



WOOD IN SPORT EQUIPMENT

HERITAGE, PRESENT, PERSPECTIVE



Edited by
Francesco Negro

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The icons represent some of the sports considered in the book (including all sports would have resulted in too small images for proper visualization). The wooden equipment is outlined by the colors of the wood species from which it is made, and by lines representing the grain of wood and the characteristics of the relative wood-based products.

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THE ROLE OF WOOD FOR HUMANKIND

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INTRODUCTION

Wood has always been fundamental for humankind that has used it throughout the ages for the most diverse purposes. These have varied from combustion for heating and cooking, to using it as a material to make beams, tools, furnishings and countless other products. Clearly, the ways of using wood have varied greatly over time, mainly due to the available forest resources and the climatic, cultural and technological features of the geographical areas.

Historically, wood has often been considered the material par excellence (in the Bible, for instance, the term wood is used as a synonym of material) and has greatly contributed to the development of human civilization. The availability of wood in almost all the inhabited areas of the planet, its ease of processing, and its suitability to finishing have made it one of the most appreciated and useful materials worldwide. Advancement in the knowledge of wood, both as a raw material and as a material, have particularly occurred in Countries where wood is more abundant and constitutes a primary economic resource. In such areas, such as Nordic Countries to name an example, real “wood cultures” have developed over the centuries.

Elements for carpentry, joinery, furnishing, boatbuilding, land vehicles, as well as paper, packaging, toys, working tools and musical instruments, are some examples that can be named to illustrate how frequently we can find wood in our daily lives (Forest Products Laboratory 2021). In addition to the energetic, constructive and decorative uses, wood has always been used by humans to express their artistic vocation. The most various and surprising artistic wooden artifacts have been realized, ranging from the vernacular sphere

up to cultural heritage. The relationship between humankind and this product of nature, from both natural forests and forest plantations, is indeed a close one.

Of note, many synthetic materials have been specifically developed by humans for satisfying specific needs, whereas in the case of wood, especially when solid, the opposite has often happened: humans have had to adjust to the peculiarity of the material. The proper use of wood requires in fact to consider its biological origin and its complex features deriving from the activity of living trees.

However, the great amount and variety of wood available has often made it possible to choose the most suitable type of wood for the application of interest. Thus, the choice can fall on wood that is lightweight and resistant for carpentry, durable for exterior environments, decorative for furnishing, etc. Generally, where several exceptions exist, the ensemble of the properties of wood make it valuable when decorative aspects are key, well-suited as a structural component for different constructive systems, and not particularly suited when high performance, exposition to long weathering or full combustibility are required.

Among its countless uses, wood has always served humankind also for performing recreational and sport activities. Various traditional games indeed derive from ancient agropastoral rituals that were historically practiced using tools made of wood. Through the sportivization process, many games evolved into modern sports with written rules and professional approaches.

Over the ages wood has served humankind in playing the most diverse sports, whose high

socio-cultural relevance is well known³. Suffice it to say here that the 2015 UNESCO International Charter of Physical Education, Physical Activity and Sport acknowledges that “[...] cultural diversity in physical education, physical activity and sport forms part of humanity’s intangible heritage and includes physical play, recreation, dance, organized, casual, competitive, traditional and indigenous sports and games” (UNESCO 2015).

1900-2000s: DECLINE AND REDISCOVERY

During the 1900s the role of wood became more and more marginal in several sectors, construction being a relevant one. In that century wood was in fact widely replaced by other materials that were considered more reliable and performing. In many cases the interest of designers and stakeholders towards wood diminished, and wood was disregarded in educational programs. Limited knowledge of the material, misconceptions, and restrictions set by the normative framework contributed to further reduce its use. In many cases, wood was not used, used wrongly (for instance, by excessive oversizing), or chosen just for aesthetic purposes.

From the beginning of the 2000s, however, wood started to gain a renewed interest, which arose from two main factors. On the one side, the technical and scientific innovations enabled new and effective solutions, of which glulam and cross laminated timber are relevant examples [1]. On the other side, the increasing need of the modern society for renewable and sustainable materials found an ideal response in the use of wood. In this sense, several systems/regulations are of great importance to ensure the legal and sustainable provenance of wood.

Today wood has not only regained importance in many fields, but in various cases it has also gained an advantage over alternative materials. This trend is ongoing and likely to continue in the future, from which further

spaces could open. Of note, the knowledge of the technological characteristics of wood and of its derived products is a key prerequisite to benefit from all the services that this natural and renewable material can provide.

AN EMBLEMATIC EXAMPLE: SWEET CHESTNUT WOOD

Sweet chestnut wood can be used as an emblematic example for the importance that wood has always had for humankind.

Over the centuries, sweet chestnut (*Castanea sativa* Mill.) has been widely diffused and cultivated by humans. Around 90% of its current distribution area is concentrated in France, Italy, Spain, Portugal, and Switzerland, where traditions of chestnut cultivation have developed (Conedera et al. 2018). The importance of sweet chestnut is such that “where the chestnut tree grew, humans arrived, and where humans stopped, the chestnut tree was sown” (Bignami and Salsotto 1983).

In the past, this species was mainly cultivated to produce chestnuts that were key to the nutrition of rural populations. However, its wood was also valuable, and used for several purposes in agriculture. In rural areas the bark of young chestnut trees was used as gutter channels, and hollow trunks as beehives. During the first half of the 1900s baskets made of split chestnut wood were commonly used. Leaves and branches were also collected and destined to the production of litter for animals. Instead, chestnut wood was not used to make dishes and food containers due to its high content in tannins that causes an acidic taste when in contact with food. Clearly, chestnut timber and scraps were also used as an energy source for domestic heating and cooking. Other relevant past uses of chestnut timber were mine supporting props and bars, and railway sleepers.

Nowadays, poles for vineyards and orchards maintain a key market outlet (Zanuttini 2020). Chestnut sawn timber is still

³ The socio-cultural relevance of sport is covered in two specific chapters of this book, namely

Sport and games from philosophy to the ethics of sport, and *Sport as a symbolic universe*.

used for carpentry, and over the centuries has originated relevant constructive traditions in some geographical areas. Other remarkable applications in construction include furnishing, doors and windows, floors, balconies, and staircases.

Of note, the good natural durability of sweet chestnut wood makes it suited to several applications in exterior environments, such as outdoor furnishing, fencing, and natural engineering works. Regular maintenance and, when needed, treatments shall however be considered to support its predisposition to outdoor uses.

The timber of old grafted trees at the end of their productive cycle or those attacked by pathogens, has traditionally been destined to the tannin extraction industry. This has constituted a pillar of the economy of various alpine valleys, and still maintains a considerable relevance in some areas. In addition, a more recent use of low-quality assortments is represented by wood chips to produce thermal energy in dedicated plants.

As for artistic artifacts, chestnut wood is not suited to fine engravings given its coarse texture. It is however used in sculptures, where it is appreciated for the availability of large trunks and roots, especially those coming from old fruit trees that have grain deviations and other peculiar characteristics.

WOOD IN FOLK SPORTS

As stated by the above-mentioned International Charter of UNESCO, folk sports and games are part of humanity's heritage. After long traditions, some of them have ceased being practiced nowadays (such as wooden bowls with weights, covered in a specific chapter of this book). Nonetheless, some of them are still played in their original version, at times even in structured leagues in which also young athletes participate.

Wood has always been used to make items for folk sports. To mention an example,

“rebatta” is a folk sport of the Aosta Valley, Italy [2]. It consists in placing a small ball (“rebatta”) on a pipe-shaped support. The player hits the support with a 100-140 cm long club, sending the ball into the air. Through another movement of the club, played in rapid sequence, the player hits the ball to launch it as far as possible. The field of play is flat, without obstacles, and divided in 15 m long sectors: the farther the ball lands, the higher the score.

The ball has a diameter of 3 cm and can be made of metal or wood. In the latter case, the ball is made of nails stuck into chestnut sphaeroblasts. These are wooden extrusions that originate from trunks or branches and usually have a spherical shape. The tangled grain provides good resistance to cracks and deformations that can originate from the high stress applied by the wooden stick. Wood is also used to make the support pipe and the clubs. Generally, club heads are made of compressed walnut wood (intended to withstand hard impact), and the handles of ash wood.

A multitude of other examples could be cited to illustrate the use of wood in folk sports. Let us briefly conclude here by mentioning the sports related to the activity of loggers. Over the ages, competitions on cutting, chopping and sawing have taken place all over the world, reflecting the widespread diffusion of such professional activities. In the last decades, some of these events have evolved up to the establishment of modern leagues with tv coverage. Different disciplines are practiced: tree felling, limbing, handsaw or chainsaw sawing, axe chopping, etc. The challenge generally consists in completing the task as quickly as possible, but in some disciplines, precision is also considered. Noteworthy, the wooden raw material (for instance poplar, spruce and pine, but also others) shall be homogeneous in terms of size, species, and characteristics to provide equal conditions to all athletes.

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[1] <https://masstimberdatabase.umn.edu/> [accessed on 18 March 2022].

[2] <https://figest.it/specialita/rebatta/> [accessed on 21 March 2022].