

A brief material history of the third dimension: Thonet and moulded plywood

Moulded plywood is a very special type of wood. Its lightness, stability and malleability inspired many of the bold artistic designs in the modern era, the organic aesthetics of which still align seamlessly with today's styles; designs we have chosen again and again. Just like solid wood, moulded plywood is also sourced from forests. But the similarities end once the tree has been felled and the bark stripped. Moulded plywood is a modern material through and through. It's the product of an industrial manufacturing process that changes and even improves the natural properties of the wood. The first step in the process is to "peel" the tree trunk into an endless veneer, which is then cut and glued crosswise in multiple layers.

This allows all of the cuts to bear weight in all directions. In the final step, the cuts are pressed using heat and pressure and can be formed into two-dimensional sheets or even complex three-dimensional objects. Elegantly curved chairs, sleek boat hulls and aircraft fuselages: moulded plywood, like chrome-plated tubular steel and concrete, embodies the enthusiasm of modernism – the beginning of a new era.

Gluing thin layers of wood together, though, is by no means a modern discovery. The ancient Egyptians were already familiar with the principle and used veneers and plywood for their furniture and wagons. There is also evidence of similarly crafted objects in Ancient China and Rome. However, it was only during the Industrial Revolution that inventions such as the veneer rotary cutter and the hot press made it possible to refine this familiar material into modern moulded plywood.

Thonet discovered moulded plywood in 1876. Franz Thonet, one of company founder Michael Thonet's sons, had travelled to Philadelphia to attend the World Fair. One of the exhibitors was an American company that was presenting chairs with seats made of moulded plywood. These obviously made quite an impression because one year later Thonet presented his no. 18 chair, the first with a seat and backrest made with this new material. Additional models using this innovative construction method followed, and moulded plywood established itself as an alternative to Viennese canework.

In 1888, the term "thermoplastic wood seat" appeared for the first time in a Thonet catalogue. Even as designers were revolutionising furniture design with bent tubular steel in the 1920s, layered and moulded wood did not become obsolete: Mart Stam's S 43 chair is still produced by Thonet today with a seat and backrest made of bent, moulded plywood. But this material goes back even further in Thonet history. Before Michael Thonet perfected the process of bending solid wood in the middle of the 19th century, he had experimented with glued wood that he pressed into moulds.

Using this technique, he developed the curved Boppard chair in the 1830s, which was made from bundles of veneer that were boiled in glue and then bent. It was an exceptionally modern piece of furniture, in which the design, material and construction were all mutually dependent; it would have been simply impossible to build such a chair using classic carpentry and solid wood. But this innovative construction also had its downsides: when Thonet sent a shipment of Boppard Chairs to South America, the glue was not able to stand up to the warm, humid climate. Bent solid wood proved to be more robust, and material made of glued layers of wood became passé at Thonet for half a century – until more durable glues and optimised manufacturing techniques came along.

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After the Second World War, moulded plywood was the material of the day and, at the same time, a driver of innovation. A love of organic design ruled the design world – furniture brought lightness and life into interior spaces. Bent seat shells, rounded edges – moulded plywood created chairs that seemed to hover. Thonet even created its own moulded-plywood collection titled “Bent Ply”. Bent Ply perfectly fuses the words “bentwood” and “plywood” – both genuine Thonet materials. Take, for example, the 661 chair, introduced by Thonet at the beginning of the 1950s and now available again as a re-edition. Designer Günter Eberle bent a single piece of moulded plywood into a seat shell with a characteristic opening between the seat and the back. It was almost impossible to reduce this chair any further, but the “shell chair”, as it was called, looked neither austere nor banal. If anything, the vivid wood grain and the chair’s soft curves make the 661 a warm and inviting piece. And as far as Thonet is concerned, the story of moulded plywood is far from over. Upcoming new products include the S 220 chair, which is to be exclusively revealed for the first time during Milan Design Week 2022 with its finely balanced moulded plywood shell. In collaboration with Sam Hecht and Kim Colin from the Industrial Facility design studio in London, Thonet has developed an entire chair family that has taken the familiar lines of a classic bentwood chair and transferred them to a lightweight, versatile shell chair. The chair’s design clearly demonstrates how the special properties of moulded plywood can still be used today to create innovative, material-efficient furniture. It is a very special wood that combines the advantages of mass production with the beauty of a natural product better than almost any other material. And that is typical of Thonet: like bentwood and tubular steel, it lives from its plasticity. A two-dimensional material is shaped into a three-dimensional object; lines and planes form spatiality, which, even today, still feels like a small miracle of design.

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The unique success story of Thonet began with the work of master carpenter Michael Thonet. Ever since he established his first workshop in Boppard on the River Rhine in 1819, the name Thonet has stood for high-quality, innovative and elegant furniture. The breakthrough came with the iconic chair No. 14, today known the world over as the Vienna Coffee House Chair: the pioneering technique of bending solid beechwood enabled the mass production of chairs for the first time. The second milestone in design history was the tubular steel furniture by the famous Bauhaus architects Mart Stam, Ludwig Mies van der Rohe and Marcel Breuer in the 1930s. During those pioneering years, Thonet was the world's largest producer of these tubular steel furniture designs, which are today considered timeless.

For the company today, the continuous process of innovation is the top priority, together with a focus on tradition and fine craftsmanship. Thonet's furniture designs originate both from its collaborations with renowned national and international creatives and from the in-house Thonet Design Team. Chief Executive Officer Brian Boyd and Creative Director Norbert Ruf manage the company from the corporate head office and production site in Frankenberg/Eder (Germany). Michael Thonet's fifth- and sixth-generation descendants are actively involved with the company's business as partners and sales representatives.