

ANNUAL GENERAL MEETING, 1972: PANEL DISCUSSION — WEST COAST PROJECT

The panel discussion was recorded on tape, and is reported below. In general, the comments of the chairman and panel members were clear and are reported in a slightly condensed form. Many of those asking questions, or making comments from the floor were inaudible, and in this report are paraphrased and are based to some extent on inference.

The chairman of the panel was Ian Baumgart (DSIR). Members were Geoffrey Chavasse (FRI), Andrew Kirkland (NZFS Head Office), Peter Maplesden (Conservator of Forests, Nelson) and Gavin Molloy (Conservator of Forests, Invercargill), all of whom have had considerable experience of forest management in Westland or Nelson land districts.

BAUMGART: In the Forest Service statement of policy it is stated that the maximum area of forest will be retained under beech management consistent with supplying adequate and continuing supplies of wood for the industry; and also that soil and water conservation will be the first priority of land use. Are these consistent and can they work together?

MAPLESDEN: I may be bowled first ball or make 275! Looking at this as foresters, our first responsibility is care and maintenance of land as land, and not specifically in relation to forestry. Therefore, if we as foresters cannot practise forestry anywhere for maximum forest use consistent with maintenance of soil conditions, we aren't doing our job. This is relevant to beech management as for any other form of forest use. On ethical grounds this is a primary requirement, and I am confident that these two statements are consistent. Under management, which will rejuvenate the forests, the soil conservation aspect will be improved rather than deteriorate.

BAUMGART: Any questions from the floor? You made your 275! Now I should like to refer to the Institute's report to the Forest Service. It is suggested that a less ambitious scheme, using less quantities of wood initially, would allow necessary resources, skills and techniques to be acquired. Is this a feasible proposition?

KIRKLAND: This is fair comment, and it would undoubtedly be desirable to build up on a graduated scale in any project of this nature. Whether it is feasible I don't know. The Forest Service approach has been to establish that the resource is available, that there is a certain volume of wood present, and to indicate how a certain annual cut might be sustained for industry. The Forest Service has not studied in depth any particular method of utilizing the forests. The proposals that come forth from industry will answer this question.

BAUMGART: But do you think it will be technically feasible to develop the industry, starting at a low level of production and gradually building up, rather than going in boots and all at first?

KIRKLAND: That depends entirely on the economics of utilization of this wood resource on the Coast. It might be desirable to start off with a chipping venture, and move from there to a pulping industry. This question can't be answered without a thorough examination of available markets and of the economics of supply to the mill, and then distribution to markets.

FRANKLIN (FRI): Is this important enough to prescribe this kind of development before proposals are called for; that is, to ask for proposals that allow for a slow build-up period?

KIRKLAND: I don't think proposals could be circumscribed in that way. You might unnecessarily rule out potentially viable projects.

MOLLOY: If you look at large industries recently established in New Zealand (Tasman, N.Z. Steel, Comalco), they all planned to build up over a period. Industry is aware of the pitfalls of trying to go full bore from year one.

BUNN (FRI): How is management for various areas going to affect the proposals?

MAPLESDEN: We must lay down what the principles of forest management are in the particular case. We don't want the tail wagging the dog. When proposals are received, we must consider whether modification may have to be made. But I am sure the management bases we have laid down will fundamentally be carried all the way through.

BAUMGART: In the Nature Conservation Council report on the schemes it is stated that "conversion to exotics is irreversible". Is it? Or might it lead to regeneration of indigenous forest?

CHAVASSE: This can be looked at from various points of view. Economically, once you have established a crop of radiata pine the industry using that crop will want a second crop of radiata, rather than wait for rimu for three or four hundred years. In that sense it might be irreversible. From the point of view of ecology, I can see no reason why, technically, it is not possible to convert again to beech or any other species you like, but this may be a costly process.

MAPLESDEN: If an ecological disaster did occur, and there was no longer any necessity to grow radiata pine, then there is every indication that changes could be made. Radiata is a pioneer species, requiring pioneer conditions for establishment. We induce these conditions. There is considerable evidence that radiata stands are invaded by indigenous species, especially when the canopy is reduced. The process is completely reversible therefore, and this reversion could be induced more quickly by management methods and not necessarily by the re-establishment of any individual species.

MOLLOY: Mahinapua Forest has compartments, planted with exotics, that I would classify as having been nurse crops for

indigenous species, especially on Okarito soils. I doubt whether you'll get a commercial first crop, and we certainly wouldn't go for a second exotic crop.

FRANKLIN: We seem to be confining our attention only to pine as an exotic, but a greater area is planned for eucalypts. Can we assume that eucalypts have been accepted as native species on the Coast?

MOLLOY: No, only in California.

PROF. SALMON (VUW): Has the Forest Service the resources, and can, or should the Forest Service look at these schemes from an economic point of view?

KIRKLAND: The Forest Service is equipped with economists capable of making some analyses, in association with Treasury, of any proposals put forward. But it is only industry which is capable of examining potential markets, and of working back from those markets to the economics of these particular projects, and only industry can determine whether these markets can be secured.

CONWAY (*Assistant Director-General of Forests*): We feel we should not, nor have we the expertise to prejudge the industrial side, but it will be our job to evaluate any proposals put forward by industry.

BOLAND (*N.Z. Forest Products*): Evaluation will be a long and detailed job. Any new operation on this scale would have to be for export in a highly competitive market. Industry would have to employ a whole range of experts, and the Forest Service could not be expected to be able to do this job. But if evaluation by the State favours the highest stumpages, the industry concerned may be that most likely to end up in the bankruptcy court! That is probably not what the people of New Zealand would desire.

KIRKLAND: Any economic evaluation certainly wouldn't revolve around stumpage alone.

PROF. MOBBS (*Napier*): The sawmilling industry on the West Coast seems to be very well up to date, but extraction methods seem to be rather antiquated, doing considerable damage to young growth of desirable species. Are any methods being developed to improve this, especially in selection forests, to minimize damage to young growth? Secondly, are steps being taken to tend young growth, especially when it is denser than desired?

MOLLOY: Selection logging in south Westland is designed to manage the rimu forests in perpetuity, by taking out the over-mature trees. Silvicultural prescriptions controlling logging are precise and rather stringent and are designed to look after poles and advance growth and to take care of regeneration. Scarification is prescribed as a pre-logging measure. This operation is confined to some 35,000 acres of rimu terrace forest in south Westland. It is a matter of concern that some

hill country is being clearfelled to satisfy the local industry in that area, without any positive management being applied to ensure forest growth on that type of land. Some adjustment may make it possible to divert industry into forests to which positive management can be applied. In north Westland, the object on good soils is to establish exotics after logging rimu. Allied with that, beech management must be designed so that the crop can be logged and a new crop established for sustained yield. The Forest Service objective is to bring efficient land management to all cutover forest areas. I wouldn't say we have achieved that yet, but the objective is clear.

BONISCH (*Conservator of Forests, Westland*): Logging gear used in Westland is not antiquated. Rubber-tyred skidders are in use in south Westland, and all aspects of rope logging are modern; some of them were pioneered in Westland, so we are, in some respects, ahead of the field.

WELLS (*Golden Downs Forest*): If the beech scheme goes ahead, and we have an exotic pine forest of 191,000 acres, and enrichment with eucalypts on another 174,000 acres, would any consideration be given in future to re-establishing the 115,000 acres of land left derelict in previous logging areas—I refer to pakihi, burnt land, gorse and scrub?

KIRKLAND: There's no shortage of land for conversion to exotics. Thus, it makes good sense to start with the best land and work towards the poorest, which is the land you are talking about. The best available land is the hill country. Poorer soils must come later when we are short of good land and can justify economically moving on to this poor land.

SPIERS (*Officer-in-charge, Kaingaroa Forest*): But the Forest Service is not even re-establishing logged areas of good country. Why?

CONWAY: I'm delighted to hear pumice country foresters pushing Westland's barrow! The fact is that everyone wants more forest—Northland, Southland, Otago, Poverty Bay, Marlborough, Chatham Islands—you name it. We have a national planting target with a net gain of about 50,000 acres; this may increase to 60,000 acres, provided the increase is in the private sector. The Forest Service simply can't meet the wishes of all regions in New Zealand. If more is desirable, foresters should push for a greater planting programme and also an increased Forest Service share of that programme.

MAPLESDEN: We should put these poor lands in perspective. The West Coast beech scheme is based on a reasonable certainty of having sufficient good land for planting to meet the needs of production. Planting of pakihi land involves high risk and could not form the basis for a large production scheme.

RAWSON (*Forestry Consultant, Whangarei*): Are low stump-ages for native timbers affecting the attitude of private enterprise to the scheme?

KIRKLAND: I can't see the connection between low stumpages in the North Island and this scheme. In any economic evaluation, stumpage is only a smallish part of the whole scheme. What has to be examined, from the point of view of the country as a whole, is the gain to be achieved by proceeding or not proceeding with the scheme. This includes such things as infrastructure, opportunity costs of this or other alternative projects elsewhere, and so on. This will be an extremely complicated exercise and certainly wouldn't swing on stumpages. In any case, growers in the North Island have been in a position to cash in on the sort of stumpages that Japanese log buyers will pay.

BAUMGART: There may be a conflict between the need to maximize beech yield and to minimize *Platypus* damage. If this conflict is real, can it be resolved in terms of management?

MOLLOY: This is a real conflict. I would favour moving in early and thinning silver beech because we are looking for a sawlog, for which there is a good market now. This would promote good diameter growth, and possibly by age 40 the stand would otherwise be rather too tight to maintain it in a free-growing condition. We might at that stage get out a merchantable yield in terms of piece size. Classical tending, light and frequent thinnings, is not economically feasible, nor is it feasible for biological reasons. We have to make a decision on this, and determine what effect thinning slash at age 40 would have on *Platypus* attack on the residual crop. There must be some compromise.

(UNIDENTIFIED): Arising from Gavin Molloy's recent overseas visit are there up-to-date logging techniques which might affect beech management in this country?

MOLLOY: There are certainly techniques which will be of some interest to those faced with logging this land, bearing in mind the questions of water and soil conservation, which are the first criteria for management. Protection forest land is reserved, and there is no conflict on that point, but we must not use logging methods on the production areas that do not take good care of runoff of water or soil loss. There is a general choice between skidders and haulers, and whether we're going to pre-track to the topographical limits of (say) skidders, which is, in round figures, 25° slopes. Cost of machinery is not the main consideration on this country, as we are going to be on trial in future as to our ability to manage this country according to the principles that we lay down. There is some equipment that can be used to ensure minimum soil and water loss, including high production units. A running skyline, for example, can haul up to 8,000 cu.ft per day with a two-man team. This leaves the land in good condition. In the U.S.A. there are powerful conservation groups with political power looking at clearfelling and at the ability of the USFS and private companies to manage their land properly. Land can be zoned—e.g., "no tractors". The relative

role of tractors, haulers and skidders must be carefully evaluated, and new types of haulers could be of considerable interest.

(UNIDENTIFIED): Inaudible question.

MOLLOY: Small piece size lends itself to a mechanized system. Special equipment which can carry out felling, limbing, bunching, etc. is already available. It is suitable for flat or easy country, and would cause no soil or water loss. This type of equipment could be used for short-rotation crops.

PROF. SALMON: In view of the value of the resource, and the paucity of knowledge, it seems to me that much more effort should be put into research into soils, forest management and marketing, and that 5% of the income from the forests should be applied to this research.

CHAVASSE: I agree to quite an extent but only the Minister of Finance and the mandarins in the Treasury could tell you what that 5% amounts to. I agree that beech forests are a very large resource, especially in north Westland. In the submissions of the N.Z. Institute of Foresters to the Forest Service, concerning the proposals to manage these forests, there is a comment that we think there has not been enough research done to go into a scheme of this size, based on a 500 ton per day pulpmill. Knowledge is scanty, not only on beech management, but also in relation to soil classification, site classification, and management and growth of exotics. Without wishing to "knock" my younger colleagues, some of the remarks about soils—140 ft site index and the rest—my reply is a word popularized a few months ago by a certain lady, which I won't repeat here.

BAUMGART: That takes care of the organic matter, anyway!

CHAVASSE: There are two basic matters that have been examined to some extent. These are soil classification and forest typing. Soil typing is more in the nature of a reconnaissance than full-scale typing for management purposes. We're dealing mainly with podzols in a very wet climate. There have been plenty of remarks at this meeting about soils varying almost from yard to yard. The Arahura and Blackball hill soils (note plural soils) are regarded as the best for exotic afforestation, but they cover a wide range of soil profiles, slopes, drainage, aspect, parent material and productivity. It would be unrealistic to count on production figures that have been quoted for all these 433,000 acres. This is completely adrift from the facts. Something the same could be said for forest typing. John Rawson is here, and he did the forest typing from the Teremakau River southwards. He was charged with obtaining volumes of forests, but in fact he did a great deal more than that. I don't think this has ever been sufficiently acknowledged, but he typed the forests on an ecological basis to quite a remarkable extent. If you get a forest map of south Westland you can plot your position on the typing that John Rawson did, and this typing is quite a good basis for the evaluation of management. The forest

typing in north Westland was done on a very broad basis by Ralph Naylor, virtually on topographic types. He was hampered in some cases by lack of photographic cover. For example, PH17 is a podocarp/hardwood type on hill country and it covers a wide range of complex forest. In south Westland, this type has been divided by John Rawson into at least six or seven types, which give a much clearer appreciation of what is on those areas, and of what sort of management you can apply. I would say that the first essential for this management scheme is to get a much clearer picture of what the resources really are.

BAUMGART: I should like to know what the effect of radiata pine will be on these soils. You have been quoted as saying that radiata pine has caused intense compaction and degradation of soils in Mahinapua Forest. Can you say how general this effect is likely to be?

CHAVASSE: Mahinapua Forest is a mosaic of Waiuta, Okarito, Kumara soils and some Kini peats. Radiata pine has succeeded only on the morainic soils—mainly Waiuta—and only on the better range of these—the well-drained mounds and hummocks. On these soils you get a highly leached A1 horizon under pines. On the well-drained and steeper hill country I see no reason why this should be the case. There hasn't been a great deal of planting over a long period on these hill soils, but the evidence so far is that they are quite as productive, possibly more productive, than the pumice soils of the central North Island. There is no evidence that they are going to deteriorate greatly over the first one or two rotations under pine.

JOHNSTON (*Forester, N.Z.F.S., Nelson*): The inventory for the beech scheme is based on the forest typing in north Westland. About 40 plots have been measured in each type and the limit of error is about 10 to 15%, which would indicate that the variation within types is not in fact as much as might be thought. Perhaps soils are variable, but we think there is a sufficient safety margin to give us the level of exotic production required over the whole area defined for this use.

PROF. SALMON: Has the Forest Service currently any soil biological studies or any energy pathway studies in this area?

MOLLOY: What is an energy pathway—scrum, or what?

BUNN: Does this mean nutrient cycling? This is being studied in controlled conditions at FRI for radiata pine but not for native species. The next step will be to go into controlled hydrological work, which is just starting. This will include indigenous forest, grassland and exotic forest in three catchments. We have not done much work on soil biology as such, but we are now looking at it in relation to the effects of growing radiata pine in perpetuity on the same area.

BAUMGART: It seems to me that these remarks highlight the need for more basic understanding of what is involved in the beech schemes. I should now like to turn to utilization. Is it

technically feasible to set up a pulpmill for hardwood pulp, and then convert to softwoods gradually as the proportion of softwoods increases?

KIRKLAND: Provided the fact of the switch is known in advance there are no insuperable technical difficulties to change-over.

BUNN: All the emphasis initially is on hardwood pulp, and this could continue in the form of eucalypts. I assume the assumption is that it would be more advantageous economically to switch to softwoods.

KIRKLAND: We have more confidence in our ability to grow softwoods on present available evidence. Secondly, long-fibred softwood pulps are a more readily salable commodity at present. I don't think we are absolutely wed to converting all the exotic area to softwoods. This would have to be discussed when proposals are to hand in relation to long-term marketing requirements.

HAY (*Royal Forest and Bird Protection Society*): In deciding on methods of logging, are other intrinsic values weighed up in making a decision on future forms of management—e.g., planting exotics?

MOLLOY: In Ianthe Forest there is a Scenic Reserve along the main road. When work was started here in 1962 the pattern of logging on the terraces was strip felling, with clear-felling on the hilly country. Experimental exotic planting was carried out on the morainic country. Selection logging was introduced shortly after this. At that time, access to the beach was not considered, and public demand for this access is recent. Management has evolved over the last ten years to meet such needs.

BAUMGART: This panel discussion was not designed for drawing conclusions, but most of us know more now than when we started the session. We also know more of what is not known. There is a need to take steps to gain more basic knowledge, and many of these steps are already being taken. I believe the Institute should press for these answers. We should also delay judgement on some aspects until some more facts are available. Most of all, speaking as an outsider, this whole conference has brought to our notice the procedure the Forest Service has adopted for the beech schemes, and the responses by critics, supporters and the general public. These schemes are considering not only modification of the forests, but modification of a significant part of New Zealand, and New Zealanders, as a whole, are interested and involved. In all phases of the application of science, whether forestry, agriculture or nuclear sciences, we shall have to pay much more attention to explaining ourselves, and justifying our actions to our masters who are the general public. This conference has helped us to do this and carried it quite a long way. I should like to thank the panel for being active and constructive, and remarkably well behaved, and thank the audience for their participation.