

A Review of the First Five Year's Work of the Home-Grown Timber Research Committee

The Forest Products Research Laboratory/Forestry Commission.

SINCE the Forest Products Research Laboratory was founded nearly 40 years ago to study the science and technology of timber, its programme of research has always included the study of home-grown timbers. The importance of close co-operation between those who study timber and those who grow and market it has always been recognised. The Forestry Commission, with its own planting programme and with responsibilities towards the private woodland owner also, has had a special interest in the work of the Laboratory and liaison between the two has always existed officially and through informal personal contact between individual research workers.

In 1958 a re-orientation of the Laboratory's programme enabled a larger proportion of its research effort to be devoted to home-grown timbers and it was decided in view of this to form a Committee with special responsibility for co-ordination of work in this field. The Committee was instructed to keep under review all the joint work of the Laboratory and the Commission, to consider proposals for new research projects, to arrange for the requisite liaison, and to make recommendations to the Directors of the Forest Products Research Laboratory and the Research Branch of the Forestry Commission. The Committee, having members who are directly concerned with utilisation or research in forestry or timber technology, has proved a useful forum where investigations can be planned, results can be discussed, and the relative importance and urgency of various alternative research projects can be assessed.

The aim of the investigations has been to provide the technical data which are needed in the formulation of forestry policy and in the utilisation of the timber which is produced. A major aim of forestry policy is to secure the best return from any given site, and whilst the

forester's choice of tree to be planted is limited by what will grow well under local conditions, it is obviously important also to have adequate information on the relative merits of timber of various species and the effects of silvicultural treatment on timber quality. Optimum utilisation also calls for technical information about timber quality and yield and may require in addition data on conversion and processing. With the Forestry Commission's increasing output of timber, this aspect of the Laboratory's work is becoming more important.

In its first five years the Committee has had twenty meetings and has considered more than one hundred papers. The research under review falls into three main categories. The first of these comprises investigations into the basic properties and utilisation of specific timbers. These include anatomical, chemical and physical properties, seasoning properties, strength, working properties, resistance to fungus and insect attack, and reaction to preservative treatment. Conversion and grading studies have also been carried out and the inter-relations of provenance, growth conditions, silvicultural treatment and technical properties have been investigated.

The first species investigated was Sitka spruce, the most widely planted exotic forest tree in Britain. Representative material from a wide range of sites was examined and the results were published in Forest Products Research Bulletin No. 48 "Properties of 30-37 year old Sitka Spruce Timber". Other species which have been the subject of investigation on a large scale since the Committee was formed are lodgepole pine, European larch, and Japanese larch (with limited tests on hybrid larch) and work has started on Norway spruce. Material for these general investigations has been obtained by sampling sites in different parts of the country, chosen so as to take into account the principal factors believed to influence the properties of the timber. Investigations on a smaller scale, aimed at assessing suitability for planting in this country, have been carried out on certain species of minor importance such as Turkey oak, red oak, *Pinus holfordiana*, *Abies grandis*, and *Metasequoia*. An investigation of *Pinus strobus* is under way.

In the second category are special investigations of the particular characteristics of a species, for example the relation between the characters of bark and wood in birch, the peeling properties of poplar, the gluing characteristics of Scots pine, the conversion and seasoning properties of Forest of Dean oak, and the pulping characteristics of home-grown softwoods.

Projects in the third category are concerned with home-grown timbers in general. These have covered a wide range of subjects. The pattern of variation in wood structure within the tree has been and is still being studied, not only to extend our knowledge of wood anatomy but also to minimise the number of samples needed to assess the properties of a given species. The moisture content and specific gravity of freshly felled conifers have been measured on a wide statistical basis primarily to provide data of use in marketing. Methods have been

developed for evaluating timber quality in standing trees; these are of special interest where the tree is required for breeding purposes. Other projects have been concerned with the strength of home-grown pit-props, sawmilling problems, seasoning and preservation techniques, the control of fungi and insects attacking timber, and the use of home-grown timber in structures. A study of the effect of thinning treatment and pruning on timber quality is in hand, and tests of the suitability of home-grown softwoods and hardwoods for plywood manufacture are about to begin.

It will be seen that some of the investigations are of an exploratory nature, preliminary to the planning of productive research, some are yielding results which influence the planting programme, where the economic benefits will be felt many years ahead, and some are yielding results of immediate value in pointing the way to improvements in forestry practice or timber utilisation. The underlying purpose of the whole research programme is to improve the quality of home-grown timber by selection, breeding and silvicultural treatment, and to make timber production more profitable by helping to develop better methods of conversion and processing. The progress of the work has been recorded in the Laboratory's Annual Reports, and the results of completed investigations may be found in official publications issued by H.M. Stationery Office and in forestry and timber journals. A selection of relevant titles is appended.

List of Publications by the Forest Products Research Laboratory :

- Forest Products Research (1961).
- Forest Products Research (1962).
- Handbook of Hardwoods (1956).
- Handbook of Softwoods (1960).
- F.P.R. Bulletin No. 48. Properties of 30-37 Year Old Sitka spruce Timber (1962).
- F.P.R. Special Report No. 16. Variation in Tracheid Length in *Picea sitchensis* Carr. (1963).
- F.P.R. Special Report No. 17. Sawmill Study: Work Cycles Times on a Rackbench (1963).
- F.P.R. Special Report No. 18. Bark Form and Wood Figure in Home-grown Birch (1963).
- F.P.R. Record No. 31. Non-pressure Methods of Applying Wood Preservatives (1961).
- F.P.R. Home-Grown Timbers Series: Douglas fir (1963).
- F.P.R. Leaflet No. 37. Selecting Ash by Inspection (*Revised* 1962).
- F.P.R. Leaflet No. 43. Prevention of *Lyctus* Attack in Sawn Hardwoods by Use of "Contact" Insecticides (*Revised* 1960).
- F.P.R. Leaflet No. 49. Grading of Sawn British Softwoods (1955).
- F.P.R. Leaflet No. 52. Grading of Sawn British Hardwoods (1958).

F.P.R. Leaflet No. 53. The Preservative Treatment of Timber by Brushing, Spraying and Immersion (1962).

F.P.R. Leaflet No. 54. *Ernobius mollis*. A Bark Borer of Softwoods (1963).

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ANON., 1964. Tests on the Timber of Home-grown Red Oak. *Quart. J. For.*, **58** (1), 55-61.

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Protection of Timber from Fungus and Insect Attack.

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SMITH, D. N. and COCKCROFT, R., 1959. The Loss and Movement of Creosote in Pressure-treated Timber During Service. Examination of Two Creosoted Posts After 30 Years. *Wood*, **24** (6), 232-236.

SMITH, D. N. and COCKCROFT, R., 1961. The Preservative Treatment of Home-grown Timbers by Diffusion. *Wood*, **26** (12), 490-492.

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