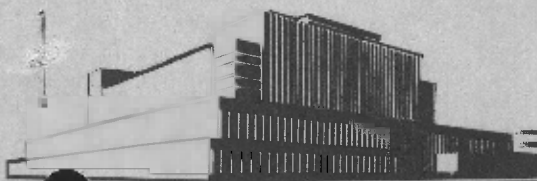


List of Publications on BOX AND CRATE CONSTRUCTION AND PACKAGING DATA

August 1960

No. 791



FOREST PRODUCTS LABORATORY
MADISON 5, WISCONSIN

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

In Cooperation with the University of Wisconsin

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INSTRUCTIONS FOR OBTAINING PUBLICATIONS

Publications available for distribution at this Laboratory are marked with an asterisk (*).

Single technical notes, reprints, and processed reports may be obtained free upon request from the Director, Forest Products Laboratory, Madison 5, Wis.

Federal government bulletins, circulars, leaflets, and specifications, if not available for free distribution at this Laboratory, may be purchased at the price indicated from the Superintendent of Documents, Government Printing Office, Washington 25, D. C. Requests for copies of these publications should stipulate both the title and identifying number. Send money order, draft, or cash; stamps or personal checks are not accepted.

Copies of military specifications required by the activities of the Departments of the Army, the Navy, and the Air Force may be requested by government personnel through established departmental channels. Requests for specifications from other non-military sources should be directed to one of the following custodians:

Chief of Engineers
Department of the Army
Attn: ENGHP
Washington 25, D. C.

Commanding General
Philadelphia Quartermaster Depot
2800 South 20th Street
Philadelphia 45, Pa.

Commander
Wright Air Development Center
Attn: WCXP
Wright-Patterson Air Force Base,
Ohio

Chief, Bureau of Naval Weapons
Technical Data Division
Department of the Navy
Washington 25, D. C.

Chief of Ordnance
Department of the Army
Washington 25, D. C.

Chief, Bureau of Supplies & Accounts
Attn: Code S-33
Department of the Navy
Washington 25, D. C.

Trade journals containing articles herein listed may often be purchased from the publishers or may be consulted in various libraries.

ASTM standards may be obtained from the American Society for Testing Materials, 1916 Race St., Philadelphia 3, Pa. Price: 1-16 pp. \$.25; 17-32 pp. \$.40; over 32 pp. \$.50.

INSTRUCTIONS FOR OBTAINING PUBLICATIONS (Continued)

TAPPI standards may be obtained from the Technical Association of the Pulp and Paper Industry, 155 E. 44th St., New York 17, N. Y. Price: 1-2 pp. \$.25; over 3 pp. \$.50.

The Forest Products Laboratory reserves the right to furnish only those publications which in its judgment will give the information requested. Blanket requests or requests for a large number of copies of any individual article will not be filled except in unusual cases.

NAILED-WOOD BOXES

Technical Notes

- *B-10 The nailing of wood boxes.
- *128 Moisture content and storage affect strength of nailed wood boxes.
- *164 Common styles of nailed-wood boxes.
- *182 Details of nailing for common styles of nailed wood boxes.

Government Publications

- *Nailing better wood boxes and crates, by L. O. Anderson. U.S. Dept. Agr. Handbook No. 160. 1959. 40 p.
- Trade promotion series. U.S. Bur. of Foreign & Domestic Commerce. 1938. No. 188, American wooden boxes and crates, by W. LeRoy Neubrech. \$.10.
- Knotty lumber for boxes, by G. E. Heck and I. B. Lanphire. U.S. Dept. Agr. Circ. 105. 1930. 20 p. \$.10.
- *Principles of box and crate construction, by C. A. Plaskett. U.S. Dept. Agr. Tech. Bull. 171. 1930. 134 p.

Federal Specification

- PPP-B-621 Boxes; wood, nailed, and lock-corner. \$.20.

Processed Reports

- *2076 Quality and performance of sliced shook from small ponderosa pine logs, by W. F. E. Immelman. Apr. 1957.
- *2129 Nailed and lock-corner wood boxes, by Div. of Packaging Research. Dec. 1958.
- *2151 Outdoor exposure of container-grade paper-overlaid veneers, by A. A. Mohaupt. Aug. 1959.

Articles in Trade and Technical Press

- *Preservative moisture-repellent treatments for wooden packing boxes, by A. F. Verrall. Forest Products Journal Vol. IX, No. 1, Jan. 1959.
- *Technique of nailing a wood box, by L. O. Anderson. Package Eng., June 1957.
- *Diversification in the purchasing of container lumber by F. J. Champion. The Chicago Purchaser, March 1948. Information Rev. & Reaf. 1956.

NAILED-WOOD BOXES (Continued)

Articles in Trade and Technical Press (Continued)

The use of chestnut for boxing and crating, by R.P.A. Johnson. The Purchasing Agent, Feb. 1931.

*Suitability of little-used species for containers, by T. A. Carlson. Amer. Lbrman., Mar. 23, 1929. FPL Rept. 1402, Jan. 1956. Inf. Rev. & Reaf. Jan. 1956.

....Same. Barrel & Box, Mar. 1929. Miss. Valley Lbrman., Mar. 15, 1929. Packages, Mar. 1929. Packing & Shipping, Mar. 1929. Timberman, Mar. 1929. "Results of study of little-used species of wood for containers," Distribution Economy, Mar. 1929.

Western woods as box material, by J. R. Watkins, Barrel & Box, Nov. 1921.

NAILED-WOOD CRATES

Technical Notes

*134 The crate corner.

*172 How to obtain rigidity in crate construction.

Government Publications

*Nailing better wood boxes and crates, by L. O. Anderson. U.S. Dept. Agr. Handbook No. 160. 1959. 40 p.

Federal Specification

PPP-C-580 Crates, wood, for household goods. \$.20.

Military Specifications

MIL-C-104A Crates, wood; lumber and plywood sheathed, nailed and bolted (Corps of Engineers).

MIL-C-132B Crates, wood, open; maximum capacity 2,500 pounds (Corps of Engineers).

MIL-C-3774 Crates; open, wood (2,500 to 10,000 pounds). (Overseas). (Corps of Engineers).

MIL-C-4349 Crates; wood, 1,000 pound maximum load, open domestic. (Air Force).

NAILED-WOOD CRATES (Continued)

Government Publications (Continued)

Military Specifications (Continued)

MIL-C-5406 Crates; wood, open, demountable, 10,000 pound maximum load. (Domestic or overseas). (Air Force).

MIL-C-6057 Crates and boxes; aircraft and airframe component parts (general specification for). (Domestic or overseas). (Air Force).

MIL-C-9437B Crate, wood, open, fuel tank, external assembled. (Domestic or overseas). (Air Force).

MIL-C-11456A Crates, wood, nailed, unsheathed; domestic shipment, 1,500 pounds maximum load. (Quartermaster Corps).

MIL-C-25010 Containers: Air and surface shipment of aircraft components (2,000-pound maximum load). (Air Force).

MIL-C-25139 Crates, wood, open, domestic (for lightweight bulky airframe items). (Air Force).

MIL-C-25731 Crates, wood, for lightweight bulky aircraft items. (USAF)

Processed Reports

*R1666-17 Use of short boards in sheathing crates. 1958.

Articles in Trade and Technical Press

*Technique of nailing a wood crate, by L. O. Anderson. Package Eng., Nov. 1957.

Cause of twisting in crates demonstrated, by G. E. Heck. Barrel & Box & Packages, June 1930.

..... Same. Packing & Shipping, Nov. 1931.

Reducing damage in transit: Results of studies of the causes of twisting in crates. Materials, Handling & Distribution, May 1930.

Relation of concealed damage to crate construction, by G. E. Heck. Barrel & Box & Packages, Mar. 1930. Commercial America, May 1930. Packing & Shipping, June-July 1930.

WIREBOUND CONTAINERS

Government Publications

Federal Specification

PPP-B-585 Boxes; wood, wirebound. (Domestic or overseas). \$.35.

Military Specifications

MIL-C-11133A Crates; wood, slatted style, wirebound, domestic.
(Quartermaster Corps).

WOOD-CLEATED BOXES

Technical Notes

*131 Properties of ordinary wood compared with plywood.

Government Publications

Federal Specifications

PPP-B-591 Boxes; fiberboard, wood-cleated. (Domestic or overseas). \$.15.

PPP-B-601A Boxes; wood-cleated-plywood. (Domestic or overseas).
\$.10.

Military Specifications

MIL-B-10377A Box, wood, cleated, veneer, paper, overlaid. (Domestic or overseas). (Quartermaster Corps).

CORRUGATED AND SOLID FIBERBOARD BOXES

Technical Notes

*150 Direction of fibers affect strength of fiber boxes.

CORRUGATED AND SOLID FIBERBOARD BOXES (Continued)

Government Publications

Trade promotion series. U.S. Bur. of Foreign & Domestic Commerce. 1939. No. 205, Folding paper boxes--an aid to profitable packaging, by J. D. Studley. 60 p. \$.15.

Federal Specifications

PPP-C-570	Containers, folding, fiberboard, corrugated (for household goods). \$.05.
PPP-B-575	Box, paper-overlaid veneer (straparound type). (Domestic or overseas). \$.10.
PPP-B-636b	Boxes; fiberboard (Domestic or overseas). \$.25.
PPP-B-640b	Boxes, corrugated, triple wall, 350-pound maximum weight.
PPP-B-645	Boxes, folding, fiberboard, heavy duty. (Domestic or overseas). \$.10.
PPP-B-655	Boxes, fiberboard, six or eight sides. (Domestic). \$.15.

Processed Reports

*For. Path. Spec. Rel. No. 29	Deterioration of fiberboard by molds, by George H. Englerth. Oct. 1946.
*2152	Effect of ventilating and handholes on compressive strength of fiberboard boxes, by C. C. Peters and K. Q. Kellicutt, Aug. 1959.
*2110	Evaluation of nine styles of fiberboard boxes with more than four sides, by T. B. Heebink. Aug. 1957.
*R1738	Pulps and corrugating paperboards from farm-woodland chestnut oak, by J. N. McGovern, M. Heinig, E. L. Keller, and J. S. Martin. Research & Marketing Act Studies No. 16, Mar. 1956. Rev. 1960.
*R1753	Pulps and corrugating paperboards from farm woodland hickory, by J. N. McGovern, E. L. Keller, and J. S. Martin. Mar. 1956.

CORRUGATED AND SOLID FIBERBOARD BOXES (Continued)

Articles in Trade and Technical Press

Structural design notes for corrugated containers, by K. Q. Kellicutt.

*Note No. 1, Tensile strength of paperboard. Package Engineering 4(2):60-63, 76-77, Feb. 1959, Fibre Containers 44(2):66-69, Feb. 1959.

*Note No. 2, Compressive strength of paperboard--Part I. Package Engineering 4(3):76-77, March 1959; Fibre Containers 44(5):65, 138, March 1959.

*Note No. 3, Compressive strength of paperboard--Part II. Package Engineering 4(4):108, Apr. 1959; Fibre Containers 44(5):65, 138, May 1959.

*Note No. 4, Compressive strength of paperboard--part III. Package Engineering 4(5):78-79, May 1959; Fibre Containers 44(6):82-83, June 1959.

*Note No. 5, Relationship of fiber orientation and basis weight to strength of paperboard. Package Engineering 4(6):84-85, June 1959; Fibre Containers 44(7):78-82, July 1959.

*Note No. 6, Stiffness of corrugated board in relation to box rigidity. Package Engineering 4(7):78-79, July 1959. Also Paperboard Packaging 44(9):80-81, Sept. 1959.

*Note No. 7, Relationship of moment of inertia to stiffness of corrugated board. Package Engineering 4(8):84-86, Aug. 1959. Also Paperboard Packaging 44(10):80-105, Oct. 1959.

*Note No. 8, Short-column crush test of corrugated board and its use in quality control. Package Engineering 4(9):92-94, Sept. 1959. Also Paperboard Packaging 44(11):82-83, Nov. 1959.

*Note No. 9, Flat crush test of corrugated board. Package Engineering 4(10):110-112, Oct. 1959. Also Paperboard Packaging 44(12):119-121, Dec. 1959.

*Note No. 10, Buckling patterns of tubes. Package Engineering 4(11):76-83, Nov. 1959.

*Note No. 11, Compressive strength of boxes--Part I. Package Engineering 4(12):88-89, Dec. 1959.

CORRUGATED AND SOLID FIBERBOARD BOXES (Continued)

Articles in Trade and Technical Press (Continued)

Structural design notes for corrugated containers, by K. Q. Kellicutt.

*Note No. 12, Compressive strength of boxes--Part II. Package Engineering 5(1):76-77, Jan. 1960. Also Paperboard Packaging 45(3):73, 78, March 1960.

*Note No. 13, Compressive strength of boxes--Part III. Package Engineering 5(2):94-96, Feb. 1960. Also Paperboard Packaging 45(4):107, April 1960.

*Note No. 14, Triple-wall corrugated boxes--Part I. Package Engineering 5(3):122-124, March 1960. Also Paperboard Packaging 45(5):67, May 1960.

*Note No. 15, Triple-wall corrugated boxes--Part II, by K. Q. Kellicutt and C. C. Peters. Package Engineering 5(4):122-123, April 1960. Also Paperboard Packaging 45(6), June 1960.

*Note No. 16, Triple-wall corrugated boxes--Part III. Package Engineering 5(5):90-91, May 1960. Also Paperboard Packaging 45(7), July 1960.

*Note No. 17, Stacking strength of boxes--Part I. Package Engineering 5(6):124-126, June 1960.

*Note No. 18, Stacking strength of boxes--Part II. Package Engineering 5(7):94-96, July 1960.

*Note No. 19, Drop-testing technique for boxes--Part I. Package Engineering 5(8):110-111, August 1960.

How good are hexagonal and octagonal corrugated containers, by T. B. Heebink. Amer. Boxmaker 48(12):15-16, Dec. 1959. Also Modern Packaging, under the title of "Box design vs. performance evaluation of nine styles of hexagonal and octagonal fibreboard containers identifies three that proved superior to rectangular boxes in drop tests," 33(2): 163-165, 238, 240, Oct. 1959.

CORRUGATED AND SOLID FIBERBOARD BOXES (Continued)

Articles in Trade and Technical Press (Continued)

- *Strength evaluations of corrugated containers by the drop test method, by K. Q. Kellicutt and E. F. Landt. Tappi, Sept. 1956.
- *New drop tests for fiberboard boxes, by K. Q. Kellicutt and E. F. Landt. Fibre Containers & Paperboard Mills 40(10):33, 34, 39-44, Oct. 1955.
- *Basic design data for solid fiberboard shipping containers, by K. Q. Kellicutt and E. F. Landt. Jour. For. Prod. Res. Soc. 3(5):90-94, 224. Dec. 1953.
- *Basic design data for the use of fiberboard in shipping containers, by K. Q. Kellicutt and E. F. Landt. Fibre Containers, Dec. 1951; FPL Rept. 1911. Revised 1958.
- *Basic design data for the use of fiberboard in shipping containers -- Box strength calculator, by K. Q. Kellicutt, E. F. Landt, and V. C. Setterholm. FPL Rept. 1911A. Revised 1958.
- *Development of design data for corrugated fiberboard shipping containers, by K. Q. Kellicutt and E. F. Landt, Tappi 35(9):398-402, Sept. 1952.
- *Safe stacking life of corrugated boxes, by K. Q. Kellicutt and E. F. Landt. Fibre Containers, Sept. 1951.
- *Suggestions in making flat crush tests of corrugated fiberboard, by K. Q. Kellicutt and E. F. Landt. Fibre Containers, May 1951.
- *Linerboards from jack pine and hardwood semichemical pulps, by J. N. McGovern, G. E. Mackin, and G. H. Chidester. Fibre Containers, Oct. 1948.
- *Corrugated board and its component parts as engineering materials, by T. A. Carlson. Amer. Management Assn., Prod. Ser. 128, 1941. Inf. Rev. & Reaf. 1956.
- *Some factors affecting the compressive strength of fiber boxes, by T. A. Carlson. Fibre Containers, Mar. 1941; Paper Indus. & Paper World, May 1941; Paper Trade Jour., June 5, 1941. Abstracted in Paper Mill & Wood Pulp News. Feb. 22, 1941. Inf. Rev. & Reaf. 1956.

CORRUGATED AND SOLID FIBERBOARD BOXES (Continued)

Articles in Trade and Technical Press (continued)

- *Bending tests of corrugated board and their significance, by T. A. Carlson. Fibre Containers, Mar. 1940; Paper Trade Jour., Feb. 22, 1940. Inf. Rev. & Reaf. Sept. 1956.
- *A study of corrugated fiberboard and its component parts as engineering materials, by T. A. Carlson. Fibre Containers, July 1939. Inf. Rev. & Reaf. 1956.
- *Effect of relative humidity on the moisture content and bursting strength of four container boards, by C. O. Seborg, R. H. Doughty, and P. K. Baird. Paper Trade Jour., Oct. 12, 1933. Inf. Rev. & Reaf. 1956.
- *Seals for fiber boxes, by T. A. Carlson. Fibre Containers, Dec. 1928. Inf. Rev. & Reaf. 1956.
- Same. Package Advertiser, Dec. 1928.
- Closure of fiber boxes. Packing & Shipping, Dec. 1928.

TESTING OF CONTAINERS AND PACKAGING MATERIALS

Articles in Trade and Technical Press

- *Selecting package cushioning, by R. K. Stern. Modern Packaging, Dec. 1959.

Processed Reports

- *2151 Outdoor exposure of container-grade paper-overlaid veneers, by A. A. Mohaupt. Aug. 1959.

Standards

- Compression test for shipping containers. ASTM D 642-47; TAPPI T804 m-45.
- Drop test for cylindrical shipping containers. ASTM D 997-50.
- Drop test for bags. ASTM D 959-50.
- Drop test for shipping containers. ASTM D 775-47; TAPPI T802 m-44.
- Revolving hexagonal drum test for shipping containers. ASTM D 782-47; TAPPI T800 m-50.

TESTING OF CONTAINERS AND PACKAGING MATERIALS (Continued)

Standards (Continued)

Incline-impact test for shipping containers. ASTM D 880-50; TAPPI T801 sm-44.

Penetration test of liquids into submerged containers. ASTM D 998-51.

Test for large shipping cases and crates. ASTM D 1083-53.

Test for pallets. ASTM D 1185-51T.

Vibration test for shipping containers. ASTM D 999-48T.

Test for water resistance of containers by spray method. ASTM D 951-51; TAPPI T805 m-50.

Test for water vapor permeability of packages. ASTM D 895-51.

Test for water vapor permeability of shipping containers. ASTM D 1008-51.

Test for water vapor permeability of packages by cycle method. ASTM D 1251-53T.

Test for water vapor permeability of shipping containers by cycle method. ASTM D 1276-53T.

Test for adhesiveness of gummed tape. ASTM D 773-47; TAPPI T463 m-52.

Test for basis weight of paper and paper products. ASTM D 646-50; TAPPI T410 m-45.

Bending quality of paperboard. TAPPI T474 m-47.

Test for bleeding resistance of asphalted papers at elevated temperatures. ASTM D 917-49; TAPPI T475 m-50.

Test for blocking resistance of paper and paperboard. ASTM D 918-49; TAPPI T477 m-47.

Test for bursting strength of paper. ASTM D 774-46; TAPPI T 403 m-53.

Test for ring crush of paperboard. ASTM D 1164-53; TAPPI T472 m-51.

Flexural resistance and deflection of fiberboard. TAPPI T469 sm-45.

TESTING OF CONTAINERS AND PACKAGING MATERIALS (Continued)

Standards (Continued)

Test for internal tearing resistance of paper. ASTM D 689-44; TAPPI T414 m-49.

Test for machine direction of paper. ASTM D 528-41; TAPPI T409 m-35.

Test for moisture in paper, paperboard, and paperboard and fiberboard containers. ASTM D 644-55; TAPPI T412 m-53.

Test for puncture and stiffness of paperboard, corrugated and solid fiberboard: ASTM D 781-44T; TAPPI T803 m-50.

Rigidity, stiffness, and softness of paper and paperboard. TAPPI T451 m-45.

Static bending test for corrugated paperboard. ASTM D 1098-52.

Test for stretch of paper and paper products under tension. ASTM D 987-48T; TAPPI T457 m-46.

Test for tensile breaking strength of paper and paper products. ASTM D 828-48; TAPPI T404 m-50.

Test for wet tensile breaking strength of paper and paper products. ASTM D 829-48; T456 m-49.

Test for tensile properties of thin plastic sheets and films. ASTM D 882-49T.

Test for thickness of paper and paper products. ASTM D 645-43; TAPPI T411 m-44.

Water absorptiveness of nonbibulous paper and paperboard. TAPPI T441 m-45.

Test for water resistance of paper, paperboard, and other sheet materials by the dry indicator method. ASTM D779-55T; TAPPI T433 m-44.

Test for water vapor permeability of paper and paperboard. ASTM D 988-51T; TAPPI T448 m-49.

Water vapor permeability of paper and other sheet materials at elevated temperature and humidity. TAPPI T464 m-45.

Test for water vapor permeability of plastic sheets. ASTM D 697-42T.

TESTING OF CONTAINERS AND PACKAGING MATERIALS (Continued)

Standards (Continued)

Adhesiveness of seals and closures for packages. TAPPI T806 sm-46.

Conditioning paper and paper products for testing. ASTM D 685-44;
TAPPI T402 m-49.

Conditioning paperboard, fiberboard, and paperboard containers for testing.
ASTM D 641-49; TAPPI T402 m-49.

Creasing paper for permeability tests. ASTM D 1027-51; TAPPI T465
sm-52.

Definition of terms relating to shipping containers. ASTM D 996-50.

Sampling paper and paper products. ASTM D 585-42; TAPPI T400 m-49.

Testing package cushioning materials. ASTM D 1372-55T.

Flat crush of corrugated paperboard. ASTM D 1225-52T.

PALLETS

Government Publications

Federal Specification

NN-P-71 Pallets; materials-handling, wood (general construction
requirements). \$.05.

NN-P-0074 Pallets: Wood, stringer design, maximum capacity
2,500 pounds.

Military Specifications

MIL-P-15011D Pallets, material handling, hardwood, post construc-
tion, 4-way. (Navy S&A).

MIL-P-4894 Pallet materials handling, box type, wood (light duty).

MIL-P-15943A Pallet, material handling, wood, ship cargo (steve-
doring), 2-way entry. (Navy S&A).

PALLETS (Continued)

Government Publications (Continued)

Military Specifications (Continued)

MIL-P-16496 Pallet, softwood (hardwood posts), 40" x 48", 4-way nailed construction, general purpose. (Navy S&A).

MIL-P-26342 Pallet box, fiberboard expendable, for air shipment.

MIL-P-26966A Pallet, uses handling, lightweight, air cargo.

American Standard

Pallet sizes (ASA MH 1.1-1959), Am. Soc. of Mech. Engr., 29 W 39th St., N.Y., 18, N.Y. \$2.00.

Processed Reports

- *2153 Load-carrying capacity of deck boards for general-purpose pallets, by T. B. Heebink. Aug. 1959.
- *2166 Preservatives for wood pallets, by J. O. Blew, Jr. Oct. 1959.
- *2132 Hardwood pallet manufacturing, by T. B. Heebink and E. W. Fobes. Dec. 1958.
- *2115 Bin pallets for agricultural products, by T. B. Heebink. June 1958.
- *2062 Suitability of short lumber for pallets. Aug. 1956.
- *1957 The wood pallet industry--its development and progress toward standardization. Sept. 1953.

Articles in Trade and Technical Press

Specifications and grades for hardwood warehouse, permanent or returnable pallets. National Wooden Pallet Mfrs. Assn., Barr Bldg., Washington 6, D. C.

Minimum standard specifications for warehouse, permanent or returnable wooden pallets of West Coast woods. Species--Douglas-fir, hemlock, larch (Tamarack). NWPMA, Barr Bldg. Washington 6, D. C.

*Rugged tests for binds, by T. B. Heebink. Produce Marketing, Mar. 1960.

BARRELS

Government Publications

Tests of wooden barrels, by J. A. Newlin. U.S. Dept. Agr. Bull. 86. 1914. Out of print.

BARRELS (Continued)

Federal Specifications

PPP-B-41 Barrels; wood, slack. (Domestic or overseas). \$.10.

PPP-B-112a Barrels; wood, tight (for liquids). (Domestic or overseas). \$.10.

Articles in Trade and Technical Press

Kiln drying beer barrel staves, by H. D. Tiemann. Brewery Age, Jan. 1935; Barrel & Box & Pack., Jan.-Feb. 1935; Natl. Coopers Jour., Mar. 1935.

Properly dried staves essential to good barrels, by W. K. Loughborough. Modern Brewery, Mar. 1934.

Kiln drying green oak for beer barrels, by W. K. Loughborough. Wooden Barrel, Aug. 1933; Brewery Age, Sept. 1933.

*Comparative tests of white oak and Douglas-fir barrels, by T. R. C. Wilson. Natl. Coopers Jour., Oct. 1922; West Coast Lbrman., May 1, 1925; FPL Rept. R678. Inf. Rev. & Reaf. June 1958.

GENERAL PACKAGING DATA

Government Publications

Federal Specifications

PPP-B-566 Boxes, folding, paperboard. (Domestic). \$.20.

PPP-B-665 Boxes, paperboard, metal stayed (including stay material). \$.05.

PPP-B-676 Boxes, set-up, paperboard. (Domestic). \$.15.

Military Specifications

MIL-P-3448 Packaging of board, fiberboard, and wallboard including corrugated, overseas shipment. (Corps of Engineers.)

MIL-P-7936A Parts and equipment, aeronautical, preparation for delivery.

Military Standard

MIL-STD-731 Quality of wood members for containers and pallets.

Processed Reports

*2064 Packaging research at the U.S. Forest Products Laboratory, by F. J. Champion. Sept. 1956.

Articles in Trade and Technical Press

Packaging research and development, by K. W. Kruger. Forest Products Jour. 5(1):22-55, Feb. 1955.

Research in the use of wood for containers, by T. A. Carlson. Natl. Farm Chemurg. Council (Columbus, Ohio) Paper 507, 4 p., 1946.

Uniform Freight Classification No. 2, "Rules 40 and 41." Geo. H. Dumas, agent, 202 Union Station, Chicago 6, Ill. \$3.75.

*Developments in packaging in 1955, by K. W. Kruger. Forest Products Jour. Feb. 1956.

Effect of shape on efficiency of boxes, by C. A. Jordan. Fibre Containers. Feb. 1957.

Articles in Trade and Technical Press

*Selecting package cushioning, by R. K. Stern. Modern Packaging, Dec. 1959.

Export Shipping Data

Industrial series. U. S. Bur. of Foreign & Domestic Commerce. 1942. No. 1, Modern Ship stowage. 719 p. \$1.50. By Jos. Leeming.

Trade promotion series. U. S. Bur. of Foreign & Domestic Commerce. 1940. No. 207, Modern export packing, by Jos. Leeming. Trans. Div. \$1.00.

Design of proper packing for export shipments, by C. A. Plaskett. Barrel & Box & Packages, Nov. 1931.

..... Same. Packing & Shipping, June, July, Aug. 1932.

Packing for export shipment, Traffic World, Oct. 24, 1931.

STRAPPING AND METAL REINFORCING

Government Publications

Federal Specifications

QQ-S-781b Strapping; flat, steel. \$10.

QQ-S-790a Strapping; round, steel, bare and zinc coated. \$10.

STRAPPING AND METAL REINFORCING (Continued)

Articles in Trade and Technical Press

- Recommended sizes of flat straps and wires for packing boxes, by C. A. Plaskett. Packing & Shipping, April 1931.
..... Same. Selecting the proper size of box strapping. Barrel & Box, May 1931; Purchasing Agent, Apr. 1931.

METAL FASTENERS

Technical Notes

- *182 Details of nailing for common styles of nailed wood boxes.
- *236 Nail-holding power of American woods.
- *243 General observations on the nailing of wood.
- *247 Nailing dense hardwoods.

Government Publications

- Wood that is dry holds nails better than green wood, by J. M. Gahagan. U. S. Dept. Agr. Yearbook, 1927, p. 711-13.

Federal Specifications

- FF-N-101 Nails; spikes, staples, and tacks. \$.10.
- FF-N-103a Nails (small) and tacks; cut. \$.10.
- FF-N-105 Nails, wire; and staples. \$.15.
- FF-S-111a Screws; wood. \$.10.
- FF-F-133 Fasteners, wood joint, corrugated (saw edge).. \$.05.
- FF-B-561a Bolts; lag, steel (lag screws). \$.05.
- FF-B-571a Bolts; nuts, studs, and tap rivets (and material for same). \$.05.
- FF-N-836 Nuts, hexagon and square. \$.25.

Military Specification

- MIL-F-4209A Fastener assembly, (metal) nut sleeve. (Air Force).

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- *Nails and their characteristics in boxes and crates. by L. O. Anderson.
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- Good practice in nailing wood, by L. J. Markwardt and J. M. Gahagan.
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Edw. Beglinger. Barrel & Box & Pack., July 1932. FPL Rept. R970.
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- Nail-holding tests made, Timberman, Aug. 1929.
- Southern Pine Assn. Ref. Book & Sales Manual, 1927.

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Technical Notes

- *B-14 Methods of determining the specific gravity of wood.
- *131 Properties of ordinary wood compared with plywood.
- *218 Weights of various woods grown in the United States.
- *236 Nail-withdrawal resistance of American woods.
- *240 A hundred definitions pertaining to wood and other forest
 products.

WOOD -- ITS PROPERTIES, etc. (Continued)

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- *MC-152 Grouping of woods according to nail-holding qualities and other properties of importance in container construction. 1954.
- *258 Key for identification of woods used for box and crate construction, by Eloise Gerry. 1956.
- *399 Some books about wood (a list). 1955.

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- Performance of paper-veneers, by E. H. Clarke. Modern Packaging 28(10): 155-162, 212-214, June 1955.
- *California red fir compares favorably with other western species, by J. T. Drow and L. N. Ericksen. Calif. Lumber. Merchant, Dec. 1, 1947. Inf. Rev. & Reaf. 1956.

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MISCELLANEOUS CONTAINER DATA (Continued)

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Military Specifications (Continued)

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- *MC-154 Handling and storage tests of packages for dried whole eggs,
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- *2054 Condition of preservative treated field boxes after 5 years of
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OTHER PUBLICATION LISTS ISSUED BY THE
FOREST PRODUCTS LABORATORY

The following lists of publications which deal with the other investigative projects of the Forest Products Laboratory are obtainable upon request:

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

Fire Protection--Fire test methods, fire retarding chemicals and treatments and fire behavior of treated and untreated wood, wood products, and wood structures.

Fungus Defects in Forest Products--Decay, stains, and molds in timber, buildings, and various wood products; antiseptic properties of protective materials.

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.

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

Growth, Structure, and Identification of Wood--Structure and identification of wood; the effect of 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.

Logging, Milling, and Utilization of Timber 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 of 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.

Structural Sandwich, Plastic Laminates, and Wood-Base Aircraft Components--Strength, selection, and character of aircraft wood, plywood, and wood and composite laminated and sandwich materials; fabrication and assembly problems; methods of calculating the strength.

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.

NOTE: Since Forest Products Laboratory publications are so varied in subject matter, no single big list is issued. Instead a list is made up for each Laboratory division. Twice a year, December 31 and June 30, a list is made up showing new reports for the previous 6 months. This is the only item sent regularly to the Laboratory's mailing list. Anyone who has asked for and received the proper subject lists and who has had his name placed on the mailing list can keep up to date on Forest Products Laboratory publications. Each subject list carries descriptions of all other subject lists.