

Table 3. — Division 2 recipients of the IUFRO Distinguished Service Award. The award was initiated in 1979 and is presented to recognize those whose work has substantially furthered the aims of IUFRO (IUFRO 1990c).

Name and Country	Award Year
Helmuth von Barner, Denmark	1983
Frank G. Hawksworth, USA	1986
Chris W. S. van Kraayenoord, New Zealand	1988
S. P. Raychaudhuri, India	1989
Jan Materna, Czechoslovakia	1990
Oscar Sziklai, Canada	1990
Mirko Vidaković, Yugoslavia	1990

### Collegiality and Cooperation

IUFRO is by definition a union of research organizations, a "non-profit, non-governmental scientific organization open to organizations and individuals involved in forestry research". Its main aim is "to promote international cooperation in scientific studies embracing the whole field of research related to forestry". One of its stated ways of doing this is "by facilitating throughout the world exchanges of ideas among individual research workers" (IUFRO 1990b). Our system of working groups, especially the Working Parties, has been an effective vehicle for the exchange of ideas, but the key phrase is "among individual research workers". Without the personal contacts and friendships that our structure allows, we would be a far less effective organization. The success of IUFRO is due to the efforts of many individuals who have been committed to scientific integrity, an open exchange of ideas and information, and a willingness to take the time and initiative needed to make the organization worthwhile.

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## In Memory of Hans Schönbach and Otto Schröck

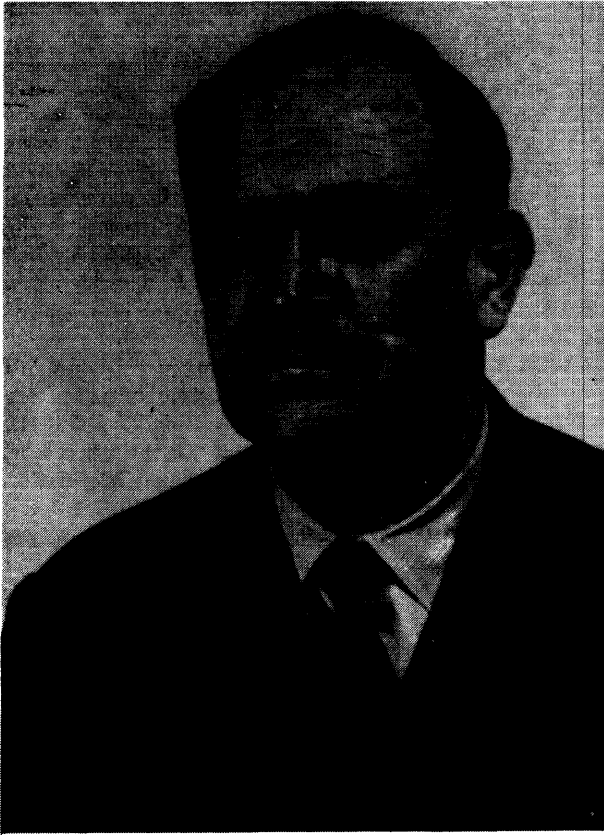
By H.-F. JOACHIM\*

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Today we would like to honor 2 forest geneticists, who after the Second World War laid the foundation for forest tree breeding in East Germany. In addition, they have made valuable contributions in different areas of forestry.

HANS SCHÖNBACH worked near Dresden, at Tharandt — the old forestry university town —, and also at Graupa. OTTO SCHRÖCK worked at Waldsiedersdorf, near Eberswalde, the other centre for forestry teaching and research. HANS SCHÖNBACH and OTTO SCHRÖCK had early in their life turned to breeding activities, and with their knowledge, ability and energy faced up to pressing post-war issues.

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HANS SCHÖNBACH

The grave economic problems of that time provided an incentive for forest tree breeding activities. The situation deemed it necessary to increase the yield of the forests, select tree species with high wood quality which are resistant to biotic damaging agents and abiotic stress factors, and select tree species that acquire all these traits in a short time. Both scientists recognized the goals and approached the problems with different fields of fundamental research. HANS SCHÖNBACH and OTTO SCHRÖCK understood the possibilities and utilization of forest tree breeding in forestry. Thanks to their initiatives, that scientists working in other disciplines devoted to forest tree breeding also took their ideas and included them in their investigations. Their work was soon appreciated. In the Forest Science Section of the German Academy of Agricultural Sciences in Berlin they represented the field of Forest Tree Breeding. They were fortunate enough to have their research work supported by the first President of this Academy, the geneticist HANS STUBBE.

Both scientists had something in common, they had no partypolitical affiliation.

So it is not surprising that with increasing politicization in East Germany, the former GDR, their influence on the scientific activities declined; their working conditions were deliberately made more difficult, and the basis of their work was significantly modified. They met with a hard fate which over a long period of time was known only to a few persons.

The structure, orientation, modern vision and reputation of the former Institute of Forest Tree Breeding in Graupa near Dresden were decisively linked to HANS SCHÖNBACH's personality. This widely known institution,

which from the very beginning developed under his decisive influence, was for a greater part dissolved inspite of all his attempts to avert this. The responsible leaders of this Institute were not members of the Socialist Party.

A few years after the erection of the Berlin Wall, OTTO SCHRÖCK was reproached for not meeting the qualifications expected from the Director of the Waldsieversdorf Branch Station of Forest Tree Breeding in technical and social, that is, political, respect, and consequently was relieved of his post.

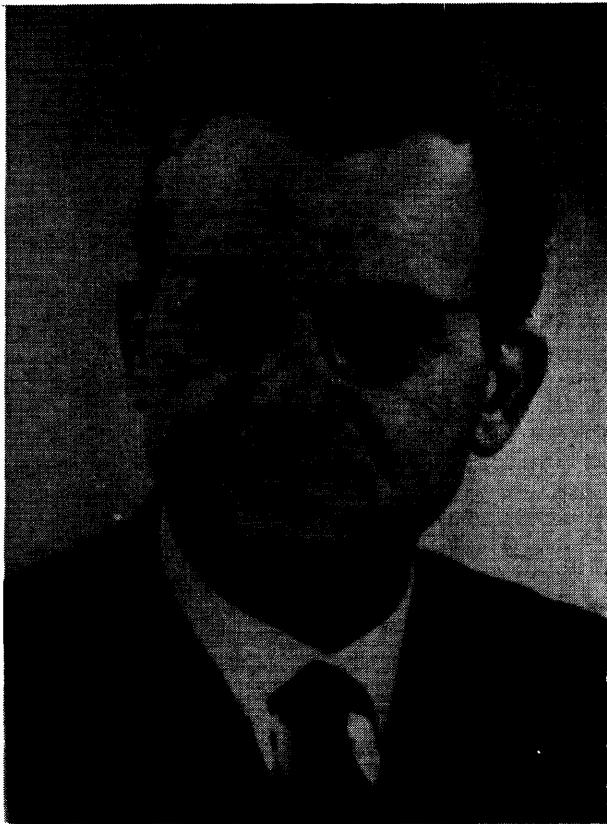
As a witness of these events and this injustice, I gladly accepted to report on the work and performances of HANS SCHÖNBACH and OTTO SCHRÖCK.

HANS SCHÖNBACH was born on 24 September, 1911 in Tharandt and died there on 17 September, 1984. He studied forestry science in his home-town. In his dissertation on "Vergleichende Untersuchungen über die technischen Eigenschaften des Lärchenholzes bodenständiger und nichtbodenständiger Herkünfte"<sup>1)</sup> he dealt already in 1938 with the problem of provenance research. Research on tree races in connection with wood analysis were to occupy him all along his scientific career.

The wide scope of HANS SCHÖNBACH's activities must be emphasized. Having worked actively and reliably almost a decade in the field of forest tree breeding, he was offered the Chair of Silviculture in Tharandt in 1955. After having weighed the pros and cons carefully, he decided finally to remain active in the field of forest tree breeding. Besides his research activities he served almost for 25 years as a University Professor for Forest Genetics and Forest Tree Breeding in Tharandt. It is owing to him that the young generation of foresters could start their professional life well informed and motivated.

The indiscriminate use of seed and extensive clear-cutting during and after the Second World War led to the disappearance of native populations of Scots pine (the main tree species) and Norway spruce, except for a few patches. That is why HANS SCHÖNBACH's first activities gave priority to tree-breeding relevant to conservation of native species. The selection of genetically valuable stands and trees focussed on Norway spruce, Douglas fir, larch and aspen. Certified breeding material was collected from seed orchards, clonal test plantations and crossing fields. The prerequisites for a methodological breeding program were laid down. Volume production, timber quality and guaranteed yield were the top objectives. HANS SCHÖNBACH's good knowledge of the Scandinavian languages was very useful for his scientific work. He established close professional and private contacts to well-known forest geneticists and silviculturists in those countries. HANS SCHÖNBACH advocated that the results of research should be discernible and testable. He considered medium and longterm comparative plantation trials as indispensable in forest tree breeding. Within the framework of his comprehensive research on the hereditary transmission of frost-hardiness in Douglas fir, he stressed the importance of combined early and long-term assessments. HANS SCHÖNBACH demonstrated that early and winter frost-resistance is a decisive factor for a successful Douglas fir plantation and that the growth superiority of Douglas fir hybrids is due to their winter frost-hardiness and hybridization effects. The difference between early and winter frost-

<sup>1)</sup> "Comparative studies on technical properties of larch timber from native and non-native provenances".



OTTO SCHRÖCK

hardiness had already been demonstrated in seed and transplant beds.

Most of the research carried out at Graupe Institute of Forest Tree Breeding was possible only through the promotion of fundamentals of tree physiology. The results of research on frost-hardiness, susceptibility to drought and SO<sub>2</sub>, selection of forms with high mass production, and stimulation of flowering are the best examples.

Since no technical improvements from SO<sub>2</sub> emitters were to be expected that would have reduced air pollution in the forests, breeding programs producing tree species with a higher resistance to SO<sub>2</sub> had been already started some 30 years ago. Research on heterosis breeding in larch gave interesting results. Larch hybrids have proved to be particularly resistant to air pollution in the Ore Mountains (Erzgebirge).

HANS SCHÖNBACH's name is closely associated with the level reached to-date in the field of aspen breeding. Aspen was his model system in forest genetics. Thanks to his breeding programs in this tree species, which had been systematically removed out of the German forests over a long period of time, could become an interesting forest tree species again. It was his far-sightedness to have checked the combining ability of aspen plus trees and other properties, after a comprehensive inventory in the forests of former GDR, that the best partners could be selected for hybridization. With the best *Populus tremula* females from Saxony and the north American *P. tremuloides* males selected by HEIMBURGER, a great number of hybrid aspens were produced in the Graupa Institute and in Schmalenbeck near Hamburg. They are top rank-

ing trees on all experimental plots, almost without exception, and are vigorous.

HANS SCHÖNBACH's research on interspecific hybridization in aspen and larch was very interesting. In certain cases, vigorous hybrids were bred, characterized not only by a higher growth production but also for increased vitality and adaptability. HANS SCHÖNBACH suggested in 1967 that the future of larch propagation depends on hybrids. Because of the disease (*Valsa-nivea*) issue he was unable to make the same predictions for aspen hybrids. This became evident only after his death, after having assessed the plots he had established more than 30 years ago.

It must be emphasized as something exceptional, that two university professors for forest tree breeding from western and eastern Germany, ERNST ROHMEDER and HANS SCHÖNBACH, wrote together a book on "Genetik und Züchtung der Waldbäume"<sup>2)</sup>. The authors gained international recognition and acceptance through the translation of their book into other languages. Both authors and experts in this field never had the opportunity to work out and update a new edition on the comprehensive results of forest genetics and forest tree breeding which were obtained in many countries and related branches of science.

OTTO SCHRÖCK was born on 16 November 1909 and died at the age of 79 in 1989. He studied natural sciences and worked from 1942 to 1945 under the well-known breeder ERWIN BAUR at the Institute of Breeding Research in Münchenberg, in the field of rye and maize breeding.

OTTO SCHRÖCK worked mostly with the commercially important trees of Brandenburg, namely Scots pine, with extensively planted robinia and birch, and later with the fast-growing genus *Populus*.

Various problems arose during his extensive selection and determination of plus trees in the central and northern parts of the country, which were to occupy him intensively for a long time. These included early detection of regularities useful for the assessment of growth, performance, form of forest trees, the possibility of checking performance and the establishment of seed orchards. In order to obtain and preserve valuable genetic material and to supply forest managers continuously with seed, the establishment of seed orchards became a priority objective. In order to find a solution to this problem, he used the contacts he had in this field with experienced Scandinavian scientists, who soon became good friends. Seed orchards were established, and the fundamentals for their management were worked out. For a fairly long time about 20% of the seed needed for propagation of Scots pine was harvested from these seed orchards. During many years, early tests methods were the focus of interest of OTTO SCHRÖCK's research activities. OTTO SCHRÖCK used different testing methods for understanding the diversity of the problem and to guarantee the value of his investigation methods, showing also their limits.

It was quite natural for a scientist, like OTTO SCHRÖCK, to deal with fundamentals. He started experimental studies aimed at working out phototropic seedling tests and following the individual course of development of forest trees. The seedling test for Scots pine worked out in close cooperation with his colleague KLAUS STERN was based on the "relationship between the growth pattern of an individual and its different single parts", which has already

<sup>2)</sup> "Genetics and Breeding of Forest Trees".

been explained by BÜSGEN. The ideas generated by research on seedlings were later applied to trees.

The dynamic analysis of the growth pattern took into consideration the relationship between weather and growth, as well as the time of transplantation and influence of physiological age on growth. OTTO SCHRÖCK was aware of the limits of these early tests and made the following suggestions:

- With this method a pre-selection can be carried out, hereditary growth properties can be recognized at an early stage, and majority of low-scoring progenies and provenances can be excluded.
- A systematic breeding program is possible within a reasonable time, also for long-lived objects, and the wide area needed for performance tests could be reduced.

Research on the genus *Populus* focussed on two fields:

1.) fundamentals of performance testing, for which he set up a reliable "Registration of cultivars" and 2.) the indigenous grey poplar (*Populus canescens* Sm.) still growing on very small areas.

Clonal selection in natural forests and feasible propagation methods were worked out successfully for this pop-

lar, which is difficult to propagate. By means of bark and rind patterns he demonstrated the possibility to recognize valuable wood structures for timber processing. This enlarged further the scope and importance of grey poplar in forestry.

Since OTTO SCHRÖCK could take over WOLFGANG WETTSTEIN's poplar collections established already before the Second World War, the hybrids of STOUT and SCHREINER, so called *P. androskoggin* and *P. rochester* could be used soon for clonal comparison. His happiest and most successful research activities took place at the beginning of the 1950's at the time of a close professional and amicable cooperation with his colleague KLAUS STERN, until STERN left Waldsieversdorf to work with WOLFGANG LANGNER in Schmalenbeck.

At a time when a scientist active over a decade can start compiling his lifework and draw conclusions from his research, OTTO SCHRÖCK was relieved of his duties. This injustice caused him a great deal of depression.

In summary, I would like to mention that OTTO SCHRÖCK and HANS SCHÖNBACH enriched forest genetics and forest tree breeding through their research and thinking. Their work within the framework of the world-open IUFRO family would be of mutual benefit to all.

## Studies on Genetic Variation in Scots Pine (*Pinus sylvestris* L.) coordinated by IUFRO

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### Summary

Information is given about the organization of the Scots pine IUFRO provenance trials of 1907, 1938, 1939 and 1982. In spite of differences in opinions, wars and financial problems, international cooperation proved possible in the establishment stage of these trials. Sustaining interest was more difficult. IUFRO agencies were generally unsuccessful in achieving regular joint evaluations of results. Need for them constantly reappears in IUFRO resolutions but they prove unattainable. It is demonstrated on a few examples how mutually enriching such joint evaluations are. It is recommended that an internationally sponsored team should periodically visit, measure and report on the trials for the benefit of all.

Twice on the initiative of IUFRO monographs were produced on the genetics of Scots pine.

*Key words:* *Pinus sylvestris*, provenance, genetics, history

### Historical Survey

#### *The IUFRO trial of 1907*

The importance of seed origin in silviculture was discussed as early as the first IUFRO Congress in Vienna in 1893 (SPEER, 1972). At the 5th IUFRO Congress in Stuttgart in 1906, ADAM SCHWAPPACH, the famous author of volume tables for Central Europe, proposed that an inter-

national experiment be established to test the influence of origin of pine seed on the growth of stands (WIEDEMANN, 1930). As usually happens with IUFRO initiatives, the author of an approved idea is asked to implement it, thus SCHWAPPACH was asked to coordinate the proposed trial, which he did from his station in Eberswalde.

Following this initiative, 13 seed lots (Table 1) were obtained and distributed among cooperating institutions. Not all participants received all the seed sources, but most had the first 8 in Table 1. Usually some local material was also included. Initially, experimental areas included 5 in Germany (1 in Prussia in Chorin close to Eberswalde, 1 in Saxony in Tharandt, 2 in Hessen and 1 in Bavaria), 2 in Austria, 2 in Hungary (actually in Slovakia, which was then part of Hungary), 1 in Russia (near St. Petersburg), 2 in Sweden and 6 in Belgium. A year later 2 areas were established in the Netherlands (WIEDEMANN, 1930).

Some of these trials were lost or forgotten. For example, the Raunheim (Hessen) experiment was destroyed by fire in 1921 and thus only the small demonstration plot at Gießen remained from the Hessen effort (ECKSTEIN, 1973). The Russian plot, now within the city limits of St. Petersburg, still exists. We saw it in 1985; however, its documentation was lost, no data are known to have been