, by the Ninety Mile Beach route, and we were rather glad of a bath and shave after six days, more or less in the wilds. As we had a shortage of sugar, salt and other items of commissariat, we were rather glad of a square meal without rationing. In regard to plants, we were very surprised to find a large herb field of many acres in extent near Kerr Point and a smaller one near North Cape pylon. The herb fields are notable on account of the wind-flattened nature of the vegetation, scarcely a plant being more than 12 inches high although many were old plants of wide spreading habit. Fires had evidently been extremely common for many years.

In some places of large extent, the scrub had been burned over and over again until the only plants able to find nourishment were *Schoenus* and *Cladium*. We had to wander through many acres of burned scrub on this volcanic plateau of huge extent. The herb field was a very interesting sight, consisting largely of *Hebe speciosa* var. *brevifolia*, *Pomaderris ligustrifolia elliptica*, *P. Edgerleyi*, *P. phyllicaeifolia* and *P. rugosa*, *Cassinia amoena* and *Leptospermum scoparium*, white, pink, red and var. *lineata*, as well as a few other stray species. One would say that the *Leptospermum* species were easily dominant but there was no time to make a detailed examination. On the steep cliff faces, the same plants occur along with *Metrosideros tomentosa*, *Helichrysum glomeratum*, *Olearia albida*, *karaka*, *ngaio*, *Geniostoma ligustrifolium* var. (with the variety *crassum*), *Leucopogon fasciculatum*, *Sideroxylon*, *Phormium tenax*, *Arundo conspicua* and other plants of less interest. A leathery leaved trifoliolate panax was seen almost prostrate against the cliff, and much more time could have been spent without exhausting the botanical interest of the district. *Leucopogon Richei* was found

near the tip of North Cape but no fruits or seedlings were seen. The biggest disappointment was our failure to find *Pittosporum pimeleoides* var. *major*. No *Pittosporums* were found on the trip at all. Scrub fires are very likely the cause of its absence, although stock may have been fond of eating it, but in any case, our most determined efforts failed to find a trace of it. North Cape is the type locality of *Hebe speciosa* var. *brevifolia* and we were all delighted with the beautiful colour of the flowers. *Hebe ligustrifolia* is there also in its type locality and neither of these seem to be in any danger of extinction. *Cassinia amoena* has been recorded from nowhere else but it covers a larger area than one would gather from Cheeseman's record. *Geniostoma ligustrifolium* var. *crassum* is also confined to this locality and does not seem to travel very far beyond it.

Ipomoea palmata is found sparingly in the district but is not confined to it. It has large purple flowers. *Hibiscus diversifolius* was found near our first camp—about 6 square yards of it in dense formation. *H. trionum* we found in many places, including the volcanic plateau, but not in any quantity. In spite of Cheeseman's dictum, neither of these seems to be in any danger of early extinction. *Olearia albida* is said by Cheeseman to extend from Spirits Bay to North Cape but, as it is found in many other localities, we need not be alarmed about its becoming extinct. *Leucopogon Richei* seems very rare in this district but can be found in Chatham Islands also.

On the return journey, we spent some more time collecting seeds of pink and red manuka. One variety with red petals, margined very distinctly with pink, was a great favourite and may be a true species. It certainly occurs over a large district and is very easily distinguished in the field.

Near Ninety Mile Beach, we spent about an hour and a half on the *pseudopanax* group discovered by Ross Michie. Here we found five *Pseudopanax*, all crossing freely and producing, in some cases, more beautiful and also more outlandish plants than the parents themselves. There are *Pseudopanax ferox*, *P. crassifolium* var. *unifoliolatum*, *P. crassifolium* var. *trifoliolatum*, *P. Lessonii* and the Kapiti Island variety and there can be no question that the five of them are all concerned in the heterogeneous progeny. It is sometimes the case that three parent plants of different species are suspected of producing a hybrid group, but here is a case of five species or varieties all being concerned and the progeny are a bewildering mixture. A character, which neither of the parents has, is found when *P. Lessonii* crosses with the Kapiti Island variety. One might expect a threefoliate offspring, but here we sometimes have a three lobed form of foliage, which is new to the *Pseudopanax* family.

I would like to see a group of the best types of the most distinct or outlandish forms planted in a prominent place in Percy's

Gardens. Dr. Cockayne would have revelled in them and would have spent many hours or days sorting out the parentages of the various forms. I am sure that there is a larger collection of puzzles in this group than in any other hybrid group in New Zealand.

It will be some time before the blazing hot days and the mild nights in the middle of June, with practically no rainfall, will be forgotten by the four who enjoyed this glorious trip.

A TRIP THROUGH THE LOWLANDS IN NEW CALEDONIA.

(By M. R. Boothby).

The following letter to the Dominion Secretary from Staff Sergeant M. R. Boothby, then overseas, covered this Journal article:—

“You will find accompanying this note an article I have prepared and if you think that, in either part or full, it justifies the Hon. Editor’s consideration, you are at liberty to publish it as you think fit.

Unfortunately, there is no manual dealing with the plant life of this island and our Army Educational Welfare Service, although very helpful, has no Johnson’s “Gardening Dictionary” or other similar work on the shelves and my movements here are too uncertain to keep at hand books of reference. However, I have attempted to make my notes botanically correct and also add to a background of general interest.

I have met quite a few chaps over here who are interested in plant studies, including Capt. Watters, N.D.H. (N.Z.), Auckland, Fletcher, Botanist to the Otago Museum and Les. Foote, of Duncan and Davies. I was pleased to see, in a recent issue of our Force paper the “Kiwi,” that Frank Jollie had succeeded in gaining a higher position in his profession since his return to civil occupation.

I wish the activities of the Institute and yourself the continued success they deserve and I hope you will consider my endeavour an appreciation of the Institute’s good work and an answer to the call for articles from members.”

The expression “Life is what you make it” certainly applies to life with the New Zealand Forces in New Caledonia and, to one with a horticultural interest, life here can be interesting if one is in the mood. Maybe, at some future date, one may be able to make a comparison with other islands of the Pacific but, for the moment, an afternoon’s observation of the local countryside must suffice, with botanical corrections, kindly supplied by M. Robert Virot, Botanist, Noumea.

Transport has been arranged from our base camp to the camp on the site of the new “Kiwi Club,” now nearing completion at the waterfront of our popular local beach. We travel in one of the familiar baby quad trucks, the handy four wheel drive vehicles of

the British Forces. Our loading list consists of fresh cabbages and beetroots from New Zealand, a few lines of tinned rations and two days' supply of fresh bread from the Field Bakery operating nearby.

The passengers are a medical orderly, going to relieve his mate after a week's duty with the beach party, and oneself with some new clothing, which has been changed for old at the familiar and much maligned quartermaster's store.

We travel from our camp along well-formed roads bordered with the familiar yellow-fruited guava, *Psidium guajava*, which covers acres of alluvial flats. Where the road traverses ridges, the niaouli, *Melaleuca leucodendron*, borders the highway. We pass on once again to the guava flats and across a discoloured stream, which has just subsided from one of the frequent floods of this, the wet season. Bordering the stream are many swamps and small lagoons. Wherever these conditions exist, the coral tree, *Erythrina fusca*, abounds. These shapely trees are equivalent in display to the kowhai, *Sophora tetraptera*, of New Zealand in Spring time.

The lagoons are partially covered with the close water-lily growth of the water hyacinth *Eichhornia crassipes*, now in full bloom. Sometimes these masses of lilac bloom are half an acre in extent. Quite often the raupo, *Typha angustifolia*, is found in these localities and, at some seasons of the year, the familiar Pukeko are seen strutting about.

The settlers have planted wind breaks of the giant bamboo across the flats hereabouts and now forty foot poles can be cut from the stands in places and the graceful pendent growths are a pleasing feature of the landscape. The grasses of the flats are mainly of the fescue type and are sometimes four feet high, and beef and dairy cattle graze about.

A touch of the machine age is revealed in this back-block scene with the present activity of an Allied Force line gang working with bulldozers clearing away the coral trees and other growth in their way and the mechanical post-hole borers digging holes for the durable, but not always straight, niaouli poles.

When nearing the township we cross a low concrete bridge spanning the slow flowing stream which, a few days previously, was flowing four feet above the decking. An anxious driver with his big six-wheeled truck attempted to cross and finished up twenty feet downstream, fortunately, without serious injury. Now the curly headed Kanaka divers are making fast a line from a nearby winch truck to recover this six by four, that only has the tops of the bows of the tray canopy showing above the water. Much interest is shown in this work by the native French and Javanese children.

We do not enter the township but turn off at the cross roads. The first building along this road is a substantial two-storeyed

structure, the use of which has often evoked curiosity, but to-day one is informed that it is a cheese factory, but very different from those at home. One feature, however, is evident and that is cleanliness. Beyond the factory, we drive through an avenue of flamboyant trees, *Poinciana regia*. The foliage is very cool and attractive but the brilliant flowers are now a thing of the past.

The road from here skirts the stream to the sea, sometimes through sandy flats, or at the base of steep hills, with rocky outcrops. The vegetation is mainly a noxious growth of *Acacia spirorbis* which, in some places, grows so close to the road that it forms a close cropped hedge through the passage of the trucks breaking off the new growth.

Occasionally, settlers' homes are passed and these are usually situated on ridges surrounded by plantations of coffee bushes under the shelter of the black wood tree, *Albizzia Lebbeck*. Usually, there are a few coconut and banana palm in bearing, growing on the edges of the plantations.

About the houses are usually found paw paws, *Carica papaya*, pineapples, varieties of custard apple, usually *Annona muricata* and mangos, *Magnifera indica* for fruit, and varieties of *Croton*, *Coleus*, *Hibiscus* and *Solanum*, together with usually inferior types of *Chrysanthemum*, *Aster*, *Antirrhinum*, *Gerbera* and *Canna* for decorative effect.

A vegetable garden is usually situated nearby or perhaps some distance away, according to soil conditions. The vegetable plots do not flourish as well as one would expect from the climatic conditions. Among the vegetables common to New Zealand gardens are onions, carrots, tomatoes with a very poor habit of growth, potatoes, dwarf beans, melons and cucumbers.

The tropical crops grow with a much better foliage and usually comprise manioc, *Manihot utilissima*, kumara, taro, *Xanthosoma sagittifolium*, yams, *Dioscorea alata*, and sugar cane, *Saccharum officinarum*.

The largest area of most plots is usually set aside for crops of maize or Indian corn, which is grown as food for stock as well as the cobs for household use. Maize thrives here and two crops per year are usually harvested. One estate along the road boasts many acres of coconuts in full bearing, and many acres of grazing flats have been recently cultivated by modern machinery in an attempt to provide vegetables for the Allied Services.

Here we make our last turning on the outward trip, through a grove of the local species of *Hibiscus*, *Hibiscus tiliaceus*, which is admirable for its large yellow blooms and dark foliage, and is capable of producing a fibre for cordage.

We come out on the beach and the new Club is now in view. The site has been rapidly cleared of prickly pear and other noxious growth but the shady specimens of *Acacia laurifolia* and the primitive palms, *Cycas circinalis*, have been retained. Just above high

water mark, the thick leaved prostrate convolvulus, *Ipomoea biloba*, is displaying many lovely mauve blooms.

The panorama here is very pleasing with the wide sweeping bay and the gentle surf extending for several miles between the massive cave-ridden bluff and the river mouth. On the horizon, the seas can be seen breaking over the coral reef and this afternoon one has added interest in observing the scow, waiting at the harbour entrance to lighter cargo from the coastal trading tug, with its two bulky barges, in the primitive river port.

How one longs to escape to the open sea to board some homeward bound transport and back to family and fireside!

The beach offers comparatively safe swimming in its tepid waters and occasionally quite good surfing. Now there is promise of small boats sailing on the bay with the arrival of sailing dinghies from the Yacht Clubs of New Zealand.

It is now time to journey back to camp and duty. So we make our way to the construction camp cookhouse and partake of that essential, afternoon tea, with the company of four members of the W.A.A.C.s on our return journey. They are returning to duty at the camp recreational centre after a few hours at the beach and a look over the site of a new sphere of their activities.

REHABILITATION.

The Committee set up by the Institute's Executive Council to deal with Rehabilitation—The President (Mr. Hope B. Gibbons), Dr. W. R. B. Oliver, Mr. W. K. Dallas (Convener) and Mr. G. S. Nicoll, Secretary, met the Director of Rehabilitation (Colonel Baker) on Tuesday afternoon, 18th April, 1944. Mr. E. L. Cullen, M.P., and two other Board members etc., were present. The President made the opening remarks and explained the objects and functions of the Institute, and particularly its educational activities. Many questions concerning the Examination Syllabus and the Agricultural Colleges' Courses in Horticulture were dealt with by the Dominion Secretary (Mr. G. S. Nicoll), particularly with regard to their application and concessions which have been made to returned service people.

The Chairman of the Board, Colonel Baker, in the course of his remarks, stated that the Rehabilitation Board is responsible for the rehabilitation of all ex-servicemen and ex-servicewomen and for all money, material, etc.; for all education, including University and A.E.W.S., and all educational problems, bursaries, etc.; trade training courses and other trade matters; settlement on Crown lands; employment and post-war employment generally; farm training in all branches, etc. The matter of loans to servicemen and servicewomen follows after training. The Board also goes carefully into the question of wages of trainees for any scheme.

The Board asked for an estimate of the absorptive capacity of horticulture in its respective branches for men training, and when trained. It also wished to have the combined opinion of the Institute and the University as to what training should be provided for men desiring to establish themselves in a business, as apart from those seeking public appointment.

There is no difficulty with the professional man. The difficulty is with the change from army training and atmosphere to concentration associated with, say, efficient management of a business. The main question would be the shortening of the course for the majority who would be looking for a job, as an employee, or one-man business. It was desired to know, to what extent and for what period, these men would require to be trained for commercial pursuits.

The horticultural course, as outlined, was not of much use to the average man only seeking a living. It was thought that, if there had been reasonable education before the war, any specialized line, such as nursery management, orcharding, etc., could be sufficiently mastered in two seasons (21 months) plus a short period at college in the special subject chosen.

The next question was as to how many can be absorbed in horticulture under colleges, professional, Horticulture Division of the Department of Agriculture, nurserymen, seedsmen, florists, and those who only want to own their own businesses. Provision would also be required to be made for neurotic cases whereby they could be situated in suitable environment and interest themselves in horticulture or other work.

The question of setting up a Committee, with Institute representation, would be gone into later. It was not felt, on the whole, that many would want to spend four years in study for the Diploma, unless they were entering a public service.

Mr. Hope B. Gibbons, President, did not think that there was a proper appreciation of what this training means.

Mr. Dallas, Convener, summarised the position regarding the information required thus:—

Horticulture Division:—(Number of men required with specialized training—Diploma men);

Parks and Reserves:—Enquiry from Mr. M. J. Barnett, Superintendent of Parks, Reserves and Plantations, Christchurch, as to how many positions would be available throughout the Dominion under respective standards of efficiency as indicated by "Diploma," "Intermediate," "Junior" and others for executive positions—Parks Superintendents, Foremen and Gardeners;

New Zealand Horticultural Trades Association:—Similar information from Secretary, also what scope there was for new businesses and additional people to be employed. Dominion Council of Commercial Gardeners:—Ditto; Horticultural Seedsmen's Association of New Zealand:—Scope for new business and people to be

employed; Florists:—Ditto; New Zealand Fruitgrowers' Federation Limited:—Ditto and National Beekeepers' Association of New Zealand: Mr. G. V. Fraser, Secretary, Foxton—Ditto.

SUMMARY OF TRAINING.

Briefly, the training of the men and women may be summarized as follows:—(1) Men with previous specialized training in any profession; (2) Men with previous experience and training in horticulture (any branch) seeking (a) Professional position in horticulture service in (1) Government; (2) Local Bodies; (b) Owner-producer; (c) Employee. (a) group would be recommended to pursue college 2-year Horticultural Course plus Institute's Servicemen's Diploma Course. (b) group, 2 years practical course in approved orchard, vegetable garden, nursery, and/or public park, etc., plus short term course, say 6 months at Agricultural College in orchard, nursery, vegetable garden or park management, soil chemistry and soil improvement and crop rotations, etc., and (c) group. Working in approved employment. Attending college course optional.

Men suffering from nervous disorders, arising from war experience, to be provided for by setting up special training establishments in which plant raising and other horticultural work would be a prominent feature in which the men may interest themselves.

(Signed) W. K. Dallas,
Convener,
26th April, 1944.

Letters were sent to the various bodies mentioned and the replies may be summarized thus:—New Zealand Horticultural Trades Association and Dominion Council of Commercial Gardeners—each of these has its own scheme; Horticultural Seedsmen's Association of New Zealand and New Zealand Fruitgrowers' Federation—practically no additional staff is anticipated; and National Beekeepers' Association of New Zealand—there is limited scope, at present, in New Zealand, for the establishment of new commercial apiaries in districts that are not already occupied by beekeepers. The absence of protection from encroachment on apiary sites is a serious drawback and a definite menace to loan security. Training should be with a practical beekeeper supplemented with advice from the local Apiary Instructor.

The present position has been reported to the Director of Rehabilitation when it was mentioned that one Parks Superintendent and several Intermediate and Junior Certificate holders have already resumed their positions. It was also anticipated that all returning registered Students and Diploma holders will also return to their previous positions. It was intimated to the Director of Rehabilitation that the Committee would be pleased to discuss one matter further.

The following letter by the Dominion Secretary, was sent on the 11th July, to Mr. J. A. McPherson, Director of the Botanic Gardens, Christchurch:—

“Referring to your letter of the 3rd May covering a copy of your Report to the Christchurch Domains Board on Rehabilitation, I have to advise you that, on account of the absence of the Convener, Mr. Dallas, this was referred, by the May Executive Meeting, to the Rehabilitation Committee. As the Convener was, however, again out of town at the June Meeting, the matter was left to the President and myself with power to act.

I have now to advise you that we, including Mr. Dallas, are unanimously of the opinion that this report is a most valuable contribution to the Rehabilitation problem providing, as it does, for the theoretical and practical training of a substantial number of returned servicemen by extension of the excellent facilities already existing.”

Our Auckland District Council has advised the Minister of Rehabilitation, in connection with a request by the Auckland Office of the Rehabilitation Department for the nomination of suitable training gardens in Auckland, that a Sub-committee has been set up to which any returned man with an inclination for horticulture should be referred for advice.

THE SECRETARY'S NOTE BOOK.

The Ontario Department of Agriculture, Statistics and Publications Branch, Toronto, Ontario, has issued its Bulletin 437 on Orchard Soil Management by E. F. Palmer and J. R. van Haarlem, Horticultural Experiment Station, Vineland Station, Ontario.

Under the heading of Sources of Organic Matter under Orchard Conditions one reads:—

“WEEDS.—Failing the planting of any other green-manure crop, a good stand of weeds will yield large quantities of plant material to turn under. Mow the weeds once or twice during the season as they reach a height of 18–20 inches. When finally turning the crop under, a very light application of nitrogen should be given to stimulate breakdown and prevent a nitrogen drain on the orchard. Handled in this way, weeds can be a satisfactory source of organic matter. Incidentally, weed growth in an orchard is usually a fair index of soil fertility. Soils which won't grow weeds, won't grow green manure crops either and eventually won't grow satisfactory fruit trees or crops unless and until fertility is restored by building up the soil organic matter.

Sod.—Left to itself, as for example in grassland, a soil slowly enriches in organic matter, finally reaching a state of balance where the additions from the grass or other vegetation equal the removal by decomposition. Under orchard sod conditions, therefore, the or-

ganic matter problem solves itself, it nevertheless being necessary to provide that the fruit tree does not suffer from competition for food and moisture. This may be accomplished, as later discussion suggests, by the use of mulch, and commercial fertilizers where needed.

Loss of organic matter, accumulated under sod conditions, begins with cultivation, and the longer it is continued, other things being equal, the greater the loss. This is not **necessarily** to be deplored, as the decrease is in large part the necessary accompaniment of making the organic matter useful to the trees. But if allowed to go too far, unaccompanied by replenishment, the eventual result will be declining growth and lowered yields. Soil management should be so planned as to provide for a level of cropping which can be maintained without impoverishment of the soil itself.

SOD CULTURE.—As compared with clean cultivation, a well-managed soil culture or mulch system for apple orcharding has been shown by grower experience and experimental evidence to accomplish certain results. In the early years, tree growth and yield under soil mulch will lag somewhat, but will catch up in 10-15 years and will eventually surpass clean-cultivated trees. Fruit will be better, date of maturity will be earlier, "drops" will suffer less injury from bruising, soil fertility will be superior, orchard operations as pruning, spraying, harvesting, will be facilitated due to firmer footing at all times. Supporting evidence is given for these statements.

Note the term "sod culture." Soil "neglect" has no place in successful orchard management, but unfortunately it was the neglected soil orchard which formerly brought soil into disrepute. The sod was simply evidence of lack of grower interest. Mostly the orchards were small and a bit of a nuisance. Then there were revival meetings throughout Ontario and growers were encouraged to prune, spray, fertilize **and cultivate**. This cultivation—breaking up of long-established sods—released unusual quantities of plant food which, with heavy pruning, caused a sudden surge of growth and fruitfulness. Seemingly the superiority of cultivation over sod was established, but the early treatment had been sod neglect not sod culture; and, in any event, continued cultivation, unless accompanied by manuring, would soon deplete the storehouse of organic matter which had accumulated under soil conditions. Growth and fruitfulness must eventually decline.

THE MULCH IN SOD CULTURE.—Sod culture normally implies that the sod material, grass or alfalfa, will be cut as necessary, perhaps two or three times during the growing season, the cut material either being left where it falls or concentrated as a mulch under the tree. Nothing is removed from the orchard. It is not a hay-field. The mulch, in fact, is an integral part of the system. Additional material, strawy manure, straw, old hay or other crop refuse

may be drawn in to supplement this mulch and build it up sufficiently to practically smother growth under the trees. If tree growth and fruitfulness fall short of requirements, farm manure or fertilizers, or both may be added as needed.

Michigan investigators have estimated the annual cost of maintaining the mulch system at 4.50 dollars per acre, this figure including the expense of mowing, raking and spreading under the trees. Where additional material, calculated at two tons per acre, is needed to supplement the sod cuttings the cost rises to 10.25 per acre. This compares with 10.60 as the estimated cost of cultivation—cover—crop management.

As noted, during the active tree-growing period, the grass or alfalfa sod, should be cut, usually twice, to minimize moisture competition with the tree at a critical period. When the cut material is used as a mulch, it should be spread under the trees immediately, starting a foot or two from the trunk (as a measure in mouse control) and extending to, or somewhat beyond the spread of the branches. The amount of mulch, whether or not supplemented by additional material, should be sufficient so that, while fairly well decomposed by the latter part of the season, it is still heavy enough to retard most grass or other growth under the trees."

Other interesting Headings deal with Soils, Organic Matter and Humus, Plant Foods, Clean Cultivation and Cover Crops, and Soil Testing and Fertilizer needs. Altogether it is a most interesting and valuable publication with excellent illustrations.

NEWSPAPER CLIPPINGS.—Mrs. Knox Gilmer has forwarded clippings from the London "Daily Mail," unfortunately undated, received from her sister in England, Mrs. Seddon Woods. The first, which was received prior to the June Executive Meeting, is by Daily Mail Reporter, headed "Never Did So Little Cost So Much" and reads:—A rich man and his money are soon parted in the West End to-day, particularly if he is after the good things of life to eat and drink.

I made a tour of the most exclusive stores and shops yesterday to see what a millionaire, defying income tax, could buy if he tried. The choice, I found, was very limited; the cost very nearly unlimited.

A buttonhole seemed necessary to "make up" for the part. My choice fell on a gardenia, price 7/6, one of only four in the tray—"the first we have had this year," they assured me.

But there were plenty of a choice of orchids, six on a spray for £2/5/-; of lilies of the valley at 10/- a small bunch, and of roses, "only 4/- each, much cheaper than they have been."

To send home I had a choice of a pot of mimosa in flower for 32/-, or a hydrangea, looking very blue, and I don't wonder at it, for £2/10/6.

My search for fruit was very disappointing. Nowhere could I get a pineapple or any ripe grapes, though in one store there were

what were described as "grape cuttings" for as little as 3/6 a lb. Since, however, these were the very small, green, hard, trimmings from the vines, I cannot think what, even at that price, a millionaire could do with them, except give them to his gardener in the hope that they would grow.

After extensive search I did find a peach, one of a very few, richly cushioned in a carefully guarded tray. It will certainly take some time yet to ripen. The price was 15/-.

Among vegetables, the choice was much more varied. Asparagus, said the assistant, "has dropped heavily in price. Even the best bundles to-day are only 15/- each."

He could also have bought mushrooms at 15/- a lb., new peas, or at any rate, pods containing the promise of them, at 10/6, and French beans at 8/6. There were plenty of all of them.

I shall always think that wood pigeons are poor value for anybody's money. "Before the war we could not have got rid of them for 8d. each," said the salesman, "but they go well enough now at 5/6 each."

One big treasure, however, I did see in this department—some goose eggs, only 3/- each, and large enough, with care, for an omelet for two.

There was absolutely no salmon in any of the shops. Drought, they say, is the principal reason for that. The rivers are low, and the fish have not been able to enter them.

So I had to be content with a few escallops at 1/10 each, and a dozen or so of prawns at 5/- a dozen.

Most provision departments had simply nothing to offer suitable for a millionaire. I had heard that there were some cocks' combs to be had at one establishment for 25/- a jar, but they had all been sold before I arrived.

The only prizes I could get were a pint of turtle soup for 9/6 and a small piece of salami sausage, sent here on Lend-Lease from America, at the control price of 4/- a lb.

In one of London's best-known shops, which before the war was famous for its exotic luxuries, I asked for some caviare. The manager laughed, "We have to sell fish cakes at 2d. each now," he said.

A hunt for liqueurs was the hardest of all. In one of the biggest stores they still had one bottle—of green chartreuse—left, price £6. "But we are not selling it," I was told. "We are just keeping it to look at."

Cigars? Well, there are still a few about for millionaires. I was offered a "real bargain" in a box of 50 very small Allones for £15/10/-, which was certainly quite reasonable compared with Coronas offered elsewhere at from 15/- to 25/- each.

Restoratives were indicated after this orgy of spending. The choice lay between a "real snorter" of a pick-me up at a West End chemist's for 8/6, contents unspecified, or a very small glass of

brandy for the same price. I chose the brandy.

And now I am off to a West End theatre, where for the price of 16/- I am permitted to occupy a stall and enjoy the show as much as I can while wondering if the office will pass my expenses.

The second clipping is by "Daily Mail" Agricultural Correspondent and reads:—

London Daffodil Show opened yesterday for two days in the Royal Horticultural Society's Hall, Vincent Square, Westminster. Flower lovers have given up much to grow vegetables in the nation's need and they were entitled to a floral holiday.

Looking at the banks of flowers of all the narcissus forms it was notable how the general colour effect is changing. In years gone by the ruling hue was gold. Now the red cups and crowns and the numerous all-white flowers result in a general effect of red, white and gold.

But it was a perfectly-formed golden trumpet daffodil, Goldcourt, shown by Mr. W. B. Cranfield, of Enfield Chase, Middlesex, that was the best bloom in the competitive classes.

The third clipping was received about the 24th July and is headed "City Men Queue To Grow Flowers." It is also by Daily Mail Reporter and reads:—

City men queued up in London yesterday to buy plants, alysum at 2½d. a root, Brompton stock at 10d. each, pansies and violas at 6d. each, and other flowers which they could normally raise themselves by the hundred for a few pence.

After nearly five years of raising vegetables on every spare foot of ground, the domestic gardener has suddenly shown a yearning for a bright flower patch, which has sent the prices of plants rocketing.

Outside the seedsmen's shops in Leadenhall Market, London, yesterday, where the pavement was crammed with boxes of plants, there was a crowd of City men.

Mr. James Heggadon, a bank messenger, was buying saxifrage at 8d. a time and antirrhinums at 3/- a dozen.

He told me: "I could have covered half my garden with these flowers if I could have bought seeds.

"I know I am paying through the nose for plants, but I've just got to have a few flowers in the garden this year.

"I am sick to death of marrows, sprouts, and all the rest of the veg."

Mr. Henry Deale was shopping for phlox and rock geraniums at 1/6 each.

"Where I had five rows of beans last year," he said, "I'm making a small flower garden.

"I never thought I'd have to stand in a queue with a crowd of other men just to buy a few plants."

INSTITUTE NOTES.

CONGRATULATIONS:—At the June Meeting, the President extended congratulations to Mrs. Knox Gilmer, Wellington, on her Dominion record vote for a City Council or Hospital Board election, which he described as a wonderful civic performance.

PERSONAL:—At a recent meeting of the Examining Board, it was mentioned that the Chairman, Professor H. B. Kirk, had been laid up for some time and the Secretary was requested to convey members' sympathy and best wishes for a speedy recovery.

Mr. C. W. Corner, N.D.H. (N.Z.), Napier Parks Superintendent and Hawkes Bay Vice-President, with Mrs. Corner, were reported as having visited Wellington about Easter time.

Mr. J. G. C. MacKenzie, N.D.H. (N.Z.), has returned from service overseas and has resumed his position as Parks Superintendent, Hastings.

Mr. F. J. E. Jollie, N.D.H. (N.Z.), and Cockayne Gold Medallist, 1937, who recently returned from service overseas, has taken up his new position, as Lecturer in Horticulture at Massey Agricultural College, Palmerston North. His original horticultural training was with Messrs. Duncan and Davies Limited, Nurserymen, New Plymouth but, before proceeding overseas, he had been for some time in charge of the propagating department of the Christchurch Botanic Gardens.

Mr. D. C. MacKenzie, N.D.H. (N.Z.), Wellington, acted as locum tenens pending Mr. Jollie's return.

Messrs. M. R. Boothby, N.D.H. (N.Z.), Superintendent of Parks, Dannevirke, G. D. Hyde and J. A. Mashlan, both of Lower Hutt City Reserves, have recently returned from overseas. Mr. Boothby returned for National Service work.

HORTICULTURAL ORGANIZATIONS:—A Dominion List of Organizations interested in Horticulture from the Director of the Horticulture Division, Department of Agriculture, was welcomed with appreciation by the June Executive Meeting. This will be found, for reference and other purposes, a most useful adjunct to the Institute's activities.

WHAKATANE BEAUTIFYING SOCIETY:—It was reported, at the April Executive Meeting, that a letter from the Whakatane Beautifying Society, requesting information regarding tree-planting in streets, etc. had been referred to the Institute's Auckland District Council. It was agreed that the Council is well equipped in this direction and the Secretary's action in sending the request forward was approved.

SYLLABUS AMENDMENT:—In connection with the adoption, by the 1944 Annual Meeting, of the Canterbury District Council's resolution regarding the inclusion of oral tests and practical tests in a graduated Syllabus, a circular has been forwarded to all District Councils and Examiners inquiring as to what should be included, in this connection, in the examination Syllabus.

POST PRIMARY SCHOOL CURRICULUM:—Following on the Institute Note regarding this in the previous number of the Journal, the Examining Board, in view of early publication, appointed Mr. Wm. C. Hyde (Convener) and Dr. W. R. B. Oliver a Committee to finalize this matter urgently after submission to the Acting Chairman, Mr. W. K. Dallas, and this has been done.

WELLINGTON HORTICULTURAL SOCIETY:—The President mentioned, at the June Executive Meeting, that at the Annual Meeting of the Wellington Horticultural Society on the 7th June, an excellent talk, with specimens, on "Shrubs suitable for Wellington" was given by Mr. V. C. Davies, New Plymouth. The speaker and his firm were to be congratulated on carrying out a real service to horticulture.

JOURNAL:—The delay in the issue of the current number of the Journal is due mainly to the Secretary's absence on leave. It is pleasing to note that some articles appear herein as the result of the recent appeal and that a further article is being held over as being more appropriate to the following number. Whilst the response has been quite good, there are still many old and valued members who could help with articles from their store of knowledge.



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