I had not intended on this occasion to comment on events of the past year but instead to make a few remarks on the changing nature of the Institute itself. However, there has been one recent event of such magnitude and significance that it cannot be allowed to pass unnoticed. I refer to the disastrous series of gales to which Eyrewell Forest was subjected on the nights of March 13, 20 and 24, 1964.

As of March 13, there were in Eyrewell some 12,400 acres of old crop radiata pine, a valuable resource which was playing an important part in both the timber and the general economy of Canterbury. That night 450 acres blew down. Only a week later, in what must have been a quite exceptional north-west gale even for Canterbury, a further 4,000 acres or more were completely wind-thrown and the remaining stands were battered and weakened. Four nights later, in what was probably a quite unexceptional gale, a further 4,000 acres came down. The total area, between 9,000 and 10,000 acres, represents about 60% of the mature radiata pine in Canterbury State forests; the volume on the ground — over 40 million cubic feet — would have been sufficient to keep the Canterbury exotic sawmilling industry in production for seven or eight years. In terms of loss of merchantable timber, it is a disaster of unprecedented magnitude in the history of exotic forestry in New Zealand.

What was destroyed in this short time was not only a large part of Eyrewell Forest but also any residual complacency which we as foresters may have had about the problems of forestry on the Canterbury Plains. I do not think that we can be accused of having been over-complacent. We have known that it was a technical error of judgement of considerable magnitude to have planted forests on these sites in the first place; we knew that the site factors were so adverse and so unamenable to either correction or amelioration that disasters, particularly in the form of wind-throw, were likely to occur; we have seen the forests suffer crippling and large-scale wind damage during the gales of 1945; in almost every year since then, we have seen smaller areas blown down by either north-westerly or south-westerly winds; and in many areas we have seen also a continual attrition of current annual increment by the sporadic wind-throw of individual trees. There was sufficient evidence for us to know that a disaster such as this could and probably would happen. Accordingly, we were taking steps to avoid it or at least to mitigate its effects, steps which consisted of attempting to increase the rate of cutting of the old crop in order to harvest it before it did blow, and of adopting cutting patterns designed to minimize the risk of wind-throw.

Yet despite this realization of how precarious the position was, some of us perhaps felt that, since there had been no major wind-throw since 1945, we were not after all doing too badly. I was at Eyrewell myself on the afternoon of the 20th and remember even then having a discussion along these lines. “Three thousand acres in 1945, five thousand in 1964”; we said “if we could last another 20 years before damage of this order recurred, the forest economy of
the pulping, papermaking, preservation and other properties of the timber itself. We are far from through the woods yet, literally or metaphorically. But it is the second major argument against mass planting which is of greater importance and which Eyrewell has illustrated so graphically and so tragically. It is simply the relatively much greater vulnerability to damage of any kind which even-aged forests possess. Whether the damage likely to be suffered is by fire, by insect or fungi, by grazing animals, or by wind, we can limit its extent by having a reasonably normal distribution of age classes so that at any one point of time a large part of the forest will not be at its most susceptible stage. At Eyrewell over 90% of the area blown down was planted between 1928 and 1932. Had the age classes been dispersed in a normal series, the area wind-thrown would have been reduced by at least a half, probably by two-thirds.

Eyrewell, then, has taught us two painful but salutary lessons. There remains to consider what should happen to the land at Eyrewell, and at Balmoral also when (not if) the forests there blow down in their turn. I suggest that there are only two justifiable alternatives, neither of them particularly palatable. We could grow second crops of radiata pine on a short pulpwood rotation and hope that a local pulpwood industry will one day be started in Canterbury; or, as I have suggested elsewhere as an inevitable development, we could transfer a large part of the land to agriculture, leaving only remnant strips and blocks as permanent forests, and at the same time seek replacement forest land in the foothill zones. These will not be easy decisions to make and they will tax our professional judgement to the utmost. Whatever the decisions are, I hope that the lessons of March, 1964, will not be forgotten. Exotic forestry in Canterbury will never be the same again; inasmuch as there are still elements of undue risk present, let us see that it is never the same again anywhere in New Zealand.
Canterbury could stand it and large-scale sustained yield radiata pine forestry could still be a permanent feature of the Canterbury plains”. But we knew that it was a big “if”. The stands were weakened and extremely vulnerable and there was, that afternoon, a perfect example of a north-west arch in the sky. We had our fingers crossed. We needed several months’ respite from normal gales, several years’ from really bad ones. As events proved we got neither; our respite was a matter of hours. The gales of that night made a mockery of the earlier wishful thinking, just as the series of gales made a mockery of the wedge and strip fellings, of the conventional and poison thinnings, and of all the other attempts being made to induce firmness.

I suggest that the events at Eyrewell Forest in March, 1964, have given us two salutary lessons which we will forget at our peril; at the risk of stating the obvious I will enumerate them. The first is that forests can only be grown safely and satisfactorily within fairly closely defined climatic and edaphic limits; if we persist in exceeding these limits, continually and on a large scale, we will once again be courting disaster. In Canterbury the limits are the prevalence of gale force north-west winds and the compacted river shingles through which tree roots cannot penetrate. The lesson could have relevance to other situations where the site factors are limiting. It could be equally applicable if we try to push commercial forests too far into the arid zone of Central Otago; or too far up the snow-prone mountain slopes of the South Island; or on to soils which are too degraded by past or present forest crops to give an economic response to fertilizer treatment; or on to soils which are too waterlogged and too infertile to respond (once again economically) to improvement by drainage and the application of suitable chemicals. “Flying in the face of nature” as a phrase is now debased to the status of a cliche. It should not be. Eyrewell should teach us to remember that, despite all man’s ingenuity and despite the advances in techniques which scientific research brings, the forces of nature sometimes are just too strong; they will surely blow us back, just as surely as they blew so much of Eyrewell down.

The second lesson is that plantation forestry must adhere, in part at least, to the classical concept of normality in age class distribution. At Eyrewell and elsewhere, this generation of foresters has inherited large unbroken areas of much the same age class. It has often been said, and truly so, that if our forebears had not undertaken the mass planting of the afforestation boom era, then it would have been many more years before there was a build-up of a wood resource large enough to attract large-scale industry. For this reason the deviation from normal practice has been not merely condoned but positively praised; and it has led to the commonly expressed belief that, as mass planting has conferred this great boon, we should repeat the performance wherever opportunities permit. There is much to be said for the argument but also much against it. In the first place (and here I digress from Eyrewell) we have not yet finished the first clear felling cycle in the original mass planted crop, and problems still abound. There are problems to do with declining M.A.I.s, with the delay in being able to improve the quality of radiata pine crops (whether silviculturally or genetically), with the sheer size of radiata pine trees grown on a 65- or 70-year rotation, and with the increasing development of heartwood and the effects of this on