

BACKGROUND

Wood Used to Construct the Chief's Reception Desk



Ford Forest

Birds-Eye Maple

The Ford Forest is Michigan Technological University's natural field laboratory and classroom, located in and around the Village of Alberta in Michigan's Upper Peninsula. The forest is home to long-term field studies, a range of applied and basic research in natural resources, and educational programs, and it is also a demonstration site for advanced sustainable forest management practices in the Upper Great Lakes forest region. Research on the forest includes a range of current and historic studies in silviculture, forest management, wildlife, ecosystem science, tree physiology, hydrology, and soil science, among other ecosystem services. The forest is also home to the university's unique field-based integrated field practicum.

In 1954, the Ford Motor Company donated 1,700 acres, which included the historic village of Alberta, to the university. Built by Henry Ford in the midst of his northern forest holdings, this unique village and its sawmill became one of his "Village Industries," which were common in Lower Michigan. Alberta provides an interesting example of sawmill technology, a planned community in a beautiful forest setting, and the power of one man's vision to create a suitable environment for his employees. Wood for the iconic "Ford Woodie" was harvested from this forest and processed in the Alberta sawmill.

The beautifully marked hard maple wood used in this desk was harvested from Ford Forest and turned into lumber in his sawmill at Alberta, Michigan.

USDA Forest Service • Forest Products Laboratory



As part of the renovation of the Sidney Yates Building, the Forest Products Laboratory (Madison, Wisconsin) was asked to provide a reception desk that would represent some of the culture of the Forest Service—forests, trees, wood, and science. In a partnership led by FPL, students in the Wood Manufacturing Technology program, Fox Valley Technical College, Oshkosh, Wisconsin, under the direction of Mark R. Lorge and Glenn Koerner, designed and built the desk using historically significant wood.

Kane Experimental Forest

Cherry Wood

The Forest Service's Kane Experimental Forest was set aside in 1932 in northwestern Pennsylvania to conduct forestry research. Today the 3,563-acre experimental forest, located on the Allegheny National Forest, is dedicated to long-term research on the ecology and stand-development processes in stratified mixed hardwood forests and the interaction of these processes with forest management. Some studies span more than 70 years and are entering their second generation of trees. Information gleaned from research on the Kane Experimental Forest has significantly improved management of mixed hardwood forests. Research findings provide practical information to forest managers and landowners. Sustainable forest management training offered here annually is eagerly sought by forest and resource managers from public, private, and nongovernmental organizations. The Kane Experimental Forest is part of the National Atmospheric Deposition Program, the National Trends Network, and the Clean Air Status and Trends Network.

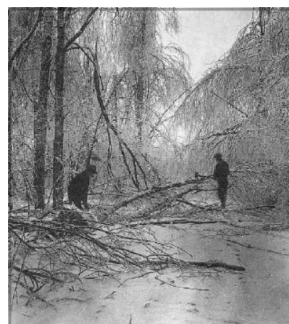
Wood from black cherry trees that grew on the Kane Experimental Forest is used in the desk. The wood was part of a research study conducted by the Forest Service's Northern Research Station on potential recoverable material from thousands of cherry trees that were blown down in severe windstorms that swept through northwestern Pennsylvania on July 21 and 22, 2003.



Ford Mill and the village of Alberta, Michigan.



above: Phil E. Ackerman, first superintendent of the Kane Experimental Forest, and family in front of office building, April 1937.



left: Ice storms hit the Kane Experimental Forest area in 1936 and 1950. These storms provided the means to study how such damage affected tree growth and quality.



Michigan Technological University
School of Forest Resources
and Environmental Science

Forest Products Laboratory

Airplane Propellers

Founded in 1910 by the Forest Service to serve as a centralized, national wood research laboratory, Forest Products Laboratory (FPL) has a long history of providing technical services to other governmental units, including the Department of Defense (DOD). A recent search of FPL's library and correspondence files revealed that approximately 10,000 articles, reports, manuals, and other technical publications have been generated and provided to the DOD since 1910. FPL has provided support on a broad array of technical questions—from design and transportation of materiel to Europe and the South Pacific during World War II to assisting in the design and repair of motor mounts for minesweepers used in Desert Storm. During World War I, FPL was directly involved in the design and development of airplane parts, such as wing beams, struts, elevator spars, wing ribs, and engine bulkheads.

The first national defense study at FPL was initiated in April 1917, when FPL was contracted to determine the effects of kiln-drying, steaming, and bending on the strength of Sitka spruce and other airplane woods. Based on previous work at FPL, methods and specifications for kiln-drying green spruce and other woods were developed for the War Department's Signal Corps. After providing original specifications, FPL conducted an

extensive series of studies to determine the effect of kiln-drying. By the end of 1918, 100 kiln runs on 26 species of airplane woods had been completed. These runs provided material for approximately 100,000 specimens that were tested to determine strength properties.

Allotments from the War Department during this time enabled FPL to undertake another important aircraft research project: the equipping and operation of an experimental propeller plant. The central problem involved in propeller manufacture was to produce a propeller blade with sufficient stability to resist warp, twisting, and unbalancing of the blades with changes in humidity. Such defects had caused countless propeller failures. FPL established a special laboratory to investigate the problem. Begun in March 1918, the propeller research involved manufacture, storage, and finishing of experimental propellers from seven species of wood under closely controlled conditions. Experimental propellers were produced at a rate of 10 per week, a schedule that called for working three shifts per day.

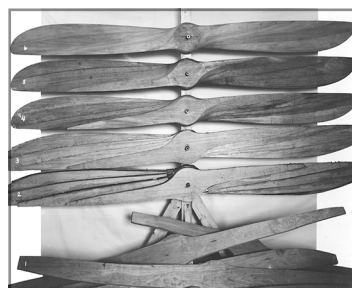
Many species were investigated for use as propellers. The Philippine mahogany (lauan) group of woods was thoroughly investigated for propellers. Some of the wood used in that research is included in this desk.



At FPL's propeller laboratory, effects of changes in humidity and temperature were carefully measured and recorded.



By 1919, FPL researchers were demonstrating the strength of internal web construction of an all-veneer wing.



This display shows key stages in the fabrication of a laminated propeller.

References

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