IN NEW ZEALAND CONTEMPORARIES

TRANSACTIONS OF THE ROYAL SOCIETY OF NEW ZEALAND


The analysis of indigenous forests in the South Island suggests that forests as a whole are in an unstable condition consequent on comparatively recent changes in regional climates, and this contention is supported by evidence derived by study of soils and Polynesian traditions. The phenomena reported (in the first three sections which deal with South Island conditions) are correlated in the fourth section with forest conditions in other countries, but there are reasons for the prominence of the phenomena in New Zealand.


Eriococcus orariensis is apparently naturally distributed in Canterbury from Cave to the Waipara River. The insect has been artificially established at a large number of points in both main islands. It is considered that if the present rate of increase and spread is maintained ultimately all the larger stands of Leptospermum scoparium Forst. will be destroyed.


A disease causing the death of Leptospermum scoparium in New Zealand is shown to be caused by the combination of an insect and a fungus, Capnodium walteri. This fungus has not been previously recorded in New Zealand. Isolation was on a honey-dew concoction medium and maximum growth obtained on Czapec-Dox agar with maltose as the carbohydrate source. Microspores were produced in culture. The disease has been reproduced on plants free from insects by inoculating and spraying the plants at regular intervals with 1.0 per cent. honey solution.


Cones from 250 trees showed continuous variation in characters of size, shape, apophyses, umbos and mucros, preventing recognition of types. Character-combinations were very diverse: the extremes appeared to show the correlations small-ovoid-smooth and large-conical-gibbous. Comparison with earlier published descriptions indicated that a group of 50 trees in Nelson bore cones varying almost as much as those of the indigenous part of the species, in California.

NEW ZEALAND JOURNAL OF SCIENCE AND TECHNOLOGY


Author's summary: This review by an interdepartmental committee summarizes what is known of the scientific aspects of high altitude snow-
tussock grassland. Available information about plants and soils records deterioration of this vegetation to the detriment of adjoining protection forests and the land below. It is concluded that research along specified lines is urgently needed to find possible methods of rehabilitation. Meanwhile every effort should be made to slow down deterioration by reducing burning and grazing. Appendices deal with the different kinds of Danthonia tussock, the land tenures affecting this country and the literature on the subject.

SOIL CONSERVATION SURVEYS IN NEW ZEALAND. By A. F. Greenall and D. Hamilton. Vol. 35A, No. 6, April 1954.

Author's summary: A technique for making Soil Conservation Surveys is described. This has three phases:

1. Land Inventory mapping, which is the collecting and recording of the physical factors affecting land-use;
2. Land Capability mapping, in which the capability of the land is assessed and the range of uses for each of the Land Capability classes is discussed;
3. Conservation Farm Plans, which embody a scheme of farm management using the most suitable and profitable practices for each individual farm.

Some examples are cited from a conservation survey of the Pohangina district, north-east Manawatu.


Author's summary: In toxicity tests, Boliden Salt, BIS-S (zinc chrome arsenate) impregnated into wood at a concentration, as anhydrous salt, of 0.07 per cent. (0.03 per cent. as As₂O₃) of oven-dry wood weight, prevented survival of newly hatched Anobium punctatum larvae. At concentrations of 0.023 per cent. and less, larvae survived for 8 to 9 months. Comparable figures for Celcure (acid cupric chromate) expressed as total hydrated salt, were 0.40 to 0.30 per cent. (as equivalent CuSO₄·5H₂O, 0.18 to 0.13 per cent), while for copper sulphate (CuSO₄·5H₂O the values were 0.25 to 0.35 to 0.10 per cent.).


An assessment of the suitability of treatments based upon the length of time of exposure before repainting is considered necessary.


A method is suggested for preservative treatment of radiata pine building timber. A concentrated borax/boric acid solution (20 - 40 per cent. w/v as H₃BO₃) is applied to the surface of a freshly milled timber, which is then held for several weeks' diffusion storage under restricted drying conditions. It is shown experimentally that a diffusion theory, pertinent to the method, proposed by McNabb and Taylor (1953) is valid. The combined effects of time, diffusion coefficient and quantity of solution deposited on the timber surface upon the distribution of boric
acid within treated timber are shown graphically. Treatment schedules are recommended.

THE AIR DRYING AND PRESSURE IMPREGNATION OF NEW ZEALAND GROWN LARCH (LARIX DECIDUA), DOUGLAS FIR (PSEUDOTSUGA TAXIFOLIA), AND CORSICAN PINE


The result of investigations designed to study effects of temperature, initial air pressures, and oil pressures, on penetration of coal-tar creosote into larch, Douglas fir, and Corsican pine are reported. Heartwood of larch and Douglas fir is difficult to penetrate with liquids applied under pressures, while the sapwood of these two species is less difficult to penetrate. Sapwood depth and distribution on natural round New Zealand-grown larch and Douglas fir posts were examined. Successful utilization of the three species referred to is not entirely a function of preservative treatment, but is also dependent upon correct handling and drying prior to preservative treatment. The rate of air-drying of fence posts of these three species was also investigated.


Dated by C.14 age determinations, a sequence of pumice ash showers erupted intermittently from vents to the east of Lake Taupo between 7,000 B.C. and 250 A.D. is described. The sequence is divided into 26 members. Four of these are described in detail and their distribution and thickness mapped. The ash beds are considered as evidence of the history of volcanicity.

NEW ZEALAND GEOGRAPHER


A description of sand dunes between Kaipara South Head and Anawhata.

NEW ZEALAND JOURNAL OF AGRICULTURE


Recommendations upon the use of insecticides.


An apparently introduced scale insect of the genus Eriococcus has been artificially established throughout both islands of New Zealand within the past ten years. The insect is associated with both red manuka (Leptospermum scoparium) and white manuka or kanuka (L. ericoides). Infested plants show a heavy coating of black fungus on the lower leaves and stems. This combination of fungus and insect known colloquially as manuka blight, is associated with the death of red manuka but not of white manuka. The writer concludes that the insect causing “manuka blight” is now so well distributed that if further artificial transfer were stopped, it is probable that the insect would continue its natural spread into all sizeable areas of manuka. The insect’s effect on red manuka affords the most spectacular example of biological control of a plant yet seen in this country.

Cypress canker (Monochaetia unicornis Cke and Ellis) is a serious fungus diseases of Chamaecyparis lawsoniana and Cupressus macrocarpa in the Waikato and parts of the Auckland and Wairarapa districts. It is also present in most other parts of the country. The disease kills twigs, branches and whole trees by the production of bark cankers. It is independent of and distinct from “wet feet,” which affects both hosts. Resistant replacement species suggested include: Cupressus lusitanica var. benthami, C. torulosa, Cryptomeria japonica, C. japonica var. elegans, Chamaecyparis pisifera var. plumosa, and Thuja plicata; also several non-cypress species. Other methods of control include tree surgery and spraying where practicable.


An outline of tree growth and formation of timber blemishes is given as an understanding to the National Grading rules which cover measurement and tally, size classification, quality classification, and grade classification. Quality and grade classification are based on maximum permissible blemishes.

A list of indigenous timbers indicates the best uses for each species. The causes of timber decay and methods of protection and preservation are discussed.

GORSE CONTROL ON HILL COUNTRY. By A. A. Duncan. Vol. 88, No. 4, 1954.

Regrowth gorse on hill country was killed with 3.6 lb. acid equivalent of 2,4,5-T per acre in 2-400 gallons of water as at cost of £10 to £12 per acre. The spraying was carried out from October to April inclusive using a power unit. The gorse had previously been cleared by cutting and burning or firing the standing gorse.

FOREST RESEARCH NOTES

VOL. 1, NO. 9: ARMILLARIA MELLEA (VAHL) SACC. IN NEW ZEALAND FORESTS. PART 1 - IN STANDS OF PINUS RADIATA DON IN KAINGAROA STATE FOREST. By J. W. Gilmour. A survey of the incidence of Armillaria mellea upon some 100,000 acres of Pinus radiata forest.

VOL. 1, NO. 10: YIELD OF UNTHINNED PINUS RADIATA IN NEW ZEALAND. By E. R. Lewis. A variable-density yield table presented in a series of alignment charts.

FOREST PRODUCTS RESEARCH NOTES

VOL. 1, NO. 5: THE RELATIVE EFFICACY OF CERTAIN CHEMICAL DIP TREATMENTS IN PREVENTING SAPSTAIN IN PINUS RADIATA. By H. R. Orman.

A NOTE ON PRESSURE IMPREGNATION OF PINUS RADIATA. By D. R. Carr.

SERVICE TESTING OF CREOSOTED RIMU POLES. By D. R. Carr.

SERVICE TESTING OF CREOSOTED FENCE POSTS. By D. R. Carr.

A NOTE ON THE LEACHING OF SOME WATER SOLUBLE PRESERVATIVES. By D. R. Carr.