N.Z.I.F. SUBCOMMITTEE'S REPORT TO COUNCIL,
DECEMBER, 1965

The subcommittee has considered this subject and sought the opinions of Members of the Institute. The following report reflects the majority opinion and deals with the subject according to the Council's resolution dated 23 July 1965.

A. THE PRESENT POSITION

The background of the decision to open a school of forestry at the University of Canterbury in 1969 is not clear. Certain information can be obtained from the Minister's press statement dated 11 September 1964, and from the Subcommittee's interview with the Vice-Chancellor of the University of Canterbury in May this year.

A summary of Members' opinions on the present position is appended for Councillor's information. Having ourselves digested this, we consider that:

(1) There is a risk of a sub-standard school of forestry being established by the University of Canterbury in 1969.

(2) The Institute of Foresters carries the professional responsibility to safeguard against this possibility.

(3) The Council of the Institute will have the support of the majority of Full Members in whatever action it considers desirable to meet this responsibility.

There are three alternative approaches the Institute could take:

(a) Seek an assurance from the University of Canterbury that the School of Forestry will have a minimum staff strength of six adequately qualified lecturers, as recommended by overseas authorities and substantiated by this Institute's inquiry. Quantity will help to ensure quality at the top.

(b) Seek a postponement of the project until a school of adequate standard can be financed and assured.

(c) Seek an abandonment of the project by both N.Z.F.S. and the University, and continuation of the present system, which is producing such excellent results.

Considering these in turn:

(a) The minimum strength for an adequate school of forestry has been stressed by various authorities, and must be insisted upon as a prerequisite for the project. Institute action should aim at—

(i) Obtaining an upward revision of strength of the forestry faculty at the proposed school to a minimum of a dean plus six staff. Student rolls will justify this staff.

(ii) Abandonment of any proposals for composite professional and non-professional training at the University.
(b) Failing this revision, on the clearly demonstrated grounds of impracticability, the Institute should demand a postponement of the project until such time as these limitations can be overcome.

(c) It is not considered that abandonment of the project is desirable—or practicable. It is generally considered by our Members that a N.Z. School of Forestry is ultimately desirable.

B. THE FORM AND STANDARD OF THE PROPOSED SCHOOL OF FORESTRY

The majority of Institute Members recommends that:

(1) The School must be of a high standard from the outset, although it is agreed that it will improve with age and experience.

(2) Overseas authorities generally agree that a minimum staff of six is required. These authorities include:

   (a) **FAO**—as quoted in *Unastyna*: "The FAO Advisory Committee on Forestry Education has recommended that a minimum staff of six instructors should be arranged when planning projects in Universities having no forestry faculty. Postgraduate education should be restricted to especially well-developed educational institutions having a strong experimental or research programme. Professional manpower is a scarce commodity in most countries, and so it is advantageous that education and research should go hand in hand at the same institution."

   (b) **The Society of American Foresters**, which determines the accrediting of schools for professional forestry education in the U.S.A. The S.A.F. demands "A faculty of at least six men in the Department, Division, School or College of Forestry, educated in forestry and teaching silviculture, forest protection, forest management, forest economics, forest utilisation and courses in closely related areas as, for example, watershed management, range management and forest recreation."

   (c) Those surveyed by *Birch* in his 1950 Parliamentary Paper, C-3A "Survey of European Forestry Education and Research Organization".

(3) The course must extend over at least four years. Professional training must be based upon a sound curriculum of basic sciences, mathematics and English, and must include forest management, silviculture, economics, protection forestry, mensuration, forest products and wood technology, utilization and forest engineering. The professional part of the course can be grouped under the three main headings, namely, Production Forestry, Protection Forestry, and Forest Products.

(4) The School should aim to produce "general practitioners". However, as a long-term objective, it should offer postgraduate studies in exotic forest management and utilization, besides
protection forestry, and these might be considered New Zealand specialties. The latter would require additional staff. Other postgraduate training and specialization should be obtained overseas for a widening of experience.

(5) While it is agreed that some of the teaching could come from other departments at Canterbury, it is essential that the faculty of the proposed school be capable of inculcating sound forestry attitudes and principles throughout the course. A danger is seen in too much division of teaching responsibility.

C. THE ACTION THE INSTITUTE SHOULD TAKE

As this Subcommittee sees it, Council should present this report to the University of Canterbury and the University Grants Committee, and point out that:

(1) The profession of forestry in New Zealand is being very well served by the present procedure of sending students to good overseas schools. It is therefore reasonable to expect that a new forestry school established in New Zealand should at least equal, if not improve upon, the standard set by overseas universities.

(2) The N.Z. Institute of Foresters recognizes that distinct advantages could accrue from having a school of forestry in New Zealand; but these would be nullified if the forestry faculty lacked adequate fully-qualified staff, or is restricted in scope. Therefore the University should be asked to provide adequate assurance, in advance of the appointment of the dean of the new school, that the school will have a minimum staff of six with all supporting facilities and funds, and that the foundations of the courses will be along the lines indicated. Otherwise the dean may be too restricted and be unable to provide as good a training as that at present obtained overseas.

(3) If the school is allowed to go through at a sub-standard level, it can be foreseen that the dean of the school will be forced to take a rather restricted view of forestry. This could result in splitting the profession into specialist lines appended to other professions. For the future survival of the profession and hence for the future welfare of the forests of New Zealand the Institute must resist this possibility.

The Institute should publish this Subcommittee’s report in our own Journal and give full publicity to its opinions.

The Subcommittee is grateful to all members who submitted their views. This report would not have been possible without them.

A. W. GRAYBURN, Convener
J. T. HOLLOWAY, Member
D. S. JACKSON, Member

D. KENNEDY, Member

December 1965.
APPENDIX TO THE SUBCOMMITTEE'S REPORT
SUMMARY OF THE PRESENT POSITION AS THE INSTITUTE'S MEMBERS SEE IT

Council should note that in seeking the opinion of the Institute we have canvassed only Full Members, and when reference is made to “Members” this is what is meant.

A. The Subcommittee's assessment of the present position is just as divergent as opinions among the Institute's membership as a whole. This may be brought out by quoting extracts from four such appraisals:

(1) "Otherwise all this is completely futile and a waste of time. Generally, as evidenced by the stupid location of the proposed school, you are caught up in a political set-up and unless you can stir up public opinion you might as well forget the whole business." (Rawson)

(2) "The decision has been taken that there is to be a school as from 1969, and it is generally considered that the Institute must accept this decision and, having accepted it, do everything in its power to make sure the school is a good one." (Holloway)

(3) "In the face of this there seems to be little that can be done by the Institute except:
1. Fight the inevitable and lose repute, or
2. Influence the content of the course(s) . . ." (Wendelken)

(4) "Because the decision was made without any independent scrutiny of reasons or open discussion of issues, I consider that the Institute should not accept what is so obviously an attempted fait accompli. This opinion is reinforced by the apparent determination of the University of Canterbury to ignore the recommendations of virtually all the foremost authorities on forest education—both in respect to the size of a minimum faculty and in regard to co-ordination with non-professional education.” (Jackson)

B. However little unanimity there may be regarding our interpretation of the “present position”, the response to the Subcommittee’s questionnaire revealed that on several crucial issues there is almost complete unanimity among the Members of the Institute, and in others a substantial degree of agreement (major dissents are noted in each case).

(1) The first of these issues concerns a possible contention that New Zealand’s requirements in forest management (in the broad sense) differ in some respect, or are less demanding in certain fields, than requirements in Europe, Australia or North America, where our men have hitherto been trained.

The Institute unanimously considers that there are no fundamental differences—the basic principles and necessary training are the same as overseas. While F. E. Hutchinson, Weston and
Stow made the point that New Zealands' needs are so diverse that a major difficulty for any indigenous school would be to provide a sufficiently comprehensive background, many Members also considered that there should be emphasis upon all aspects of managing short-rotation conifer plantations (Levy, Harrison-Smith, Spiers, Bunn, Wendelken, Sexton) and especially the aspects of silvicultural economics, conversion, end-use and pathology (Orman, Hutchinson). Several Members also considered that we had a need to weigh the training for watershed management or protection forestry (Naylor, Thulin, Rook, Whyte).

Olsen, supported by Conway, reiterated that there are some differences which require us to consider more intensive and more precise management than in America or Europe, with greater emphasis on silvicultural practice and the economics of forest investment. Wilkinson considers that many classical European methods are superfluous for New Zealand needs, and Mitchell stresses the desirability of training in business management, operational study, computer programming, etc.

(2) If our requirements do not differ fundamentally, then it may be contended that we do not need to train our foresters to quite such a high standard—and this could provide one possible justification for establishing a school below world standards, at least initially. It has been implied that many of the now-renowned schools of forestry began on a shoe-string budget and with a skeleton teaching staff. This, of course, ignores the fact that times change, and that any school established now must both meet more intense competition and cover a vastly greater body of knowledge.

Howbeit, Institute Members consulted were again unanimous that there should be absolutely no relaxation of the standards of forestry education being attained under the present system. Several Members stated, in one way or another, that it was their considered opinion that, if anything, the standard should be raised (O'Neill, Levy, Thulin)—“world standards are relevant everywhere—we must meet them in New Zealand too” (C. J. Hutchinson, Foley, Chavasse, Mitchell); “our graduates must themselves compete with the products of other modern forestry schools” (Leggatt); and the point was again made that New Zealand's needs are so diverse and so complex in almost every branch of forestry that the highest standard must be set (Naylor, Weston). There was some divergence of opinion as to how this should be achieved—whether by providing a comprehensive early background, with later specialization (Rook, Bunn, Zondag); or by earlier and more intensive specialization for certain fields (Whyte). Henry however favours a school concentrating on three specialized courses tailored to New Zealand needs (New Zealand production forestry, New Zealand protection forestry and watershed management, wood technology and utilization), these also being offered at a postgraduate level high enough to attract world attention. It was further pointed out that the extraordinary progress made in New Zealand forest practice over the last 10 years (as evi-
denced in our forests and in our professional publications) must in no small degree be attributed to the diversity and high standard of training of the present generation of foresters (Thulin).

(3) It appears that the University must be grossly underestimating the requirements for modern undergraduate training in forestry. It has already been pointed out to the Institute (Richardson) that details of the future curriculum would be largely the prerogative of the dean of the proposed school, and Pownall made the same point to the members of the Subcommittee in May of this year. (This is questionable—c.f., S.A.F.; but we assume that any man appointed to such a post would be careful to consult the Institute, inter alia, before completing his curriculum.) The vital point is that the adequacy of instruction in this curriculum, whatever the dean's wishes or the degree of his consultation, would be determined by the staff available to him—and the strength of this staff appears to have been predetermined by the University and the University Grants Committee on the basis of their conception of a forestry school.

We have accordingly sought, from the Members of the Institute, their considered professional opinion regarding the fields of professional instruction that are peculiar to forestry as a discipline, and which it would be essential for any New Zealand forestry school to incorporate in its course. They are as follows:

(a) **Forest Management:** This should include Forest Policy and Working Plans; Yield Regulation; Forest Resources, Tenure and Regional Planning (including Land Use); Forest Economics; Administration, Taxation and Law. (Two Members considered that the last four topics could be taught as extensions of existing University courses, and two others considered that Forest Valuation should be included here, rather than under Mensuration. Two Members opined that Forest Economics, including Cost Accounting and Business Management, should be given the status of an independent lectureship.)

(b) **Silviculture:** The range of this subject in New Zealand is vast—and is certainly greater than that of silvicultural instruction in Europe or in any single school in the United States. The range of species and forest types included in both our exotic and our indigenous forests is paralleled only by the coverage of northern coniferous forests and tropical forests given by the Oxford School of Forestry (c.f. also Lysaght's comments), and there was considerable doubt in many Members' minds whether or not the field could be covered by one man. Most thought not. Even assuming that the basic knowledge in climatology, ecology, botany, physiology, genetics, geology and soil science could be provided by existing University departments, the topics to be covered by any forestry course would have to include—Silvicultural Systems, Tending Practice and Silvicultural Economics, Nursery Practice (including Seed Collection
and Tree Breeding), Dendrology, Forest Types, Regeneration and Rehabilitation Techniques. Applied Ecology was also included by seven Members, but two others considered it could be developed by a botany department.

(c) **Protection Forestry**: There was unanimous agreement that this should include the traditional fields of Watershed Management and Conservation, together with some Hydrology, but a considerable range of opinion about the place of Wildlife Management and Animal Control. Most considered that they fell under the heading of Forest Protection, along with Fire Protection, and two Members felt that they could be taught by adapting to our needs courses by the Zoological Department. Only two opinions were not in favour of Pathology (i.e., Mycology and Entomology) being taught outside the School of Forestry, by specialists from other departments.

(d) **Mensuration**: Assuming that the fundamental mathematics, statistical methods, computer techniques and biometrics have been communicated by other departments, the contents of this course must include Tree and Stand Measurement — theory and techniques; Volume and Yield Tables; Valuation and Aerial Interpretation. The necessary levels of Survey and Mapping and elementary Photogrammetry could be given by an engineering school.

(e) **Forest Products and Wood Technology**: There was again almost complete unanimity about the fields to be covered — Wood Properties and Structure, including Timber Physics; Conversion, Grade Outturn and End Uses; Seasoning and Preservation. The opinion was also expressed that Sawmilling, Marketing and Business Management could be included here rather than under Utilization, but at least it must have some coverage. Wood Chemistry and Pulp and Paper Manufacture fall in the same category.

(f) **Utilization and Forest Engineering**: This was the most controversial field, largely because most Members felt it had been inadequately treated in their own day. Sawmilling, Logging and Logging Planning must obviously be taught by men with a forestry background, but the knowledge of applied mechanics and civil engineering necessary to a forest manager could certainly be learnt in an engineering school.

The above syllabus is by no means exhaustive; it merely summarizes those aspects which the Institute, out of its collective experience, feels must be taught to a potential forest officer. Wherever possible those aspects which are not peculiar to forestry, and which might therefore be taught by another department, have been indicated. The remaining aspects can be taught only by men with wide experience of forestry, and a comprehensive knowledge of their own particular subject. *It must be obvious that to attempt to teach such a syllabus with a school faculty consisting of any less than six full-time instructors is quite unrealistic if the School and its graduates are to attain the desired standard.*
If the desirability of individual research by the faculty (Rook) is acknowledged, then even this minimum is inadequate. Bunn and Cameron considered that Forest Ecology, Tree Physiology, Tree Genetics, Forest Soils and Soil Chemistry, Forest Pathology and Forest Economics should all be taught by the forestry faculty; and Levy developed the same theme in his statement "... it is important however that instruction in other fields should have a forest bias and be done by persons with forestry experience. For example, orthodox economics is not sufficient without treatment of the aspects peculiar to forestry, forest law should have some emphasis on processes relating to land tenure and transactions, forest engineering will obviously require specialist knowledge (particularly mechanical) not usually found in an engineering faculty." There were several aberrant opinions on the place of Watershed Management in the syllabus, developing out of the specialization required—Thulin considered that at least two lectureships, of which one was less experienced in forestry than some other disciplines, would be required; Whyte thought that a team of specialists, rather than "protection foresters" as such, would serve the needs better; and C. I. Hutchinson felt that these could possibly be dealt with under existing lectureships at Lincoln. Several Members (Lysaght, Spiers, Henry, Macarthur, Bunn, Rook, Kininmonth) emphasized the desirability of including some postgraduate training and facilities for research; but others favoured postgraduate specialization overseas (Brown, Wendelken, Morris). Olsen pointed out the major need throughout for a groundwork in field practice on which to build lecture material and orient the student's grasp of theoretical principles; and Chavasse considered that 75% of the course content is peculiar to forestry as a discipline.

(4) Because of the obvious disparity between the projected graduate out-turn (10) from the school and the size of the faculty necessary to cope with the syllabus, there have been several indications that it was intended to combine non-professional training with the School of Forestry—possibly as a diploma course. Pownall himself indicated to this Subcommittee that a sub-professional course would have to be given as a "packaged deal" to justify the School.

The Subcommittee has accordingly sought the Institute's opinion about this composite approach to professional and non-professional training, and Members have expressed a surprising degree of unanimity in condemning the proposal. Out of more than 50 replies received to this question, only eight were not completely condemnatory, and these eight were notable for not following through the consequences of what they affirmed—e.g., sub-professional officers could attend a certain number of lectures in common with the undergraduates, but additional staff would be required (O'Neill and Mitchell). Yes, provided there would be a faculty of at least six to cover both courses adequately (Cameron). "I see no reason why the faculty should be weakened if made responsible for both professional and sub-professional training. ..." (Kennedy). McKee, Wendelken and Duff were also uncertain. The Westland Section's views were split.
Of the 40 other negative replies, that of Slow represented the consensus of opinion in our Nelson section, and that of Holloway represented Canterbury. The gist of three replies is worth reporting:

**Naylor**: Not even with a full professional faculty of six or seven would this be possible or justifiable. Sub-professional training would require a minimum staff of five to cope with 50 students on a two-year diploma course—"and they would be flat to the boards".

**Holloway**: "As a group, they [professional foresters] consider standards cannot be maintained if professional and sub-professional training are combined within the one school, because of a universal belief that the staff of the school would not be increased _pro rata_. [Either] it must lead to a watering down of course contents and to a relaxation of standards ... [or] school staff would have a doubled teaching load ... this situation, with the consequent inevitable reduction in time available for research, wide reading, and wide thinking, must deter many good men from seeking staff positions."

**Ure**: "The men we need in the field ... should receive the bulk of their training in the forests among the men and machines which work there, not in the classroom."

**Particular points brought out in other replies were:**

(a) Impracticability of expecting one instructor to teach at two different levels (Sexton).

(b) It was tried in Finland, and failed. Osara was definitely contra (Orman).

(c) "The top international committee ... had concluded that it was detrimental to join the two" (Thomson).

(d) It was abandoned at an early stage in Sweden, and was recently rejected in Denmark—practical and psychological barriers make it quite impossible for the same lecturer to teach at two different levels. Supervision of graduates, undergraduates and research is a full-time job (Thulin).

(e) A bigger and more diversified staff would be essential, involving an increase beyond six considered the minimum for adequate professional teaching (Kininmonth).

(f) It is my opinion that it is not the university's job to run a sub-professional course and am against any suggestion that it should do so (Henry and Bunn).

(g) Forest Service should be responsible for training its own non-professional staff (Levy).

(h) "It would be preferable to increase the number of trained professional foresters and use them in both technical and managerial capacities" (Slow).

This last point of view is shared by many foresters (e.g., Wendelken, Henry, Wilson, Grayburn, Grome, O'Neill). Chavasse stated that the consensus of opinion in Southland was in favour of running both courses (B.Sc. and Dip.For.) at the same institution, but quite separately. Conway—"No. I used to think it would be good to have the two groups at one school out of concern for preserving the status of the
General Division man” — but — “both groups would suffer if at the same school.” The most valuable points were, however, made by Rockell, in pointing out that future sub­with forestry, and with this in view the Subcommittee sought visory staff; and by McKee: “We must have a technical or diploma type of qualification, as well as professional, to cater for those who cannot reach full professional status. Techni­cians should be catered for by the university but supervisory training is properly the responsibility of N.Z.F.S., and other employers.”

(5) If the combination of professional and non-professional training is excluded, as a means of securing sufficient trainees to support an adequate school faculty, the only remaining option would seem to be in broadening the objectives of the School. The purpose here would be to bring in students from the many fields of natural resource management that overlap with forestry, and with this in view the Subcommittee sought opinions from the Institute’s membership.

Slow provided one of the more comprehensive replies: “Forestry in New Zealand is concerned with watershed manage­ment, soil and water conservation, recreation, scenery, fauna and flora preservation, etc., just as much as with wood production. . . . At the same time some of these subjects are the province of soil conservators, national parks staff, animal ecologists, hydrologists, etc. Similarly there is an over­lap with agriculturists in farm forestry and the provision of shelter, and with engineers in the structural uses of timber. It could well be that in New Zealand a school of forestry should gravitate towards a school of natural resources. . . .” Spiers however fears “the dilution of utilization and products training by incorporation of forestry into a school of natural resources.”

Orman stated that the Chemical Engineering School at Can­terbury is thinking of incorporating a Pulp and Paper section. He considered that it is most desirable that this should have a forestry background, because of physical scientists’ common difficulty in coping with “the problem of wood variability”.

Additional fields of overlap mentioned in other replies were: Timber Engineering and Wood Technology, Hydrology, Land Use Planning, Wild-life Management, Range Management, Land­scaping and Catchment Engineering.

Macarthur felt “that room must be made in the syllabus for students of soil conservation.” Sexton stated the general desirability of increasing contacts and common background with soil conservation and agricul­ture; and Whyte emphasized the need to disperse forestry concepts through the other fields of learning in a university; but Bunn and McQuire were sceptical — there is so much that is peculiar to forestry, and the field is so large, that it is doubtful whether much could be achieved through overlapping instruction with other disciplines. Thomson however sup­ported the alternative “if it meant having separate degrees and if subjects such as resource management, recreation management and soil conservation were to be part of the same faculty”.

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