

[Bonus] AFD EP 369 Links and Notes - Forest Products [Bill/Rachel]

- Intro: You might not think of timber as something ripe for advanced technological research, but the Second Industrial Revolution marked a partial shift in the way timber was used in the United States. While eastern North American timber harvests for centuries had provided Europeans and then Americans with crude fuel, cleared farmland, shipbuilding materials, and resources for artisanal furnituremakers, the Second Industrial Revolution included a bit of a gear shift into highly-manufactured, mass-produced “forest products” like wood pulp paper, prefabricated homes, and plywood or “engineered wood.”
- Forest Products Laboratory:
 - While some innovation in this field came from the private sector (which we will definitely be talking about on today’s episode), as was also frequently the case, the US government also provided a boost. You’re probably very familiar with the US government’s role in publicly funding research & development for the benefit of the private sector in fields such as defense, biotech, information technology, and so on. But did you know that the US Forest Service has been running a research & development agency for over a century to benefit the timber industry?
 - <https://www.fpl.fs.fed.us/>
 - *At the turn of the 19th century, logging had proceeded across much of the eastern United States and demands for wood products were rising rapidly. In 1910, the Forest Products Laboratory (FPL) was established in Madison, Wisconsin, to find ways to conserve scarce timber resources. For almost 100 years, our mission has been to use our Nation's wood resources wisely and efficiently, while at the same time keeping our forests healthy. Our research began with preserving railroad ties, and now we are venturing into nanotechnology and finding ways that our research can contribute to mitigating the impacts of climate change. The FPL research staff has the experience and expertise needed to make us world renowned among forest products research organizations and an unbiased source of information. FPL researchers have longevity, with an average of 20 years of experience in their related fields. The range of our wood research spans from fiber and chemical science to composites. We take pride in knowing that our research touches the American public's daily life. Whether it's putting a self-adhesive, environmentally friendly stamp on an envelope or walking on a hardwood floor, FPL has in some way contributed to making those products and innovations.*
<https://www.fpl.fs.fed.us/about/whoweare.shtml>
 - Forest Products Laboratory <https://www.fpl.fs.fed.us/about/index.shtml>
 - Located in Madison, Wisconsin, since 1910
 - Nation's only federally funded wood utilization research laboratory
 - Currently employs 60 Research Scientists
 - Primarily or partly responsible for many of today's wood-based technologies, including wood preservatives, glulam [glued laminated] beams, oriented strandboard, and fiber-based packaging
 - Research partnerships located in virtually every state in the Nation
 - Early research highlights <https://www.fpl.fs.fed.us/about/index.shtml>
 - Reduced timber demand for railroad ties by 75% through preservatives research
 - Increased average lumber yield per log from 25% to 60%
 - Wood frame technology used in over 90% of our Nation's homes
 - Designed and constructed Nation's first prefabricated home

- https://en.wikipedia.org/wiki/Forest_Products_Laboratory (US Forest Service)
- <https://foresthistor.org/research-explore/us-forest-service-history/places/forest-products-laboratory/>
 - *During WWI, the laboratory performed experiments on wood for airplane construction, as well as research into box and packaging materials, and charcoal to be used in gas masks. During WWII, constant wood-utilization projects were performed on the wood and lumber used for nearly every aspect of the war effort.*
- <https://www.fpl.fs.fed.us/centennial/index.shtml>
- Let's talk about plywood: <https://www.apawood.org/apas-history>
 - *The first patent for what could be called plywood was issued December 26, 1865, to John K. Mayo of New York City. A re-issue of that patent, dated August 18, 1868, described Mayo's development as follows: "The invention consists in cementing or otherwise fastening together a number of these scales of sheets, with the grain of the successive pieces, or some of them, running crosswise or diversely from that of the others..." Mayo may have had a vision, but apparently not much business sense, since history does not record that he ever capitalized on his patents. [lol owned]*
 - *In 1905, the city of Portland, Oregon was getting ready to host a World's Fair as part of the 100th anniversary celebration of the Lewis and Clark Expedition. Several local businesses were asked to prepare exhibits for the event, including Portland Manufacturing Company, a small wooden box factory in the St. Johns district of the city. Part owner and plant manager Gustav Carlson decided to laminate wood panels from a variety of Pacific Northwest softwoods. Using paint brushes as glue spreaders and house jacks as presses, several panels were laid up for display. Called "3-ply veneer work," the product created considerable interest among fairgoers, including several door, cabinet and trunk manufacturers who then placed orders. By 1907, Portland Manufacturing had installed an automatic glue spreader and a sectional hand press. Production soared to 420 panels a day. And an industry was born.*
- <https://www.weyerhaeuser.com/company/history/>
 - In January 1900, Frederick Weyerhaeuser and partners bought 900,000 acres of Washington forestland from Northern Pacific Railway. This was the largest private land sale at that time.
 - In 1917, the Army used troops to work in Weyerhaeuser's forests to increase lumber production for the war.
 - 1921: *The Wood Conversion Company was formed to research and market new uses for wood. Among these were "Balsam-Wool," a fluffy material used as insulation, and "Nu-wood," a composite insulation board. Over the next 30 years, the Wood Conversion Company would introduce dozens of new products.*
 - 1928: *F. K. Weyerhaeuser gave a rousing talk to the company's sales force emphasizing the tradition of "square dealing." This inspired one of the greatest marketing efforts ever attempted at Weyerhaeuser: 4-Square® lumber. For the first time, lumber was grade marked, precisely squared, cut to exact lengths and wrapped.*
- Prefabricated frontier housing parts & wooden materials:
 - National Park Service article: <https://www.nps.gov/articles/prefabricated-homes.htm>
 - *Houses have been built in one place and reassembled in another throughout history. Possibly the first advertised prefabricated home was the "Manning Portable Cottage" conceived in 1830 by London carpenter*

H. John Manning. This house was built in components, then shipped and assembled by British emigrants. Prefabricated homes were produced during the Gold Rush in the United States during the 19th century to enable California prospectors to quickly construct homes. Also known as kit houses, pre-cut houses, ready-cut houses, mail order homes, or catalog homes, they remained popular into the first half of the 20th century. Kit house manufacturers sold houses in many different plans and styles, ranging from simple bungalows to imposing Colonials. For a fixed price, manufacturers supplied the materials needed for construction of a particular house with the exclusion of brick, concrete, and masonry (such as would be needed for laying a foundation, which the customer would have to arrange to have done locally).

- NOTE: Technically not really prefab homes because they were assembled on site, not at a factory
- Eventually popularized most recognizably after the frontier period as Sears Modern Homes, https://en.wikipedia.org/wiki/Sears_Modern_Homes
 - Sold from 1908-1942, although production stopped in 1940 and the Sears Modern Home Catalog was discontinued in 1940 as well. Oddly, Sears Modern Homes were still advertised through May 1942.
 - *In 1906, Frank W. Kushel, a Sears manager, was given responsibility for the catalog company's unwieldy, unprofitable building materials department. Sales were down, and there was excess inventory languishing in warehouses. He is credited with suggesting to Richard Sears that the company assemble kits of all the parts needed and sell entire houses through mail order. In the same year, [the Aladdin Company of Bay City, Michigan](#), offered for sale the first kit homes through mail order. In 1908, Sears issued its first specialty catalog for houses, *Book of Modern Homes and Building Plans*, featuring 44 house styles ranging in price from [US](#) \$360–\$2,890. The first mail order for a Sears house was filled in 1908. As Sears mail-order catalogs were in millions of homes, Sears had a distinct advantage over many of its competitors as it was able to promote its "Modern Homes" plans to large numbers of prospective customers through its general merchandise catalog.*
 - More from the NPS article above: *One American company heavily invested in the kit house concept was Sears, Roebuck and Company. Sears Catalog Homes were ready-to-assemble kit houses sold through mail order by Sears. Sears closed their Modern Homes department in 1940. More than 370 designs of Sears Homes were offered during the program's 32-year history.*
- <https://idahoforests.org/content-item/early-history-of-idahos-forests/>
 - *Early laws regulated the use of lumber. People could use trees for home and farm use and a man could buy as much as 160 acres of forest land. Large lumber companies were not allowed to cut Idaho timber until 1892. Even when the railroads came through Idaho, they could not cut Idaho's trees. Wooden ties for the tracks came from as far away as the Black Hills of South Dakota. By 1890, Idaho had achieved statehood and lumbermen from the Great Lakes country began buying Idaho forest land. At least one company had a mill at Coeur d'Alene as early as 1890, though it was against the law until 1892. This was great timing, as the forests of the Great Plains were depleted, and industry was looking to the West for lumber and other forest products.*

- *The Idaho Forest Products Commission (IFPC) was created in 1992 by an act of the Idaho Legislature. The purpose of the Commission is to “promote the economic and environmental welfare of the state by providing a means for the collection and dissemination of information regarding the management of the state’s public and private forest lands and the forest products industry.”*
- *Activities of the Commission are funded by mandatory assessments paid solely by the forest industry. Actual rates are set each year by Commission members based on the programs they want to carry out.*
- *IFPC Goals:*
 - *To increase public understanding that Idaho’s forests are a renewable source of important consumer products and environmental values*
 - *To provide, coordinate and disseminate factual information about economic and environmental aspects of timber management practices*
 - *To promote public support for Idaho’s forest products industry*
 - *To help achieve and maintain a healthy forest products industry through responsible forest stewardship*
 - *To advocate balanced use of forest resources.*