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The reinvention of the traditional home ‘bordei’ and its impact on the rural landscape and environment

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Abstract

This paper aims to present the reinvention of rural underground and half buried houses in the context of the 21st century’s raising cost for energy, environmental concerns and landscape alteration by the growing population, together with today’s urban-rural migration. Rural homes, ‘bordei’ type, had an extensive occurrence in Europe and beyond, found in various forms in different geographic regions throughout the history of manmade dwellings. Unfortunately, the construction of this housing typology in Romania, found mostly in the southern part, has stopped instead of evolving because of the failure to understand its benefits and degree of self-sufficiency in terms of energy consumption, protection, environmentally friendly approach, and so on. The main cause of the disappearance or scarce presence of the underground or half buried houses is their association with the early typologies of homes built by less fortunate people and therefore related to poverty and misery. Different global crisis led people to re-design underground homes or even restore vernacular ones for personal purpose or to include them in tourism circuits. One of the conclusions of this paper is that buried houses, derived from the traditional models and equipped with the contemporary technologies, could be a solution built in all respects with less impact on the environment and capable of revitalizing rural areas through eco-tourism.

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1. Introductions

Underground, semi-buried or earth-sheltered homes are part of the first types of stable man-made dwellings. A propitious space for residence is the one that offers the basic prerequisites a man needs in order to survive. If the first forms of human shelters were set up in natural caves, the first types of homes logically evolved from them. The caves offered shelter from imminent dangers such as nature and animals, later, disputes over territories, food and water sources or religion led to the development of dwellings that could be easily defended.

Regarded from the point of view of other benefits, such as the use of fewer building materials or the deliberate positioning of the home in easy to process soils, it was observed that this particular type of dwelling continued to be build, regardless of the architectural and/or structural evolutions in the history of houses (Kempe, 1988; Meijenfeldt, 2003; Baring-Gould, 2008; Webber and Yannas, 2013).

This typology of house requires a certain degree of excavation to be performed on the site, thus the soil had to be carefully chosen in order to be easily vertically and/or horizontally dug, using simple tools. The majority of traditional excavated dwellings are found in soft rocks or clay. Vertical and horizontal extensions, or any combinations, and elevations covered with thick layers of earth are just evolutions of the initial design. Together with this approach to the terrain, the houses will acquire new forms, up to the point where they will get to be built totally aboveground or as we call them today, *conventional houses*.

There are different methods and designs for the constructions of turf and moss houses, as well as different amounts of timber, stone and turf in the walls and roof, depending on the local climatic conditions and availability of building materials. The building process and techniques for the Scandinavian model of vernacular earth-sheltered house, which was then exported in several areas of Europe through the Viking conquests, has been largely described in the specific literature (Nilsson, 1943; Gestsson, 1982; Odner, 2001; Olafsson and Agustsson, 2006; Mook and Bertelsen, 2007).

The structures with bearing walls made out of turf or sod, found in the residential buildings in the northern Europe, found their way across the Atlantic Ocean to North America together with the immigrants, although sources recall the existence of this model in northern areas before the colonisation (Jarzombek, 2013). This construction technique was assimilated by the Mormons after 1850 (Berge, 2009: 232).

The traditional houses from the Aleutian Islands, as a typology, are closer to the semi-buried houses covered with plenty of earth. After the expedition in the Aleutian Islands, 1826-1829, Litke described them as resembling to timber yurts covered with earth (Pierce, 1987:100; Pendleton, 2008:90). The employed construction materials are timber (where it was difficultly found, they used whale bones) and earth. The Aleutian houses have no windows; the only openings are the entrance and an orifice above the hearth. Most of them have only one room, 4X6m, but there were a few examples of *longhouses*, much larger, 16x30m or 25x52m (Cordell et al., 2008:270).

Today, protecting the walls, sometimes the roof as well, of a house with earth is a practice increasingly less common, found only in areas with high temperature variations (diurnal or seasonal). Even in these areas, the closer we get to today, together with the advent of new ways of keeping the indoor temperature at a comfortable level, regardless of the exterior temperature fluctuations, the use of soil for the protection of the elevations is an attempt rarely encountered.

2. Materials and method

The theoretical research is focused on the historical rural Romanian architecture, building techniques, construction materials as well as the way of life in the traditional dwellings.

As a typology, we are presenting only the homes typically placed on flat terrains, since this is also the model most commonly found in our geographic region. Whether it is called *maison troglodyte* in France, *sod house* in Scandinavia, *turf home* in Iceland, *moss house* in Ireland, *bordei* in Romania (Figure 1) etc., this approach is probably the answer to the same problems all over the territory of Europe: harsh winters with low temperatures or strong cold winds, absence of construction materials, camouflage in the landscape, etc.

The most renowned archaic shelter, found in our geographic area, particularly in the southern part of Romania, in the Romanian Planes and the flood areas of the Danube, locally called *bordei* (the origin of the word is unknown), falls under the category of *pit houses*. The typology developed by the local civilization was absorbed over time by the surrounding ethnical communities, such as the Ruthenians – Ukrainians from the Austro-Hungarian Empire (Petrovai, 2007) – Hungarians, Serbians and Bulgarians. The etymologic dictionary states that there is a high

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