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Traditional Blacksmith Workshops (Majdani) In Ocevlje Near Vares

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Abstract

Traditional blacksmith workshops (Majdani) are one of the examples of businesses in Bosnia and Herzegovina that have existed in their authenticity for more than five centuries (Geographical coordinates: 44°10'09.01"N, 18°27'52.79"E, elevation: 797). It is a specific way of producing a wide range of wrought iron products using resources from the immediate environment. Iron production has been a strategic issue since the beginning of human civilizations, both for the individual and for all levels of the social communities to which he belonged.

The exploitation of iron ore, as well as its processing, was always strictly supervised and controlled by the very top of a social community (emperor, king, political and military top of the state).

Introduction

Traditional blacksmith workshops (Majdani) are one of the examples of businesses in Bosnia and Herzegovina [1] that have existed in their authenticity for more than five centuries [2] (Geographical coordinates: 44°10'09.01"N, 18°27'52.79"E, elevation: 797). It is a specific way of producing a wide range of wrought iron products using resources from the immediate environment [1,2,3,4,5,6] (Figure 1).



Figure 1: Traditional blacksmith workshops (Majdani) in Ocevlje near Vares; Left: The location https://upload.wikimedia.org/wikipedia/commons/8/88/Bosnia_and_Herzegovina_in_Europe.svg, Ac-cessed 12.30.2022, Right: Google Earth, Accessed 12.30.2022

The author visited the Maidan complex in Ocevlje several times, and in 1988 he made a detailed architectural recording of it. It is interesting that these are the first detailed architectural recordings despite the fact that they were built in the 15th century. Apart from Ocevlje, such workshops were also established in Vares Majdan, Kresevo and Vijaka. This business was exclusively practiced by Catholics (descendants of the Saxons).

As far as the author is aware, a similar example is found only in Germany, on the Schwarzwald mountain. Maidans in Bosnia and Herzegovina were established by the Saxons in the 15th century.

A long period of human history (around the 8th century BC) is called the Iron Age, precisely because of the discovery of iron, iron products (for the needs of everyday life). Thanks to the extraordinary quality of these products, the possibilities offered by iron as a material, this metal has always been associated with 'power', 'conquest', 'empires'...

The source of Ocevica river is the main supply of drinking water in Vares. The energy of water is used for roughing of iron, for starting the blowing machine and grinder, while the fine finishing of the product is done manually.

Vares, Olovo, Zavidovici, Zepce, Visoko, Breza (like all towns in Bosnia and Herzegovina) had their 'market days'. Maidan farmers sold their products at markets ('vasari') all over the former Yugoslavia. Products like saccha and peka can be seen all over the planet Earth and they are the truest image and the most convincing 'ambassadors' of Bosnia and Herzegovina in general.

Iron production has been a strategic issue since the beginning of human civilizations [3], both for the individual and for all levels of the social communities to which he belonged.

The exploitation of iron ore, as well as its processing, has always been strictly supervised and controlled by the very top of a social community (emperor, king ... president of the state and its military top).

The establishment of such workshops always implied the existence of certain preconditions: 1. Proximity to the exploitation of iron ore and its processing to the form of pig iron, 2. Existence of abundant watercourses [7], 3. Existence of quality (mainly beech) forest, and 4. Existence of good communications with the network of main communications in the country.

Environment

By 'environment' we mean every possibility in space in which man can realize his existence [5].

Natural environment

By 'natural environment' we mean all those features that have been provided by nature, and on which man (mostly) has not achieved his influence: geographical position, geomorphology, watercourses and water reservoirs, flora and fauna, available soil, climate [5].

Vareš and its surroundings are known as a mining town. Moreover, it was created and developed on the basis of the exploitation of iron ore and its processing into pig iron. Ocevlje is a place located between two municipal centers, Vares and Olovo. According to tradition, iron ore was once exploited in Ocevlje itself and processed into pig iron (in the existence known as the blast furnace).

Generous watercourses (with constant capacity throughout the year, without oscillations) are the 'soul' of Maidan production. On the example of the Maidan in Ocevlje, here it is the river Očevica whose source is located just above Ocevlje, next to the road to Vares [4]. Water power is used as the basic energy input in maidans; the conversion of water flow energy into expedient tactical and rotational movements of tools is one of the most fascinating images in Bosnia and Herzegovina. First, the water is separated from its natural flow ('dam') by an artificially arranged flow (aqueduct) to an accumulation at a certain height from the ground ('ship', 'ladja'); from the nave (where the water has a certain potential energy), the water, regulated from the area of the maidan, is released into the pipes (grooves, gutters), where its potential energy is converted into kinetic energy; strong jets of water as it flows out of the gutter hit the fins of the wheel whose rotation is turned by mechanisms inside the maidan itself into rotational and tactical movements of skillfully designed tools; finally, through these tools, water energy is embodied in an iron product [5] (Figures 2, 3, 4, 5, 6 and 7).

The forest is the base for the second, essential, energy input in maidan production. The wood (beech wood is the most suitable for this production) is first processed into charcoal, and then the charcoal is used for the thermal preparation of iron before its mechanical processing. Due to its calorific value, charcoal is the ideal energy source for thermal processing of iron in the production of Maidan. Here (and elsewhere throughout Bosnia and Herzegovina) charcoal is produced using the traditional technological process of dry desiccation of wood (which often exists as a basic business), (Figure 2).

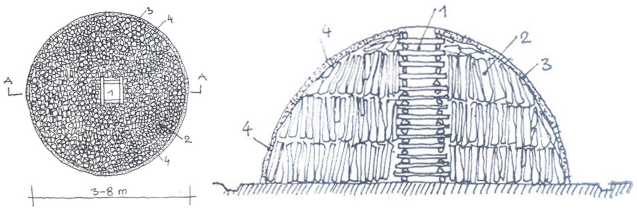


Figure 2: The traditional method of producing charcoal ('kupa'); 1) Kindling (main chimney), 2) Stacked beech logs, 3) Lining of sod and coal dust ('tupa'), and 4) Air inlets

Good communications connect Maidan production both to the needs of supplying pig iron and to consumers around the world.

In the 20th century, the Maydanjis were also traders of their goods. According to an almost established order (as per an unwritten agreement), each maidanji had 'his term', his own market in the area when he sold his goods [6]. The author cannot help but notice that this business could have been designed by exceptional human personality profiles, and that this business, later on, maintained the character of these people.

Social environment

The 'social environment' represents everything that man has created and that separates him from the world of other living beings [8, 9].

Man

Space acquires meaning only if it stands in some relation to man. This relationship ranges from the relations of the already known dimensions of space, through those that can be sensed, to those that are currently beyond the reach of human imagination. In other words, man is a being on the way, a being who continuously learns, a being of open possibilities. The term 'man' is a huge question, the essence of which he himself is trying to decipher within his limits, within the limits of the Earth and the limits of the Universe [5].

Maidan residents ('majdandzije') are people who are characterized by: exceptional hard work, responsibility, reliability, precision, humanity (they are said to have 'broad hands'), unprecedented devotion to their work (they do not like to get involved in politics, nor in any social discussions that deal with issues nations and religions, for example), moderate and sincere religiosity (all owners of the Maidan are Catholics). Their houses are modest but impeccably clean and tidy. In all respects, majdanzija were considered real gentlemen.

Boundaries: Architecture as a framework of life

Boundaries are those places in the environment where the situations encountered are controlled according to very specific human needs. Conditions are all those discovered and undiscovered phenomena in space that have a stimulating or degrading effect on humans. Boundaries, therefore, have the task of enabling the selection of influences. In the architectural sense, they enclose, but also include a person in the conditions of a certain environment [5].

Accumulation of water at height is ensured by a high reservoir. The tank is partly made of concrete and partly of a wooden crate, which is partly on the side of the hill and partly leaning on wooden posts. The gutters are represented by steeply placed pipes, on one side connected to the accumulation of water in a high reservoir, and on the other side free. Here, the potential energy of the water is converted into work, kinetic energy thanks to the acceleration achieved by falling down the slope of the chute - the water hits the wheel, causing it to rotate, along with the axle to which the wheel is attached (Figure 3).

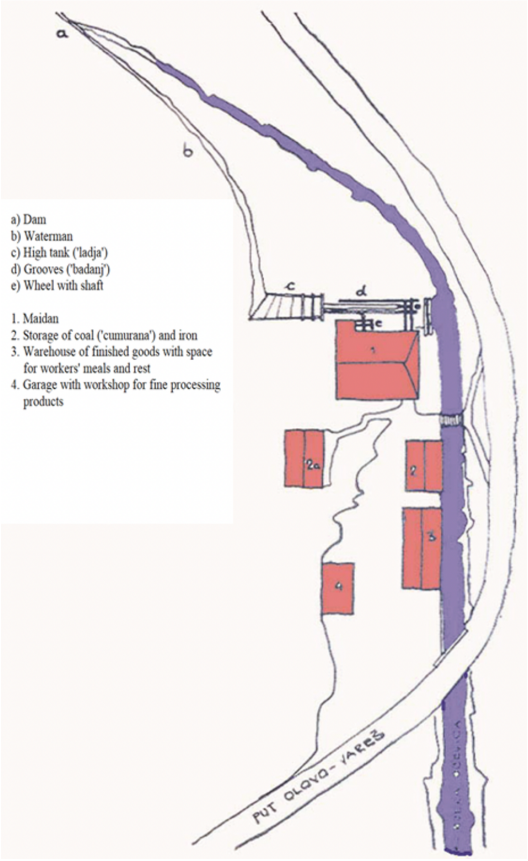


Figure 3: Maidan (owner Mijo Barkic); The situation

The Maidan workshop is a closed, rectangular space made of a wooden frame, where specific iron processing is performed (Figures 4, 5, 6, and 7).

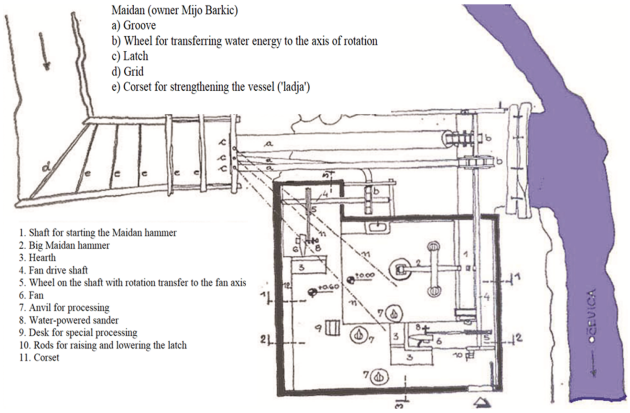


Figure 4: Maidan (owner Mijo Barkic); Plan

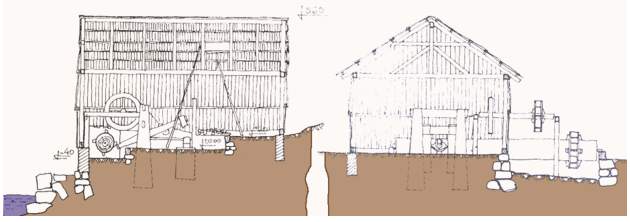


Figure 5: Left) Section 1-1, and Right) Section 2-2



Figure 6: The interior of the Maidan



Figure 7: Majdan Mijo Barkic, today

Conclusion

The 'natural environment' is more or less a given reality that man can preserve, change or devastate (change) to the extent that it becomes a 'new natural reality'. These changes, as a rule, on the other side of long-term human needs, are rarely beneficial, both in the short term and in the long term.

The Maidans in Ocevlje are an unsurpassed example of sustainable (utilitarian) architecture, where the power of water, together with two other inputs (wood and iron) is used for one strategic human need over the centuries, namely the processing of iron. This skill in Bosnia and Herzegovina dates back to the 15th century. and is still active. In the pictures we can see maidans (placed along the road Olovo - Vares of the Ocevica river), and we can also see the ways of redirecting the flow of the river towards the reservoir, as well as the transformation of potential water energy into kinetic energy, and then into rotating and tactical movements.

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