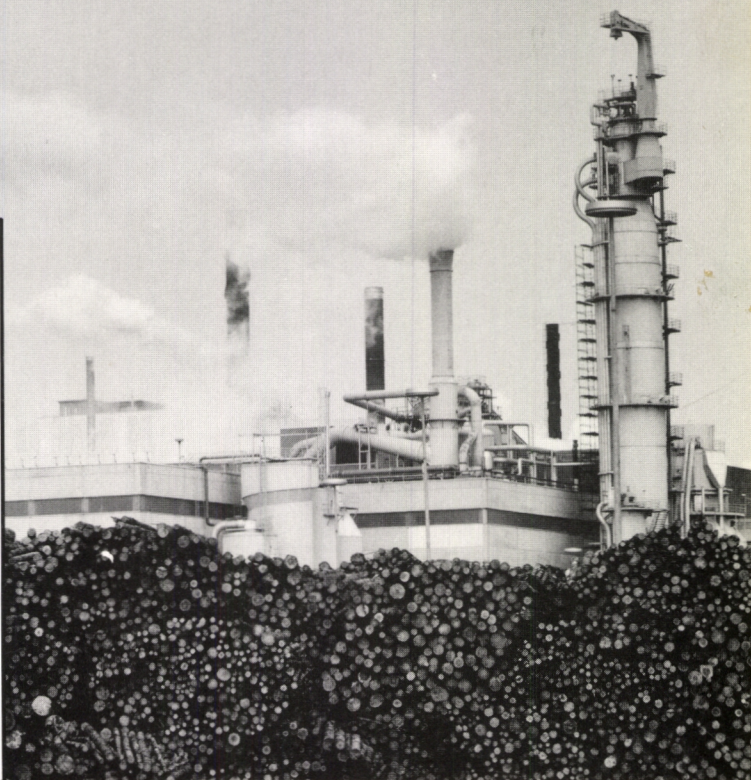


METSÄNTUTKIMUSLAITOKSEN
TIEDONANTOJA 260

Metsäekonomian tutkimusosasto -
Department of Forest Economics



LAURI HEIKINHEIMO - FOREST ECONOMIST AND RESEARCH LEADER



HELSINKI 1987

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Jalostusosasto



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Lauri Heikinheimo's 70th anniversary

Heikki Pajuoja (Ed.)

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ABSTRACT

Lauri Heikinheimo made his scientific career as a prominent forest economist specializing in forestry labour studies, and as a successful research leader at the Finnish Forest Research Institute. The publication reviews the progress of The Department of Forest Economics during 1960-1984, and provide a bibliography for the whole Department covering this period. A specific curriculum vitae for Lauri Heikinheimo with his personal bibliography for 1954-1985 is included. Heikinheimo's career with personal reflections is described by Kullervo Kuusela. A new paper by Lauri Heikinheimo himself focuses on "The industrial structures of the United States, Sweden and Finland in 1880-2000".

Key words: Lauri Heikinheimo, biography, bibliography on forest economics, research leadership, industrial structures of USA, Sweden and Finland.

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PREFACE

Lauri Heikinheimo celebrated his 70th birthday on June 4, 1987. His doctoral dissertation on the amount and structure of the forest labour force in Finland marked the start of a career as one of the few advanced researchers who have worked on the social and economic aspects of this specific field. Another main theme in his career was the work carried out as one of the research leaders in the Department of Forest Economics, Finnish Forest Research Institute, during 1960-1984. We wish, as the present research leaders of the same department, to celebrate Lauri Heikinheimo's anniversary by devoting this publication to a review of his career in order to familiarize readers with the main themes of his professional life. The team responsible for drawing up of this publication was composed of the following: Jouko Hämäläinen, Veli-Pekka Järveläinen, Heikki Pajuoja, Matti Palo and Aarne Reunala.

Helsinki, June 1987

Jouko Hämäläinen
Professor
Chief of the
Department

Matti Palo
Professor

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A REVIEW OF THE DEPARTMENT OF FOREST ECONOMICS 1960 - 1984

by

Jouko Hämäläinen & Matti Palo

The Finnish Forest Research Institute was created in 1917. The original three departments dealt with forest soils, silviculture and mensuration and inventory. The number of departments increased step by step up to the present nine units representing the various subdisciplines of forest sciences.

The Department of Forest Economics was established in 1928. Lauri Heikinheimo took over the post of professor and head of the department in 1960, following on the work of Eino Saari, N.A. Osara and V. Pöntynen. The task of the department at the time was to investigate economic and social problems of forestry and the forest industries, as well as relationships between the timber drain and potential cut. The last aspect had traditionally been the most dominating activity.

In the beginning of 1960's the Finnish Parliament commissioned a survey on the level of earnings of forest workers. The actual socio-economic problems of forest workers and Lauri Heikinheimo's doctoral dissertation on the subject were the starting point for a continuous research activity in this field. A research tradition in this specific field has by international standards, been rather rare.

Päiviö Riihinen initiated research on sociological aspects of forest owners at the University of Helsinki in the mid 1960's. Later on, Lauri Heikinheimo strengthened this strong Finnish tradition by continuously allocating resources to this subfield since 1968. A number of surveys of private, non-industrial forest owners were executed.

Research on managerial and market aspects of forestry and the forest industries were also strengthened towards the end of 1960's. A professorship for the Division of Business Economic of Forestry was established in the early 1970's. From almost the beginning Jouko Hämäläinen has been the research leader of the unit, the rest of the department remaining under Lauri Heikinheimo under the title Division of Social Economics of Forestry.

Multiple use of forest became a hot political issue in Finland towards the end of 1960's. Lauri Heikinheimo made a strong effort to establish research activities in this field at the beginning of 1970's. Gradually, along with a number of external administrative and political reservations, research activity developed in this branch, too.

Since the 1960's Lauri Heikinheimo has made successful efforts to make the activities of the Department more Scandinavian and internationally oriented. Five researchers with English as their mother tongue worked for extended periods at the department. In addition, he promoted the exchange of foreign researchers for shorter periods. The research work too, became more frequently based on comparative international analyses.

Lauri Heikinheimo strongly stressed the essential role of post graduate studies. Accordingly, ten of his researchers attained doctoral degrees, mostly in Social Economics of Forestry at the University of Helsinki. He also promoted the interdisciplinary approach to research by recruiting not only graduated foresters, but also a growing number of economists and social scientists. The staff of the department in both divisions increased from 5 to 35 academically qualified researchers during 1960-1984.



Society of Forestry in Finland: Honorary members.

LAURI HEIKINHEIMO - FOREST ECONOMIST AND RESEARCH LEADER:
PERSONAL REFLECTIONS

by

Kullervo Kuusela

I first learnt to know Lauri Heikinheimo as more than just a name in 1962 when I was appointed professor of the Department of Forest Inventory and Yield at the Finnish Forest Research Institute, where Lauri had been acting professor of the Department of Forest Economics since 1961.

The new statute issued to the Forest Research Institute in autumn 1962 directed the Department of Forest Inventory and Yield to assist the Department of Forest Economics in carrying out research work on the timber balance. To some of the most senior researchers this directive would perhaps appear to be a terrible affront to the independence of a professor. However, since I had only just been appointed professor, the situation did not at all surprise me. Perhaps my reasoning at the time was that if a professor could independently make decisions about matters in his own field, then he could also independently provide assistance.

Our cooperation, which started off officially with a new statute, has been the most pleasant of my many experiences of research carried out between departments. In point of fact, Lauri Heikinheimo's interests as a researcher were primarily centred on forestry topics associated with the forestry work force, the national economy and social policy. He led the research into wood utilization and drain, and held the reins of research into the timber balance. Those results of the national forest inventory and wood utilization research which formed the materials used in research on the timber balance, were shared. I cannot remember any occasion when there would have been a difference of opinion regarding publication rights between the two departments. Timber balance research did not need any project organization. There were

no meetings. There was no fighting about research funds. There were no arguments in the timber balance reports stemming from the private ambitions or differences of opinion between the researchers. Forest balance research has been a effective and much used source of information, and as a working whole more united than the work of many of the departments or research divisions.

The smooth cooperation was built up on Lauri Heikinheimo's strict sense of principle which he demanded of himself and others. What he promised he also did. For him cooperation was not a matter of gaining benefit from the other party, but a means of achieving the best possible results. His sense of fair play was as unshakable as a rock.

I know of no other researcher who has taken so much care and deliberation in his activities and decision. The simultaneous appointment of the posts of professor in Forest Economics at the Forest Research Institute and professor of Social Economics of Forestry at the University of Helsinki, is one instance which has remained especially clear in my mind. If I remember correctly, the retiring holder of the chair at the university, Prof. Eino Saari, wanted his student Lauri Heikinheimo to make this post his primary choice. I felt deeply for Lauri when he faced up to this difficult decision and chose the Forestry Research Institute.

In this, as is usually the case, one man's loss is another man's gain. The institute gained, in Lauri Heikinheimo, an energetic developer of computer science and research into forest economics and the associated fields of commerce, forest statistics and mathematics, a seeker after researchers with talent, and an unselfish tutor of young researchers.

I have already said earlier that, for Lauri Heikinheimo, the numerical content of the timber balance research was mainly an object of follow-up. On the other hand, he was involved, with a full researcher's input, in all those studies and investigations where the timber balance and potential and forecasted timber production are connected with the development of forestry as a means of livelihood and the national economy. These tasks included the investigation, carried out at the beginning of the 1960's in

connection with his work on the Agricultural Committee, into the possibilities of increasing employment and income by increasing timber production, and the extensive investigation done for the Economic Council into alternative strategies for developing the production of forestry and the forest industries for the time period extending from the middle 1960's to the end of the century, and the effects on the national economy of these alternatives.

The work done for the Economic Council was the most comprehensive investigation, carried out up to then, of the benefits for the national economy of increasing forestry production. It was the basis for MERA, the forest improvement project carried out in 1973-75 that was supported by a loan from the World Bank, and for the further development of the project. The study carried out for the Bank of Finland in 1967, "Assessment of the prices, costs and viability of forestry", in which the costs and viability of artificial afforestation were also investigated, and the "Report of the committee on the costs of artificial afforestation" drawn up under the chairmanship of Lauri Heikinheimo of 1966-71, supplemented the macroeconomic analyses.

Forest improvement and the development of timber production in Finland in the 1960's and 1970's are, as regards the size of the input and the results obtained, the greatest accomplishment so far attained in the northern coniferous forest zone. Their business economics and national economics bases are, in the main, the hand of Lauri Heikinheimo. He has, through his lectures and articles, spread information about MERA throughout the world.

I have started this review of the career of Lauri Heikinheimo as a research scientist with his great diversity in those fields where his achievements are the most well known, and where certain of his most important characteristics have most clearly come to the fore. He has been a quiet force, frequently appearing to take a subsidiary role, combining his own input and that of other researchers, in all the most important studies aimed at developing the forestry industry during the past three decades.

Of all the research objects, those involving man have been close to Lauri Heikinheimo. He started his working career as

departmental secretary in the Ministry of Supply halfway through the 40's. He was an assistant for a couple of years at the University of Helsinki, and head of department in the Ministry of Transport during 1957-63. His doctoral thesis, completed in 1954, dealt with methods for studying the forestry work force. He planned and organized a continuing study of the work force in Finland, and made himself into one of the leading work force researchers in the world. He has carried out a number of studies on the forestry labour force, wages, work productivity and manpower policy in Finland, Scandinavia and the USA, and forestry productivity in a number of European countries. The researchers which he has schooled and led have investigated the labour market for white-collar workers engaged in the forestry sector.

Lauri Heikinheimo published in 1972, together with a number of younger researchers, a book entitled "The Finnish forestworker". It is a tribute to the forest workers, whose hard physical work, done under extreme working and living conditions in the varying northern climate, has to a great extent been responsible for the economic growth and miracle of reconstruction that have taken place in Finland following the Second World War. In addition to a tribute, the book is also a cry for help on behalf of this toiler of the woods, living forgotten in the forest. It is more than just a coincidence that a profound improvement took place in the training, working conditions and equipment of the forest worker, as well as in the attitudes of society, in the 70's.

Timber prices have been one of the many topics studied by Lauri Heikinheimo. He has carried out a number of investigations into time series of stumpage and delivery prices. The problem of a stumpage price model he has hardly forgotten.

The international activities of Lauri Heikinheimo are unbelievably wide. His working and study trips, as well as participation in international meetings, cover the northern hemisphere from Japan to British Columbia and Seattle. He has studied and done research work in Sweden, the UK and USA. He has, on many occasions, acted as expert in forest statistics, forestry workforce and timber prices, and as the Finnish representative in meetings of the Nordic Countries, in the Timber Committee of FAO/ECE and in ILO.

Work for the developing countries includes Chile and Tanzania. With admirable tenacity, Lauri Heikinheimo has striven to open up channels of cooperation, that are more than just a formality, with researcher in the Soviet Union. In the end, a joint research agreement was signed between institutes in Leningrad and the University of Helsinki.

Lauri Heikinheimo has done great work as a recruiter and teacher of young, promising researchers. When posts and vacancies have been filled at the Department of Forest Economics, the only ones to be selected have been those with the best qualifications. Eleven of his researchers have gained their doctorate during 1969-82. A great number of researchers who have been employed at some time in the department are now working in other research organizations or in the practical sector. On reading through the personnel lists, one can easily gain the impression that Heikinheimo's forest economists will be running Finnish forestry for the next millennium.

The Department of Forest Economics has been the most international of all the departments in the Forest Research Institute. Some of the most impressive occasions where I have been present were the meetings where around thirty researchers of all ages and disciplines, and including a number of foreign visitors and N.A. Osara returned from his spell as research specialist as forest leader of FAO, discussed topical questions.

The Department of Forest Economics has been a pioneer in working-place democracy. Long before the introduction of official office democracy, meetings were held in the department to discuss and make decisions on the research programmes and other matters. But even Lauri Heikinheimo has not been able to overstep the directive given in the institute's statutes which states that the head of the department is to make the final decision, at least in cases where open discussion has not resulted in a unanimous or sensible decision.

The time when the Department of Forest Economics was separated from the rest of the institute in its premises on Kaisaniemenkatu, and when Lauri Heikinheimo welded all its personnel into an

efficient and colourful unit, deserves its own chapter of history. As a timber balance researcher, I had the opportunity on a number of occasions to drop in there, and it always felt afterwards as if I had received a lasting breath of fresh air.

The career and achievements of Lauri Heikinheimo make us ask, what are the personal qualities which have enabled him to achieve all this. His overall gifts and strong ethical principles explain a lot. Adopting a forestry career was only natural for a member of a family covering three generations of forest officers. There is a touch of Oululainen Ostrobothniaism in his inventiveness and ability to work hard.

Scandinavism, and over it all a sense of internationalism, were a natural development of his bilingual upbringing and the Swedish-speaking school he attended. This was rounded off by a certain degree of internationalism. The message for the young researchers of today is unambiguous. There is no such thing as successful and productive Finnish research without an international basis and strong international connections.

An exhaustive grounding in political economics, statistics and social policy, as well as a humanistic approach, were the road from forest research to enriching, interdisciplinary contacts. Those 23 researchers who have worked under him understood the source of power and essential nature of Lauri Heikinheimo when they each wrote an article for the commemorative publication "Man and the forest" that came out 10 years ago: Through Lauri Heikinheimo they have learnt to understand the importance of the interaction between man and the forest and, above all, how essential it is for a researcher in forest economics, if he is to succeed in his work, to take people into account and to become noticed as a person himself.

THE INDUSTRIAL STRUCTURE OF THE UNITED STATES,
SWEDEN AND FINLAND IN 1880 - 2000

by

Lauri Heikinheimo

The model of Professor Jean Fourastié for 1800 - 2000.

In 1947 Fourastié published a study of the development of the structure of the gainfully occupied population in industrial societies from 1800 to 1950, and a vision for 1950 to 2100. He divided the active population into three main industrial sectors: agriculture (with forestry, fishery and hunting), industry (with construction and handicraft) and services (all other industries). His conclusion was a beautifully symmetrical model showing that whereas in 1800 80 % of the population were engaged in agriculture and 10 % in industry as well as in services, this distribution was 1/3, 1/3 and 1/3 in 1950 and would stabilize to 10 %, 10 % and 80 % by 2100. Later on he moved the beginning of the stabilization era to approximately 2000.

Fourastié emphasized three main factors as causes of this development: the struggle for a better standard of living, the production and consumption possibilities and the growth in labour productivity. In agriculture the possibilities of production are limited and saturation of consumption has been reached, but labour productivity can grow considerably. This accounts for the steep decrease in the agricultural population. In industry these are vast possibilities for increasing production, and consumption will not be saturated before the 21st century. The increase in labour productivity is, however, rising with accelerating speed and therefore the proportion of the population engaged in this sector will stop increasing and start to diminish. The services sector does not produce material goods, the consumption of services is, according to Fourastié, as a whole unlimited and the possibilities

for an increase in labour productivity rather limited. This explains the growing domination of this sector.

The forecasts of Fourastié, and his vast publication activity as a whole, is a remarkable application of the philosophy of August Comte that knowledge should be for preview and preview for prereaction. Thus the purpose of science should be to lead society and life towards a better future. Fourastié seems to be convinced of the desirability of his view, the title of his main book is "Le grand espoir du xx^e siècle".

Social development in the USA, Sweden and Finland from 1880 to 1984.

Inspired by the views of Fourastié, analyses were made of the relative industrial structure of the population for the hundred year period 1880 to 1984 in the USA, Sweden and Finland. USA was chosen as the "leader", Sweden as a "good follower" and Finland as a "speeder".

The statistics for the analyses are the industrial structure of the civilian labour force for the USA, of the total population for Sweden and Finland up to 1940, of the gainfully occupied labour force in Sweden up to 1960, in Finland for 1950 and later labour force figures from sample surveys similar to those started in the USA after the World War II.

The old parts of the material are naturally the least reliable. However, this material is sufficient to show the general shape of heavy and stiff long term trends. The same division into industries: agriculture (ISIC 1), industry (ISIC 2 to 5) and services (ISIC 6 to 9) as used by Fourastié, is applied.

The first comparison of these countries was made by the writer in 1958 for the material up to 1950. A graph was drawn for each society showing the percentages of the three industries in each decade (for USA to 1956). The three graphs were then superimposed on each other in such a way that the curves for agriculture are the same. The result is presented in Figure 1. It was used for forecasting the development in Finland up to 1965.

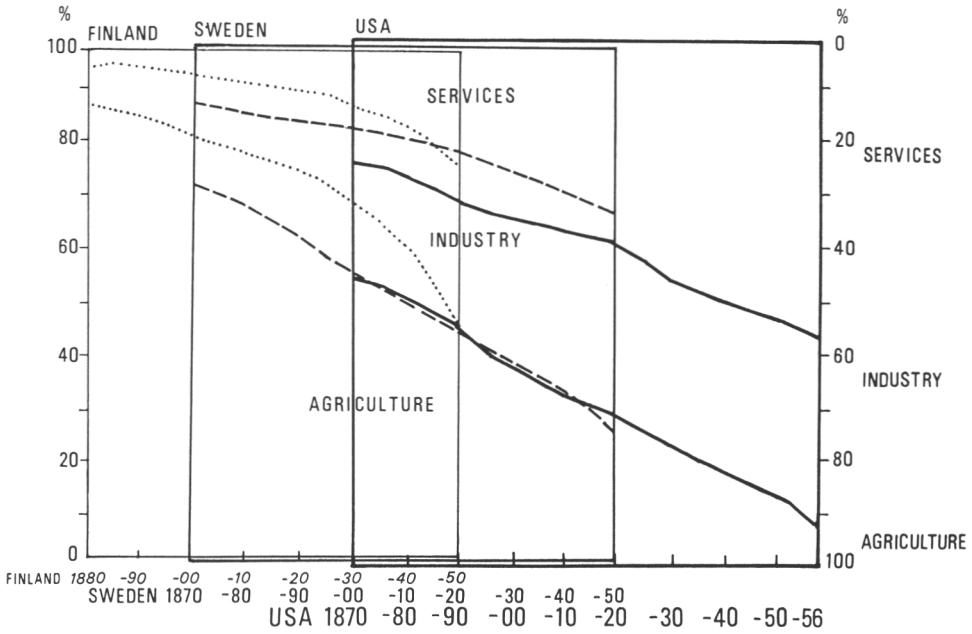


Figure 1. Industrial structure of employment in the USA, Sweden and Finland from 1870 (for Finland 1880) to 1950 (for USA to 1956). Made as a prognosis for Finland and Sweden (Heikinheimo 1958).

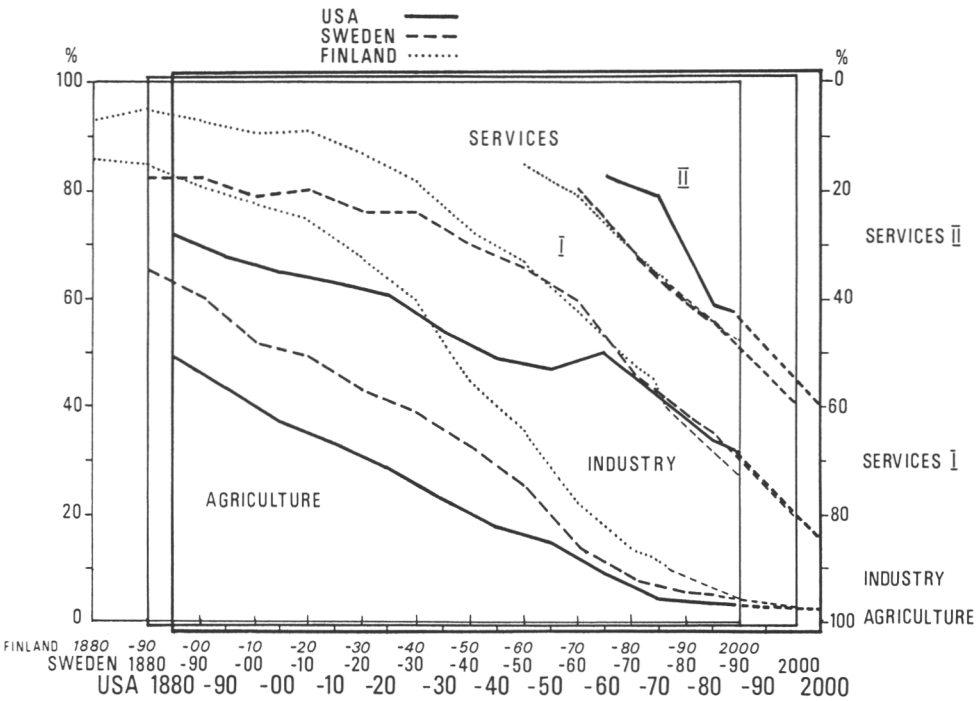


Figure 2. The same method as in Figure 1 applied to the material for 1880-1984 (for Finland to 1986). Here the trends of the service sector are made to coincide. Services I = trade and transport, (ISIC 6, 7). Service II = financing, insurance and services (ISIC 8, 9).

The same procedure was done for the material up to 1984 in Figure 2, the only difference being that the curves for the services sector were drawn coincide with each other.

The most striking feature of these combined graphs is, perhaps, the fact that Sweden, measured by the ratio of the service sector, only lags five years behind the USA and Finland ten years behind Sweden. If the same procedure is made for 1950 with the services sector, it shows Sweden to be 60 years behind the USA and Finland 20 years behind Sweden.

If the proportion ratio of the agricultural sector is taken as the indicator of order in this race, it shows that in 1984 Sweden lagged 10 years behind the USA and Finland 20 years behind the Sweden. For the curves up to 1950 the position was: Sweden 30 years behind the USA and Finland 30 years behind Sweden. The state of development of Sweden and still more that of Finland has thus been really remarkable, Finland e.g. gained USA in the services sector by 35 years from 1950 to 1984.

This acceleration of the "followers" is, of course, an universal phenomenon and caused mainly by the ever increasing universality of technology, and thus speed up of labour productivity. There are other factors too, e.g. the spread of knowledge through education and information. The world is becoming ever more alike.

Predictions of development rates for long periods ahead is a very difficult task and it is understandable that Fourastié has moved his date of stability from 2100 back to 2000. The overall shape and also the timetable of his diagrammes is, however, principally correct.

An outlook up to 2000 for the USA, Sweden and Finland.

An analysis of this kind without some test of the prediction has little practical value. An attempt has been therefore made to utilize simple extrapolation to shed light on the consequences of a single factor's continuous growth up until 2000. The share of financing and insurance (ISIC 8) plus governmental and other

services (ISIC 9) out of total employment has been chosen as such a factor. It is marked as services II in Figure 2. As can be seen, this part of the labour force in the service sector has grown very steeply from 1960 to 1984, in the USA from 11 % to 44 % of total employment, in Sweden from 20 % to 44 % and in Finland from 15 to 34 %. In the same period the other part (I) of the services sector, namely trade (ISIC 6) and transport (ISIC 7), has remained fairly constant.

Let us assume that services II continues its rate of aggressive growth up to 2000, and that the share of services I (trade and communications) remains constant. We then have a simple projection for the share of the whole services sector. What is left can then be divided between industry and agriculture. For the USA the share of agriculture can hardly fall much below the present 3 %. Sweden might squeeze it down to the same, Finland to 5 %. We have now the following extrapolation up to 2000 for these countries.

	USA	Sweden %	Finland
(Services II)	(60)	(60)	(48)
All services	85	80	70
Industry	12	17	25
Agriculture	3	3	5
Total employment	100	100	100

Realization of this prognosis seems to me to be improbable in the USA and Sweden. A decline of the USA industry's employment share from 30 to 12 % in 13 years seems drastic. It would apparently mean fast and far reaching automation and dismissal of some 18 million people. For Sweden the share of industry would fall from 30 % in 1984 to 17 % in 2000. The decline is less than for the USA, but it presupposes a decrease in employment in agriculture of one half. This makes the projection equally improbable as the USA's.

For Finland the extrapolation gives more plausible results although here, too, a squeeze on employment in agriculture to half the present level is politically very difficult and not desirable

from a social point of view. The decrease of the industry's share up to 2000 from 30 % to 25 % in Finland looks modest compared with the figures for the USA and Sweden.

Extrapolation is a tool which is constantly used in every day life, often unconsciously. This outlook for the year 2000 tries to underline one dominant feature in the development of the three societies studied and probably in many others. Financing and insurance as well as governmental and other services, sometimes called "invisibles", are expanding very fast. This sector is not producing goods, nor transporting or distributing them. Those employed in the "invisible" sector require their share of the "visible" production, too. It might pay to have a closer look at his phenomenon. That is, however, out of the scope of this article.

Conclusions

Fourastié calls the time between the stable period of primary civilization (up to 1800) and the coming new stable period of tertiary (services) civilization (from 2000) the transitory period. Its main feature is continuous unrest owing to change in the structure of the population, occupational as well as geographical. The main movement is from agriculture to industry and from industry to services but also, especially for women, directly from agriculture to services. Geographically the stream is, of course, the flight from the land, urbanization. But inside these sectors, too, there are continuous crises. Owing to rapid technical development old factories close down or are rationalized and dismiss part of their labour force. Also consumption changes to newer products and old production must cease.

This period is thus associated with major problems, unemployment, waste of natural resources, pollution, stress etc. For the 21st century Fourastié predicts many optimistic consequences: decrease of unrest because of stabilization, saturation of consumption, also in goods other than food, less hours of paid work (4000 hours per lifetime) and above all a complete rationalization of home and work.

The 21th century will arrive in only a few years' time. From the point of view of the population structure, we are very closely following Fourastié's timetable. As he is logical in his reasoning we can hope that we could, in the 21th century, cope with many of our contemporary problems.

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Heikinheimo and his "family" 1981.

HEIKINHEIMO AND HIS "FAMILY" - THE PHILOSOPHY
BEHIND THE DEPARTMENT*)

by

Lauri Heikinheimo

The editors of this newsletter have asked me to explain the philosophy behind my actions as the head of the department. A full explanation is impossible, partly because my actions are more improvised than clearly planned ahead. It is true, however, that planning takes shape from improvisation, as in the whole of Finnish society and state administration. So I can try to look at my tracks behind me in the snow, and peer ahead into the hills as far as the future can be seen through the mist.

The duties of the Finnish Forest Research Institute are clearly defined in the statutes: the Institute should carry out research for the promotion of Finland's forestry, publish the results and provide information about them in a popular form. It should also take part in international research in forestry and especially give young researchers an opportunity to do research. The duties of our department, although defined differently in the statutes, might be said to include all applications of the social sciences, including sociology, social policy, macro- and microeconomics, marketing and statistics, to forestry.

Although the main official goals of the Institute may seem to be framed in national terms, international contacts are essential. My idea is that by and large there is very little national science, since methods in research are (or at least should be) international, and the application of those methods should be equally interesting to and open to scientific criticism from all quarters, no matter where the research is actually applied.

*) Published in Forest Economics Department Newsletter No 12/1970

Internationalism requires a common language. For many reasons the most common international language of our department, as of the Institute as a whole, has very naturally become English, although this has nowhere been decided officially. I think we have to stick to English in the future. As a second international language, however, we should start to take up Russian. Our position between East and West makes this very necessary. Although the statutes do not specify a knowledge of English, to my way of thinking the requirements for a scientist must include the ability to write his results directly in an internationally recognized language so that they can be checked by an expert in that language without great difficulty. He must also be able to take part in discussions at international congresses and to speak freely and extempore in his international language.

A great deal of effort has gone into trying to achieve these goals with English in our department. David Cope, Rory Harrington, Michael Jones and Buddhi Jha have greatly helped in these efforts.

Since summer 1968, when David started everything off, English has become more and more our main, if not official, language. The same, although to a lesser extent, has happened with Swedish, thanks to Lorenzo Runeberg, Brita Sjöstrand and Jan Heino.

The question of language becomes complicated in the publication of research results. I have tried to put forward the opinion that the publications of the Institute should be divided into two groups:

- (1) scientific publications must be principally for scientists and published in English,
- (2) reports for the practical sector in Finland and short summaries of the scientific publications (e.g. about 4 pages long) need to be mainly in Finnish.

At present our publications are a mixture of the two and nobody is satisfied with them.

Besides a command of English, a further requirement which is absolutely necessary for undertaking useful research in the department is a good insight into another basic subject besides forestry. This requires the highest grade in sociology, social

policy, macro- or micro-economics, statistics or a related subject. We are, after all, applying economics or some other basic subject in a special sphere, forestry, but if we are not economists or sociologists as well as foresters, our work is apt to be more that of dilettantes than scientists.

The statutes require no qualifications in these basic subjects, however. The requirements of English and a basic subject outside forestry might appear, therefore, rather ambitious and difficult to achieve. To assist in this we have a recruiting system for employing new personnel. For research personnel, including computators, we recruit mainly from the forestry students in the Faculty of Agriculture and Forestry at the University of Helsinki. As only 1/5 - 1/4 of the applicants are accepted to study forestry, the students are already highly selected. We try to attract the best of them, first to help researchers and then, as soon as possible, to do independent research. In the selection process, we put a lot of weight on school marks, especially for languages and mathematics. So far the system seems to have worked well. More recruitment from outside the forest faculty, however, seem to be recommendable.

Since this recruiting system has worked efficiently for the last 5 years and the personnel of the department has simultaneously grown, we now have a number of young and very capable people. Many of them are working full time with us and at the same time studying both forestry at the Faculty of Agriculture and Forestry and one of the basic subjects in the Political Science Faculty or elsewhere. Most of them already know sufficient English to be able to reach the required ability very rapidly.

Our official function, of course, is research, which is virtually unrestricted within our very broad frame of reference. It might be tempting to ask for the highest possible efficiency from the personnel. There seem to be, however, so many requirements of profitability and productivity as well as efficiency in the world that I have come to the conclusion that we cannot expect more than modest productivity in quantitative terms (e.g. the volume of production measured by publications), but we can aim for a high standard in quality. The present volume of publications is already

quite substantial. Our publication plan for 1970 contains some 1000 printed pages, of which a fair amount should be in print before the end of December.

In the same way as the U.N. definition of the standard of living includes many intangible aspects, such as security, human rights, recreation, health and working conditions, our goal should also include intangible aspects, promoting what may be called social well-being. Feelings of increased well-being help to increase both the volume and quality of production. We can strive to achieve maximum well-being, or the best possible standard of living in the U.N. sense, for the "society" formed by the department's personnel and their families.

My conviction is that such a goal is best reached if the "society" follows the behaviour pattern of a reasonably happy family. That pattern might include the following:

- remove formal social ranks and titles, and instead use Christian names
- classify personnel into different categories as little as possible
- delegate work and responsibility, have many independent research workers and minimum authority
- do not stereotype work and behaviour
- provide many occasions where all the members come together and discuss openly and freely both particular subjects and anything else they like. These meetings can take place in the department's coffee room or kitchen (the heart of the home), in the home or summer cottage of my family (at New Year and in the summer), Nisse Osara's estate (next Spring) or elsewhere. Here I would like to suggest the idea of sometimes including the families and homes of the other members of the department, too.

I feel that we have come a long way towards achieving the goal of combining the scientific aims of the department with the aim of increasing personal and social well-being. The atmosphere in the department is, I think, a happy one. As a final suggestion, I would like to put forward an idea I have been toying with for some time. Why not invite a sociologist to carry out an investigation

into the well-being of the department's personnel? This could be a way of finding out about individual feelings in more concrete terms and might suggest new ways of improvement. At the same time, it could be a means of stimulating similar ideas in other offices and working places.



Physical training played a particular role in Heikinheimo's philosophy of life: The Departments' skiing team 1983.

CURRICULUM VITAE

Lauri (Lasse) Johannes Heikinheimo, born June 4, 1917

1. Education

Matriculation, Oulun Lyseo, Finland	1935
Bachelor of Forestry, University of Helsinki	1941
Master of Agriculture and Forestry, University of Helsinki	1946
Licentiate in Agriculture and Forestry, University of Helsinki	1954
Doctor of Agriculture and Forestry, University of Helsinki	1954
British Council fellow at Oxford University	1955 - 1956 (ten months)
International Educational Exchange Service fellow in U.S.A.	1960 (two months)

2. Full-time vacancies

Departmental Secretary at the Ministry of Supply, Helsinki	1944 - 1945
Helsinki University, Institute of Silviculture, assistant	1945
Helsinki University, assistant at the Institute of Forest Economics	1946 - 1956
Ministry of Labour, Helsinki, Head of Research Office	1957 - 1958 1959 - 1963
Researcher Stipendiate at the Swedish Forestry University, Institute of Forest Economics. Stockholm.	1958 - 1959
Forest Research Institute, Helsinki pro tem professor of the Department of Forest Economics	1961 - 1963
Ordinary professor at the same Institute	1963 - 1984
Forest Research Institute, Department of Mathematics, pro tem professor	1967 - 1968 1976 - 1977

Part-time services

Helsinki University, Forest Library, amanuensis	1964
Helsinki University, Faculty of Agriculture and Forestry, notary	1948 - 1950
Helsinki University, Docent in Faculty of Agriculture and Forestry	1956 - 1984
Helsinki University, Institute of Forest Economics, pro tem professor	1956 - 1957 1958 - 1959 1961
Finland's representative on in the Committee of Scandinavian Labour Statistics	1957 - 1963
Statistical Council of Finland, member Food and Agriculture Organization of the United Nations, expert in the Forest Economics Department in Rome	1958
Statistical Council of Finland, chairman of Planning Section,	1960 - 1961
chairman of Forest Statistics Section	1961 - 1984
Forest Work Wages Statistics Committee, chairman	1964
Statistical Council of Finland, member	1967 - 1969
FAO Committee, member	1967 - 1969
Forestry Society of Finland, chairman	1964 - 1965
Forestry Society of Finland, member of board	1965 - 1969
Forestry Society of Finland, Committee of Forest Economics, chairman	1966 - 1967
Committee of Forest Cultivation Costs, chairman	1966 - 1971
Helsinki University, Faculty of Agriculture and Forestry, official opponent at doctoral examinations	1968, 1969, 1972, 1973
Helsinki University, Faculty of Political Sciences, official opponent at doctoral examinations	1971
Member of Academy of Finland, Committee of Agriculture and Forestry	1971 - 1973
Expert appraisal concerning the filling of the post of associate professor in Forest Economics at the Forestry University of Sweden	1970
Expert appraisal concerning the filling of the post of professor in Business Economics of Forestry, Helsinki University	1973

Trip on behalf of the Ministry of Foreign Affairs in Finland to Chile to study the possibilities of development aid	1973
Expert appraisal concerning the filling of the post of professor of Forest Economics in the Swedish Forestry University	1976
Helsinki University, pro tem professor in Forest Economics	1973/1974 1974/1975
Oxford University, visiting lecturer	1975 (two weeks)
Expert appraisal concerning the filling of the post of professor in Land-use Economics at Helsinki University	1976
Expert appraisal concerning the filling of the post of professor in Forest Economics at the Agricultural University of Norway	1978
British Columbia University as a visiting lecturer	1978
Member of the Farm Statistics Committee, appointed by the Ministry of Agriculture and Forestry in Finland	1960 - 1984

Journeys

Work for the Swedish Forest Service	1946
Work for the Swedish Agriculture Employers Association	1947
Work for the Forest Consultancy Bureau (W. Trahns Skogs Bureau) as an inventory group leader	1947
Participation in IUFRO conferences	
in Oxford	1956
in Vienna	1961
in Munich	1967
in Gainesville, U.S.A.	1971
in Kyoto, Japan	1981
Participation in the third World Forestry Conference	
in Helsinki	1949
in the fifth World Forestry Conference in Seattle	1960
in the sixth World Forestry Conference in Madrid	1966
Member of the Finnish Delegation to the ILO Timber Committee Conference	
in Geneva	1973
in Geneva	1981
Representative of the Finnish Government in the Economics Commission of Europe and Food and the Agriculture Organization of the United Nations Working Party for Forest Economics and Statistics, chairman of the party meeting	1967 - 1985 1969

4. Activities in associations etc.

Forest Student Association, chairman	1939 - 1940
International Union of Forest Research Organizations, chairman of working group	1956 - 1981
Forestry Society of Finland, member, honorary member	1977 -
Finland's Association of Economics, member	
Finland's Association of Statistics	
Finland's Council for Farms	1975 -
Finland's Association of Forestry, Cajander medal for prominent research in forestry and its promotion	1977
Honorary prize of Finnish Foundation of Foresters for research in forestry and creation of a basis for the development of the labour economics and social policy of forest workers	1978

5. Army service

Military service	1935 - 1936
In reserve service	1939 - 1940
Captain (active service)	1941 - 1944 1944

6. Publications of importance

1. On the distribution of income from Finnish sawn timber exports in the years 1913-1953. Acta Forestalia Fennica 61.24. Helsinki. In Finnish with English summary. 1954.
2. Method of surveying forest labour. Acta Forestalia Fennica, 63, 182 p. (Dissertation). In Finnish with English summary. 1954.
3. Use of rural manpower in Finland. Acta Forestalia Fennica 63, 111 p. In Finnish with English summary. 1955.
4. Forest- and floatingwork. Metsäkäsikirja I. 47 p. In Finnish only. 1956.
5. Size and structure of the forest and log-floating labour force in Finland (with Toini Ristimäki). Acta Forestalia Fennica 63, 142 p. In Finnish with English summary. 1956.
6. Distribution by industry and unemployment of the manpower in rural districts in Finland (together with Toini Ristimäki and Sulo Väänänen). Acta Forestalia Fennica 63, 70 p. In English. 1956.

7. Current labour force sample survey in Finland, pilot survey (with Toini Ristimäki). Tilastokatsauksia. 9 p. In Finnish only. 1958.
8. Development of forest economic research in Finland. Acta Forestalia Fennica 70, 17 p. In English. 1959.
9. On the distribution of income in the combination of forestry and forest industry. Norrlands Skogsvårdsförbunds Tidskrift, 12 p. In Swedish only. Stockholm. 1959.
10. The current labour force survey in Finland. Tilastokatsauksia. 10 p. In Finnish only. 1961.
11. A plan for statistics in forestry input and wages. 7 p. Communicationes Internationales Forestales Fenniae 55. In English. 1962.
12. Productivity of labour in forestry. Proceeding of the 13th Congress of the international union of forest research organization. Part II:2, 31/7-1. 8 p. In English. 1962. Vienna.
13. Effects of forest improvements on employment and income (with Leo Heikurainen, Viljo Holopainen, Matti Keltikangas, Kullervo Kuusela and Tatu Möttölä). Silva Fennica 114, 34 p. In Finnish with English summary. 1963.
14. Level of earnings of forest workers in Finland. Preliminary report. Folia Forestalia 1, 55 p. In Finnish with English summary. 1963.
15. Labour force. In handbook of social sciences. 4 p. In Finnish only. 1964.
16. The development of Finland's forests in 1964-2000 (together with Seppo Ervasti, Viljo Holopainen, Kullervo Kuusela and Gustaf Sirén). Silva Fennica 117, 35 p. In English. 1965.
17. Forest labour force in Finland (with Toini Ristimäki). Labour force studies 2, 90 p. 1965.
18. A stumpage value model. The impact of raw timber transport costs on forest owners stumpage income. Metsätaloudellinen aikakauslehti, 3 p. In Finnish with English summary. 1966.
19. Trends and prognosis of productivity and employment in forestry. Metsätaloudellinen aikakauslehti, 8 p. In Finnish only. 1967.
20. An estimate of prices, costs and profitability in forestry in Finland (with K. Kuusela and S. Sivonen). Publications of the Bank of Finland's Economic Research Institute, series C 5. In Finnish only. 69 p. 1967.
21. On the absolute level of productivity in wood harvesting for some Finnish pulpmills (with Heikki Kunnas). International union of forestry research organizations. XIV congress, papers XIII. Munich. 12 p. In English. 1967.

22. The productivity of forestry. An international comparison (with Heikki Kunnas). Metsätaloudellinen aikakauskirja, 4 p. In Finnish only. 1967.
23. The profitability of forest plantations in Finland. Bank of Finland Monthly Bulletin, 6 p. In English. 1968.
24. The cooperation of forestry and other national economy. Metsätaloudellinen aikakauskirja. In Finnish only. 1968.
25. Interscandinavian research in Forestry. Silva Fennica Vol. 3, No 2, 6 p. In English. 1969.
26. Labour Policy in Scandinavian Forestry. In Svendsdur, A (Ed.): Readings in Forest Economics, p. 275-283. Universitetsforlaget. Oslo. In English. 1969.
27. Finland's forestry and forest industry up to 2000. Bank of Finland Monthly Bulletin No 9, 7 p. In English. 1969.
28. Stumpage and contract prices of pulpwood in Norway, Sweden and Finland in the felling seasons 1958/59 - 1968/69 and 1969/70. Folia Forestalia 68, 44 p. In Finnish with English summary. 1969.
29. Forestry and forest industry production alternatives in Finland, 1970-2015 (with Seppo Ervasti, Kullervo Kuusela and Veikko Mäkinen). Folia Forestalia 88, 65 p. In English. 1970.
30. The Finnish forest worker (together with Matti Heikinheimo, Martti Lehtinen and Aarne Reunala). 142 p. In Finnish only. 1972.
31. Increasing Investments in Finnish Forestry (with Matti Palo). Loggers Handbook. Vol. XXXII, Portland. 19 p. In English only. 1972.
32. Earnings of forest workers in Scandinavia, especially in Finland. Folia Forestalia 175. In Finnish with English summary. 83 p. 1973.
33. Level of living of forest workers in Finland (with Matti Heikinheimo and Aarne Reunala). Communicationes Internationales Forestales Fenniae 81.1. 148 p. In English. 1974.
34. The outdoor recreation in forests in Finland (together with Esko Jaatinen, Seppo Kellomäki, Lasse Lovén and Olli Saastamoinen). Folia Forestalia 321, 45 p. In Finnish with English summary. 1977.
35. National planning of Finland's forestry and forest industries. Publication of The University of British Columbia. 19 p. In English. 1978.
36. Trends of forestry employment in Europe and North America, 1965-1977. Supplement 3 to Volume XXXIII of the "Timber Bulletin for Europe" (with Helena Mäkinen and Jorma Salo). Geneva. 38 p. In English. 1980.

37. Material Constraints on the forest industries in Finland. XVII IUFRO World Congress, Division 4. 10 p. Japan. In English. 1981.
38. The stumpage model. XVII IUFRO World Congress, Division 4 (with Tapio Lehtikoinen.) 14 p. Japan. In English. 1981.
39. The forest in the economy of Finnish farm. Reports of Finnish Forest Research Institute 57 (with Eero Kakkuri). 44 p. In Finnish only. 1982.
40. Productivity in forestry and socio-economic change in some ECE-countries in 1950-1981 - a pilot study on Baden-Württemberg, British Columbia, Bulgaria and Finland. (with Heidi Vanhanen.) ECE/FAO Joint Working Party on Forest Economics and Statistics. 32 p. In English, French and Russian. 1983.
41. The forest work force. *Silva Fennica* 18:4. In Finnish with and English abstract. 1984.
42. Economic aspects of selected problems: Labour productivity in forestry (with Heidi Vanhanen). ECE/FAO Joint Working Party on Forest Economics and Statistics. 12 p. In English. French and Russian. TIM/EFC/WP.2/R.76. 1985.



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FF = Folia Forestalia

CIFF = Communicationes Institute Forestalis Fenniae

MT = Metsäntutkimuslaitoksen tiedonantoja (Reports of the Finnish Forest Research Institute)

B) Series of Society of Forestry in Finland:

SF = Silva Fennica

AFF = Acta Forestalia Fennica

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AARNIO, J. 1984. Laskelmia ojituksen yksityistaloudellisesta kannattavuudesta. Julkaisussa: (Paarlahti, K., toim.) Jaakkoin suon koeojitusalue 75 vuotta. MT 156:31-39.

ASTORGA, L. 1977. Effectuating possibilities of waste wood utilization in Finland. Seloste: Jätepuun käytön tehostamismahdollisuudet Suomessa. FF 306.

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METSÄNTUTKIMUSLAITOS

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Metsäntutkimuslaitos on maa- ja metsätalousministeriön alainen vuonna 1917 perustettu valtion tutkimuslaitos. Sen päätehtävänä on Suomen metsätaloutta sekä metsävarojen ja metsien tarkoituksenmukaista käyttöä edistävä tutkimus. Metsäntutkimustyötä tehdään lähes 800 hengen voimin yhdeksällä tutkimusosastolla ja yhdeksällä tutkimus- ja koeasemalla. Tutkimus- ja koetoimintaa varten laitoksella on hallinnassa valtionmetsiä yhteensä n. 150 000 hehtaaria, jotka on jaettu 17 koealueeseen ja joihin sisältyy kaksi kansallis- ja viisi luonnonpuistoa. Kenttäkokeita on käynnissä maan kaikissa osissa.

The Finnish Forest Research Institute, established in 1917, is a state research institution subordinated to the Ministry of Agriculture and Forestry. Its main task is to carry out research work to support the development of forestry and the expedient use of forest resources and forests. The work is carried out by means of 800 persons in nine research departments and nine research stations. The institute administers state-owned forests of over 150 000 hectares for research purposes, including two national parks and five strict nature reserves. Field experiments are in progress in all part of the country.

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