

Beach-head Incaders. Fifth Columnists. Armies of Occupation. and Paratroops: They're All There In—

A 2YA Winter Course Talk by
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THE MASSED BATTALIONS OF THE WEEDS

TO-NIGHT I am going to deal with one of New Zealand's secret armies—the army of weeds. This army has wandered the length and breadth of the country, and is still extending its area of occupation. The words of Dr. Allan, a prominent New Zealand botanist, in reference to a noxious South American tussock established in Canterbury and Marlborough, are very appropriate—"the massed battalions now in the field will not be rolled back by spasmodic and haphazard efforts."

That weeds are truly wanderers is demonstrated by the fact that all our weeds, except such evident natives as *bidi bidi*, *tutu*, the ubiquitous bracken fern and its allies, and *manuka*, come from abroad. They have come from every part of the globe, invaded and made a home here.

It is interesting to consider the wanderings of these weeds, and see just how they reached here from their distant homes, and how they have spread within the country. Nearly 60 per cent of our weeds came in during the early days of colonisation as impurities in imported seeds which were used for sowing bush clearings to provide pasturage for stock. Some of these invaders by this route found suitable conditions, matured, and their progeny became widespread. Others found the conditions difficult, and have either just maintained a small population or died out. A number of weeds are now so thoroughly at home over such a wide range of conditions that, to a casual observer, they would appear to be natives.

Naturalised Aliens

Who would doubt the bona fides of a hawkweed established on the top of an isolated peak in Marlborough Sounds? Yet this plant was an alien from Europe. Even to-day we are receiving immigrants by this means, as witness the occurrence of a Southern European clover at Feilding, which has come in via imported carrot seed. The recent importations of linen-flax seed, necessary for the linen-flax industry, has brought in its train more soldiers of the weed army—a Eurasian ryegrass has appeared in the South Island, and several cresses have also been noted. The extensive use of locally-grown seeds has reduced the number of wanderers from overseas, but they still pass around within the country by this means.

A smaller proportion (perhaps 15 per cent) of our weeds have been aided and abetted in their wanderings by animals. Their seeds or fruits have hooks or hairs which assist in clinging to wool or hair of animals. It is difficult to say which plants came here by this means, but we have definite evidence of animal carriage of seeds within the Dominion. This accounts for the widespread nature of the Australian *bidi bidi*, the horehound, various grasses, and many thistles. Recently in Canterbury, I had occasion to examine sheep to find if certain seeds were being carried. There

was a great variety of seeds—those of *nassella tussock*, the needle or spear grass so well known to farmers in parts of the South Island, barley grass, clover burrs, and thistles. Then there is the instance of the farmer's friend—the dog. The abundance of clover burrs on



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a dog at Waiapu enabled me to find a small annual clover some 50 miles from its previously known home in Canterbury.

Steerage Passengers

There are other weeds which travel "steerage" as it were, but nevertheless effectively, in the mud collected in animals' hooves. I have found sheep and cattle to carry a number of weeds in this fashion. With motor and rail transport of stock nowadays, these weeds can wander passively from one end of the country to the other. The efficiency of these "stowaways" on animals is shown by the variety of plants that have appeared around the large wool manufacturing on the Continent—plants native to practically all wool-producing countries, including plants native to New Zealand, have been discovered there.

We Fight Them on the Beach-head

A very fruitful aid to wandering weeds, particularly during the last century, was the ballast which was dumped in New Zealand. The late Thomas Kirk, a noted New Zealand botanist, made a careful study of ballast dumped at Wellington in the 'nineties, and in a single load from Buenos Aires, South America, he found more than 100 weeds, 20 of which had not been seen before in the country. Interesting wanderers by this means were the notorious bathurst burr, and the now familiar *paspalum* grass. During this present war period, ballast has again been dumped in the Wellington area, and provided some very interesting wandering aliens. One such load came from the River Mersey, near Liverpool, and produced some 40 different plants, until it was covered over during building operations. There was a poisonous plant, the henbane, which has been seen only twice

before in New Zealand, and then once on ballast; there were several plants of *convolvulus*, that bane of home gardeners; a further species of *convolvulus*, which we have not been able to identify specifically; a few plants of the true Scotch thistle, the prototype of that race's emblem, and a thriving population of welshed thistle; two species of broom rape, parasitic on clover appeared, and, providing a picturesque element were two species of poppy and a little violet—a truly mixed band of immigrants to arrive here.

Needless to say, these invaders were eliminated on their beach-head before they could extend it and progress inland. Harbours in New Zealand, other than Wellington, have had ballast dumped there, and at most of them different ballast weeds have established themselves.

Fifth Column

Others of our weeds used guile, and were veritable "wolves in sheep's clothing." These were the plants purposely brought here for ornamental and garden purposes. In this category we have the sweet briar, originally brought in for hedges. Darwin in 1835 remarked that he was pleased to behold the English flowers and shrubs in and about the gardens at Pahia, Bay of Islands. Blackberry, a now prevalent and noxious weed in many districts, came in this way. The cape fuchsia or Himalayan honeysuckle, now a common weed about Wellington and Taranaki, is of similar origin.

Other plants which were purposely introduced for stock feed have proved, under certain conditions, to be a nuisance. One well known example is the abundant gorse, another is the kikuyu grass, now well known to Auckland farmers. The pretty flowers or some other attractive character of weeds tends to deceive people, and some noxious plants are taken into grounds and propagated—their pernicious nature is not realised. In North Canterbury, for instance, plants of the graceful, but noxious South American *nassella tussock*, have been taken and grown in Christchurch gardens, due to the ornamental habit. We might even liken this to an unwitting fifth column giving weeds a helping hand within our shores.

Still other weeds have travelled here as packing material of merchandise—the large yellow poppy characteristic of parts of Wellington's coastline is supposed to have come in with machinery for the patent slip! A few days ago,

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