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**List of Publications on
THE GROWTH, STRUCTURE, AND
IDENTIFICATION OF WOOD**

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**UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
FOREST PRODUCTS LABORATORY
Madison 5, Wisconsin
In Cooperation with the University of Wisconsin**

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This list, which begins on page 3, includes publications that give general information and the results of research by the U. S. Forest Service on the structure and the identification of wood; the effect of the cellular structure of wood on its strength, shrinkage, permeability, and other properties, the influence of environmental factors, such as light, soil, moisture, and fire, on the quality of wood produced; and secretions of economic value produced by trees and their exploitation.

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GENERAL AND MISCELLANEOUS

Title	Author	Publication and date
*The Forest Products Laboratory.	Champion, F. J.	Rept. D1698, 1947.
*A hundred definitions pertaining to wood and other forest products.		Tech. Note 240.
Products of American forests.	Hall, J. A., and Mosley, T. J.	USDA Unno. Pub. 1939 (slightly revised (1946)). 20¢.
*Technique used in tracing the Lindbergh kidnaping ladder.	Koehler, Arthur	Jour. of Criminal Law & Criminology, 1937. Rept. R1420.
Wood handbook: Basic information on wood as a material of construction with data for its use in design and specifications.		USDA Unno. Pub. 1935 (slightly revised 1940). 75¢.
Effect of heating wet wood on subsequent dimensions.	Koehler, Arthur	Amer. Wood-Preservers' Assn. Proc., 1933.
*Some common fallacies about wood.		Rept. 1167, 1950.
*Faith in research.	Koehler, Arthur	Furniture Mfr., Nov. 1933; Mech. Engin., Nov. 1932.
*The sap or moisture in wood.	Peck, E. C.	Rept. 768, 1953.
Staining living trees on the stump.	Brown, W. R.	Jour. Forestry, Nov. 1928.
*Structure of wood.		Rept. 1903-4, Aug. 1951.
*Southern cypress terminology.	Gerry, Eloise	Rept. SR-20, 1951.
*Characteristics of some important commercial woods.		Rept. 1903-5, Sept. 1951.

THE STRUCTURE AND IDENTIFICATION OF WOOD

(For additional references on wood structure, see also other headings)

General -- not pertaining to individual species or genera

Title	Author	Publication and date
*What is meant by "hardwoods" and "softwoods?"		:Tech. Note 187.
*Differences between heartwood and sapwood.		:Tech. Note 189.
*The structure of a softwood.		:Tech. Note 209.
*The structure of a hardwood.		:Tech. Note 210.
*Arrangement of the cellulose crystallites in ray cells of white oak as determined by X-rays.	Gross, S. T., Clark, G. L., & Ritter, G. J.	:Paper Trade Jour., Dec. 7, 1939.
*Crystal arrangement and swelling properties of fibers and ray cells in basswood holocellulose.	Ritter, G. J., & Mitchell, R. L.	:Paper Trade Jour., Feb. 9, 1939.
Microstructure of a wood pulp fiber.	Ritter, G. J., & Chidester, G. H.	:Paper Trade Jour., Oct. 25, 1928.
Identification of furniture woods.	Koehler, Arthur	:USDA Misc. Circ. 66, 1926. 25¢.
Chemistry of wood:)	:
*IX - Springwood and summerwood.)	:Indus. & Eng. Chem. 18:608-9 1926. Rept. 950.
*VIII - Further studies of sapwood and heartwood.) Ritter, G. J., & Fleck, L. C.	:Indus. & Eng. Chem. 15:1055, 1923. Rept. 917.
*VI - The results of analysis of heartwood and sapwood of some American woods.)	:Indus. & Eng. Chem. 15:1055, 1923. Rept. 916.
*V - Results of analysis of some American woods.)	:Indus. & Eng. Chem., Nov. 1922. Rept. 849.
Guidebook for the identification of woods used for ties and timbers.	Koehler, Arthur	:USDA Forest Service Unno. Pub. 1917. 30¢.
Tyloses: Their occurrence and practical significance in some American woods.	Gerry, Eloise	:Jour. Agr. Research, Mar. 25, 1914.

THE STRUCTURE AND IDENTIFICATION OF WOOD (continued)

By Species

American Woods

Species :	Title	Author	Publication and date
Ash	*How to distinguish black ash from commercial white ash lumber.		Tech. Note D-11
Basswood:	*Utilization of basswood (1 page, 1 plate on structure).	Brush, W. D.	USDA Bull. 1007, 1922
Beech, birch (see maple)			
	Some physical and mechanical properties of American beech. (Copies available from the Northeastern Forest Experiment Station, 102 Motors Ave., Upper Darby, Pa.)	Paul, B. H. & Drow, J. T.	Northeast Tech. Com. on the Utilization of Beech Series No. 1, 17 pp., 1951.
Douglas-fir	*The identification of Douglas-fir wood.		Tech. Note 198
Elm	Utilization of elm (1 page, 3 plates on structure).	Brush, W. D.	USDA Bull. 683, 1918. Out of print.
Hemlock	*"Black streak" in western hemlock: its characteristics and influence on strength.	Luxford, R. F., Wood, L. W., & Gerry, Eloise	Rept. 1500, Dec. 1943.
	*Western hemlock "flocoids" (white spots or streaks).	Gerry, Eloise	Rept. 1392, Mar. 1943.
	*Properties of western hemlock and their relation to uses of the wood (2 plates on structure).	Johnson, R.P.A., & Gibbons, W. H.	USDA Tech. Bull. 139, 1929.
Larch	*Properties of western larch and their relation to uses of the wood (2 plates on structure).	Johnson, R.P.A., & Bradner, M. I.	USDA Tech. Bull. 285, 1932.

THE STRUCTURE AND IDENTIFICATION OF WOOD (continued)

By Species

American Woods

Species :	Title	Author	Publication and date
Mahogany:	*How to distinguish mahogany and walnut from sweetgum.		Tech. Note 103
	*Distinguishing characteristics of mahogany and woods commonly called mahogany.		Tech. Note 162
Maple	*How to tell birch, beech, and maple apart.		Tech. Note 116.
	*Bird's eye in maple are not due to dormant buds.	Pillow, M. Y.	Hardwood Record, Sept. 1930.
	*Same. Dormant buds are not the cause of bird's-eyes in maple.		Wood Working Indus., Sept. 1929.
Oak	*Identification of oak woods.		Tech. Note 125.
Pine	*A visual method of distinguishing longleaf from shortleaf and loblolly pines.		Tech. Note 141.
	*The white pine group.		Tech. Note 215.
	*The identification of longleaf pine timbers.	Koehler, Arthur	South. Lbrman., Dec. 15, 1932.
Spruce	*Radial streak (red) and giant resin ducts in spruce.	Gerry, Eloise	Rept. 1391, Aug. 1942.
Walnut	*Black walnut for gunstocks.	Paul, B. H.	South. Lbrman., Apr. 15, 1943.

THE STRUCTURE AND IDENTIFICATION OF WOOD (continued)

By Species (continued)

*AMERICAN WOODS Series: Common and scientific names, distribution and growth, production, products, properties, uses and references for species and species groups following:

Alder, red	Larch, western
Ash	Locust, black
Aspen	Magnolia
Baldcypress	Maple
Basswood, American	Oaks
Beech, American	Osage-orange
Birch	Pecan
Buckeye	Persimmon
Butternut	Pine, jack
Cedar, California incense-	lodgepole
eastern red	ponderosa
western red	red
Atlantic white-	southern
northern white-	sugar
Port Orford white-	eastern white
Alaska yellow	western white
Cherry, black	Poplar, balsam
Chestnut	yellow-
Cottonwood	Redwood
Dogwood, flowering	Spruce, eastern
Elm	Engelmann
Fir, balsam	Sitka
Douglas-	Sweetgum
noble	Sycamore, American
white	Tamarack
Hackberry	Tupelo
Hemlock, eastern	Walnut, black
western	Willow, black
Hickory	
Holly, American	

THE STRUCTURE AND IDENTIFICATION OF WOOD (continued)

By Species (continued)

Foreign Woods

Title	Author	Publication and date
*Foreign woods frequently imported into the United States.		:Rept. 1940, 1953.
*Puerto Rican woods and their utilization (a bibliography).	:Gerry, Eloise : & Flick, : Frances J.	:Rept. 1793, 1951. : :
*Some characteristics of Brazilian parana pine affecting its use for millwork.	:Pillow, M. Y.	:For. Prod. Res. Soc. Proc., : V. 5, pp. 297-302, 1951.
*Foreign woods imported into the United States (including a list of importers and dealers).	:Gerry, Eloise	:Rept. 887, rev. 1951.
*Some reference books on domestic and foreign woods.	:Gerry, Eloise	:Rept. 1479, 1950.
*Exploratory tests on machining and related properties of fifteen tropical American hardwoods.	:Davis, E. M.	:Rept. 1744, 1949.
*Average strength and related properties of 5 foreign woods tested at the Forest Products Laboratory.	:Heck, G. E.	:Rept. 1139, 1937.

FOREIGN WOODS Series:

- *Agba, Gossweilerodendron balsamiferum (Verm.) Harms. Rept. SR-14, 1949.
- *Albarco, Bacu, Cariniana pyriformis, by Eloise Gerry. FPL Rept. 1921, 1952.
- *Amburana, Cerejeira, Cumaru de Cheiro, Roble Del Norte, Amburana spp., by Eloise Gerry. FPL Rept. No. 1915, 1951.
- *Andiroba (crabwood), Carapa guianensis Aubl. Rept. SR-5, 1947.

THE STRUCTURE AND IDENTIFICATION OF WOOD (continued)

By Species (continued)

FOREIGN WOODS Series (continued)

- *Angelique or basra locus, Dicorynia paraensis Bth., by Eloise Gerry.
Rept. 1787, 1950.
- *Apitong, Bagac, Eng, Gurjun, Keruing, Yang, Dipterocarpus spp., by Eloise Gerry. FPL Rept. No. 1920, 1952.
- *Avodire, Turraeanthus africana, by C. M. Miller. FPL Rept. 1905, 1951.
- *Azobe, bongossi, Ekki, Lophira alata, by Eloise Gerry. FPL Rept. No. 1913, 1951.
- *Balsa, Ochroma lagopus Sw., by W. D. Brush. Unnumbered leaflet, 1945.
- *Banak, Virola sp. Rept. SR-11, 1948.
- *Brazilian araucaria ("Parana pine"), Araucaria angustifolia (Bert.) O. Kuntze, by W. D. Brush. Unnumbered leaflet, 1945.
- *Cativo, Prioria copaifera Gris. Rept. SR-15, 1949.
- *Courbaril, Hymenaea spp., by Jeannette M. Kryn. FPL Rept. No. 1942, 1953.
- *Crabwood, Andiroba, Carapa guianensis Aubl. Rept. SR-5, 1947.
- *Espave, Anacardium excelsum, by Eloise Gerry and Jeannette M. Kryn. FPL Rept. No. 1932, 1952.
- *Goncalo Alves, Astronium spp., by Jeannette M. Kryn. FPL Rept. No. 1934, 1952.
- *Greenheart, Ocotea rodioei (Schomb.) Mez-Nectandra rodioei Schomb., by W. D. Brush. Unnumbered leaflet, 1944.
- *Hura wood or possumwood, "rakuda," by Eloise Gerry. FPL Rept. No. 1902, 1951.
- *Imbuia, Embuia, or "Brazilian Walnut," Phoebe porosa, FPL Rept. No. 1924, 1952.
- *Iroko, Chlorophora excelsa B.&H.f., by W. D. Brush. Unnumbered leaflet, 1943.

THE STRUCTURE AND IDENTIFICATION OF WOOD (continued)

By Species (continued)

FOREIGN WOODS Series: (continued)

- *Khaya, Khaya spp., by W. D. Brush. Unnumbered leaflet, 1940.
- *Koa, Acacia koa A. Gray. Rept. SR-13, 1949.
- *The Lauans, by W. D. Brush. Unnumbered leaflet, 1939.
- *Lignumvitae, Guajacum spp., by W. D. Brush. Unnumbered leaflet, 1938.
- *Limba (Afara, Frake, Korina), Terminalia superba Engl. et Diels, by Eloise Gerry. FPL Rept. No. 1778, 1950.
- *Ohia lehua, Metrosideros collina (Forster) Gray. Rept. SR-16, 1949.
- *Mahogany, Swietenia spp., by W. D. Brush. Unnumbered leaflet, 1941.
- *Mancono, Xanthostemon verdugonianus, by Eloise Gerry. FPL Rept. No. 1936, 1952.
- *Okoume, Aucoumea klaineana, by W. D. Brush. Unnumbered leaflet, 1944.
- *Peroba do campo, Paratecoma peroba (Records) Kuhlman. Rept. SR-8, 1947.
- *Pochote, Bombacopsis quinatum (Jacq.) Durand. Rept. SR-10, 1948.
- *Primavera, Cybistax donnell-smithii (Rose) Seibert. Rept. SR-9, 1948.
- *Quaruba, yemeri, Vochysia spp., by Jeannette M. Kryn. FPL Rept. No. 1946, 1953.
- *Santa Maria, Calophyllum spp. Rept. SR-4, 1947.
- *Teak, Tectona grandis L.f., by W. D. Brush. Unnumbered leaflet, 1945.

Fiber Lengths

*American woods for paper making. Tech. Note 212.

Length of fibers in certain Yucatan hardwoods, by M. Y. Pillow.
Tappi 35(5):238-40, May 1952.

THE RELATION OF WOOD STRUCTURE TO ITS PROPERTIES AND USES

Title	Author	Publication and date
*Patterns of variation in fibril angles in loblolly pine.	Pillow, M. Y., Terrell, B. Z., & Hiller, C.H.	Rept. 1935, 1953.
*Effects of tension wood in hardwood lumber and veneer.	Pillow, M. Y.	South. Lbrman., Aug. 1, 1952. Rept. 1943.
*Some characteristics of young plantation-grown red pine in relation to properties of the wood.	Pillow, M. Y.	For. Prod. Res. Soc. Jour. 2(1):25-31, Apr. 1952.
*Distribution of tension wood and its relation to longitudinal shrinkage in aspen.	Terrell, B. Z.	Rept. 1917, 1952.
*Selecting white oak trees for bending lumber.	Pillow, M. Y.	For. Prod. Res. Soc. Proc. V. 5, pp. 87-92, 1951.
*Some comparative characteristics of second-growth and old-growth redwood.	Paul, B. H.	For. Prod. Res. Soc. Proc., 1951.
What is compression wood and tension wood; and what is their practical significance?	Pillow, M. Y.	South. Lbrman. 182 (2277):52, Feb. 15, 1951.
*Guides for selecting tough ash.	Pillow, M. Y.	South. Lbrman., Aug. 1, 1950.
*Presence of tension wood in mahogany in relation to longitudinal shrinkage.	Pillow, M. Y.	Rept. 1763, 1950.
*Occurrence of gelatinous fibers and their effect upon properties of hardwood species.	Akins, Virginia & Pillow, M. Y.	Forest Prod. Res. Soc. Proc., 1950.
Variations in longitudinal shrinkage of second-growth Douglas-fir.	Pillow, M. Y.	Jour. Forestry, May 1949.
*More about loosened grain.	Koehler, Arthur	Rept. 1742, rev. 1949.
*Quality control in manufacture of lumber from second growth.	Paul, B. H., & Sweet, C. V.	South. Lbrman., Mar. 1, 1949. Rept. 1781.

THE RELATION OF WOOD STRUCTURE TO ITS PROPERTIES AND USES (continued)

Title	Author	Publication and date
*Studies of compression failures and their detection in ladder rails.	Pillow, M. Y.	:Rept. 1733, 1949.
*The need of quality control in future timber crops.	Paul, B. H.	:Published in Soil, Food & Health, papers delivered at the Conf. on Conserva., Nutrition, & Health, Athens, Ohio. June 1948. Published 1949.
*Longitudinal shrinkage of wood.	Koehler, Arthur	:Rept. 1093, 1946.
*Detection of compression failures in wood.	Anderson, Eric A.	:Rept. 1588, 1944.
*Guide to determining slope of grain in lumber and veneer.	Koehler, Arthur	:Rept. 1585, 1943.
*Compression wood: importance and detection in aircraft veneer and plywood.	Pillow, M. Y.	:Rept. 1586, 1943.
*Chemical analyses of wood.		:Tech. Note 235
*Longitudinal shrinkage of wood.		:Tech. Note 234.
Variation in the specific gravity of the summerwood of 4 species of southern pines.	Paul, B. H.	:Jour. Forestry, June 1939.
*The relation of rate of growth to the production of white wood in hickory trees.	Paul, B. H.	:Lumber Trade Jour., Oct. 1, 1929; Rept. 1605.
Discoloration of swamp black gum pulpwood in storage.	Schafer, E. R., Pew, J. C., & Pillow, M. Y.	:Tech. Assn. Pulp & Paper : Indus. Tech. Papers, : Series 22, 1939.
Structure, occurrence, and properties of compression wood.	Pillow, M. Y.	:USDA Tech. Bull. 546, 1937. : Out of print.

THE RELATION OF WOOD STRUCTURE TO ITS PROPERTIES AND USES (continued)

Title	Author	Publication and date
*Occurrence of compression wood in black spruce and its effect on properties of groundwood pulp.	Pillow, M. Y., Schafer, E.R., & Pew, J. C.	Tech. Assn. Pulp & Paper Indus. Tech. Papers, June 1936; Paper Trade Jour., Apr. 16, 1936;
..Same: Compression wood in mechanical pulp.		Paper Mill & Wood Pulp News, Apr. 11, 1936; Rept. 1288.
*Properties and sulphate pulping characteristics of compression wood.	Pillow, M. Y. & Bray, M. W.	Paper Mill & Wood Pulp News, Dec. 21, 1935; Paper Trade J., Dec. 26, 1935.
*Bowing and twisting of softwood lumber frequently due to compression wood.	Pillow, M. Y.	South. Lbrman., Mar.1, 1931; Jour. Forestry, Dec. 1930; Wood Constr., Nov.1, 1930; Wood Work.Indus., Nov. 1930; Timberman, Nov. 1930.
*Cause and prevention of raised grain.	Koehler, Arthur	Timberman, Feb. 1930; South.Lbrman., Dec.15,1929;
..Same: Raised grain: its cause and prevention.		Lbr. Trade Jour., Dec. 15, 1929.
Effect of high temperature on the mode of fracture and other properties of a hardwood.	Pillow, M. Y.	Wood Work.Indus., Oct. 1929; Hardwood Rec., June 1930; South.Lbrman., Oct.15,1929.
*The effect of spiral grain on the strength of wood.	Wilson, T.R.C.	Jour. Forestry, Nov. 1921.

THE RELATION OF GROWTH CONDITIONS TO WOOD QUALITY

Title	Author	Publication and date
*Variability in wood of southern pines as influenced by silvicultural practices.	Paul, B. H.	Rept. No. 1923, 1952.
*Healing time for pruned Douglas-fir,	Anderson, E. A.	Timberman 52(12):74-80, Oct. 1951; Rept. No. 1907.
*Influence of crown reduction on spring and summerwood distribution in longleaf pine.	Marts, R. O.	Jour. Forestry 49(3):183-89, Mar. 1951.
*Quality of second-growth Douglas-fir and suggested means of improvement.	Paul, B. H.	Forest Products Research Society Proceedings, 1950.
*Wood quality of bud-pruned longleaf pine.	Marts, R. O.	South. Lbrman., Dec. 15, 1950.
*Summary on growth in relation to quality of southern yellow pine.	Paul, B. H. & Smith, D. M.	Rept. 1751, 1950.
Wood quality in relation to site quality of second-growth Douglas-fir.	Paul, B. H.	Jour. Forestry, Mar. 1950.
*Effect of crown reduction on taper and density in longleaf pine.	Marts, R. O.	South. Lbrman., Dec. 15, 1949.
Growth-quality study of ponderosa pine.	Paul, B. H., & Meagher, Geo.	West Coast Lbrman., June 1949.
Some results of artificial pruning of ponderosa pine.	Olsen, D. S., & Paul, B. H.	West Coast Lbrman., May 1948.
Certified logs from pruned trees.	Paul, B. H.	Tree Tips, July 1947.
*Knots in second-growth Douglas-fir.	Paul, B. H.	Rept. 1690, 1947.
*Lumber grades vs. site quality of second-growth Douglas-fir.	Paul, B. H.	West Coast Lbrman., Nov. 1947; Rept. 1688.
*Thinnings from second-growth Douglas-fir for pulp.	Paul, B. H.	Rept. 1689, 1947.
*Better timber from farms.	Paul, B. H.	USDA Yearbook, 1943-47, pp. 455-460.

THE RELATION OF GROWTH CONDITIONS TO WOOD QUALITY (continued)

Title	Author	Publication and date
*Guides for the selection of tough hickory.	: Paul, B. H.	: South. Lbrman., Aug. 15, 1947; Rept. 1683.
*Open-grown sugar maple for textile shuttles.	: Paul, B. H., & Baudendistel, M. E.	: South. Lbrman., Dec. 15, 1945.
Second growth may supply timber of exceptional quality.	: Paul, B. H.	: Transactions of the Wis. Academy of Sciences, Arts & Letters, 1944. pp.269-71.
Yield and quality of jack pine pulpwood produced on different types of sandy soils in Wis.	: Wilde, S. A., Paul, B. H., & Mikola, P.	: Jour. of Forestry, Vol. 49, No. 12, Dec. 1951, pp. 878-881.
Rate of growth and composition of wood of quaking and largetooth aspen in relation to soil fertility.	: Wilde, S. A. & Paul, B. H.	: Transactions of the Wis. Academy of Sciences, Arts and Letters, Vol. XL, part 2, pp. 245-250, Madison, Wis., 1951.
*Southern hard elms as substitutes for rock elm.	: Baudendistel, M. E., & Paul, B. H.	: South. Lbrman., Dec. 15, 1944.
*Effect of time of cutting timber on its durability.	:	: Tech. Note F-15.
*Comparative value of timber cut from live and dead trees.	:	: Tech. Note 101.
*"Virgin growth" and "second growth."	:	: Tech. Note 153.
*Black walnut for gunstocks.	: Paul, B. H.	: South. Lbrman., Apr. 15, 1943.
*Variation in the porosity of 12 species of oak.	: Paul, B. H.	: Barrel&Box&Packages, June '42. South. Lbrman., Mar. 15, 1942. Wooden Barrel, Feb. 1942.
Thinning and quality: sudden acceleration of diameter growth in vertical and leaning long-leaf pine trees in relation to quality of lumber.	: Paul, B. H.	: South. Lbrman., Dec. 15, 1941.

THE RELATION OF GROWTH CONDITIONS TO WOOD QUALITY (continued)

Title	Author	Publication and date
*Quality comparisons of hardwoods from the southern Appalachian Mountains with that of northern origin.	Paul, B. H.	Wood Products, July 1941. South. Lbrman., Aug. 1, 1941.
*Characteristics of ash from southern bottomlands.	Pillow, M. Y.	South. Lbrman., Dec. 15, 1939.
*Second-growth problems.	Koehler, Arthur & Paul, B. H.	Presented before Conf. on State and Federal Forest Products Research Program held at the Forest Products Laboratory, Mar. 18-20, 1946; Rept. 1610-3.
Heredity versus environment in improving wood in forest trees.	Koehler, Arthur	Jour. Forestry, Sept. 1939.
Shrinkage of white oak as affected by position in the tree.	Paul, B. H.	Jour. Forestry, July 1939.
*When to prune southern pine.	Paul, B. H.	South. Lbrman., Dec. 15, 1938.
Knots in second-growth pine and the desirability of pruning.	Paul, B. H.	USDA Misc. Pub. 307, 1938. 10¢.
*Reducing bowing and crooking of lumber cut from second-growth southern yellow pine.	Paul, B. H.	South. Lbrman., Jan. 1, 1938.
Variations in the wood of yellow-poplar from the southern Appalachian Region.	Paul, B. H., & Norton, N. A.	South. Lbrman., Mar. 1937; Jour. Forestry, Oct. 1936; Hardwood Rec., Jan 1937.
A method of studying knot formation.	Koehler, Arthur	Jour. Forestry, Dec. 1936.
*Second-growth southern hardwood lumber.	Paul, B. H.	South. Lbrman., Dec. 15, 1936; Wood Prod., Jan. 1940; Rept. 1120.
*Judging the quality of the wood of sugar maple.	Paul, B. H., & Norton, N. A.	Wood Products, Mar. 1936.

THE RELATION OF GROWTH CONDITIONS TO WOOD QUALITY (continued)

Title	Author	Publication and date
Growth, specific gravity, and shrinkage of 12 Delta hardwoods.	Paul, B. H., & Marts, R. O.	Jour. Forestry, Nov. 1934.
Evaluation of southern pines for pulp production. III, Shortleaf pine (<i>Pinus echinata</i>).	Bray, M. W., & Paul, B. H.	Paper Trade Jour., Aug. 2, 1934.
*A new hypothesis as to the cause of shakes and rift cracks in green timber.	Koehler, Arthur	Jour. Forestry, May 1933; Rept. 1272.
*Light weight ash should be separated in shipping.	Paul, B. H.	Wood Working Indus., Mar. 1930; Rept. 1153.
The application of silviculture in controlling the specific gravity of wood.	Paul, B. H.	USDA Tech. Bull. 168, 1930.
*Shortleaf pine: the lumber-making qualities of second-growth and of virgin-growth timber.	Davis, E. M.	South. Lbrman., Dec. 15, 1929.
*Red hickory as strong as white hickory.		Tech. Note 171.
*The quality of Appalachian hickory.	Paul, B. H.	South. Lbrman., Apr. 6, 1929.

TREE SECRETIONS AND EXUDATES

Naval Stores

Title	Author	Publication and date
*A naval stores handbook -- dealing with the production of pine gum or oleoresin.		:USDA Misc. Pub. 209, 1935.
*Improvement in the production of oleoresin through lower chipping.	:Gerry, Eloise	:USDA Tech. Bull. 262, 1931.
*More turpentine, less scar, better pine.	:Gerry, Eloise	:USDA Leaflet 83, 1931.
*Oleoresin production from longleaf pine defoliated by fire.	:Gerry, Eloise	:Jour. Agr. Research, Nov. 1, 1931.
*New developments on the relation of structure and yield of oleoresin in dual-purpose pines.	:Gerry, Eloise	:Forest Products Laboratory, 1926.
*Oleoresin production: A microscopic study of the effects produced on woody tissues of southern pines by different methods of turpentineing.	:Gerry, Eloise	:USDA Bull. 1064, 1922.

Storax

*Storax from red gum.		:Tech. Note 231.
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TECHNIQUE

Title	Author	Publication and date
*Annotated list of references on the preparation of wood for microscopic study.	Kryn, Jeannette M.	Rept. 1939, 1953.
*Simplified procedure for determining oven-dry specific gravity of flitches and bolts.	Pillow, M. Y.	Rept. 1790, 1951.
Application of fluorescence microscopy and photomicrography to woody tissues.	Marts, R. O.	Stain Technology, Jan. 1950.
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OTHER PUBLICATION LISTS ISSUED BY THE
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The following lists of publications that deal with the other investigative projects of the Forest Products Laboratory are obtainable upon request:

Boxing and Crating -- Strength and serviceability of shipping containers, methods of packing.

Building Construction Subjects -- Partial list of Government publications of interest to architects, engineers, builders, and retail lumbermen.

Chemistry of Wood and Derived Products -- Chemical properties and uses of wood and chemical wood products, such as turpentine, alcohol, and acetic acid.

Furniture Manufacturers, Woodworkers and Teachers of Wood Shop Practice -- Partial list of Government publications on growth, structure, and identification of wood; moisture content, physical properties, air seasoning, and kiln drying; grading, manufacturing, and waste utilization; strength and related properties and joints and fastenings; glues and gluing, veneer and plywood fabrication; box and crate construction.

Fungus Defects in Forest Products (Pathology in cooperation with the Bureau of Plant Industry, Soils, and Agricultural Engineering) -- Heart rots of trees; decay, molds, and stains in timber, in buildings, and in wood products; antiseptic properties of wood preservatives.

Glue and Plywood -- Development of waterproof glues, preparation and application of various glues, plywood manufacturing problems.

Logging, Manufacturing, and Utilization of Timber, Lumber, and Other Wood Products -- Methods and practices in the lumber-producing and wood-consuming industries; standard lumber grades, sizes, and nomenclature; production and use of small dimension stock; specifications for small wooden products; uses for little-used species and commercial woods, and low-grade and wood waste surveys.

OTHER PUBLICATION LISTS ISSUED BY THE
FOREST PRODUCTS LABORATORY (continued)

Mechanical Properties of Timber -- Strength of timber and factors affecting strength; design of wooden articles or parts where strength or resistance to external forces is of importance.

Pulp and Paper -- Suitability of various woods for pulp and paper; fundamental principles underlying the pulping and bleaching processes; methods of technical control of these processes; relation of the chemical and physical properties of pulps and the relation of these properties to the paper-making qualities of the pulps; waste in the industry, for example, decay in wood and pulp, utilization of bark, white water losses, etc.

Seasoning of Wood -- Experimental and applied kiln drying, physical properties, air drying, steam bending.

Use of Wood in Aircraft Construction -- Strength, selection, and character of aircraft wood and plywood; fabrication and assembly problems; methods of calculating the strength of wooden parts; structure of wood in relation to its properties and identification.

Wood Finishing Subjects -- Effect of coatings in preventing moisture absorption; painting characteristics of different woods, and weathering of wood.

Wood Preservation -- Preservative materials and methods of application; durability and service records of treated and untreated wood in various forms.