THE FORESTER OF TOMORROW¹

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The Canadian Institute of Forestry is the national association of professional foresters. Our membership, about 1900 members now, comes from every province and from every field in which foresters work: the forest industries; the federal and provincial government services; the institutions of learning; and private employ. Some 35% of its members belong to the Woodlands Section of the Canadian Pulp and Paper Association.

My subject and talk are based mainly on submissions to the Gordon Commission on Canada's Economic Prospects and on last year's annual meeting of this Association when there were discussions of the ability of the forest to meet future needs. There were many questions unanswered on the technical personnel required to meet this need, and more particularly, the forester or forest engineer. This report is an endeavor to answer these questions.

We have just completed a survey (at C.I.F.) of all graduate foresters in Canada; as far as we know, it is the first study of its kind. With information from the four Faculties of Forestry, namely the University of British Columbia, the University of Toronto, the University of Laval and the University of New Brunswick, we have a total of 2,698 foresters in Canada today, as of March 1st, 1959. Almost 70% are in three provinces, namely Ontario, Quebec, and B.C. with about the same percent in each of these three provinces. The distribution by function, with percentages as closely calculated as possible, shows: 40% in Forest Industries; 30% in Government Services (20% Prov.—10% Fed.); 10% in institutions of learning (mainly teaching); 5% in private employ; 10% not in forestry work; and 5% unknown.

It is interesting to compare this with our neighbors, the U.S.A. They have over 23,000 foresters (roughly 9 times more than in Canada) with the following grouping: 45% in Government employ (30% Fed., 15% State); 30% in private employment; 15% in all phases of education; and 10% unclassified.

There is not much difference in the number of foresters per capita in Canada and the United States, but the grouping by types of employment is certainly different. The greatest contrast appears to be in more private employment in the U.S.A. (including Consulting Foresters) and more in all phases of education—but, there is certainly more of a percentage in forest industries in Canada.

The comparison in area, population and wood harvested is very interesting. Today this represents in Canada five foresters per 1000 square miles of accessible forest, compared to 30 foresters per 1000 square miles of accessible forest in the U.S.A. (i.e. six times more than in Canada)—a fact to remember when mentioning forest management. We have about eight foresters per 10 million cu. ft. of wood harvested this year compared to 22 foresters per 10 million cu. ft. in the U.S.A., (i.e., three times more than in Canada)—a fact to be

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considered when mentioning harvesting techniques. The population ratio however is similar to that in Canada or approximately one forester per 6000 population in Canada as well as the U.S.A. This foregoing comparison indicates the trend we might expect with population growth and increasing forest development (as well as a comparison with our estimates for 1980). A unique fact is brought out here, in that not even 2% of the graduates in Canada are employed in other countries.

But, we must enlarge the horizon of the profession by taking pride in it to assure that the forester of tomorrow will have a profession worthy of the name. For about 12 years my time was devoted to woods operations and the work entailed afforded the opportunity to become familiar not only with equipment and methods (of operating) but also with personnel and their points of view—and with many foresters in all phases of the profession. From the "bucheron" to the professional forester, people in forestry are not proud enough of their trade or profession. True, the forester of today has fought an up-hill battle for recognition. We are more appreciated than we used to be when we were known mainly as timber cruisers. There is now an increased respect and a better understanding of the forester and his profession, so that, more than ever, foresters of today must have a better professional attitude to be as proud of their profession as many other professions are of theirs.

Here, we can take a lesson from European professional foresters who use every means to compliment and safeguard their profession; they proudly belong to institutes, organizations or clubs that have to do with their profession or their industry—to build up their profession to assure that it takes its rightful place in society. In the older countries where forestry principles have been developed to the maximum, and where the forests are on a perpetual yield basis, the forester confines his attention to growing wood. The conversion of the crop and the transportation to the market is left to the engineer. To meet this situation our forester of tomorrow, in many ways, will have to be more devoted to his profession.

We have recently received reports from the four Faculties of Forestry and it appears that 95 foresters will graduate (with any luck), this summer. For many years, the Federal Department of Labor (Economics and Research Branch) has conducted a survey of university graduates in scientific and technical courses and if we look at the accumulated ratio over the past years, or projecting a curve since the war years, it shows about 300 graduating in the year 1980. We will have to increase our university enrollment by 1980 by as much as three to four times, to satisfy our indicated requirements—and moreover, there is also an ever-increasing demand for post-graduate training (but, time will not allow me to go into this here).

From the foregoing figures we now have a total of about 7000 foresters for the year 1980—almost three times more than today. The population of Canada is estimated at 27 million in 1980—this would mean one forester per 4000 population as compared to one per 6000 today. It will double the number of

foresters per square mile of accessible forest as well as the number of foresters per amount of wood harvested annually. These figures are on the assumption of only a small number of foresters entering Canada from the U.S.A. and Europe, in the same proportion as we have today—and also that about one-third of the presently active foresters will reach retirement age in about 1980.

In recent years our Forest Ranger Schools have proved to be of great importance. We have only four Forest Ranger Schools and one Technical Institute but they have supplied over 2500 sub-professional technically trained men to governments and industry. This is equal to the number of professional foresters graduated over a much longer period. (The schools have been operating for only the last ten years, while our Faculties of Forestry are much older. University of Toronto is in its 52nd year, University of New Brunswick its 51st, Laval its 49th, and University of British Columbia its 38th year.) The employment of such personnel as forest rangers, scalers and surveyors has increased greatly in the past decade and has materially aided progress in woods operations as well as in forestry.

The personnel requirements for 1980 cannot be considered without more attention to trade or technical school levels for personnel to help the professional foresters both to manage the forest and harvest the annual crop. It seems even more evident that the demand for forest rangers will continue to grow more than the demand for forest engineers, in proportion. At the rate that our five technical schools have produced these personnel, the accumulated total in 1980 come to 9000, and it may easily reach 10,000 with one more ranger school already in view for next year. (Well informed sources say the proportion could go as high as four of these sub- or semi-professional personnel to one professional forester.) There is still plenty of scope for enlargement of the program of these schools to offer a greater diversity of technical training in various forestry occupations. This sub- or semi-professional group may supplement the supply of professional foresters. The ranger school graduates, more prevalent in Canada than in the U.S.A., will compensate to some extent for the comparatively smaller professional employment in this country—unless of course there is an unpredictable change in the next twenty years. Let's keep the picture clear however; we naturally know that the industry is not complete without this semi-professional group, but, nevertheless, this group is dependent on the professional forester. This group is necessary to the forester, but it is not a substitute because the industry's growth eventually depends more on its fully professional people.

The supervisory and office workers employed in woods operations total about 10,000 of the permanent staff. This essential group has helped to harvest the annual crop and in many cases manage the operations. Many of these people are trained solely by experience; they have their rightful place in the organizations but are becoming a diminishing group; with the predicted expansion, even though in smaller proportion, a 25% increase in the supervisory and office workers is reasonable to assume, by 1980.

The number of jobs provided in the woods today is given as 250,000 for seasonal workers and 15,000 permanent employees. According to the data on

the *Outlook for Canadian Forest Industries* recently written by the Forestry Study Group for the Royal Commission on Canada's Economic Prospects, the number of jobs has risen by about 50% since the late 1920s but the proportion to the population of Canada is the same, i.e., 5%. As for future manpower requirements, we have to consider that the year to come may be an age of machines. There will be changes in increasing mechanization, in harvesting techniques, in simplifying transportation problems (such as pipelines or helicopters to transport the wood from the bush), in the intensity of forest management and in the problems of increasing the supply.

With so many unknown factors and the estimated increase of 60% for the total cut of wood in Canada by 1980, the requirements might be met by a work force of 30,000 permanent employees and 300,000 seasonal workers (two times the number of permanent employees of today, but only 20% more of total seasonal workers). This is estimated as 4% of the labor force in 1980 as compared to 5% of our labor force today. The forest industries in 20 years should not only be larger, but much more technically complex than it is today which makes up for the discrepancy of 1%. The problem will be to train men in the technical skills which will be needed for its operation, a need for the better education and up-grading of personnel.

Let us go back to our distribution by function of graduates where 10% or more of the graduates are not in forestry. It must be remembered that it is not much use training people for jobs unless there are suitable jobs for them to go to after they are trained. The Economics and Research Branch of the Department of Labor as well as our Salary Survey of 1958, based on 60% returns, show the professional forester's salary slightly below the average of other technical professions. We should work towards getting more foresters employed in organizations concerned with our forests, and in getting foresters more recognition and responsibility.

Any discussion of professional manpower arrives finally at the University. The Universities in turn having taken careful forethought about the future and stated their problems must now await an adequate response from society. In turn society must be made to understand that if we fail to develop the maximum possible values and services from wood, our forest industries tend to be static, instead of dynamic so far as technical and scientific progress are concerned, and this state of affairs involves a monetary loss in undeveloped possibilities that may affect our competitive position in world markets. The real threat to Canada's future is that our economic growth might slow down; technical personnel are and always will be basic to our economic growth and national security. Since it takes many years to train competent foresters, their supply cannot be increased overnight in response to any sudden upsurge in demand by or before 1980. But this means that if we act without foresight today, we will have a future problem. This seems to tie in so well with the paper (The State of the Industry) just given by Mr. R. M. Fowler, President of C.P.P.A. Proper management of our forests is of vital importance today for tomorrow's industry.

In conclusion, the probable changes in the intensity of forest management,

the changes in harvesting techniques, as well as the problems of increasing supply give us the *mot d'ordre* for the years to come: More technically trained personnel, and at all levels.

The above indications should merit careful consideration not only by the forestry profession in this country but also by the Canadian forestry industries. You may feel that this is a rather statistical approach to the problem of professional manpower. It has been reduced to its simplest terms in order to make clear the need of more trained men and especially professional foresters.

The C.I.F.'s aim is that all those in the field of forestry show their interest and do their utmost in helping to shape the destiny of their profession, and in so doing, helping to shape the destiny of Canada.

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