

## AN EXCEPTIONAL GALE.

On 2nd February, 1936, there occurred over the Manawatu district and Tararua range, a gale of greater velocity than any hitherto recorded in that locality. Striking Palmerston North in the early hours of the morning, it raged for twelve hours, reaching its greatest velocity at about 10 a.m. Unfortunately, no local meteorological records are available, but it is safe to say that the gale reached 11 on the Beaufort scale and in all probability 12. (Estimates of the greatest velocity vary from 70 to 100 m.p.h.). The direction was S.E. with some strong gusts coming from S.S.E. and S., accompanied by heavy rainfall. The damage wrought was severe and widespread. In the indigenous forests of the Tararua range, it varied from isolated wind-thrown trees, podocarp or other dominant forest tree drives, to complete destruction of the bush; the latter applied to thousands of acres on exposed faces and ridges in the country to the back of Tokomaru, Shannon, and Levin.

Luckily there were no major plantations existent in its path, and the damage done to exotics, though considerable, was confined to shelter-belts, small farm wood-lots and more or less isolated garden, park and street trees. These gave an opportunity, however, of observing the comparative behaviour of various exotic species. The two used most frequently for shelter-belts are *Cupressus macrocarpa* and *Pinus radiata* and it was these species that incurred the greatest damage. *C. macrocarpa* was uprooted more than *P. radiata* which in many cases stood up but had the crowns blown off: breakage on trunks up to 24 inches diameter was observed. The chronic uprooting of *C. macrocarpa* was attributed to the low branching and heavy crowns, characteristic of the species in Manawatu soils. All trees of both species examined had flat spreading root systems, the result largely of a shallow soil on a hard-pan of compacted river-shingle. Damage was naturally greatest to wind-breaks running at right angles to the wind direction, but so great was the force of the gale that few belts remained intact: Acute susceptibility to wind-throw was obvious on belts planted adjacent to and on the windward side of gullies and drains. Although other species of both genera were represented in the district, isolated observations provided insufficient data from which to draw conclusions as to relative wind-firmness. Eucalypts survived the gale much more satisfactorily, only sporadic breakage and wind-throw occurring. It was the introduced broadleaves, however, that provided the most noticeable example of wind resistance. Of these, Lombardy poplar (*Populus pyramidalis*) and lime (*Tilia europaea*) proved definitely wind-firm, contributory causes being the fastigate form of the poplar and the strong root-system of the lime. Next in order came the oaks (*Quercus spp.*) and elm (*Ulmus campestris*), which species also stood up but suffered some damage in the form of breakage and whipping of the crowns. Planes (*Platanus occidentalis*) likewise remained erect but suffered severe damage. Willows (*Salix spp.*) were uprooted and suffered breakage, according to the degree of exposure.

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