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Book Review: Plywood: A Material Story Christopher Wilk

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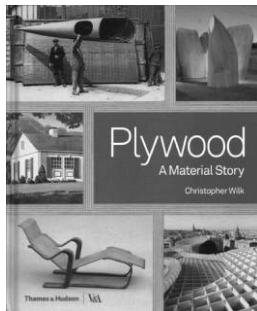
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Plywood: A Material Story

Christopher Wilk



London: Victoria and Albert Museum / Thames & Hudson, 2017.

256 pp.; 282 color and b/w ill.

Cloth \$ 30.00

ISBN 9780500519400

Between July 15 and November 12, 2017, the Victoria and Albert Museum held an exhibition titled *Plywood: Material of the Modern World*. The museum has long had an interest in materials, with galleries devoted to metalwork, sculpture, woodwork and furniture, ceramics, etc., so it is not surprising that the author of this book and curator of the exhibition is Christopher Wilk, Keeper of Furniture, Textiles, and Fashion at the museum. Wilk is the author of books on modernism, Marcel Breuer, Frank Lloyd Wright, and the Thonet furniture company, and he has a long-standing interest in plywood.

The publication that accompanied the exhibition is not a catalogue, although there are, of course, common themes. The book is an expansive story of plywood that develops and fleshes out the ideas explored in the exhibition. A helpful explanation of the author's approach is given in the introduction. Wilk suggests that the book is unusual in that it incorporates archival research with a narrative of cultural history and a close study of objects. By using this approach, he examines both the context and materiality of plywood. A similar methodology was

also successfully employed by Tony Fry and Anne-Marie Willis in *Steel: A Design, Cultural, and Ecological History* (Bloomsbury, 2015).

Wilk identifies his themes as episodes in a story, which is deliberately not a conventional history of a commodity. This approach has paid dividends in that the book is not just a narrative of plywood as a material but also a story of its fluctuating reception, as well as an examination of its applications across an enormous range of products.

An introduction to the concept of plywood, its histories, and its geographies, as well as the author's approach to material studies, allows the reader to understand the scope of the book. The first episode introduces the history of plywood, emphasizing its application in furniture construction. Starting with an obligatory reference to its use in ancient Egypt, the narrative soon jumps to the eighteenth century, where the value of cross-laminated veneers became evident, especially for panels and fretted, fine detail work. The important nineteenth-century example of John Henry Belter and his patents for molded plywood, which employs contemporary documentation and analyses of a number of surviving items, is a good instance of the book's approach considering objects, archival sources, and contemporary cultural references to explain the success of products. While Belter's productions were based on the application of plywood to high-style rococo revival furniture, Wilk uses the contrasting example of the New Jersey-based Gardner company to demonstrate the success of a more democratic approach to plywood use in furniture—namely, the perforated plywood seat and the continuous seat and back. Patents again played a role in this story with a discussion of lawsuits and the contemporary disputes about inventions. Nevertheless, the Gardner process was significant, as, in the words of the Supreme Court judgment of 1886, it was not the patentable material that was important both socially and economically, but the fact that the plywood could be fitted by unskilled labor to a wide variety of frames for domestic and commercial use.

An overlapping chapter that deals with the manufacture of plywood follows this first episode and introduces the role of veneer to the equation. Veneer is the raw material of plywood itself. The author explores how plywood was able to gradually develop owing to the new technologies associated with early nineteenth-century veneer cutting and

the subsequent fall in prices. Cutting veneer by the new rotary method led to a lowering of costs, which thus allowed for an increase in the manufacture of furniture using thin veneers on cheap carcasses. This resulted in a somewhat negative reputation for veneer among many consumers and critics. The author returns to an analysis of this irrational response later in the book.

The subsequent case study of the sewing machine cabinet identifies a product untainted with the “veneer problem” that was associated with some other furniture items. In the 1870s, commercially produced molded plywood was enthusiastically adopted by sewing machine case manufacturers, and the products created by the American Singer company from 1884 to about 1950 were possibly the longest-lived of plywood designs. Although the material was relatively cheap, it was the ease of manufacture that was the main reason for this success from the company’s point of view. It would be interesting to consider why such a utilitarian design was so well received by the householders who bought them in such large numbers.

The book’s narrative then moves to Europe and particularly to an evaluation of the important role of the Luther company based in Reval, Estonia, then part of the Russian Empire. The company was a key player in the development of flat plywood boards, as opposed to molded or built-up boards. In addition, it developed waterproof adhesives for the panels, giving them a much wider application. Luther’s involvement in the case of the plywood tea chest is a fascinating story of the use of materials and technology, the application of patents, and the development of a successful business model that grew from a simple idea.

The book’s next episode examines the “veneer problem” by addressing the cultural prejudices toward veneer and, by association, plywood. Inevitably, Charles Dickens’s famous family “The Veneerings,” from *Our Mutual Friend*, feature in the discussion, exemplifying the derogatory associations made between veneer and superficiality. This excursion into social history and Victorian popular culture suggests that the problem of “veneered lifestyles” appeared to warn of the dangers caused by the lack of class distinction and even the collapse of the social order. The seemingly extreme metaphor continued into more applied issues related to

the legal arguments around terminology and trade descriptions. Wilk usefully explains how the British Trades Descriptions Act of 1884 and the US Federal Trade Commission hearings in the mid-1920s tried to address public concerns over the distinctions between solid wood and veneer, as well as the accurate identification of furniture woods actually used in products. This is an issue that is still current today.

After this useful diversion from plywood itself as a material, the text returns to its trajectory and discusses one of the most important applications of plywood in the twentieth century, namely, flight. Although plywood as an airplane material is well known, this chapter is an important contribution to a more rounded analysis of the role of plywood between 1911 and 1945. It includes discussion of developments in plywood research, especially on the role of glues and bag molding techniques, the monocoque construction model, and the design and development of the British wartime Mosquito plane. Wilk makes the point that, although plywood was clearly a progressive material, by the 1930s the military tended to see wooden airplane construction as old-fashioned in comparison to metal, the latter being seen as the new sign of progress. Indeed, the frequently changing perceptions of plywood by various groups are featured throughout this book. Although briefly illustrated, it is a pity that more is not made of the major contribution of furniture factories during wartime to the production of wood-framed aircraft.

Architecture and building projects of the interwar period are addressed in chapter 5. Notwithstanding some well-known examples, such as Aalto’s Finnish pavilion at the New York World’s Fair of 1939 and Frank Lloyd Wright’s Kaufman office, this chapter explores the growing acceptance of plywood (especially in the US) as a versatile and anonymous building material. Construction formwork, interior paneling, exterior cladding, and prefabricated building projects all came within the remit of plywood. Wilk does a good job in explaining not only how the material worked but also how it was received: for example, in 1940 the famous Tylon tower at the New York World’s Fair was reclad with plywood panels after the original plaster panels began to fall off. This episode gave plywood’s reputation a boost by its publication in the general and engineering press.

The importance of promotional and research organizations is evident in many industries, and plywood is no exception. Wilk explores the roles of the US industry-based Douglas Fir Plywood Association and the government-backed Forest Products Laboratory in Madison, Wisconsin. Both these organizations were important in promoting plywood as a building material to the trade world and the public at large. The detailed section on prefabricated housing built with plywood discusses factory production using standardized sizes and processes. Wilk makes the point that these processes were sites of cross-over between the ideals of modernist architects and the needs of state and local housing plans. The work of Richard Neutra and his designs for not only prefabricated but also moveable homes provide a further strand of this discussion. In contrast, Donald Deskey designed plywood structures for postwar use as weekend cabins. Even in this short case study, we find issues of aesthetics, business, marketing, trademarks, and lawsuits, as well as new technological issues.

The following chapter is one of two halves. The first section discusses the prewar modernist plywood work from luminaries such as Alvar Aalto, Gerald Summers, Marcel Breuer, and Isokon, as well as the role of Charles and Ray Eames and their experiments in three-dimensional plywood molding. Much of this is a familiar, albeit necessary, part of the plywood story. More interesting, and less well researched until now, is the role of plywood in boat building and surfboard products. Plywood had been widely used in wartime boat and landing craft building, but the impact of technology transfer from military to domestic use had an important influence. Whether it was for naval patrol vessels, leisure-marketed speedboats, or the basic DIY "Mirror class dinghy," the technological developments made during the war filtered into peacetime industry. As with the other chapters, Wilk has located some wonderful images that show not only the finished objects but the manufacturing processes as well. There is also a nod to the postwar DIY phenomenon, which relied on the domestic use of plywood, following its success as a "new" wartime material.

The final chapter brings the plywood story up to date by considering issues around the digital revolution, matters of sustainable sourcing, and continuing technological developments. However,

Wilk reminds us that the history of plywood is one of ups and downs, and the last fifty years or so are no exception. The new wood-based manufactured boards, such as MDF and chipboard, have gradually usurped plywood's position, especially in "hidden" situations, and challenged its success in the postwar period. Furthermore, Wilk explains the alarming effects of the glues used in plywood manufacture, both on workers and consumers, which resonated with wider environmental concerns arising during the 1960s and 1970s. The emission poisoning problems resulting from the use of formaldehyde in plywood appear to outweigh its benefits. These issues were highlighted in the harm associated with the plywood-constructed mobile homes and trailers that the Federal Emergency Management Agency (FEMA) provided for residents in the wake of Hurricane Katrina in 2005, which, as Wilk points out, disproportionately affected poorer groups.

These were not the only problems facing plywood as the geographies of supply and production changed in the second half of the twentieth century. The author highlights shifts in the location and manufacture to the Far East and shows how deforestation and illegal logging of timber, often used to make plywood, have had a devastating effect on the wider ecology of the planet. The effectiveness of new initiatives, such as certification, sustainable planting, and so on, are still an ongoing debate. In line with the topsy-turvy nature of plywood's reception, Wilk points out how, in some quarters, plywood has developed a contrary image of being a "natural" and sustainable material. Widely used in contemporary "makerspaces," plywood is an ideal material for working with digital application, as it is easily available, comes in standardized forms, and is stronger than its competitors. Wilk considers the cases of the open-source Wikihouse and OpenDesk platforms as examples of the potential of digitalized products that integrate plywood. The book finishes with a four-paragraph section on the future of plywood that does not offer any crystal-ball gazing but simply confirms that even with exciting new technological advances in plywood yet to be fully developed, some prejudice toward it still remains.

This book, with its wonderful selection of generously sized images, scholarly text, and copious references, is a compelling and readable work that deals with the multiple aspects and ambiguities of plywood.

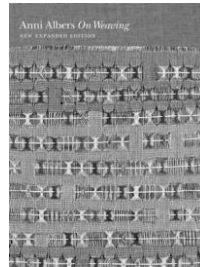
As a study of a material and its products, the book shows how objects have social meanings, how the implications of the production or consumption of plywood affects its perception and reputation, and the extent to which materials can have agency. If you are not yet a plywood fan, you will be after reading this!

Clive Edwards

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On Weaving: New Expanded Edition

Anni Albers, with an afterword by Nicholas Fox Weber and contributions by Manuel Cirauqui and T'ai Smith



Princeton, NJ: Princeton University Press, 2017.
272 pp.; 105 color and 28 b/w ills.
Cloth \$49.95

ISBN 9780691177854

Anni Albers (1899–1994) clipped out and saved reviews of the first edition of her book *On Weaving*, published in 1965. Overwhelmingly positive, these earliest appraisals commended Albers's clear account of the history of the craft, developments in loom technology, explanation of draft notation and weave structure, and tentative suggestions about the future of weaving. Almost every reviewer praised her measured style with the adjective "lucid."¹ Over fifty years later, these review cuttings are now archived carefully in boxes, nestled alongside folders containing Albers's correspondence with her original publisher, Wesleyan University Press, at the Josef and Anni Albers Foundation near New Haven, Connecticut. The foundation does not merely safeguard Albers's legacy by keeping her papers securely stored in buff folders. Rather, the foundation is jointly responsible for the publication of a new expanded edition of *On Weaving*, in collaboration with Princeton University Press, which brings Albers's rich and clear account of the history, practice, and future of weaving to a new generation of weavers and readers.

Half a century later, the reviewer of the new edition of *On Weaving* can praise more than its