

Leonardo's wood charring method predates Japanese practice

Yakisugi is a Japanese architectural technique for charring the surface of wood. It has become quite popular in bioarchitecture because the carbonized layer protects the wood from water, fire, insects, and fungi, thereby prolonging the lifespan of the wood. Yakisugi techniques were first codified in written form in the 17th and 18th centuries. But it seems Italian Renaissance polymath Leonardo da Vinci wrote about the protective benefits of charring wood surfaces more than 100 years earlier, according to a paper published in Zenodo, an open repository for EU funded research.

Check the notes

As previously reported, Leonardo produced more than 13,000 pages in his notebooks (later gathered into codices), less than a third of which have survived. The notebooks contain all manner of inventions that foreshadow future technologies: flying machines, bicycles, cranes, missiles, machine guns, an “unsinkable” double-hulled ship, dredges for clearing harbors and canals, and floating footwear akin to snowshoes to enable a person to walk on water. Leonardo foresaw the possibility of constructing a telescope in his *Codex Atlanticus* (1490)—he wrote of “making glasses to see the moon enlarged” a century before the instrument’s invention.

In 2003, Alessandro Vezzosi, director of Italy’s Museo Ideale, came across some recipes for mysterious mixtures while flipping through Leonardo’s notes. Vezzosi experimented with

the recipes, resulting in a mixture that would harden into a material eerily akin to Bakelite, a synthetic plastic widely used in the early 1900s. So Leonardo may well have invented the first manmade plastic.

The notebooks also contain Leonardo's detailed notes on his extensive anatomical studies. Most notably, his drawings and descriptions of the human heart captured how heart valves can control blood flow 150 years before William Harvey worked out the basics of the human circulatory system. (In 2005, a British heart surgeon named Francis Wells pioneered a new procedure to repair damaged hearts based on Leonardo's heart valve sketches and subsequently wrote the book *The Heart of Leonardo*.)

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