

JOURNAL
OF THE
ROYAL NEW ZEALAND
INSTITUTE
OF
HORTICULTURE



CONTENTS:

	Page
The Effect of Severe Winter Conditions on Plant-Life in the Dunedin Botanical Sub-District; By J. Scott Thomson and G. Simpson.	73
Experimental Planting of Conifers, Lake Coleridge; By St. G. Hart.	77
Summary of Nineteenth Conference	81
In Memoriam: W. W. Smith	86
Loder Cup Competition, 1941	88
Institute Notes	92

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Journal of the Royal New Zealand Institute of Horticulture

VOL. II.

WELLINGTON, APRIL, 1942.

No. 4.

THE EFFECT OF SEVERE WINTER CONDITIONS ON PLANT LIFE IN THE DUNEDIN BOTANICAL SUB-DISTRICT.

(By J. Scott Thomson and G. Simpson.)

As far as can be ascertained, the plant-life of the Dunedin Botanical Subdistrict has never experienced such widespread injury as occurred during July, 1939, and it seems desirable to record some of the exceptional effects brought about by the severe weather of that month.

Accurate detailed records dealing with the degree of cold which New Zealand species can tolerate are scarce. Cockayne ("Vegetation of New Zealand, Ed. 2, p. 57) calls attention to the fact that "the evidence derived from the cultivation of New Zealand sub-alpine and alpine plants in Europe shows that a temperature of 18 degrees C is more than the majority can tolerate." Also, "in New Zealand an exceptional frost, particularly if maintained for a number of days in succession, damages or kills outright many indigenous species. Thus, in 1923, at Queenstown, though there was almost constant frost for six weeks, and many supposedly hardy plants were killed, so far as one could ascertain, the thermometer did not fall below 11 degrees C. But, even if the cold were greater, it certainly cannot have nearly reached 17 degrees C., for *Eucalyptus Gunnii*, juvenile *E. globulus* and *Pinus radiata* were undamaged. On the other hand, the following species, which ascend to above the forest-line, were killed or damaged:—*Phormium Colensoi*, *Weinmannia racemosa*, *Myrtus pedunculata*, *Leptospermum scoparium*, *Nothopanax Colensoi*, *Gaultheria perplexa*, *Olearia aborescens*, *paniculata*, *Senecio cassinioides* and *Senecio elaeagnifolius*. Also, nearly all the purely lowland species were either killed outright or more or less damaged, including such as were in their natural habitats."

The following meteorological observations for July, 1939, recorded at the Dunedin Botanic Gardens, were kindly supplied by Miss P. R. Long:—

TABLE A.

Date	Temp. (°C.) at 9 a.m. In Screen. Maximum	In Screen. Minimum.	On grass. Minimum.	Direction.	Wind. Beaufort Scale. Force.	Remarks.
July 1	11.1	8.6	6.7	NE	2	Rain falling intermittently.
" 2	7.5	5.5	3.9	SW	2	Rain at noon, heavy later.
" 3	8.7	3.8	3.2	SW	5	Cloudy, cold rain.
" 4	4.6	2.4	0.2	W	3	Sleet, rain and hail showers.
" 5	4.6	0.2	-0.6	WSW	4	Snow showers and sleet.
" 6	5.1	0.7	0.0	SW	6	Heavy rain showers, snow, and sleet.
" 7	4.4	1.1	0.1	SW	6	Rain, hail and sleet showers.
" 8	7.2	1.4	0.5	SW	3	Rain, hail and sleet showers.
" 9	5.6	0.5	-0.3	SW	4	Snow, light frost, hail and sleet, snow thick on ranges.
" 10	8.2	1.2	0.6	SW	5	Rain, showers early.
" 11	9.3	4.5	2.3	SW	4	Sunny, slight haze later.
" 12	8.8	1.8	-0.4	Calm		Slight haze, snow on hills.
" 13	7.2	3.3	1.2	NE	3	Drizzly and showery.
" 14	9.9	1.1	-1.6	W	4	Visibility good.
" 15	7.9	5.6	3.3	SW	3	Rain showers and later sleet.
" 16	5.7	2.3	1.2	SW	2	Rain, sleet and snow showers later.
" 17	4.9	0.2	-1.7	W	5	Snow, sleet and rain showers.
" 18	3.3	1.0	0.5	W	4	Rain and sleet showers; hail.
" 19	5.1	1.7	1.3	N	1	Rain showers; later snow thick on hills.
" 20	5.1	-0.5	-2.8	W	1	Misty, frost later.
" 21	6.4	-2.3	-5.0	NNW	1	Bright sunshine; later frost and fog.
" 22	9.0	-1.1	-3.4	NE	2	Detached cloud.
" 23	10.2	1.5	-0.5	Calm		Cloudy to overcast; misty early.
" 24	5.6	3.2	1.1	WSW	5	Sleet, rain and snow showers; snowdrift.
" 25	0.1	-1.6	-1.0†	W	5	Snow all day; snow lying 13 cms. deep.
" 26	2.7	-2.6	-1.1†	W	5	Snow lying 33 cms. deep at 9.5 a.m.
" 27	6.2	-1.6	-0.4†	WSW	5	Snow lying; light rain showers.
" 28	6.1	2.3	1.7	WSW	5	Sunny; snow lying.
" 29	5.1	1.4	-1.1	SW	4	Sleet and rain showers; light hail.
" 30	4.7	0.5	0.0	SW	4	Sleet, rain and snow showers.
" 31	5.8	1.7	6.9	S	2	Snow still lying.

† Under Snow.

The month was stormy and cold, and in the period July 24-27 the subdistrict was subjected to an abnormally heavy snow-fall, low temperatures and strong winds. No injury to plant-life of any consequence was noticed during the month until after the short period mentioned above. It is evident from Table A that the temperatures recorded were considerably above any quoted by Cockayne.

Moreover, readings below those in the table have been experienced in the sub-district without any noticeable damage having occurred to its plant-life, and the following low minimum temperatures for the locality, kindly supplied by the Director of the Meteorological Office, are of interest in this regard:—(on grass), July, 1924—7.2deg. C.; Aug., 1928—7.2deg. C.; July, 1929—7.2deg. C.; June, 1931—7.2deg. C.; Aug., 1932—6.9deg. C.; July, 1937—8.3deg. C.; June, 1938—7.5 deg. C.; (in screen), Aug., 1920—2.8deg. C.; Aug., 1932—3.1deg. C.; July, 1937—5.0deg. C. The lowest grass and screen readings were recorded in July, 1937.

It seems obvious, therefore, that apart from actual breakage caused by the snow-fall, the destructive factor was not the degree of cold experienced, but the combination of low temperatures and strong winds. The destruction caused by the snow itself was well-marked and was confined to the breaking-down of trees and shrubs. In this connection, the tangled masses formed by the scramblers *Muehlenbeckia australis* and *Rubus australis* carried such a weight of snow that many trees, encumbered by these plants, were unable to support the increased load. The havoc caused by the snow, severe as it was, was amply compensated for by the protective covering afforded by the snow to smaller plants, these entirely escaping ill effects; the species of higher levels, as in tall tussock-grassland for example, apart from temporary crushing, were unaffected and rapidly assumed their normal appearance in a few weeks.

More widely distributed was the devastation caused by the blizzard-like combination of strong winds and low temperatures; young shoots were destroyed, in many cases leaves were completely stripped of trees and shrubs, and numerous individuals were killed outright. Views within forested areas, which were normally restricted to a few metres, were now extended greatly and the usual appearance of the areas was so radically changed as to be unrecognizable and the forest floors were mantled with layer after layer of discarded leaves. Extensive damage was inflicted, not only upon New Zealand species from other localities, but also on those belonging to the sub-district which had hitherto shown complete indifference to the severest winters of the past.

As would be expected, plants growing in exposed situations suffered to the greatest extent and, generally speaking, adequate shelter was sufficient to ensure immunity, although some striking exceptions occurred. Even when growing under a dense forest canopy, the tree-ferns *Hemitelia Smithii* and *Dicksonia squarrosa* were universally affected, and ground-ferns such as *Blechnum discolor* and *Polystichum vestitum* also suffered. Thick-leaved species such as *Myoporum laetum* and *Nothopanax Colensoi* were no more immune than thin-leaved species, while the foliage of mature trees of *Daerdydium cupressinum* and *Podocarpus ferrugineus* was seared as if by fire.

For convenience, we have listed the affected plants under separ-

ate headings:—A, New Zealand species belonging to the subdistrict; B, New Zealand species not belonging to the subdistrict. The species distinguished by the letters NS were unmistakably but not severely damaged; those marked S were severely affected.

LIST A.

Aristolelia serrata (young plants killed), S; *Blechnum procerum*, NS; *B. discolor*, NS; *Carpodetus serratus*, S; *Cassinia fulvida*, NS; *C. Vauvilliersii*, NS; *Clematis Colensoi*, S; *C. indivisa*, S; *Coprosma areolata*, S; *C. foetidissima*, S; *C. lucida*, NS; *C. lucida* X *propinqua*, NS; *C. parviflora*, NS; *C. propinqua*, NS; *C. rhamnoides*, S; *C. rotundifolia*, S; *Cordyline australis*, NS; *Coriaria arborea*, S; *Corokia cotoneaster*, NS; *Cyathea dealbata*, S; *Daerydium Bidwillii* (young plants killed), NS; *D. cupressinum* (young plants killed), S; *Dicksonia squarrosa*, S; *Edwardsia microphylla*, NS; *Elaeocarpus Hookerianus*, NS; *Gaultheria antipoda*, NS; *Griselinia littoralis*, NS; *Hebe elliptica*, NS; *H. salicifolia* var. *communis*, S; *H. elliptica* X *salicifolia* var. *communis*, S; *Hemitelia Smithii*, S; *Histipteris incisa*, S; *Hoheria angustifolia*, NS; *Hymenophyllum* spp., S; *Leptospermum scoparium*, NS; *L. ericoides*, NS; *Libocedrus Bidwillii* (young plants killed), NS; *Loranthus micranthus*, S; *Melicetyus lanceolatus*, S; *M. ramiflorus*, S; *Metrosideros hypericifolia*, NS; *Muehlenbeckia australis*, S; *Myoporum laetum*, S; *Myrtus obeordata*, NS; *M. pedunculata*, NS; *Nothofagus Menziesii*, NS; *Nothopanax arboreum* (young plants killed), S; *N. Colensoi*, S; *N. Edgerleyi*, S; *N. simplex*, NS; *Olearia arborescens*, NS; *O. ilicifolia*, NS; *O. arborescens* X *ilicifolia*, NS; *Pennantia corymbosa*, NS; *Pittosporum eugenioides*, S; *P. tenuifolium*, S; *Plagianthus betulinus*, S; *Podocarpus daerydioides* (young plants killed), S; *P. ferrugineus* (young plants killed), S; *P. Hallii* (young plants killed), NS; *Polystichum vestitum*, NS; *Rhipogonum scandens*, NS; *Rubus australis*, NS; *R. schmidelioides*, S; *Schefflera digitata*, S; *Senecio sciadophilus*, S; *Solanum aviculare*, S; *Suttonia australis*, NS; *Weinmannia racemosa* (young plants killed), S; *Wintera colorata* (young plants killed), NS.

LIST B.

Ackama rosaefolia, S; *Agathis australis* (some killed), S; *Alcyon excelsum*, S; *Alseuosmia macrophylla*, S; *Asearina lucida*, S; *Beilschmiedia Tairairi*, NS; *B. Tawa*, S; *Brachyglottis Rangiora* (some plants killed), S; *B. repanda*, S; *Brachyglottis* (purple-leaved form), S; *Carmichaelia australis* (some killed), S; *C. odorata*, S; *C. odorata* var. *pilosa*, S; *C. Williamsii*, S; *Clianthus puniceus*, S; *Coprosma grandifolia*, S; *C. retusa*, S; *C. robusta*, S; *Cordyline Banksii*, S; *C. Banksii* X *australis*, S; *Corynocarpus laevigata*, S; *Cyathocha medullaris*, S; *Daerydium Kirkii*, NS; *Dodonaea viscosa*, S; *Dysoxylum spectabile* (some killed), S; *Elaeocarpus dentatus*, NS; *Entelea arborescens* (some killed), S; *Fusanus Cunninghamii*, S; *Hebe angustifolia*, S; *H. divergens*, S; *H. leiophylla*, NS; *H. Menziesii*, S; *H. obtusata*, NS; *H. salicifolia*, var. *egmontiana*, S; *H. speciosa*, S; *Hedycarya*

arborea, S; *Hoheria populnea*, S; *H. sexstylosa*, S; *Hymenanthera chathamica*, S; *H. novae-zealandiae*, S; *H. obovata*, NS; *Knightia excelsa* (some killed), S; *Leucopogon fasciculatus*, S; *Leptospermum* (form known as var. *rosea*, double-flowered), S; *Litsaea calicaris* (some plants killed), S; *Macropiper excelsum* (killed); *Melicope simplex* X *ternata*, S; (*M. simplex* not affected); *M. ternata* (killed); *Meryta Sinclairii*, S; *Metrosideros florida*, NS; *M. tomentosa* (some killed); *M. villosa*, NS; *Myrtus bullata*, S; *M. bullata* X *obcordata*, S; *Nothofagus cliffortioides*, S; *N. fusca*, S; *N. cliffortioides* X *fusca*, S; *N. truncata*, S; *Nothopanax laetum*, S; *Olea Cunninghamii*, S; *Olearia albida*, S; *O. angustifolia* X *Colensoi*, NS; *O. chathamica* (young plants killed), NS; *C. furfuracea*, S; *O. Haastii*, S; *O. operina*, NS; *Parsonia capsularis* var. *rosea*, S; *Phormium tenax* (variegated form), NS; *Phyllocladus trichomanoides*, NS; *Pimelea longifolia*, S; *P. virgata*, NS; *Podocarpus acutifolius*, S; *P. nivalis*, NS; *Pseudopanax gilliesii*, NS; *P. lessonii*, S; X *Rubus Barkeri*, NS; *R. parvus*, NS; *Senecio elaeagnifolius* (young plants killed), S; *S. Greyii*, NS; *S. Hectori* (young plants killed), S; *S. Huntii*, NS; *S. Kirkii* (young plants killed), S; *S. Monroi*, NS; *S. perdicoides*, S; *S. remotifolius*, S; *S. rotundifolius*, NS; *Senecio Greyii*, X *Brachyglottis* sp., S; *Tetrapathaea tetrandra*, NS; *Vitex lucens* (young plants killed); *Weinmannia sylvicola*, S; *Wintera axillaris*, NS.

EXPERIMENTAL PLANTING OF CONIFERS, LAKE COLERIDGE

(By St. G. Hart)

DETAILS OF EXPERIMENTAL PLOT.

Location, near Power Station. **Altitude**, 1350ft.

Aspect, S.W. **Area**, 3.7 acres. **Rainfall**, 31.3in. (aver.) per annum.

Established 1933. Species planted in groups of three—16ft. between plants and 32ft. between groups. Enclosure netted to keep out pests. Most of ground fairly steep slope. Soil light loam and rather shallow. Subsoil light clay overlying shingle conglomerate. Some of ground swampy and all suspected of being sour. Plants set in plots about 2ft. square deeply dug a few months before planting.

RESULTS.

Name	Age Yrs.	Av. Height		Remarks.
		Ft.	In.	
<i>Abies alba</i>	12	3.	6	Very slow growth up to 1936. Young growth sometimes frosted. Progress now faster.
* <i>A. cephalonica</i>	5	0.	5	Owing to frosting, growth poor.
<i>A. Concolor</i>	4	0.	9	Steady growth—promises well.
<i>A. magnifica</i>	6	0.	15	Steady growth, but leader frosted several times.

A. Nordmanniana ..	5	0. 8	Growth frosted several times. After certain stages grows very well in sheltered positions.
*A. pinsapo	5	5. 8	Promises well.
*Araucaria araucana	8	1. 9	Rather slow.
Cedrus atlantica	10	7. 6	Progress to 1936 slow. Now much faster.
C. deodara	?	1. 0	Growing well. Generally this species has done well, but leaders liable to damage by wind.
Cupressus arizonica	5	1. 4	Unhealthy plants.
*C. goveniana	4	1. 6	Sickly plants—cut out of Exp. Plot.
C. Lawsoniana	9	6. 0	Growth slow in early stages. Now much faster. Grows very well in peat overlying clay near P. House.
C. macrocarpa	9	1. 6	Plants poor. Elsewhere in well-drained or worked ground grows rapidly.
*Callitris oblonga	8?	2. 6	Slightly affected by frost, but in sunny positions growing well.
*Ginkgo biloba	6	1. 2	Very slow growth. Growth damaged by frost.
*Juniperus communis	6	3. 0	Healthy plants.
*J. virginiana	7	4. 0	Healthy plants.
Larix decidua	6	6. 0	Healthy plants. Planted in wet, sour ground.
*L. Kaempferi	17	30. 0	Planted on hillsides. Growth slightly below L. decidua.
Libocedrus decurrens	10	2. 9	Poor progress.
Picea abies	6	2. 6	Planted in damp ground. Fairly healthy.
*P. comorika	5	1. 0	Healthy.
P. pungens var glauca	6	1. 4	Healthy.
Pinus aristata	5	0. 6	Very slow growth.
P. attenuata	7	8. 0	Growing well. Very fast growth in nursery.
P. banksiana	10	12. 0	Healthy.
Pinus bungeana	5	0. 6	Very slow growth.
*P. canariensis	4	0. 8	Grew well in nursery, but failed in Exp. Plot, 1937. Not hardy in this climate. Only one plant now alive—near river.
P. caribaea	7	4. 6	Growing in wet ground.
*P. cembra	6	0. 6	A particularly slow grower. Still in nursery.
P. cembroides var eludis	7	1. 9	Possibly not warm enough for fast growth.
P. cembroides var monophylla	8	1. 9	Not quite true—needles often in bunches of two.
P. contorta	8	5. 6	Sickly for first two years in Exp. Plot. Now quite healthy.
P. contorta var latifolia	8	16. 0	Healthy trees.
P. Coulteri	8	10. 0	Healthy trees.
P. densiflora	7	6. 0	Excellent to transplant. Plenty of fibrous roots. Cones very early.
P. echinata	7	4. 0	One plant died in Exp. Plot. Others moderately healthy.
P. densiflora var globosa	7	4. 6	Plants affected with aphids.
P. excelsa	8	5. 6	Very slow growth at first. Now quite good.

<i>P. flexilis</i>	7	5. 0	Like other pines of 5-leaved group, growth slow at first. Some of plants exhibit attractive blue tint.
<i>P. Gerardiana</i>	7	0.11	Growth very slow. Insufficient warmth?
<i>P. halepensis</i>	9	7. 0	Distinctive habit. Healthy. Rather slow.
<i>P. Koraiensis</i>	7	1. 9	Slow, but plants appear healthy.
<i>P. Lambertiana</i>	8	3. 6	Very slow to start. Now growing quite fast.
<i>P. leiodermis</i>	5	0. 6	Very slow growth.
<i>P. longifolia</i>	8	3. 6	Affected by frost in early stages. Growth in seed-bed rapid. Transplants poorly.
<i>P. monticola</i>	7	4. 6	Growth in early stages slow. Now growing fast.
<i>P. mugo</i>	6	3. 6	Healthy.
<i>P. muricata</i>	7	15. 0	Grows very well here.
<i>P. nigra</i>	9	14. 0	Grows very well here. Regenerates very freely.
<i>P. nigra</i> var <i>Austriaca</i>	5	0.12	Grows very well here.
<i>P. palustris</i>	7	0.12	Not happy here.
<i>P. parviflora</i>	6	0. 8	Slow growth.
<i>P. patula</i>	7	10. 0	Badly frosted in 1937. Recovered and now growing fast.
<i>P. pinaster</i>	7	9. 6	Healthy.
<i>P. pinea</i>	6	3. 0	Affected by aphid. Insufficient warmth?
<i>P. ponderosa</i>	7	10. 6	Quite extensively planted here. Makes steady growth.
<i>P. ponderosa</i> var <i>Jeffreyi</i>	8	5. 0	Slower growth than type.
<i>P. ponderosa</i> var <i>scopulorum</i>	6	4. 0	Slower growth than type. Many trees on hillsides.
<i>P. radiata</i>	7	15. 0	Extensively planted here. Highest tree 100ft., 25 years old.
<i>P. resinosa</i>	7	2. 6	Rather sickly. Affected by aphid.
<i>P. rigida</i>	7	6. 0	Fairly healthy. Inclined to seed early.
<i>P. sabiniana</i>	8	7. 6	Healthy.
<i>P. strobus</i>	11	10. 6	Healthy.
<i>P. sylvestris</i>	?	?	Plants killed by aphid. Swedish seed. New plants.
<i>P. taeda</i>	7	8. 0	Fairly healthy.
<i>P. thunbergii</i>	7	4. 6	Affected by aphid.
<i>P. Torreyana</i>	5	1. 6	Growth slow. Insufficient heat?
<i>Pseudotsuga glauca</i>	7	4. 0	Much slower than <i>taxifolia</i> .
<i>Pseudotsuga taxifolia</i>	7	13. 0	Grows fast, but leaders liable to damage by wind.
<i>Sequoia gigantea</i>	10?	5. 6	Growth very slow for first 5 years, now much faster.
<i>Taxodium distichum</i>	10?	3. 3	Very sick specimens—virtually no upward growth. Elsewhere in damp but well-drained soil growth fair.
<i>Thuja plicata</i>	11	6. 6	Leaders damaged by wind. Upward growth retarded.
<i>Tsuga Mertensiana</i>	3	1. 9	Growing fast. Some slight damage by frost.
<i>P. Kashya</i> and <i>P. taiwanensis</i> failed			—could not endure the frosts.

* Either still in Nursery or planted apart from Exp. Plot.

NOTES.

Keenest frost experienced 26.5deg., in July, 1931.

22deg. of frost not uncommon.

Pinus radiata, *P. muricata*, *P. nigra*, *P. ponderosa* and its var. *scopulorum* have been quite extensively planted, and all have succeeded very well. The last mentioned species appears almost useless for commercial planting, being too slow growing.

Pinus radiata is again the fastest grower amongst the pines, but *P. muricata*, especially a strain obtained from State Forest Service in 1930, is almost as fast. *P. radiata*, however, makes a larger tree than *muricata*.

So far as the experiments have gone, it does not appear that a pine superior or equal to *radiata*, *ponderosa* or even *muricata* has emerged. *P. attenuata*, *banksiana*, *contorta* var. *latifolia*, *Coulteri*, *patula*, *pinaster*, and *sabiniana* are all doing well, but with the doubtful exception of *latifolia* and *pinaster*, are not to be compared with *radiata* or *ponderosa* for commercial planting.

Douglas Fir has been planted in quantity, and provided shelter from the N.W. winds is given, makes rapid growth—often 4ft. per annum.

Larch, both *decidua* and *Kaempferi*, grows fast in the damper localities, but it would appear that foliage is more sparse than it should be.

Western Red cedar, *Thuja plicata*, has been planted in good soil, but the N.W. wind plays havoc with the leaders and, except in the most sheltered places, is useless.

C. macrocarpa is useless on tussock hillsides, except in few particularly well-drained places. Prefers worked, sweet ground.

There is very free regeneration of *P. nigra* and Douglas Fir to S.E. of plantations. In fact *P. nigra* threatens to become a nuisance—coming up very freely between the pipelines.

Generally, the experiments have not proceeded over sufficient number of years to be of maximum value.

Varieties of *Pinus mugo* and *Pinus nigra* also on trial.

SUMMARY OF PROCEEDINGS OF NINETEENTH ANNUAL CONFERENCE.

The Nineteenth Annual Meeting and Conference was held in the Board Room, Wellington Commercial Travellers' Building, Wellington, on Thursday, 26th February, 1942, at 10 a.m.

The Joint Permanent Committee, representative of the national bodies participating in National Horticultural Week, 1942, Hastings, decided, in view of travelling and other war restrictions and obligations, that the National Flower Show, 1942, should be abandoned.

The Committee also approved that all Conferences arranged for National Horticultural Week, 1942, Hastings, should be postponed for such time and at such place as could be conveniently arranged later on by each interested national body.

The New Zealand Florists' Telegraphic Exchange Conference was held at 9 a.m., and the New Zealand Horticultural Trades' Association's Conference was held at 1 p.m. on Wednesday, 25th February, at the same address.

ROLL CALL:—In addition to the President, Mr. F. S. Pope, the following were present:—

Auckland District: Miss E. F. Kibblewhite and Mr. N. R. W. Thomas.

Hawke's Bay District: Messrs. W. H. Walker and B. Teague.

Taranaki District: Messrs. T. Horton and V. C. Davies.

Feilding: Mrs. K. H. Dowrick.

Wellington District: Mrs. Knox Gilmer, Dr. W. R. B. Oliver, Dr. H. H. Allan, Messrs. Geo. Cooper, H. L. Cummings, W. K. Dallas, Hope B. Gibbons, W. M. Hamilton, E. Hutt, Wm. C. Hyde, J. G. MacKenzie, A. McMillan, G. S. Nicoll, L. F. Sired, J. C. Stirling, and T. Waugh.

Canterbury District: Messrs. M. J. Barnett, E. C. Gibbons, J. A. McPherson and J. N. McLeod.

Southland: Mr. C. E. Burrows.

APOLOGIES:—Professor H. B. Kirk, Messrs. C. W. Corner, W. T. Goodwin and A. White.

WELCOME:—The President welcomed the delegates, and he considered that, in the existing war circumstances and seeing that it would be mainly a business conference, the attendance was quite good.

MINUTES OF EIGHTEENTH CONFERENCE:—Held at Oamaru on Thursday, 6th February, 1941, (as circulated in the Institute's Journal of April, 1941—pages 101-110—were confirmed.

CONFERENCE, 1941, RESOLUTIONS AND REMITS:—Report on action taken regarding these was adopted.

PRESIDENT'S ADDRESS:—The President stated that he had not prepared the usual address as any conferences, since the abandonment

of National Horticultural Week, 1942, were being held for business reasons.

NATIONAL HORTICULTURAL SHOW for 1942 was abandoned owing to conditions arising from the war. The main objections to holding it were:—

The Government desired railway travelling to be restricted.
The Government wished people to remain in their home districts.
The war obligations of officials, exhibitors, etc.
Lack of petrol would reduce attendance.
Lighting difficulties in the town and at the show.

WAR:—It is quite impossible to foretell the end of the war, but it is thought reasonable to expect 1943 to be better for us than 1942. One should remember that every mile the non-aggressor Powers retreat in 1942, means a mile the aggressor Powers will have to retreat—and stay put—later. We should see a consolidation of our side before the end of 1942.

NATIONAL HORTICULTURAL WEEK, 1941, held at Oamaru, was a conspicuous success, and visitors were entertained with generous hospitality. The Banks lecture, delivered by Mr. Tannoek, Dunedin, and illustrated with coloured films, was a big success. A fine show, with excellent space displays, attracted a large attendance.

EDUCATION:—The educational programme, naturally, was adversely affected by the war, as a number of students are overseas or in camps undergoing training, and this has, of course, had a proportionate effect on the number of candidates for examination.

FRUIT INDUSTRY:—Government assistance to the Fruit Industry has been continued. The action taken towards local marketing of fruit, which would otherwise have been exported, is commendable.

VEGETABLES:—Some assistance will require to be taken by the Government in assisting the production of vegetables.

FINANCE had also been affected by war conditions and, for this reason only, the Institute did not quite hold its own.

SECRETARY:—Regret was expressed that the Secretary had tendered his resignation. He had carried out his duties excellently and his place would be difficult to fill.

RETIREMENT:—The President concluded by stating that he was not seeking re-election for this office, which he had held since the 1937 Conference.

EXECUTIVE AND EXAMINING BOARD'S REPORTS AND STATEMENT OF ANNUAL ACCOUNTS, as published in the Journal of January, 1942, were adopted on the motion of the President, after the passing of a resolution that these be taken as read.

ELECTION OF OFFICERS:—

President: After nomination by the Executive Council and the retiring President, Mr. F. S. Pope, Mr. Hope B. Gibbons, Wellington, was unanimously elected PRESIDENT.

The new President considered that, in view of his unopposed election, he would have the working support of every Executive member. He hoped that the retiring President would remain on the Executive, and his name was added, and also that of Mrs. A. V. Fisher, as Representative of the New Zealand Florists' Telegraphic Exchange, and Mr. G. S. Nicoll.

Excepting the above alterations, the list of officers, etc., remains the same.

Election of Hon. (N.Z.) Fellow:—Three names were submitted to the Conference—one to be elected—and the Conference ballot resulted in the election of Mr. T. D. Lennie, Christchurch.

C. W. CORNER:—The Secretary read the following extract from a personal letter from Mr. C. W. Corner, Superintendent of Parks and Reserves, Napier, who was unable to attend through the necessity of personal attention to the local scheme of increased production of seeds:—

“We have over 40 acres under intense cultivation. The crops are looking remarkably well and we are looking forward to satisfactory returns. As the proceeds are given to patriotic bodies, naturally we wish to make every post a winning post. I was out at Hastings last week and again yesterday. Last week Mr. MacKenzie was busy gathering parsnip and silver beet seed, which are giving splendid yields. He has a very large acreage under seed production this year. Yesterday I visited the plant which the Government has installed for drying medicinal plants, when they were drying the leaves of thorn apple. The work being carried out in Hawke's Bay is at present most interesting, and I was looking forward to having a chat with interested persons at the Conference as to our activities.

We were all greatly disappointed that the Horticultural Week had to be postponed. It is unusual for Hawke's Bay to be favoured by the rainfall we have had in the last few months. Since I have lived here, which exceeds 25 years, I cannot recall Hawke's Bay looking so well as it did at the time when our Show and Conference were to have been held.

As to our own gardens, naturally, we have done everything possible to same, so that the visitors would receive a favourable impression. Our Begonias are looking remarkably well, and judging by the number of visitors who inspect them every day, and the favourable comments on them, and other plants, I think Napier would have put up an exhibit equal to many exhibits staged at other centres for National Show Week.

I was also looking forward to meeting you and other col-

leagues and friends, and I assure you that the postponement, though undoubtedly necessary, was a great disappointment to us."

CONVOLVULUS:—Letter had been received from Town Clerk, Hastings, regarding the spread of Convolvulus in that district, and report by local Superintendent of Reserves on its control.

Mr. Barnett stated that there are two distinct plants, one being really bindweed and the other what is usually known as convolvulus. It should be ascertained definitely which is in question, and the matter should then be referred to District Councils for information and recommendations and a resolution to this effect was carried.

BROADCASTING:—After some discussion, the following resolutions were carried on the motion of Mr. B. Teague, Wairoa:—

(1) That the Executive Council of the Institute, in view of the importance of the broadcasting of gardening talks, consider the whole question of such broadcasts.

(2) That the Executive consider the question of the best hours for radio broadcasts of gardening talks, with a view to these talks being given at the most suitable hours during the summer and winter months.

REMITTS ADOPTED.

Educational:

(1) That the necessity for the establishment of a School of Horticulture be again impressed upon the Government; and, further, that the value of such schools, as centres of training of returned soldiers in horticultural pursuits, be urged upon the Government.

(2) That Conference draws attention to the desirability of remembering the Institute's horticultural trainees with the overseas forces when any scheme of rehabilitation is being considered. It is urged that the desirability be considered of granting scholarships to such trainees to enable them to study at schools of horticulture overseas before returning to New Zealand.

Membership:

(3) That registered horticultural students of the Institute be elected Associate Members at an Annual Subscription of two shillings and sixpence for such time as they remain registered students of the Institute and that such members have all the privileges of the Institute except the right to vote.

Travelling Expenses:

(4) That the Executive Council be requested to consider the advisability of paying the travelling expenses of members of the Executive Council or of the Examining Board, when matters of importance require their attendance.

Native Flora Preservation:

(5) That the Institute commends to its members and the public generally, the work being done by the Native Plant Preservation Society to prevent the extermination of rare native plants.

(6) That Conference draws the attention of the Hon. Minister for Scenery Preservation to the threatened extinction of one of the world's rarest plants, *Ranunculus paucifolius*, growing on a small area of Crown land in Canterbury, and requests that the necessary steps be taken for its preservation.

Seed Industry:

(8) That this Conference is pleased to note the progress made in the production of agricultural and horticultural seeds within the Dominion, and desires to impress upon the Government the necessity of protecting the industry from being swamped after the conclusion of the war by the competition of cheaply-produced imported seeds.

Loder Cup:

(10) That Conference recommends to the Loder Cup Committee that the words "in the year of the award" be deleted from the conditions of Annual Award of Loder Cup.

Examining Board:

(11) That the Executive Council be requested to review the rules and procedure in connection with examinations.

Past President:—The President (Mr. Hope B. Gibbons) proposed a vote of thanks to Mr. F. S. Pope for his six years of service as President of the Institute. He had done a fine job of work, which had been a labour of love. He moved "That a hearty vote of thanks be conveyed to Mr. F. S. Pope for his many valued services to the Institute, both before and during his term of office as President since March, 1937, deepest gratitude for all that he has done, heartiest congratulations upon the success which had attended his efforts, and best wishes for the future health and happiness of his wife and himself."

The motion, which was seconded by the Dominion Secretary and supported by Mr. Barnett, on behalf of the South Island members, was carried by acclamation.

Secretary:—Mr. F. S. Pope moved "That this Conference places on record appreciation of the Dominion Secretary's services, regretting his resignation and trusting that he will long be spared to continue in other capacities, his valuable work in the interests of horticulture throughout New Zealand."

The new President (Mr. Hope B. Gibbons), in seconding the motion, said it would be hard to replace Mr. Nicoll, who had a thorough grasp of all the Institute's affairs and a wide knowledge of all phases of horticulture dealt with by the Institute.

Messrs. J. N. McLeod and W. H. Walker also spoke in appreciation of Mr. Nicoll's efficiency and personality.

Carried.

Thanks:—On the motion of Mr. Barnett, a vote of thanks was passed to the retiring President for conducting the Conference in his usual able manner.

IN MEMORIAM: W. W. SMITH.

Quietly and gently he lived his long life, quietly and gently he slipped away from us. "Upright in character as in form, methodical, determined and sincere, he was the friend of every true lover of nature, and for very many years the unailing helper of those who wished to learn her secrets. The value of such a man to the cultural life of a community is impossible to estimate." With his passing we lose another of the band of field naturalists that took all nature for their province, one worthy to be associated in our memories with Potts and one like him most at home "out in the open."

Born at Hawick, Scotland, in 1852, he received his early horticultural training in several of the famous "stately homes of England." After coming to New Zealand he was for several years in charge of the late J. B. Acland's garden at "Arlincote," Mount Peel, and did not fail to take advantage of the exceptional opportunities to further his observations and studies on the wild life of our country—plants, birds, insects, all were alike beloved of him.

Then for a number of years he was in charge of the Ashburton Domain, and succeeded under considerable difficulties in making of it a thing of beauty. As a member of the Commission on Scenery Preservation set up by Seddon he travelled over much of the country and helped in securing for the people many parks and native reserves. After a short period in the Public Gardens at Palmerston North he was for twelve years (1906—1918) in charge of Pukekura Park, New Plymouth.

He could have wished for no more fitting monument to his services than this famous reserve, its natural beauty enhanced by his skillfully designed improvements. To him is largely due the credit for the present beauty of the park, with its vistas and well-placed specimen trees. He was one of the first to realize and insist on the horticultural value of our native trees and shrubs, and was specially interested in our ferns.

His work as a naturalist brought him into touch with co-workers abroad as well as in his adopted country, and his published accounts of his observations attracted considerable attention. His correspondence list contained many famous names, but it is as a helper of the young, guiding and encouraging them to cherish and preserve rather than to destroy that one likes best to remember him.

To the present writer he was ever helpful, and even his failing health could not damp his enthusiasm as he wrote of historic trees that appealed to him as worthy of preservation. "Doing good unobtrusively and never seeking the limelight, Mr. Smith endeared himself to thousands of New Zealanders and kindled in them his own enthusiasm for the wonders of Nature. He accomplished a wonderful work for horticulture and its allied arts and sciences."

—H.H.A.



MR. W. W. SMITH IN PUKEKURA PARK.
(By courtesy of Taranaki Herald.)

LODER CUP COMPETITION, 1941.

The Loder Cup award for the year ended November 30, 1941, has been won by Mr. E. Earle Vaile, of Auckland, who was nominated by the Auckland District Council of the Royal New Zealand Institute of Horticulture.

The cup was presented by the late Gerald W. Loder, afterwards Lord Wakehurst, Surrey, England, and is awarded annually to the person or body of persons who have performed the most meritorious act during the year or whose work has culminated in that year in furthering the wish of the donor to "encourage the protection and cultivation of the incomparable flora of the Dominion." In arriving at its award, the Loder Cup Committee works along the lines of the Nobel Peace Prize Committee.

Mr. Vaile, who was born in 1869, has always shown a keen interest in the preservation of New Zealand's native bush. His interest in the Waitakere Ranges dates back to the early 80's, since when he has spent a great deal of time and paid many visits there. His knowledge of the Waitakeres and his interest were recognized by the Auckland City Council about 40 years ago, when he was employed to settle compensation claims in respect to the Auckland city water-works, which are in the Waitakeres.

For a number of years, Mr. Vaile was farming on the puniee land south of Rotorua, but he returned to live in Auckland in 1936. He was invited to join the executive of the Waitakere Coronation Park Committee, on which he did good work. He was appointed to it as one of its two representatives on a committee set up by the Mayor of Auckland to report on the proposal. Subsequently, on the formation of the Waitakere Park Citizens' Association, he was elected as its president.

The fact that the Waitakere Park was selected as Auckland's Centennial Memorial, was largely due to the energy and enthusiasm with which Mr. Vaile advocated the preservation of this splendid area. As a practical measure of support, he purchased and presented to the city a block of 700 acres to round off one area. His energy was not content with persistent propaganda, but went as far as writing and publishing a brochure on the Waitakeres, dealing with the history associated with them and the necessity for further preservation. The Minister of Internal Affairs, Mr. Parry, recently paid a tribute to Mr. Vaile's part in securing the park.

The passing of "The Auckland Centennial Memorial Park Act, 1941," is a fitting coping to some four years of hard and tireless work to ensure that this magnificent area of native flora will be preserved for posterity. Mr. Vaile's interest was recognized by the Centennial Committee when they co-opted him as the only non-local body member of the purchasing sub-committee.



WELLINGTON BEAUTIFYING SOCIETY'S OFFICIAL OPENING OF JOHNSTON'S HILL DOMAIN, WELLINGTON ON SATURDAY, 28th MARCH, 1942 BY T. C. A. HISLOP ESQ., (MAYOR).
FROM LEFT.—Messrs J. W. Heenan (Under Secretary for Internal Affairs), C. F. Pulley (Owner of Land), H. S. B. Fletcher (Organiser), H. Plimmer ("Dominion"), G. S. Nicoll, His Worship the Mayor (in front), Councillors W. Appleton, W. Duncan, Mr Hope B. Gibbons (President of R.N.Z.I.H.), Captain S. Holm (President of Wellington Beautifying Society), Councillor R. L. Macalister, Mr J. G. Mackenzie (Superintendent of Parks and Reserves), and many other representatives were also present.

INSTITUTE NOTES

EXAMINATIONS:—The following passes have been recorded for the 1941 Annual Examination:—Junior Certificate:—H. E. Cann (New Plymouth), Miss M. F. Crawford (Dunedin), G. B. Malcolm (Christchurch), C. B. W. Oldridge (New Plymouth) and B. L. Young (Christchurch). Diploma:—J. W. Goodwin (Christchurch) and D. P. Reston (New Plymouth). There were no candidates for the Intermediate Certificate.

CONDOLENCE:—At the February meeting it was reported that a motion of sympathy had been conveyed to Mr. C. W. Corner, Superintendent of Parks and Reserves, Napier, in the loss of his son, on active service.

HISTORIC TREES.—It was reported at the March meeting that a committee meeting had been held recently in Mr. J. W. Heenan's Office (Internal Affairs), when Dr. H. H. Allan, lion. Editor, who had already published lists of Historic Trees in the Institute's Journal, agreed to look up all further available information in Government Departments, etc., with a view to consideration of publication of a full list of Historic Trees and also the question of additional steps for their preservation.

NATIONAL HORTICULTURAL WEEK, 1942:—The Institute and the New Zealand Horticultural Trades' Association (Inc.), as national bodies associated with the local committee in the finance and running of National Horticultural Week, 1942, Hawke's Bay, including the National Flower Show, have joined in the payment of an honorarium of £7/10/- to the Secretary, Mr. J. G. C. MacKenzie, Hastings, for work done in connection with the cancelled Week and Show. The thanks and appreciation of these bodies has been conveyed to Mr. MacKenzie.

JOHNSTON'S HILL DOMAIN:—It was reported at the recent Executive Meeting, that, on the invitation of His Worship the Mayor, Wellington, and members of the Domain Board, the President and Dominion Secretary had attended the Official Opening of Johnston's Hill Domain, Karori, Wellington, on Saturday, 28th March, when there had been an excellent representative attendance. The President expressed the hope, at the meeting, that this Domain would, in time, be linked up with the Otari Open-Air Native Plant Museum, so that both could be viewed in the one visit.

MANSFIELD, B. P.—The following letter came to hand as this issue was going to press:—

From 34622—C.Q.M.S. B. P. Mansfield,
15th Forestry Coy., N.Z.E.,
‡ Langrish, near Petersfield,
Hants, England.

2/2/42.

Dear Mr. Nicoll,

“Since leaving the Dominion I have many times been prompted to pen a few lines giving some particulars of activities “on the horticultural front”! Frankly, it has been marvellous; had anyone suggested there might be such opportunities for visiting gardens, parks, shows and attending meetings, I should have scorned the idea. On the way at Perth, Bombay, Colombo, Peradeniya, Capetown, Kirstenbosch—and here; at Kew, Glasnevin, Wisley, Petworth, R.H.S. Shows in London, public parks, private gardens of renown, nurseries and many horticultural meetings. And all in eighteen months under active service conditions!

If there was a “highlight” on the marvellous trip, it surely was Colombo and Peradeniya—Bougainvilleas above all. The parks, gardens, cemeteries, racecourse and all were definitely superior to anything elsewhere. And the grounds of the Zoo! I long to see it all again. There was not much I missed in an all too brief a stay, thanks to the extreme courtesy of those we met. The trip by road to Kandy was in itself a treat, and a thrill—our car was not intended for long distance travel!

Three times within a year I have been to Dublin and the Glasnevin Botanic Gardens, which I was naturally delighted to see, and which, to my extreme pleasure, is better to-day than even I have known it. Twice I have seen Sir Frederick Moore, our Honorary (Overseas) Fellow who, despite his 85 years, is as active in his garden to-day, or appears to be, as he was 20 years ago. Several times, too, I met Sir Arthur Hill at R.H.S. meetings in London before his recent tragic death. At times I have met A. Lindsay Poole, N.D.H.(N.Z.) of Wellington, and George M. Turner, of Stewart Island, and we correspond regularly.

The worst the Axis terrorist methods could do to London last April did not prevent the Daffodil Show from opening next morning, the myriads of blooms enlivening a thronged hall in graceful defiance and though, outside, streets were strewn with debris and shattered glass and few, if any, had slept the previous night, I can testify that

conversation within the Hall was strictly and seriously confined to Daffodils—what a people! It was, of course, the same in Napier during 1931. As I drove through London that April morning I had vivid recollections of Napier and my good friends, Andrew Anderson and Charles Corner.

Everyone is apologetic for conditions forced upon them by the exigencies of the times, but I am thrilled and astounded at the standard maintained. True, there are scars, honourable wounds, but what impresses one most is how few there are, when one considers the ferocity of the attack. As I amble around I judge by capacity and not by present appearances: allowances must be made, even at home. At Invercargill, we limited activity as soon as war was declared and directed energy to waste and undeveloped land—future park development—but not at the total expense of maintenance. That was never stated, intended, implied or practised. It is very much the same here. Parks and gardens are not devastated or permitted to run to waste. The degree of essential maintenance is restricted—and rightly so—but considerable areas are being developed, not with park development as a motive, but as an ultimate goal.

Interest in New Zealand, and its indigenous plants, is intense. Kindness extended by horticulturists is almost embarrassing, even to me! A few weeks ago I went through Covent Garden—the same to-day as ever—and went to Messrs. Watkins and Simpson's in Drury Lane. And I was pleased to know my New Zealand seedsmen so well!

To-day we, and British Horticulturists, are very much with you in spirit. At every meeting I attend there are many kind enquiries for colleagues on the Institute's Executive, in Parks Administration, or the Seed and Nursery trade. It is a great joy to give news of all and encouraging to learn the esteem in which New Zealand horticulturists are held. Last year, I attended the annual meetings, in London, of the Royal Horticultural Society and the Institute of Park Administration. I hope to do the same this year; the R.H.S. is on the 17th inst., so you will know the Institute is represented. It is my intention to be present, as an Institute representative, at the spring meeting of the Royal Horticultural and Arboricultural Society of Ireland, in Dublin. I am still "on the job"!

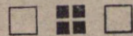
To my many friends engaged in all branches, kindly convey greetings; I think of you all and long for the day, in the not too far distant future, when I can welcome you in Conference at Invercargill. For me, at present, coupled with service, is unique opportunity the fruits of which, one day, you may all share. Cables of greetings and goodwill received from the Institute and Parks' Superintendents were deeply appreciated.

With best wishes to members on the Executive and to Mrs. Nicol,

Yours very sincerely,

(Signed) Brendan P. Mansfield.

INDEX



- Accounts, Annual, 1940-41, 62.
Allan, Dr. H. H., Historic Trees in New Zealand, 13.
Anderson, A. W., City Beautifying etc., 1.
Baillie, H., 12.
Banks Lecture (Tannock), 11.
Cheeseman Memorial Native Flower Show, 61.
City Beautifying with Herbaceous Plants, Anderson, 1.
Conference, 1942, 81.
Daffodils, Hybrids of the Smaller, (Thomson), 49.
Examination Papers, 18.
Garden Competition, Railway Stations, 24.
Hart, St. G., Experimental Planting of Conifers, etc., 73.
Hedges, Evergreen and Flowering etc., (Stirling), 25.
Herbaceous Plants, City Beautifying with, (Anderson), 1.
Hill, Sir Arthur W., 69.
Historic Trees in N.Z. (Allan), 13.
Hybrids of the Smaller Daffodils, (Thomson), 49.
Institute Notes, 24, 47, 71, 92.
Laing, R. M. 16.
Loder Cup Competition, 1941, 88.
Martin, W. Preservation of Native Plants, 43.
National Horticultural Week, 1942, 16, 48, 70.
Native Flower Show, Cheeseman Memorial, 61.
Native Plants, Preservation of (Martin), 43.
Planting of Conifers, etc., (Hart), 77.
Plant-Life, etc., Effect of Winter Conditions on, (Thomson and Simpson), 73.
Plant Recording: Strawberry, Victory, 13.
Preservation of Native Plants (Martin), 43.
Public Gardens, The Social Value of, 11.
Railway Stations Garden Competition, 24.
Report of Examining Board, 1940-41, 67.
Report of Executive Council, 1940-1941, 62.
Reviews: R.H.S. Lily Year-Book, 1940, 15; N.Z. Gardening Dictionary, 15.
Smith, W. W.: In Memoriam, 86.
Stirling, J. C., Hedges, Evergreen and Flowering, 25.
Strawberry, Victory, Recording, 13.
Thomson and Simpson, Effect of Severe Winter Conditions, etc., 73.
Thomson, W. M. Zephyranthes, 9; Hybrids of Smaller Daffodils, 49
Trees in New Zealand, Historic, (Allan), 13.
Winter Conditions, etc. Effect of (Thomson and Simpson), 73.
Zephyranthes, (Thomson), 9.

Royal New Zealand Institute of Horticulture (Incorporated.)

Patrons: Their Excellencies SIR CYRIL NEWALL, Governor-General and LADY NEWALL.

Vice-Patron: The Hon. the Minister of Agriculture.

President. HOPE B. GIBBONS, Wellington.

Hon. Editor: Dr. H. H. ALLAN, Department of Scientific and Industrial Research, Wellington.

Dominion Secretary: G. S. NICOLL, P.O. Box 1237, Wellington.

Hon. Secretaries of Local District Councils:

Auckland: Noel Cutler, Golf Road, S.W.4.

Taranaki: G. H. Huthnance. Pukekura Park, New Plymouth.

Canterbury: J. N. McLeod, 108 Paparoa Street, Christchurch.

South Canterbury: A. W. Anderson, Box 153, Timaru.

Otago: D. Tannock, 33 Montgomery Avenue, Dunedin.

Southland: K. I. Robertson, Box 44, Invercargill.

Membership:

Individuals: 12/6 per annum (including Member's wife).

Juniors under age eighteen: 2/6 per annum.

Societies, Firms, etc.: 21/- per annum.

Journal (quarterly):

To Members: Free.

Examinations:

Examinations are held yearly in November.

Students desiring examination should make early application to

DOMINION SECRETARY,

Royal N.Z. Institute of Horticulture,
P.O. Box 1237, Wellington.