

## EDITORIAL COMMENT

### *A Change of Editor*

Subscribers to any journal which has been as well served by its editors as this one, must feel regret when changes in editorial personnel occur. It is appropriate in this issue, the first in five years which does not bear the stamp of C. G. R. Chavasse, to place on record the appreciation of the Council and members of the Institute for the very high quality he maintained in it during that period. The Institute is indeed fortunate to have had his services.

### *The New Cover*

For some time the Council of the Institute has felt the need to provide a facelift for the cover of the *Journal*, which has remained essentially unchanged for the last 20 years. The cover provided on this issue is an attempt to bring the *Journal's* appearance more in line with that of other publications printed in the 1970s. We hope you find it acceptable: it will remain in use until popular feeling again demands a change!

### *Forestry Development Conference, 1974*

If the 1974 Forestry Development Conference served no other purpose, it caused, during the brief 12 months of its gestation, a number of surveys to be carried out, computations to be made, and data to be assembled and published, all of which were necessary to rational forward planning in the Forestry Sector. As a result, the forestry profession and its critics now have available a more complete set of information relevant to forest planning than has ever been available before. Particularly this relates to data collected for the session on indigenous forest management. The Forest Service will probably face the criticism that collection of some of these data was overdue, but once collected it must be given very full marks for placing no restriction on the free availability of the information and the plans based on it. Much of the information will undoubtedly be used as a basis to criticize the Forest Service; but its publication was necessary, and makes a mockery of recent allegations in an article in the *N.Z. Farmer* that the Forest Service is built upon secrecy. This free availability of information provides an example that other Government departments could well follow.

Having said which, it is a pity that copies of FDC papers are held only by people who were at the conference or have subsequently asked to receive them. The interested forest manager will in many cases not have seen them, and the quality and importance to forestry of many of the papers was such that this is unfortunate. The *Journal* has published in this issue those major addresses which, in the editor's estimation, are most important to an understanding of the proposed development of forestry in the next 10 years; along with contribution papers providing information apposite to some of the major developments. It is hoped in subsequent issues to publish further papers from the conference.

### *The Proposed New Indigenous Forest Policy*

It will require the hindsight of history to determine whether in fact the proposed new policy (see paper by M. J. Conway in this issue) heralds a turning point in our indigenous forest management practices. The possibility is there, but much will hinge on the interpretation and implementation.

A very important aspect of the policy has been the generalized application of the dominant use concept, first used in the planning for the South Island beech project areas, and now to be extended to all the indigenous forest. This approach accepts that the concept of multiple-use faces difficulties as user-demand increases, and that this can best be overcome by delineating a *dominant use* for any area, accompanied by compatible secondary uses. Dominant use categories proposed by the Forest Service are Protection (for soil and water conservation — accounts for approximately two-thirds of the total indigenous forest area), Production (accounts for approximately one-third of the area), Biological, Scientific, Amenity and Historical reservations (only small proportions of the area).

The Forest Service will find much praise for and little argument with its proposals to zone for dominant use. There will inevitably, however, be controversy over the making of many specific zoning decisions, and A. Kirkland in a paper in this issue discusses well the fact that value judgements cannot be avoided in dealing with some of the less tangible aspects of land use. Questions of the administration of the zoning procedures, the acceptability of (and the mechanism for appeals against) zoning decisions all require, and will receive, considerable discussion by FDC working parties.

Certainly the dominant use zone on which most controversy will focus in the next decade is that labelled Production, and it is on that zone that most comment will be made here. Some 650 000 ha of virgin and partially-logged indigenous forest is expected to be zoned for a dominant use of production forestry, and 70 to 80% of this is in State Forests. Because this

is essentially lowland forest it has a high potential for recreational and other usage, and proposals for it will thus come under very careful public scrutiny. The essential intent of the new Production Forest policy is that the structure of this forest should not be destroyed permanently by utilization and that selective logging should be widely practised. Perhaps the crucial sentences of the policy are the following:

Because it is virtually impossible (except by extremely costly artificial means) to restore indigenous forest once it is cleared for other productive purposes (primarily farming and exotic afforestation) the decision to clearfell should not be made before the need is clearly evident. The need to clearfell should be considered as evident only when other land in the region already devoid of indigenous forest is either unavailable or unsuitable for further development to meet Government's social and economic goals regionally and nationally. Indigenous forest should be cleared only after a study of the social, environmental, and economic factors has demonstrated that national welfare would be enhanced by doing so.

Clearly these statements will be widely welcomed by conservationist and forest manager alike, although the interpretation of a phrase such as "national welfare" is not one on which all parties will agree. But it is likely that conservation interests will wish to go further. A question which was not formally put at the Forestry Development Conference, but which has been increasingly asked in other places is: "With the increase in population and urbanization occurring in New Zealand, the pressures on our lowland indigenous forest for recreational use will continue to grow. Bearing this in mind, why is it necessary to use the remaining indigenous forests (which are primarily publicly owned) for timber production *at all?*" After referring initially to the large areas of forest zoned primarily for other purposes, but also often well-suited for recreation, a forester's reply might be:

- (1) The indigenous forests exist as a resource, some of it deteriorating and thus in need of use, which can make an effective contribution to New Zealand's standard of living. We are first resource managers, and if we are good managers this land can be used both for profit and recreation.
- (2) Indigenous forests produce wood of a quality which could, alternatively, be met only from imports.
- (3) Industries based on indigenous production forests — sawmilling, plywood and veneer manufacture — are particularly important to the regional development of certain areas to which they contribute a high "social net return".

Because of the wealth of data produced by the Forest Service for the Conference it is possible for the public, for the first time, to examine critically some of these answers.

First the resource. How large is it, and how much does it contribute to our standard of living? There are 650 000 ha of virgin indigenous State Forest (mainly in the South Island) which are considered to be merchantable, and which are currently being logged at the rate of 7 000 ha per annum. With past logging the average volume cut per unit area for State and private indigenous forests has been some 80 m<sup>3</sup>/ha, approximately one-tenth that produced by the average exotic forest. Thus in crude terms, and ignoring quality differences in the finished product, the roundwood production from the indigenous forests could now be met by cutting an extra 10% of exotic forest per annum — an increase from 10.6 to 11.6 thousand hectares. Or, alternatively, the exotic area could be held constant and some 20% of current exports of wood products diverted to domestic use — at a loss of export earnings of some \$20 million. A third alternative, well pointed out in another context by A. P. Thomson at the conference, is for New Zealand to reduce its profligacy of wood-product use. Clearly, as New Zealand moves into the greatly expanded exotic programme planned (see paper by G. M. O'Neill in this issue), the percentage volume contributed by the indigenous forests will become an even smaller part of the country's total wood resource than at present.

If the total volume contribution of the indigenous timber is not great, it is important to consider the second reason for logging indigenous forest and examine the specificity of uses to which indigenous timber is being put. The paper by T. A. Foley in this issue confirms what many critics of the past policy have suspected — that a high proportion of our indigenous wood is being grossly misused in terms of its potential. An example is the fact that 23% of the total indigenous cut (roughly the crop from 2 500 ha per annum) is being used for house framing, and that much of this wood is suitable for finishing and manufacturing purposes.

The Forest Service must be applauded for its proposed new marketing and utilization policy (see M. J. Conway's paper in this issue). This aims to ensure that where possible indigenous timbers will be used only for finishing, decorative or other special purposes; and that market conditions will become such as to reduce waste and encourage maximum utilization.

Presumably a restriction on the end use of timber will either reduce the volume of timber milled or alternatively increase the amount available for high value exports, a possibility which is not discounted in the policy. Public reaction has recently not favoured the export of native timbers and thus one must at least consider the prospect of a further reduction in the amount of indigenous timber felled. A factor complicating such a consideration is the existence of long-term timber sales. Nearly 60% of the current annual cut of indigenous

wood is presently committed in long-term (up to 17 years) sales. The public has long been interested in the details of these agreements, many of which are now available.

The total volume committed in such sales appears to be some 7.5 million m<sup>3</sup> which, depending on the type of logging operation used, will involve logging at least 100 000 ha. That is, some 15% of the remaining merchantable indigenous forest is committed to being logged, much of it during the next decade, and probably at a rate which is beyond our capacity to use in New Zealand for finishing and other special purposes. It seems possible, too, that the annual commitment is such that, despite the new policy proposals, it can be met only by some clearfelling. Such a situation is likely to be anathema to many people, and it can be expected that the Forest Service will come under increasing pressure to substitute exotic wood to meet some of this commitment.

In terms of future logging, the proposals put an onus on foresters to demonstrate very clearly that they can manage the indigenous forests in perpetuity in such a way that their utility for other purposes is not diminished. That this should be done is of course the intent of the proposed new forest policy; but it is the capability of foresters to carry it out without further research, and with limited experience of indigenous forest management that will be questioned. Other than for silver beech in western Southland and rimu on the terraces of south Westland, we have little demonstrable proof of our capabilities. Certainly the prospects are there for management in a wide range of forest types (see paper by D. A. Franklin and A. E. Beveridge in this issue), but it seems clear that further research and experience in the techniques of selective felling operations, in a number of forest types, are necessary before the success of large-scale selective logging operations can be guaranteed.

The continuation of existing long-term contracts with their high annual timber requirements means that a great deal of forest must be logged before this experience has been gained, a fact which must again raise in the public mind the question of whether these long-term contracts could be postponed, bought out or converted to exotic supply to buy the necessary time.

At this point social factors enter the argument and it is time to examine the third and perhaps most influential reason given for logging indigenous forest. The indigenous sawmilling, plywood and veneer industry employs more than 2 000 people, most of them in rural areas where work opportunity is limited and alternative employment is difficult. The Government has clearly demonstrated the importance it places on regional development; and in many cases a change to exotic milling at this stage by companies with long-term contracts would

necessitate a change of mill location which would prove unacceptable.

An example of the importance the Government places on regional self-sufficiency in employment is shown by returning to the Forest Service proposed new indigenous forest policy and examining its proposed implementation in the West Coast Beech Project region. Page 62 of *Indigenous Forests of New Zealand*, 1974, Part 2, by A. Kirkland and I. G. Trotman states: "In the event that no major forest industrial development occurred within this (the West Coast Beech Project) region the State Forests would be either partially logged and retained as indigenous forests or converted, after clearfelling, to exotics in order to sustain a sawmilling industry."

In terms of the wording of the new production forest policy, it is thus clear that the Forest Service believes that the national welfare and the Government's social and economic goals *can* justify the clearfelling of native forest in areas of limited employment opportunity. Many will believe differently, pointing out that in terms of those goals indigenous logging can provide only a short-term solution to a long-term problem. There seems little doubt that the concept of regional self-sufficiency constitutes the greatest single bogey facing those who wish to preserve the native forests as a national asset. It is over that issue, rather than considerations of timber requirement and resource use, that the major battles of the future are likely to occur.

Thus, like most of the policies which have caused controversy in forestry in recent years, the new indigenous forest policy has not been based solely on forestry principles. It is a compromise, moulded under pressure between biological, political, financial and social constraints. Forestry has become a profession subject to such pressures. It is necessary to accept this, and as foresters it no longer makes sense for us either to defend or to attack policies solely on grounds relating to forest management. To do so puts us in the ranks of the naive.

### *The Exotic Scene*

In the five years from 1969 to 1974, exotic forestry in New Zealand has found itself a place in the sun — or at least its planners have. The 21 000 ha annual planting rate recommended by the 1969 National Planning Model was increased in 1972 to 28 300 ha and now in 1974 the Target's Working Party of the FDC have set an annual rate ranging from a minimum of 40 000 ha to a maximum of 55 000 ha. But of interest is the philosophy behind these recommendations. In 1969 the approach was to accommodate the domestic market and provide a small but increasing surplus for export. The 1972 target was set to maintain relativity of forest products exports with total

exports. But the 1974 planners took the bold decision "to expand the planting rate to the maximum level that resources of land, labour and capital will permit". It is indicative of the success story of exotic forestry in the last 10 years that planners feel able to state such an intention openly!

It is estimated that the adoption of such a decision could increase the contribution of forest products exports to total exports from 7% to between 20 and 25% (assuming that present price relativities hold). The constraints of capital (we can be flexible in our management regimes and reduce expenditure when money is short) and labour (mechanization has reduced the requirement) were passed over fairly lightly, but land availability appears a more serious restriction. The availability of land suitable for exotic planting, shown by a Forest Service survey, approximated 1.5 million ha of reverted farmland, undeveloped and unoccupied scrub and tussock, and cut-over native bush. The use of these land areas for exotic forestry, if it occurs, will have a marked effect on regional land use patterns. Northland, Gisborne, Marlborough, Otago and Southland planning districts, for example, all have an estimated land availability for exotic forestry some ten times greater than that which is presently in productive exotic forest.

Of the total area shown by the survey, some 20% consists of cutover forest, some old, some recent. It is in obtaining the use of this land, and even more importantly the 9 000 ha being added to it annually by indigenous logging, that there will be problems.

In Australia the exotic planting target (1.2 million ha by the year 2000), based on a policy of self-sufficiency in wood, came under very strong attack from conservationists because of the large areas of indigenous forests which must be felled to provide the necessary land (see, for example, R. & V. Routley, *Australian Quarterly*, 44 (4): 5-27, Dec. 1972). In New Zealand, conservationists have shown evidence that they will tolerate radiata pine if its use preserves the native forest: they will be far less accepting if they believe that an expanded exotic programme will accelerate the indigenous demise. It was clear at the FDC that the Forest Service is prepared for the likelihood of withdrawal of productive land from plantation availability because of public pressure. A. P. Thomson in his paper, "Land Requirements and Considerations for Target Achievement", estimated that, of the 1.5 million ha of land physically suitable for planting, perhaps no more than one-third might become legally available. That is enough for only ten years' planting at the maximum level envisaged in the policy. Thus, after ten years, New Zealand exotic forestry may for the first time (other than at the regional level) find itself facing limits to its expansion. After that, foresters may

be forced to enter on a new era where they consolidate, and concentrate on increasing productivity and reducing waste on land already under exotic forest management. The scope for this has been frequently pointed out.

In ten years' time, New Zealand may well have some 1.5 million ha, approximately 5% of the total land area, under plantation management essentially with one tree species. The final section of this editorial comment will examine some considerations foresters might well give to that situation.

### *Radiata Pine — How Safe?*

In New Zealand at present there are more than 0.4 million hectares of radiata pine planted, and on current planning this figure will increase by some 10% per annum for at least ten years. Not only is radiata pine to provide almost all our domestic wood and wood product requirements in the foreseeable future, but it is also expected to provide at least 10% and possibly up to 25% of our total export earnings, and thus to contribute markedly to our economic well-being. How strongly can we count on this? And how important is it to take positive steps to protect such an investment?

The following quotes, from papers published in 1973 and 1974, do not seriously suggest any potential problem from insect or disease:

"No outbreaks of insect pests or fungal pathogens have had a disastrous effect on New Zealand's indigenous or exotic forests as yet."

"Predictions that sooner or later the exotic forests, particularly radiata pine plantations, would suffer severe damage have not eventuated. . . ."

"No country is as well organised as New Zealand to combat the introduction of new pests and diseases of radiata pine."

And yet every New Zealand forester is aware of our extreme good fortune in being able to control *Dothistroma pini* cheaply and efficiently, and of the unlikelihood that such fortune will extend to future diseases.

A contribution paper to the recent Forestry Development Conference states "it is likely that new pathogens will appear [in New Zealand]. . . ." It is also, of course, likely that new and potentially harmful insects will appear, but this editorial intends to concentrate on fungal pathogens, primarily because they represent a hazard which may have been inadequately examined in the past.

A New Zealand pathologist, Dr J. D. Allen, recently examined pests and diseases of radiata pine in countries where the species is planted as an exotic; but he did not examine the native stands in the United States. Had he done so he might



have painted a somewhat gloomy picture. Examination of the literature on the major parasites of *P. radiata* in its native habitat reveals the existence of 7 needle pathogens (3 of which have not been found in New Zealand), 4 stem pathogens (none of which is known to be in New Zealand and 3 of which can cause severe damage), and 5 root pathogens (2 of which are not known to be in New Zealand). There are numerous other disease organisms of minor importance. As one disease example, most foresters visiting the native stands of radiata pine are forcibly struck by the stem defects caused by the western gall rust (*Peridermium harknesii*). If that pathogen would have the same effect here as in California, the prospect if it reaches New Zealand is sobering. There is, of course, no hard evidence as to how any new disease would behave in New Zealand, but it is noteworthy that all the major fungal pathogens presently found on radiata pine in New Zealand (*Diplodia pinea*, *Armillaria mellea*, *Dothistroma pini*, *Naemacyclus minor* and *Lophodermium pinastri*) are parasites of the species in its native country. The assumption therefore, is that new pathogens from the area may also establish easily in this country. Our example, *Peridermium harknesii*, is unusual for a rust in having no requirement for an alternate host; and Parmeter and Newhook in this journal in 1967 demolished the idea that the original introductions of radiata pine to New Zealand may have come from disease-resistant trees by showing that progeny of New Zealand populations were just as susceptible to western gall rust as American ones.

The three mainland native stands of *P. radiata* are all in a heavily tourist-visited part of California between San Francisco and Los Angeles, both of which cities are departure points for air services to New Zealand. The largest native stand, on the Monterey peninsula, is in a very major tourist area, and almost certainly there are many returning New Zealanders a year who travel directly from Monterey (via San Francisco) to Auckland. However, it is not even necessary to visit the native stands, as the species is planted reasonably widely in the area north of San Francisco. Additionally, the three major stem pathogens of *P. radiata* in California are found between them on five other pine species, distributed over much of the Pacific Northwest.

In these circumstances, how good are our prospects of keeping further pathogens of *P. radiata* out of New Zealand?

The answer would seem to depend on two things:

- (1) The efficiency of our plant quarantine procedures, and
- (2) Whether fungal spores have characteristics which enable them to survive transport to New Zealand without losing viability.

Plant quarantine in New Zealand is covered by the Plants Act 1970; and the regulations under this act are the Introduction and Quarantine of Plants Regulations, 1973. Perusal of the Act shows that its prime concern is (1) to control the importation of plant materials, and (2) to control or eradicate those pests, diseases and weeds which do enter New Zealand. Similarly, the regulations under the Act are concerned essentially with prohibitions, restrictions and requirements concerning the introduction of plant material into New Zealand. The possibilities of diseases arriving other than on plant material or in soil are given little mention.

Yet such an introduction has probably happened once already with radiata pine. It is widely believed that spores of *Dothistroma pini* reached New Zealand following the 8th Commonwealth Forestry Conference in Kenya, and it is certainly clear that *Dothistroma* spores can live outside the forest for a sufficient time to be transported in this way. *Dothistroma* is not special in this respect: the literature lists other fungi whose spores are capable of germination after periods of 10 to 20 years' dormancy.

Thus there would appear to be the opportunity for spores of pathogens of *P. radiata* to enter New Zealand on shoes, clothing or camping gear of visitors to New Zealand or returning New Zealand tourists — not to mention visiting or returning foresters! Currently the Port Agriculture Service passenger declaration form, filled in by all persons arriving in New Zealand, contains no question which acknowledges the possibility of spores of forest diseases entering on clothing or footwear — although there are questions relating to the possibility of animal diseases entering in this manner. There is a question concerning camping gear as a possible carrier of disease, but in practice the orientation is again toward animal diseases.

The Port Agriculture Service which administers the operations of quarantine inspection and fumigation has as its principal objective "to prevent the introduction into New Zealand of animal and plant diseases and pests". It has a staff of more than 100, trained in (amongst other things) plant pathology, and is backed up by an Advisory Services Division, which includes a plant quarantine diagnostic laboratory. Fumigation facilities are available at all major ports.

There is no doubt that this service has the capability to carry out measures aimed at reducing the opportunity for diseases of radiata pine to enter New Zealand, and the legal means for them to do so appears to be present under the Act. The question is whether we as foresters believe such measures to be worth taking and will press the authorities to initiate them.

Some 40 000 passengers arrive at Auckland by air directly from North America each year. Many of these must have visited forested tourist and recreation areas in the period immediately preceding their departure, and thus potentially may carry fungal spores on their shoes or clothing. The Port Agriculture Service estimates that some 700 of these arrive with used camping gear; and in western North America camping is largely done in forested areas.

The total area of *Pinus radiata* in New Zealand would, at current stumpage values, be worth an estimated \$1 300 million at maturity; and it forms the major raw material for an industry which directly or indirectly employs 1 in every 25 of New Zealand's work force and provides some \$100 million annually of our export earnings. The investment in radiata pine has increased considerably in the last 10 years, as has the number of people travelling in and out of New Zealand. Do these facts warrant some reconsideration of forestry quarantine procedures? Is it necessary that the public be made aware of the disease risks to radiata pine, and of the precautions they can take to reduce these? And is it also time that a question was introduced into the Passenger Declaration form for all persons arriving in New Zealand: "In the last 30 days have you been in forest areas outside of New Zealand?" And if the reply is "yes", should steps be taken to eliminate possible spores of pathogenic fungi from clothing, shoes, camping gear, etc.? At present it would be technically difficult; it would also require effort and cost, and would be grossly inconvenient; but the stakes are very high and will become even higher if the recommendations of the Targets Working Party for the 1974 Forestry Development Conference are adopted.

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#### VOLUME 19 (2). AN APOLOGY

Page 162 of the above issue of the *New Zealand Journal of Forestry* contained editorial comment. The President and Council of the New Zealand Institute of Foresters wish to express their regret that personal reference was made to W. H. Peterson in that comment.