

Renate Löbbecke: Corbelled Domes

Introduction

Rectangular walls surround me. The smooth surfaces conceal a network of utility lines that supply me with water and energy and keep me in contact with the outside world. The city's buildings constitute a dense and complex structure of different architectural forms that has been constructed and kept in operation by many different specialists. Also hardly imaginable are the many varied building materials that are industrially produced and must be transported from far away. I can only wonder that everything actually works; I have no influence on it whatsoever, nor could I build an adequate dwelling for myself.

The situation was entirely different for a peasant laborer – for example in southern France – approximately 200 years ago: a plot of land strewn with stones needed to be cultivated. The stones needed to be cleared away. He could pile them up into a disorderly pile, but he can also utilize them sensibly: if he carefully stacks them stone upon stone, he can build something with them, for instance walls, terraces or a shelter for himself. He also builds this hut solely from the available stones, without auxiliary means like mortar or load-bearing timber beams. For the roof, he stacks the stones in a circular layout, layer after layer, each projecting slightly more toward the inside – cantilevered – until the stone rings close to form a **corbelled dome**.

That is the only possibility you have to build a roof over your head when you have nothing other than stones lying around.

Indeed this building technique was devised early on – examples go back to the 5th century BC – but the rural corbelled dome structures still visible today were almost all made in the last 200 years, at a time when building engineering was actually characterized by increasing industrialization, urbanization and new technologies. Nevertheless, toward the end of the 18th century and increasingly in the 19th century, a downright building boom of corbelled dome structures arose in many rural regions, especially in southern Europe.

Although I have long been occupied with the phenomenon and have visited many buildings on my travels, my archive includes only a fraction of what is out there, and new leads to other regions repeatedly demonstrate the international prevalence of these neglected, rural corbelled dome structures. It is also surprising that in far-flung countries, peasant laborers came up with similar building forms by and large contemporaneously.

On his search for “archetypes of Western architecture,” in 1964 Hans Soeder saw the domed structure on the Alpine Sassal Masone (Switzerland, 19th century) as an “unparalleled anachronism”¹ and viewed the Apulian *trulli* in the context of “historical records evidence of secret vestiges of prehistoric cults.” His impression of “a strange obsession with stone construction” leads to the baffling assessment: “We do not know what is ultimately behind the global incidence of corbelled dome buildings.”²

By contrast, in 1957 Gerhard Rohlfs opposed the prevailing theory that ascribes today's corbelled dome structures to ongoing traditions reaching back to the Neolithic period. In his treatise “Primitive Kuppelbauten in Europa” (Primitive domed structures in Europe) he observes: “These various buildings are not determined by an ethnic similarity or through direct dependency on one folk on another; they are instead the products of same basic condition. (...) That means: only in countries that are rich in the rocky raw material suitable for domed structures can the stone domes be constructed.”³

The question of the **same basic conditions** meanwhile preoccupies the experts in the countries where corbelled dome structures frequently occur, like France, Spain and Italy. Although they were not built long ago, this anonymous building technique has – with the exception of the relics that are still visible – left behind only a few historically tangible traces, almost like the prehistoric cultures without writing. Only rarely are witnesses still alive who can talk about their ancestors as the builders. Engraved dates or even land register excerpts are occasionally helpful (> dating).

In southern Europe (> compare slightly different conditions in northern Europe and Ireland) this incipient “building boom” of rural corbelled dome structures is seen in relation to changes in the political and socio-economic conditions.⁴ With the end of the *Ancien Régime* – the break with the

traditional feudal system – the power and property relations changed. The growing population made it necessary to achieve higher agricultural yields. Whereas the farmland and pastures were – not least for reasons of safety – thus far only found in close vicinity to settlements and fortified castles, the areas of productive land now had to be expanded. Beginning in the 18th century there were decrees of authority that, combined with tax abatements, dictated a reorganization of communal land.⁵ Previously uncultivated land was divided into plots and converted into farmland and pastures. This new cultivation of the land continued into the 19th century, and was intensified because in some cases one-time peasant laborers and tenant farmers more rights and also received the opportunity to own the land themselves. As independent farmers, they were strongly motivated to do the work and make the effort required by the territorial acquisition.

Wherever the fertile ground was strewn with stones, it had to be cleared away with great physical effort. And these large quantities of stone were used expediently, in that the peasant laborers stacked them into useful structures: boundary walls, supporting terraces and also protective shelters. Since these newly available tracts of land were farther from the place of dwelling, lodgings became necessary – be it to provide temporary protection from heat or rain, or to be able to work on-site for a longer stretch of time during the grazing period or the harvest season. Thus temporary residential huts, stables, storage rooms, as well as workshops, wells, cisterns and other structures were built, all of which could be constructed of the local stone material and capped with corbelled domes.

As a result, this sweeping transformation and cultivation of nature is characterized by a special unity of location, material and people: the site is shaped solely with the available natural resources; the stones are merely rearranged – they are not foreign elements. And in addition to the heavy physical labor needed to move large quantities of stone without machines, the creation of these new structures requires broad intellectual capabilities. It is not possible to stably stack rough stones by following a routine; it requires accurate observation of the available material's attributes and the unique form of each individual stone. The course of walls along uneven ground for marking the boundaries of estates and pastures and to protect cultivated fields from erosion must be wisely planned and the climatic conditions must be observed. And one must come to the realization that these rough stones can also be stacked together as a roof – a corbelled dome. Under the appropriate conditions, builders in widely distant regions did indeed come up with this idea!

With the increased mechanization and use of technology in agriculture, the domed structures have become superfluous. Today, even remote regions can be easily reached with vehicles. In most cases only easily farmed areas are still cultivated. Many stone huts have fallen victim to tourist centers, growing cities, highways and a return to wilderness. Thus it is not surprising that the huts are now only still found where they do not disturb (exception: residential buildings like the *trulli* in Apulia). But they still exist and are more common than I originally expected, although they are often hidden within impassable terrain. Their good condition is often surprising, especially in comparison with the ruins of “ordinary” houses built at the same time, whose roof of timber beams collapsed long ago.

Despite comparable morphological structures, each region is characterized by special qualities that repeatedly illustrate new creative facets and useful ideas for building corbelled dome structures. This very wealth of possible manifestations embedded in the natural environment is what spurred me time and again to continue the search.

Notes

1 Hans Soeder, *Urformen der abendländischen Baukunst*. Cologne 1964, p. 223.

2 Ibid., p. 228.

3 Gerhard Rohlf, “Primitive Kuppelbauten in Europa.” In: *Bayerische Akademie der Wissenschaften. Philosophisch-historische Klasse*. Neue Folge, No. 43. Munich 1957, p. 26.

4 Compare the studies of Lassure, Ambrosi, Zaccaria, Muñoz Regadera, etc.

5 Christian Lassure/Dominique Repérant: *Cabanes en pierre sèche de France*. Aix-en-Provence 2004, p. 226.;

<http://www.pierreseche.com/>

<http://www.stoneshelter.org/>