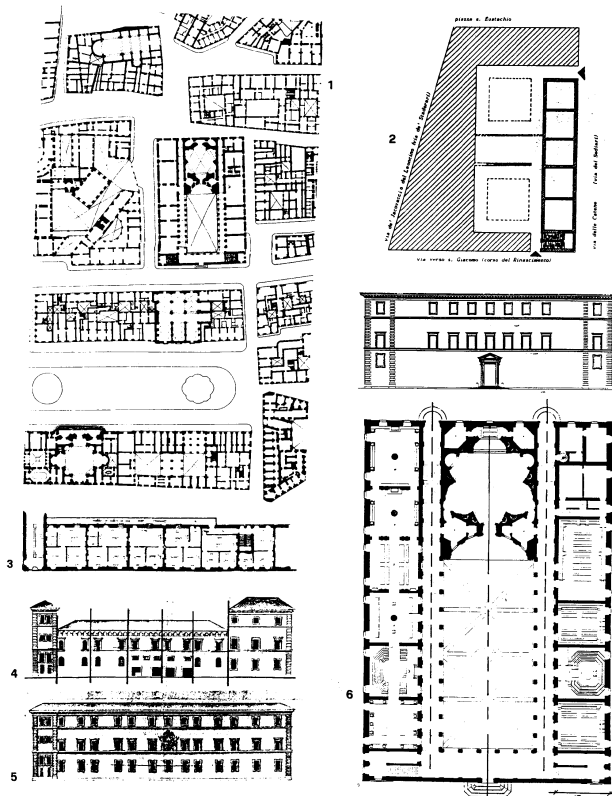


# Architectural knotting

## Giuseppe Strappa

The awareness of being able to use primary and universal characters in new architectural organisms, built with innovative techniques, responding to new needs and aesthetic values, constitutes the essence of the transition of European architecture to modernity. Buildings constructed according to these principles represent the vast majority of the renewal of cities in the first forty years of the XXI century. The modern movement experiments, even if useful to explore new ways, are, in fact, a minor and not fundamental part in the real urban transformations, above all in the areas of more rooted masonry-plastic culture. This explains, for example, how it was possible such an evident continuity in the development of architecture in Italy in the interwar period, even in political conditions inducing a rhetorical interpretation of the historical heritage.

These are durable building organisms, using architectural layouts that are still vital precisely because they have not conformed, over time, to a specific function. They are "generic" organisms in the etymological sense of the term, capable of generating whole families of multiple, new architectures. Many modern buildings (such as universities, schools, postal buildings) tend in different ways, in continuity with historical processes, to form a **society of solidary spaces linked by a common purpose and a common rule**. This rule is indirectly derived from the transformation of fabrics, through the permanence of typical structures such as convents or palaces. The beginning of this modern process can be clearly identified in the "urban necessity" of linking the building to the external paths, tightening it, at the same time, around an open space that tends to become the true nucleus of the forming process.



*Sapienza University, built in Rome on the current Corso Rinascimento, starting by the end of the XV century (from Strappa 1995)*

This is demonstrated by the birth of Sapienza in Rome, one of the first modern layout universities, built on the current Corso Rinascimento, where the first intervention at the end of the XV century, shows a series of rooms aggregated according to the logic of the fabric, unified by an internal arcade/route. Its extension establishes a centralizing axis that connects the gateway to the Saint Ivo chapel, marking the passage from fabric to building.

In the great transformation flow of the modern Italian city, before the crisis of the second post-war period, the aggregative principles of the fabric, applied to the hierarchy of internal paths, generate new types of special buildings. A true introverted and autonomous microcosm is thus formed giving rise, as we shall see, to two fundamental modern processes:

- the progression of the unitary character, where a large covered space replaces the open space so changing the whole meaning of the building;
- the opening of the inner space to the city that establishes a new role for the building and a new scale of organic unity.

This transition to modernity through the progressive updating of generic organisms can be clearly seen in the regeneration, not only in characters but also in physical structures, of existing buildings. Many modern special building types, especially in masonry-plastic areas, can be read as serial organisms in which central open spaces tend to "knot", to become closed spaces (often by transparent covers) forming the spatial node of an entirely new organism.



*Fig. 11 - Old Post Office Pavillon in Washington, 1892.*

The **knotting**, as an **act of connecting building elements, structures, systems between them to form a new organism**, is one of the most vital and fertile processes operating in the modern world. It could also be defined, as a first approximation, as the **process by which a serial organism becomes a nodal** by forming a central space obtained by closing an originally open space.

The node, to use a metaphor, is not the simple twisting of the rope. It is something different from the rope. It is not a condition of its own but a transformation of it, the particular form, among the infinite possible, of wrapping itself around a centre. Constitutes the result of the act to connect and tighten, but, once obtained, at the end of the knotting process, it represents a stable innovation, a new and recognizable form that acquires its own functional and symbolic value.

It is no wonder that this centre is a void, that it is not expressed by an element that sums up its characters and history (11). In every civilization the most paradigmatic centre is an absence. The Rudragranthi of the Vedic tradition, the knot of Rudra where the Ajnachakra is based, the energy that allows man to design his own future, does not reside in any perceptible element of the human body, but in the space between the eyebrows, in the void at the centre of the face. In the same way the intersection between nave and transept, the centre of the sacred space, is not occupied by the altar but by a void between the elements that assumes the transcendent value that the unfolding of the entire architectural organism attributes to it.

The transformation of the empty center and its knotting appear to be an anthropic necessity operating within the most diverse cultures. In an area as distant as the Anatolian, for example, the process is evident in the transformation of religious architecture (12).

See the exemplary case of the Sirçali, Karatay and Ince Minareli madrasas built in the 13th century Konya, a true laboratory of morphological experiments. The first (1243) is based on the courtyard type with rigidly serial spaces along the longitudinal porticoes at the end of which there are rooms (halls) highly hierarchized in terms of size and type of covering. The other two, built a few years later (1251 and 1258), are based on an apparently similar layout. The courtyard is instead covered by a dome that transforms the sense of the entire building. The open void becomes a closed nodal space, functionally served and statically supported, the perimetral spaces become functionally serving and statically supporting, with the obvious elimination of the narrow perimetral portico that has become useless. The knotting process has generated a radically different organism.

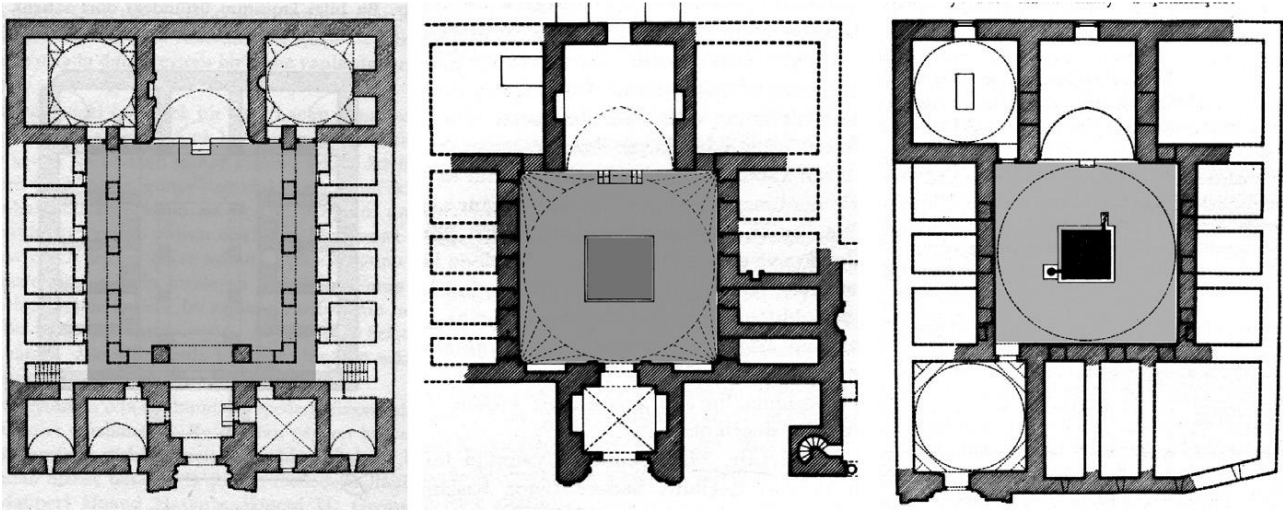


Fig. 16 - Universality of knotting processes. Transformation of the madrasa type in Konya: Sirçali, Ince Minareli, Karatay.

In Italy palaces as the Roman or Venetian ones, as well as the convents, often constitute the initial phases of a knotting process: the organic aggregation of building units or rooms around a common space that, as a place of a progressive densification, tends to specialize, to assume a particular functional, constructive and spatial role.

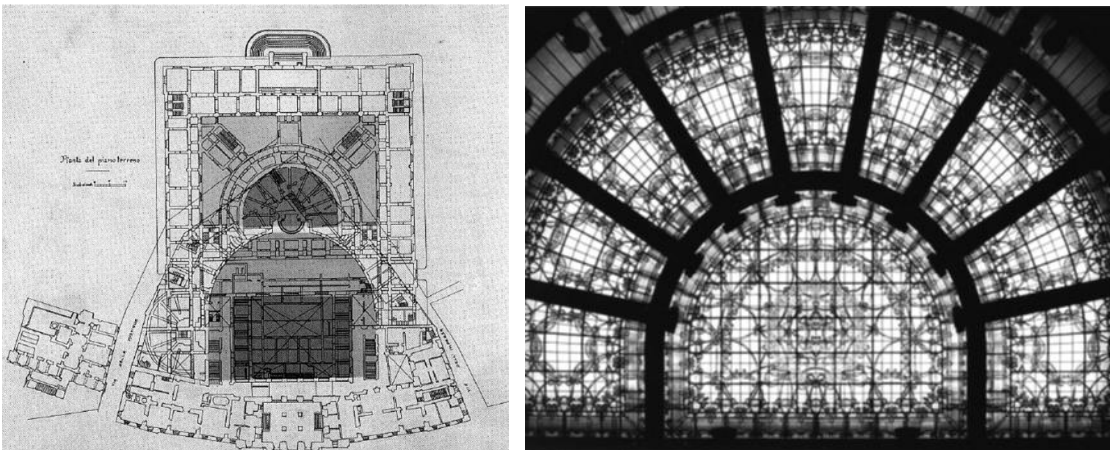


Fig. 14 - Formative process for subsequent knotting of Palazzo di Montecitorio in Rome transformed in the new Parliament, starting from the transformation of Palazzo Ludovisi. Fig. 15 - Expression, through the glass covering, of the formation of the central node.

The late XIX century Italian city, especially when the urban transformation is sudden (see the case of the moving of the capital to Rome) shows a tendency to reuse the existing fabric for new specialized functions organized on internal routes around open spaces, extensively re-employing it as administrative buildings, schools, barracks etc. These are specifically masonry ways of understanding the notion of permanence in

architecture: not only as the physical resistance of matter to time, but also as a continuity of characters, one might say, developed in a shared form.

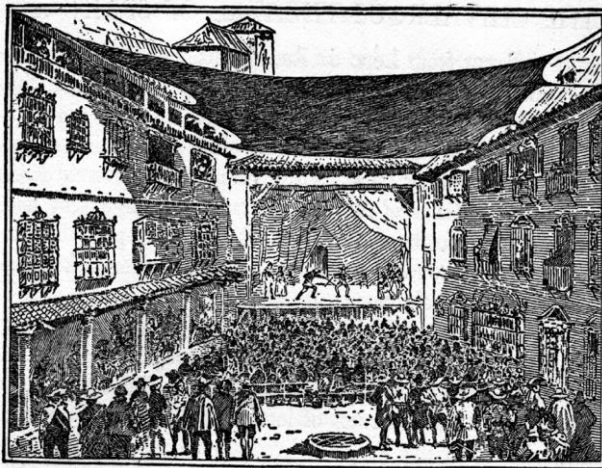


Fig. 18 - Conjectural reconstruction of a semi-open theatre in Madrid, with a covering velarium (1660).

Fig. 20 - Drawing by J. de Witt of the Swan Theatre in London (ca. 1596).

Knotting process exemplary cases are the formation and transformation of some new organisms unified by a large central space such as theatres, stock exchanges, postal buildings. The latter are, in the versions given by innovators such as Libera, De Renzi, Mazzoni, Vaccaro, Ridolfi, Narducci, Samonà, poles in the making of new urban fabrics, often hinges between new expansions and consolidated city, or nodes in the restructured fabric of the ancient centres, where they propose again, in new forms, the old question of the relationship between the innovation of the building type and the permanence of the fabric.

Their layout, from the first formative phase up to the 1920s, still has characters that can be traced back to the tradition of the more established specialist buildings: the postal building required a set of serial spaces for administration and services, and a vast internal public space which had to account for both serving the internal rooms and for the connection with the flow of visitors coming from the outside.

Like, however, in the design of other modern organisms (cinemas, department stores, stock exchanges, banks), the architects were called to solve new problems, whose complexity had not been tackled in stages, as in the past, through continuous experimentation and updates. To the new designer, born in a world of carriages and horses and now immersed in the automobile city, history did not offer reassuring solutions, but a “generative” architectonic heritage which, because of their limited specialization, was flexible, suitable for new functions. For this reason, it was necessary to understand their essence as an open structure, not determined by the practical needs that the building had to satisfy. An idea that the modern Functionalism would soon obscure.



*Knotting of central spaces in postal buildings.*

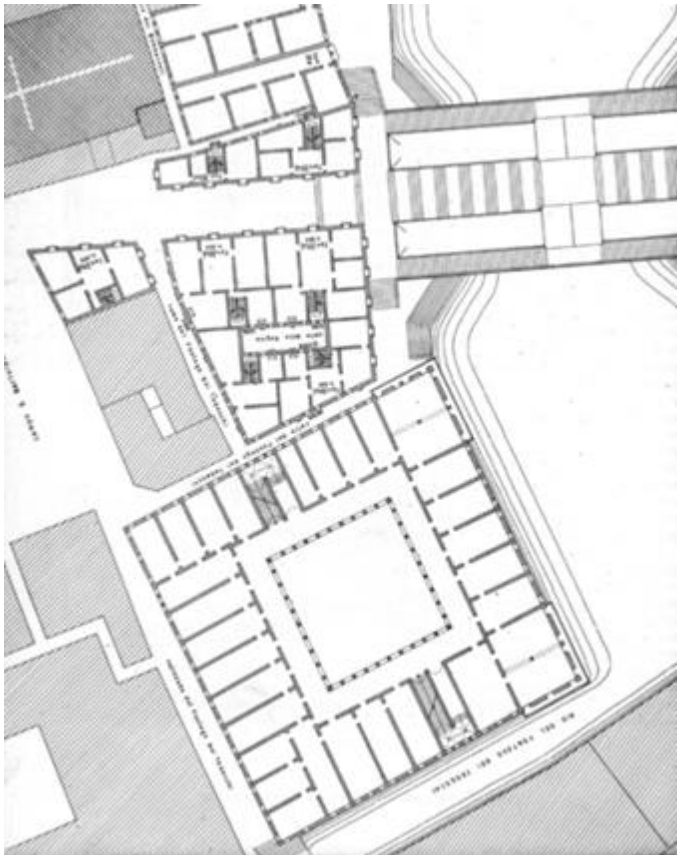
*Fig. 21 - - Post Office building in Venice, processually formed.*

*Fig. 22 - Post Office building in Trieste, with the central space being designed from its origin.*

*Fig. 23 - Post Office building in St. Petersburg, obtained by covering the courtyard open space.*

*Fig. 12 - Fondego of the Germans in Venice, gradually transformed into a postal office according to a knotting process that ended in 1908 (from Maretti 1986)*

From this point of view the postal buildings built between the two wars constitute the development of a continuous process, which starts from the first symptoms of change in the XIX century crisis and proceeds by assuming, with each new construction, updated and innovative features. If you read the built reality away from personal languages, each new postal building seems, in some way, to "individualize", that is to make unique and unrepeatable (individual, in fact) some universal characters transmitted by a common knowledge heritage.



*Fig. 12 - Fondego dei Tedeschi in Venice gradually transformed into a postal palace according to a knotting process that ended in 1908.*

Perhaps the most evident case is the transformation of the Fondego dei Tedeschi in Venice, built in the 16th century, in turn as a reuse of a XIII century structure . Originally organized with a series of rooms arranged around a large central courtyard, the Fondego underwent a first adaptation to customs in the Napoleonic period and then the transformation into offices by the Austrian government. The changes introduced by the latter use testify the ability to update of generic organisms, their genetic flexibility.



Fig. 24 - H.P. Berlage, *Stock Exchange, Amsterdam, 1903*. Fig. 25 - T. Passarelli, *Stock Exchange, Rome, Piazza di Pietra, 1920*.

The protection of the courtyard through a glass and iron structure, apparently only a technical transformation, constituted, in reality, a typological revolution that changed the sense of the spaces, with the formation of a real nodal central space (the main hall for the public), but also, in parallel, a static revolution of which, at the beginning, no account was taken: the organic relationship between layout and construction has led to extensive transformations which, in the time, went well beyond forecasts.

The stresses induced by the formation of the large nodal space have in fact changed the static conditions of the walls, of the underlying colonnades, of the foundations themselves so that the final transformation as the Finance Intendency before and the Royal Post Offices in 1908, involved long consolidation works involving almost the total reconstruction of the building.

The transformation process has changed the spatial and constructive characters of the architectural organism, assigning to the perimetral rooms the task of functionally serving and statically collaborating to support the architectural nodal structure, which is unitarily functionally served and statically supported. A completely new nodal organism, vital and modern, was thus formed from the consumption of a serial structure.