Contents

Presentation

Gian Luigi Maffei

This manual revisits Muratori's theoretical system[1] by mainly applying empirical/inductive reasoning to the field of Architecture. As far back as his research on Roman Como (1963), Gianfranco Caniggia had speculated on the city's diachronic phases of development and transformation thanks to a coherent analysis of its physical structure, which clarified the continuous relationship between medieval buildings and those of the previously built and structured 'substratum'. He had understood the processes of change that had affected previously existing buildings, defining the concepts of 'rebasification', 'insulisation' and 'tabernisation' that are fundamental if we want to understand the structure of cities founded in ancient times.

Thus further progress was made in typological studies with the codification of the dialectic relationship between supporting types and fabrics and the changes that occur at the same time in different places and those that occur in the same place at different times. This type of analysis is the methodological tool we need if we want to understand the current layout of a particular context. In studies of urban and territorial morphology, an assessment of the importance of initial constructions followed by the subsequent understanding of the dialectics of urban change, of evolving fabrics and buildings – from the first phase of construction to contemporary alterations – is a basic investigative tool. Research has been carried out at all levels – from single houses to the territorial context – using the fundamental category of 'building type' and 'fabric'. The aim is to turn the current architectural crisis into operational awareness

so as to understand its historical roots, how it began and its development over time up until the present day, and proposes the overcoming of this crisis thanks to a deep, unwavering knowledge of the continuity of typological processes.
The application of concepts such as 'cultural area', derived from the practice of applying 'linguistics' to architecture, leads to a recognition of a never-ending number of 'typological variants' – synchronic and diachronic, syntopic and diatopic – that can be found and systematically applied to architecture, to the point where the understanding of the field where the architect is asked to develop a design project becomes increasingly complex and specific.
As a result, the analysis of the structural features of architecture in the various different cultural areas and 'linguistic' meanings that we can come across in different manmade environments also becomes an essential investigative tool. As far as this aspect is concerned, the use of categories derived from structural linguistic analysis (*langue-parole* / language-word) leads to the definition of the characteristics, constants and architectural qualities that are typical of elastic-wooden areas and those of plastic-masonry areas: the use of these definitions, which includes the resulting understanding of how they interact, is one of the most important lessons to be learnt if we want to understand architecture, a lesson taught by this method of analysis.
The aim of this methodology is to define the design project approach in architecture, where a 'historical/typological' analysis – or rather a 'design typology' – is the key to using history in our work as architects in the modern world. In other words, this involves observing existing manmade structures and extrapolating from them the laws regulating their behaviour, development and their changes over time. This is considered to be the only useful way to work with a view to resolving the crisis in 'making' architecture, a crisis that has been going on for over two centuries now. Indeed, the method for understanding architecture is based on an analysis of the current operational crisis and the search for 'continuity' as the best approach to design. The unified vision of architecture, as it was succinctly defined by the *ratio* of Vitruvius – *ratio utilitatis*, *firmitatis* and *venustatis* – is fully regained when we realise that the constituent parts of a building are as inseparable as they are inextricably linked, thus the strengthening of one such part that weakens the others always indicates a situation of crisis.
This manual is a forerunner of the school of thought that attempts to

revive what is 'tectonic' and 'well built' from fashionable present-day critical experiences, which are most widely and recently represented by Kenneth Frampton. Frampton reinterprets modern world architecture, from the Enlightenment onwards, by analysing the crisis and researching continuity as the most correct approach to planning. He asserts that architecture has to be based on collective, rather than individual, cultural tradition and that reference must be made to the 'material history' of places if the crisis is to be overcome. Referring to Semperian criticism, the built environment is seen as the product of three interacting elements: *topos*, *typos* and *tekton*. Continually referring to the artistic criticism of the best-known German and French authors from the 18th century to the present day, Frampton proposes that the future development of architecture should result from the continuity of tectonic tradition. When analysing these authors, his interest is more focused on the technique, the 'art of producing' and on the different ways contemporary masters have used them; *topos* is essentially reduced to geomorphology and *typos* to a sample range of patterns that emerged with the Modern Movement.

It is on just such a unified vision that research into, and the reconstruction of, pre-operational concepts – at the various different interrelated scales that pertain to buildings, to urban fabric, cities and territories – is based, concepts that lie at the heart of manmade construction in various different places over time and concepts that encompass all the components that are essential if we want to structure a manmade creation in a complete way. In a dynamic and process-centred space-time vision, we therefore seek to understand the founding values of architecture, which remain valid and must become the working tools for architect/designers. The creation of a true 'science of construction' can help us learn to understand and make architecture and be able to teach it; an institutionalised science that is extrapolated from as in-depth a critical analysis of the built environment as possible, boasting the qualities of self-retraction, self-correction and examination that are intrinsic to all sciences. The way a manmade environment has been structured is linked until it is identified with the historical-construction process, which can be perceived in the formation of typology: this is the physical trace of human experience left behind in each cultural context and therefore living 'cultural material'.

We would like to end by highlighting the international interest in our Muratorian school: the translations into Castilian (1995) and French

(2000) of this manual and its subsequent English edition (2001) disseminated an awareness of this methodology, which became even more well known thanks to the annual international meetings that have taken place since 1994 in various different countries – Switzerland, Italy, the United Kingdom, France, Brazil, China, Germany and Canada – under the aegis of the ISUF (International Seminar on Urban Form), the international association for typological/morphological studies that we founded. Since 1997, the association has been publishing the biannual *Urban Morphology* journal, edited by professor Jeremy Whitehand, in the UK at the University of Birmingham's School of Geography, Earth and Environmental Sciences, which attracts researchers and scholars from all over the world – archaeologists, geographers, sociologists, town planners, architects and historians – and that constructs the dialogue that is possible between fields, basing it on study and research methodology and the resulting cultural debate between Muratori-inspired theories and those of the British geographer M.R.G. Conzen, which are worth comparing and which herald further progress in the field. In order to facilitate such an exchange, G. Cataldi, G.L. Maffei, M. Maretto, N. Marzot and G. Strappa edited the Italian translation of M.R.G. Conzen's seminal work *Alnwick, Northumberland: A Study in Town-Plan Analysis* in 2012.

Note

1. The school founded by Saverio Muratori consisted of the ten faculty assistants that joined him on his return to Rome from Venice in 1955. The work carried out up until the end of the following decade with them – and other supporters who gravitated towards the Centro Studi di Storia Urbanistica that he ran – produced the Muratorian school. Later, the school spread to other Italian universities where his original assistants were appointed to teach, at different times, due to the diaspora created by the faculty of Rome's attitude towards Muratori and his disciples. Indeed, in the early 1970s, the presence of lecturers such as Sandro Giannini, Paolo Maretto, Gianfranco Caniggia, the brothers Sergio and Renato Bollati, Paolo Vaccaro, Romano Greco and Giancarlo Cataldi had a pivotal role in influencing the teaching of compositional and town planning subjects in the newly set-up faculties of Architecture of Reggio Calabria and Genoa. At the same time, this also occurred in Florence's Faculty of Architecture where Gianfranco Caniggia taught for ten years and where Giancarlo Cataldi and myself still teach to this day. Later, in the 1980s, the same phenomenon occurred in the faculties of Bari and Rome, where active clusters of lecturers and researchers of the Muratorian school now work, wedded to the training experience that was continued by Muratori's original students and second and third-generation successors.

The caniggian school: an international perspective

Jeremy W.R. Whitehand

Very few researchers have authored publications that have had major influence on the course of knowledge in their field more than a quarter of a century after their death. Within urban morphology one of the few exceptions is Gianfranco Caniggia. The reissuing, significantly augmented, of the English translation of a substantial part of the book he co-authored in Italian with Gian Luigi Maffei in 1979 is timely. After translations into Spanish in 1985 and French in 2000, publication of the initial English translation in 2001 was part of a resurgence in urban morphological research and especially its communication between researchers. In this the foundation of the International Seminar on Urban Form (ISUF), in which Maffei played an important part, was a signal event.

ISUF arose out of the coming together in Lausanne, Switzerland in 1994 of a number of mainly British, French, Italian and Swiss researchers and practitioners. The *lingua franca* of this meeting and of the subsequent fruitful succession of annual urban morphological conferences through to the present was English, but for some time key works remained unavailable in that language. The translation of *Composizione architettonica e tipologia edilizia 1: lettura dell'edilizia di base*, omitting certain parts of it that were more specific in their pertinence to an Italian readership, was an important contribution towards resolving this omission.

Citations of the original Italian publication were few outside Italy before the foundation of ISUF. The publication of ISUF's journal *Urban Morphology* from 1997 onward soon began to make good this deficiency. Even more strikingly, the total number of citations of the original book

of 1979, combined with those of the translations, increased at a much faster rate in the *Web of Science* than is explicable simply by the increase in the number of documents indexed in that database. Measured over successive 4-year periods, they more than doubled between 2005-8 and 2009-12 and much more than doubled between 2009-12 and 2013-16. Citations of the English translations of 2001 predominated.

Readers of the present version of this translation can benefit by making connections to the various contributions that have been made to its subject matter since the first English version was published. Attention has continued to be attracted to the concept of the 'typological process' *(processo tipologico)*. Though this term did not appear in print until the 1970s[1], the idea was already being discussed over half a century ago[2]. Still today it poses challenges, not least relating to the links, both theoretical and empirical, between the ideas of architects of the Caniggian school and geographers of the Conzenian school. This has brought it close to two of the central purposes of ISUF, namely to reduce the barriers, both disciplinary and linguistic, to dissemination of ideas in urban morphology. That the urban forms created in one historical period are different from those created in another is acknowledged to be a fundamental aspect of the way in which cities change. The typological process explained in this volume, especially concerning the basis that forms existing in one morphological period provide for new forms created in the next, is stimulating new interdisciplinary and cross-cultural research[3].

That urban morphology has entered a period of enhanced development is evident from the burgeoning activity within ISUF, not least contributions to *Urban Morphology*, the development of ISUF's Regional Networks, and its international conferences. It is important to maintain and refresh links to the conceptual seeds of this most welcome development. This book is one of the key links.

Notes

1. G. Caniggia, *Strutture Dello Spazio Antropico*, Uniedit, Florence, 1976.
1. P. Maretto, *Edilizia Gotica Veneziana*, Istituto Poligrafico dello Stato, Rome, 1960.
1. J.W.R. Whitehand, K. Gu, M.P. Conzen, and S.M. Whitehand, 'The typological process and the morphological period: a cross-cultural assessment', *Environment and Planning B: Planning and Design* no. 41, 2014, pp.512-533.

2.1. Buildings as the historical (spatial and temporal) manifestation of the typological process from elementary matrices to complex derivations

Let us first clarify the concepts forming the title of this chapter, explaining them separately and in their reciprocal connections. In the meanwhile, let us see whether the definitions provided up until now suffice, or whether we need to supplement them with others.

Buildings as the historical (spatial and temporal) **manifestation of the typological process**: we have already defined the latter as a comprehensive succession of types in the same cultural area (diachronic changes) or in several cultural areas in the same period of time (diatopic changes), coordinated by reciprocal development. Buildings, or individual objects in their entirety forming 'what is built', are the 'manifestation' of the typological process. Once the concept of 'type' has been asserted, the objective existence of type is given by each man-made construction, which has to exist in a period of time and start to exist in a moment in time; it has to occupy and/or encompass one single moment and one physical place. Therefore **every object** is **identified** by this uniqueness, which inevitably distinguishes it from others, whether they are present at the same time, previous or subsequent. This even applies to movables: a car or a caravan, for instance, in each moment occupies a place, albeit affecting a link structure between one place and another, a 'route' which in turn is an object identified as occupying a place in time. This dual existentialist condition is an **historical** condition in that it gives rise to reciprocal linkage to other objects, sequential in time and space.

But let us now look at the last part of the title: **from elementary matrices to complex derivations**.

TABLE 1. *Building surveys of Florence.* ***A****) an example of buildings in Santa Croce (ratio 1:1,600) and* ***B****) in San Frediano (ratio 1:1,300).*

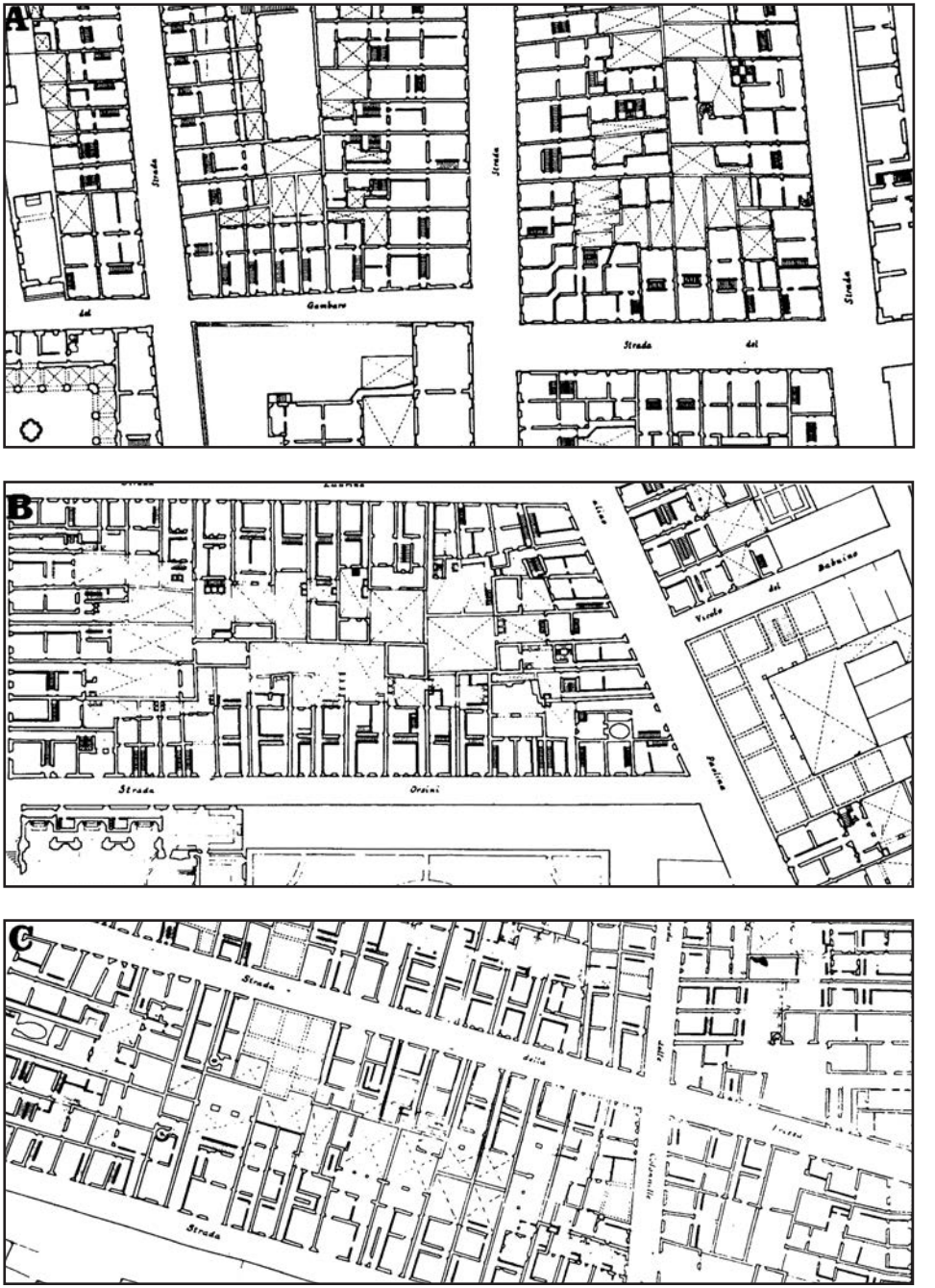
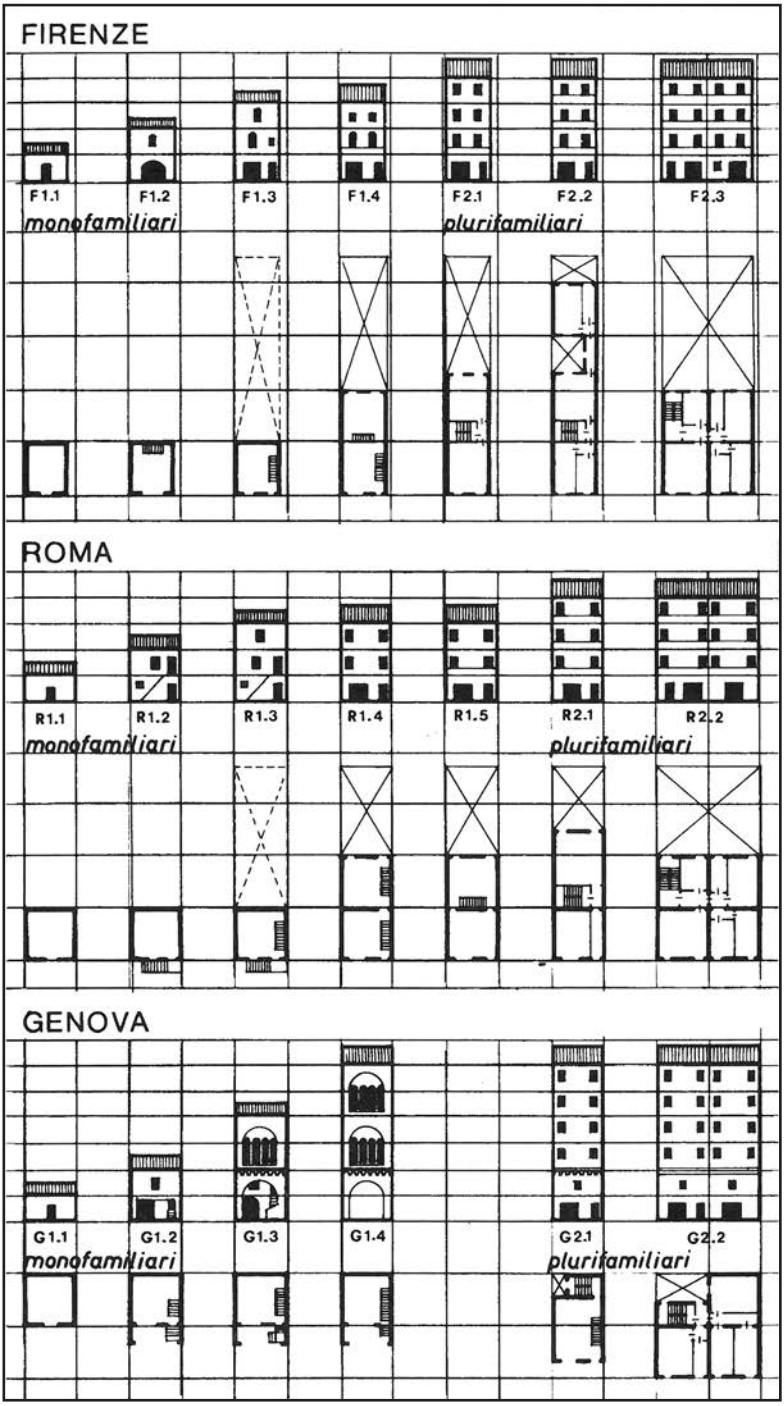


TABLE 2. *Building surveys of Rome: three examples of buildings in Piazza del Popolo's Tridente (ratio 1:1,400).*

TABLE 3. *Building surveys of Genoa and Como (ratio 1:2,200).* ***A****) Genoa, buildings along Via Giustiniani and* ***B****) along Via Luccoli.* ***C****) Como, buildings between Via Natta and Via Raimondi.*


FIRENZE
F1.1
F1.2
F1.3
F1.4
F2.1
F2.2
F2.3
monofamiliari
plurifamiliari
ROMA
R1.1
R1.2
R1.3
R1.4
R1.5
R2.1
R2.2
monofamiliari
plurifamiliari
GENOVA
G1.1
G1.2
G1.3
G1.4
G2.1
G2.2
monofamiliari
plurifamiliari

[Type, building and model]

'Building' and 'type' are interrelated through the 'level of specificity' concept, which has been touched upon. For enlightened or positivist critics, the difference between 'type' and 'building' is evident. It is associated with another distinction between 'type' and 'model', where **type** represents an abstract, distributional, functional or formal scheme and **building** represents an object that actually exists, is built and more or less coincides (in that, by existing, it can be wholly or partially imitated in the production of another building) with the term **model**. Therefore 'type' seems possible only as an *a posteriori,* analytical evaluation of model building. In our opinion, Muratori's definition of **building type** as an ***a priori* synthesis** resolves that dichotomy. In that sense, **type is not an abstract grid** to which a building has to adhere; if this were the case, a scheme could not represent the building or the totality of complex relations of an existing building. The positivist type, split by its material existence and distinct from building reality, reveals a Platonic way of intending the term, almost as if 'type' were celestial; a sort of projection far removed from real buildings in all their possible attributions.

If we bear in mind that type is something that exists in the mind of its builder before a building physically exists, it is certainly *a priori* of its physical completion, of the objectivity of that building; if it is a **total project**, it is certainly a **synthesis of all characteristics** of the building itself.

[Building and type: specification of the specificity level]

Let us now try to explain the meaning of the terms buildings, type, a building and a type. The general term 'building' is already a concept, especially as we all know how to distinguish objects that correspond to it, opposable to all those that are not 'buildings'. Our houses, Santa Maria del Fiore and a school are all buildings. However, 'building' already implies an albeit vague 'building type', coinciding with the series of characteristics that distinguish any 'building' from a tree or a dog in our minds. That is how we can already say that the general 'building type' corresponds to a general building as little as possible, when we assume the 'level of specificity' of our interpretation; that is to say, if we limit ourselves to counting buildings in Florence before distinguishing them from co-existing trees, cars or hills in the Florentine area.

We can then start distinguishing between one building and another, qualifying them as 'houses', 'schools', 'churches', etc. This does not imply a refusal to initially recognise that they are 'buildings' but means

adding a further series of explanations to the concept of building that automatically restrict the field of buildings considered in each of them; in Florence, there are more buildings than houses and more buildings than churches or schools. I have already adopted a level of specificity that is low but higher than the previous one. If I then distinguish 'houses' in general from row houses, I shall have buildings that are both houses and in 'rows' at the same time, and I shall have obtained a category with fewer objects than those previously indicated with the term 'house'. By adding attributes, I shall adopt a higher and higher 'level of specificity'; taken individually, these attributes are an unspecific yet inclusive characteristic of a category of objects spanning several categories. For instance, 'row' can describe houses but also a row of trees or soldiers; it indicates a vague positioning of objects according to a serial criterion, not specific to all houses nor reserved only for row houses. The **maximum level of specificity** is theoretically obtained whenever I manage to identify **one single object** with all its attributes and with all its characteristics, making it somehow completely opposable to other objects, albeit very similar. Only at this point shall I have realised **the similarity between a building type and a building**, and only then shall I have critically reached type entirely existing at the level of spontaneous consciousness in the minds of builders; at the same time, I shall have **fully understood all characteristics** of that building. In practice, I only have to attribute the material impossibility of reaching that target to the imperfection of my critical tools, but I must not consider such total comprehension systematically unobtainable. In other words, in practice I shall have to accept a progressive approach, asymptotic to that entirety; on the other hand, it will be quite adequate to guarantee me a 'level of specificity' useful for my interpretation purposes.

To conclude, typological analysis can asymptotically be examined as far as the theoretical limit of associating all buildings in a single categorical system according to their overall characteristics: in practice, this will be of no use to me, as any level of in-between specificity turns out to be useful to our interpretation aims and can be gone into at subsequent, more restrictive levels, as need be.
It is therefore easy to understand that the worlds of types and buildings are only instrumentally separable. It is also understandable that the intrinsic laws that enforce historicity on each building – an individual history based on an existence in time and place, a complex, physical and

functional existence that changes in time – totally apply also to **building type**, since **historical and non-historical categories** definitely **transcend** the human environment.

An important corollary that it is worth stressing originates from the distinction that we made between 'basic buildings' and 'specialised buildings' and, therefore, also between 'base types' and 'specialised types'. A civil area under expansion produces a steadily growing number of specialised types, together with increasingly complex relations between the people belonging to that area, determined by the growing specialisation of reciprocal roles. The aforementioned formation dynamics of a 'typological series' prescribe that each of these originates either from a previous series or directly from the 'basic typological process'. Let us now clarify this using an example. At present, there are numerous types of hospitals, buildings specialised in admitting and treating patients: trauma, gynaecological, geriatric wards, etc. From the time they are built, every one of them becomes a specialised type that differs from the others; however, every one of them originates from the hospital 'type' generally intended for 'admittance' not only of patients but also of pilgrims or wayfarers. We can trace this back until the main series of these buildings came into being, when a non-specialised yet basic building started to be used for that particular purpose, even before one thought of constructing a building for a specific purpose. For every birth of a specialised series, there was a pre-existing building that started to adapt itself to that specialisation. This implies that at the root of any specialised type, a family residence type must be looked for that is distant from a base type.

These remarks overthrow the assessment of architecture; the attention paid in the past to 'landmarks' and 'monuments' and to personalised works by famous architects now focuses on 'basic buildings', giving rise to specialised buildings only in that they are a derivation.
The building panorama, and the whole human environment, essentially consists of numerically, process-wise and genetically prevalent basic structures. The rest must be considered exceptions resulting from laws enforced by basic buildings, and not the contrary. This means that we must evaluate the existence of Caesar in history, not just as a single existence but his emerging from a context that not only consists of his contemporaries but also their predecessors and their successors; not just those belonging to any old ruling class but those who, making use of their spontaneous consciousness and gradually developing products, founded a human culture represented by Caesar, who was certainly less indispensable than all the others who in his time contributed to the development of man's civil work, through a chain of individual contributions, that corrected and compensated itself.

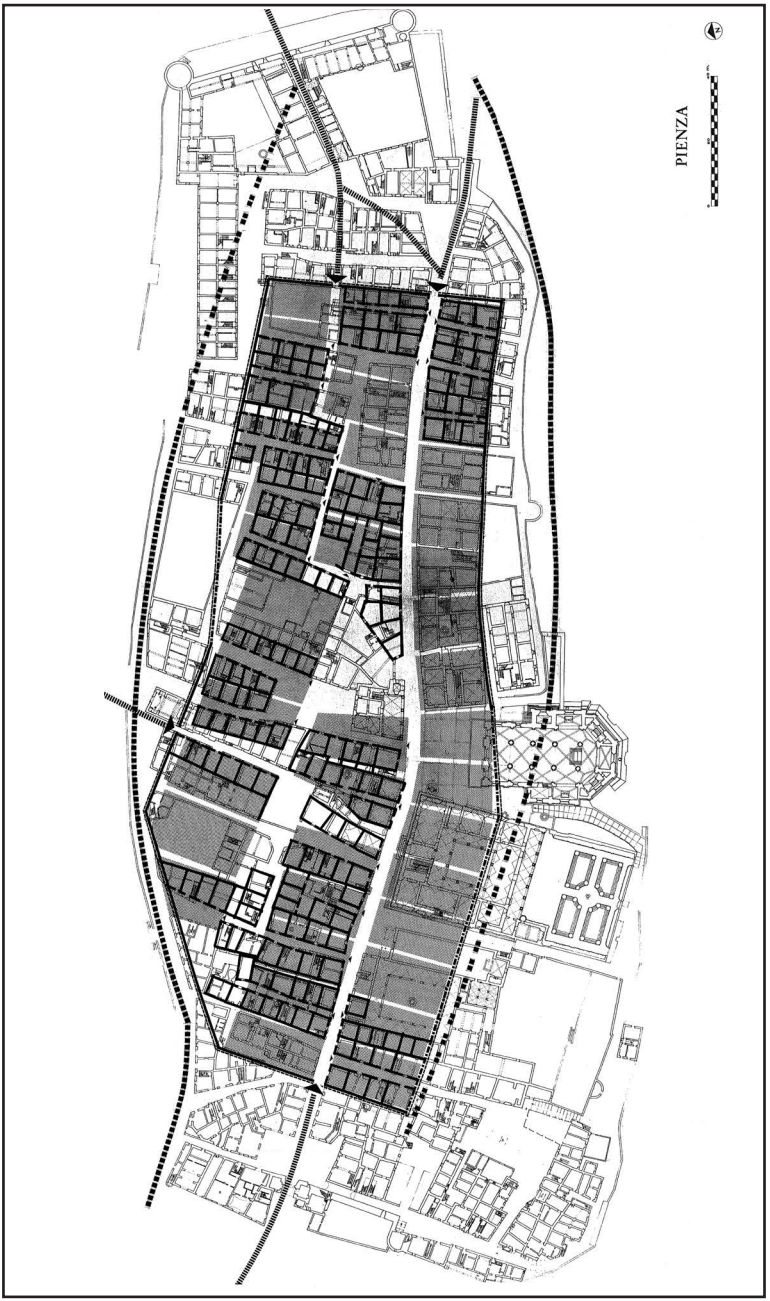


TABLE 35. *Pienza: a building survey identifying perimeters of the elementary* domus *prior to its medieval conversion into pseudo-row houses (see also the mutation schemes in Table 17).*

TABLE 37. ***A****) Nara, Japan, a plan of courtyard house tissue on a matrix route and fringe clogging on planned building routes.* ***B****) Gojo, Japan, the front of courtyard houses on a matrix route.*

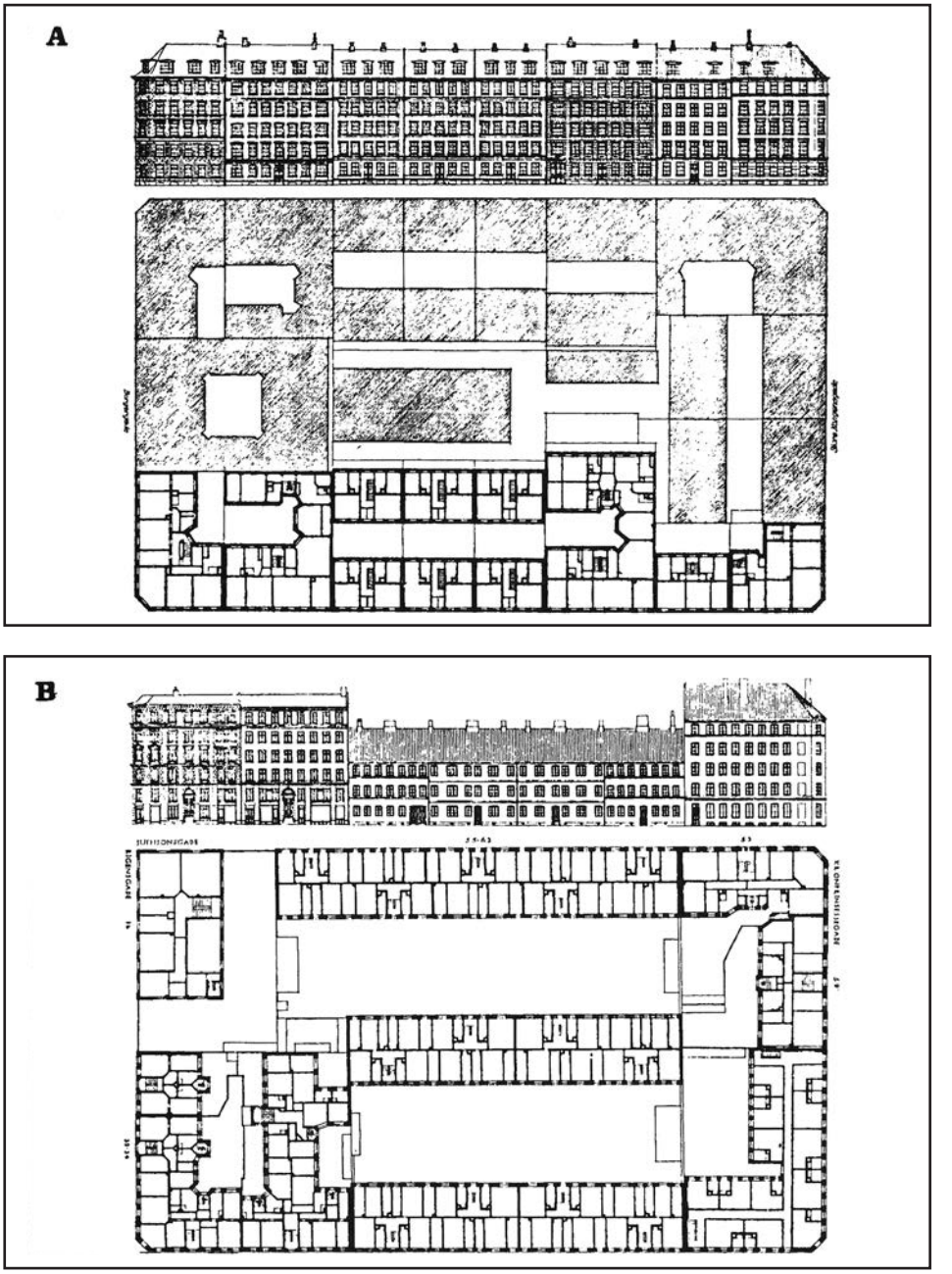
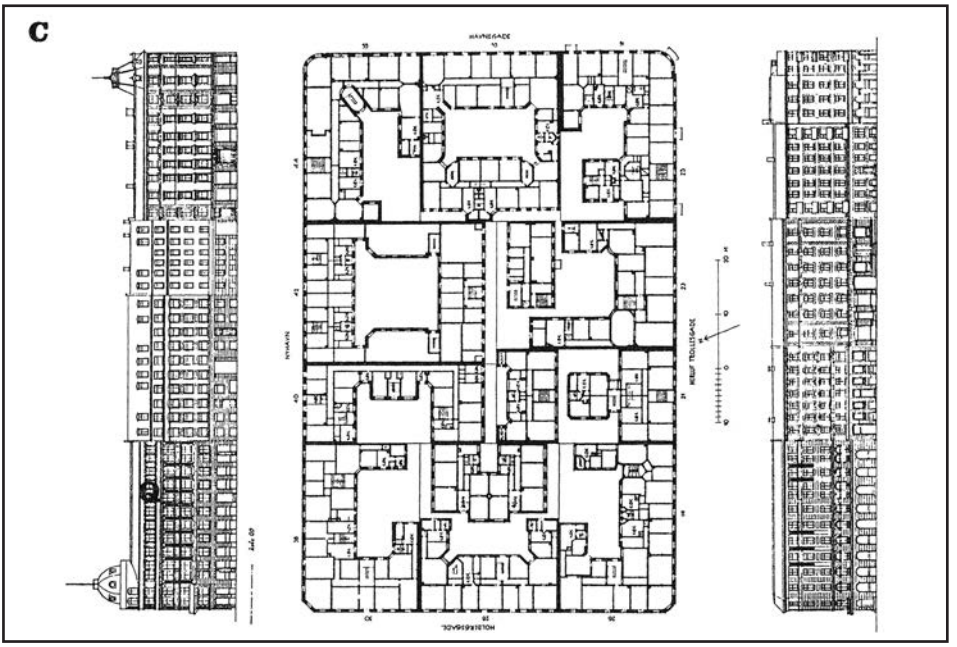
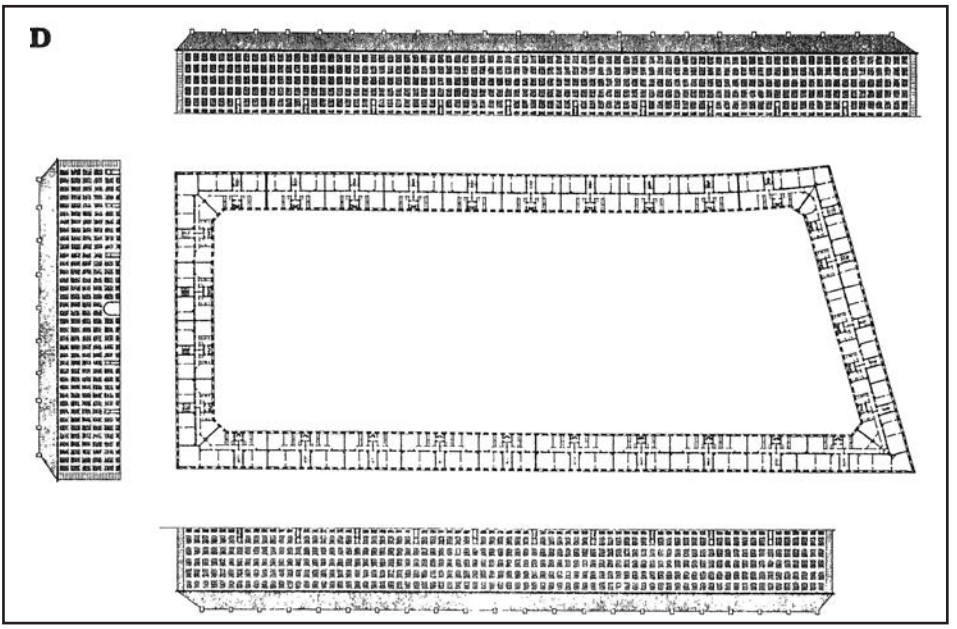


TABLE 38. *Blocks of in-line houses in Copenhagen.* ***A***, ***B*** *and* ***C****) in-line houses with explicitly modular façades (1853-1885); the* ***B*** *type highlights the partial remerging of pertinent areas in large spaces common to several building units; block* ***D*** *planned in 1923 demon-*





strates the accomplishment of remerging throughout the block and, at the same time, the legible sequentiality of each type in a uniform façade.

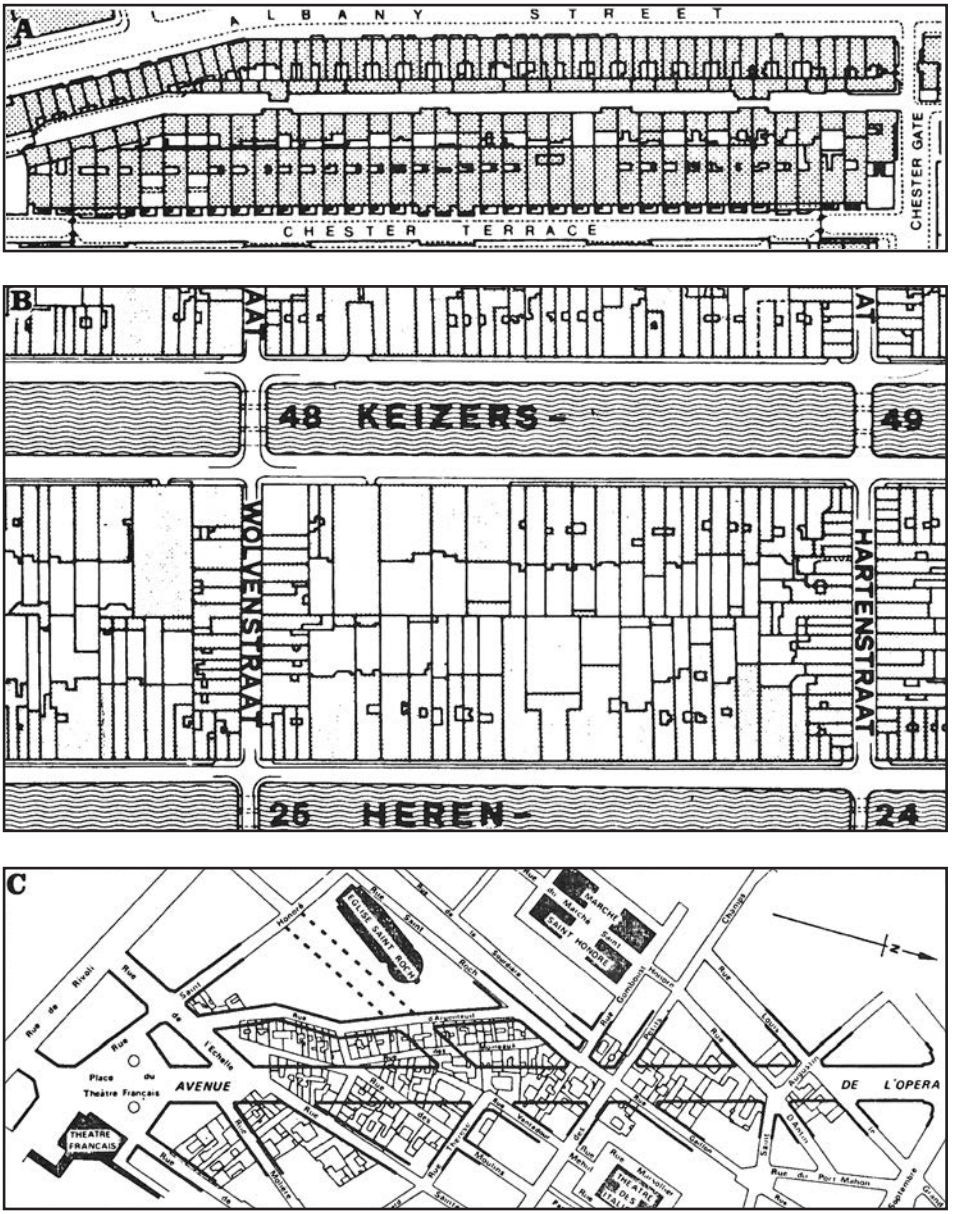


TABLE 39. ***A*** *and* ***B****) the fabrics of London and Amsterdam and a comparison (1:2,800). In northern Europe, the shape of lengthened blocks in mono-directional rows is usual: note how Amsterdam's crossing streets only give rise to infill tissues.* ***C****) Paris, an example of late-19th-century break-through routes. The city with blocks in rows has been cut across by highly polarised streets indifferent to pre-existing orders.*

[THE TERRITORIAL TYPOLOGICAL PROCESS: TERRITORY MATRICES AND BASIC TERRITORIAL TYPES]

This assumes, similar to other structures we reviewed and for other 'types', the gradual shaping of a **territorial typological process**. This starts from the notion of a **territory matrix** or **basic territorial type** and progressively expands until it takes into account the multiple scales of sizes that we use nowadays and that involve our modern 'territorial type'. These scales range in dimensions from the consciousness of belonging to a municipality, province, nation, subcontinent and continent, right up to the whole planet.

A **basic territorial type** must be considered that portion of territory occupied by a family activity that, at least in the conquest of the settlement and in steady production activity, can coincide with a **farm** or **pasture**. A basic territorial type is not, however, confined to its mere production area but concerns the whole structure, equipped with its **driveway**, and linked to a **residence**, both physically associated with the farm itself and interrelated with it.

[RELATIVELY IMPASSABLE BOUNDARIES]

In its stable form, yet still closely connected to 'naturalness', a 'basic territorial type' can be identified in the concept of a 'promontory' or a portion of territory identified as having some form of unity, a feature projecting from its surrounding territory, and autonomy given by a natural boundary, especially **relatively impassable boundaries.** These are defined as **systems of** natural or artificial **obstacles**, which are accepted or laid in place to assert boundary barriers for any territorial dimension: for example, the natural ditch bounding two sides of a promontory, a ridge separating two nations, field enclosures or stones marking a farm boundary. **A** primary **basic territorial type** is **surpassed** whenever several units corresponding to it, identified together as a wider unit to be included by further 'relatively impassable boundaries' greater than their internal ones, end up by assuming a more expanded territorial dimension than the previous one in the 'territorial consciousness' of everyone belonging to that larger scale unit.

[CULTURAL AREAS]

Therefore, for this to occur, this more expanded size must correspond to a portion of territory that can be bounded naturally by some form of territorial projection, a 'promontory amongst promontories' that is also visually independent from its surrounding area. With greater trade pos-

sibilities between its inhabitants than between its inhabitants and those of surrounding areas, more special ties are formed, including a general behavioural code, customs and a language that differs from others, briefly a **cultural area**. A more complex type usually accepts as **component systems** the more elementary types that preceded it, so that each of them that lives in a cultural area defined in this way will in itself have the consciousness and knowledge of belonging to its basic territorial type, to its 'farm' and, at the same time, the consciousness and knowledge of forming part of a new, expanded dimensional unit, the 'cultural area'.

[Cultural areas and territorial types]

However, it is obvious that the extension of a cultural area depends on its other characteristics of 'territorial type' pertaining to a place and time. As a type based on ridge-top routes prevails and as consciousness of the territory 'upstream to downstream' persists, cultural areas have to hinge on a mountain axis, a ridge, that has impassable boundaries such as waterways or a coastline; however, at a later date, vice-versa, when consciousness 'downstream to upstream' has been reached, a limit identified by a ridge system and a valley carrying axis is required.

For instance, the decline of Etruria can be taken as being produced by the previous attainment of an ideal territorial dimension, fitting into its catchment boundaries consisting of the Tiber, Arno and Tyrrhenian Sea; this dimension coincided with its sudden civil boom from the 7th to 5th centuries BC, which was created through the progressive consolidation of local settlements into 'lucomonie', and then into their federations. Between the 4th and 3rd centuries, the civil unit fell away, partly for not having full consciousness of having become a 'nation', a single state, due to the excess of independence conserved by lucomonial subdivisions. However, its decline depended on a sort of progressive 'consumption' induced by the diversity in consciousness of territory attained by its border towns, which were placed on the fringe of valley floors, and above all, by the valley floor town of Rome. Consciousness of a greater territory induced a 'downstream to upstream' inversion and the progressive dissolution of unity that was too fitting with the previous phase and too consistent with its internal 'ridge' system.

Any cultural area dimension assumes sticking to a territory fully bounded by 'relatively impassable limits'. These do not necessarily occur, phase by phase, in all territories uniformly participating in a 'territorial type'. Consequently, a relationship is, as a rule, formed between the 'driving area', the bounded, contiguous localised area, and 'marginal areas', which imitate the pattern set by the driving area and which do not generally benefit from the same privileges, given that they are implemented on marginal territorial dimensions.

2.3. Conclusions:
how the historical-typological interpretation of the environment actually works

We can now draw a conclusion from our **interpretation,** or rather from our systematic **design of interpretation** tools that enable us to examine human structures from their formation and mutation processes. A real 'analysis', at least in the specific meaning of the term is a: *'study method that proceeds from the particular towards the general by breaking up an organic whole into parts; in philosophy, any logical operation that proceeds through a sequence of distinct concepts to achieve a synthesis, where elements analysed gather together in units'* (the *Devoto-Oli Italian Language Dictionary*). An analysis, therefore, is the mere listing or numbering of data taken from reality, which is ineffective in expressing a synthesis. On the contrary, a synthesis of the whole remains indispensable in representing the entirety of an organic reality to us. Therefore, interpretation by reconstructing the processes of formation, such as what is outlined, leads to a **design of reality** that can be proposed as the entirety of connections between components. This is guaranteed by the uniformity of a system of distinctions generated from historical developments, which represent the fundamental coincidence between history and the intrinsic organisation of what exists between history and structure. As such, this method of interpretation evidently opposes the scientific subdivision between elements that are generally meant by 'analysis'. There is an implicit link between such interpretation and the possibility of making use of it for planning purposes; planning requires a similar process, in the sense of seeking to produce any structure in compliance with several needs, with solutions converging in a general forecast, in a future uni-

fied object. Therefore, dialectics are required between a direct analysis leading to a conclusive synthesis and a concise solution resulting from analytical proceedings. This dialectic relationship is enabled by the fact that data analyses relating to needs are to be found already summarised in existing structures in the form of 'organisms'.

However, a conclusion must, above all, start from a balance-sheet, which can give us the sum of unified indications over human components in the series of various scales under review, which co-exist and participate in the environment structured by man, in the comprehensive organism that forms the structure of human space.

In the introduction, we found it necessary to specify the grounds, programme and definitions of conceptual tools, both in general and on the particular subject of 'interpretation'. In four subsequent chapters, we examined four progressively increasing dimensional scales, dealing with buildings and building types, aggregates and urban tissues, settlements and urban nucleuses of their relative organisms and sub-organisms, territories and territorial type. We emphasised that each scalar upgrade corresponded to a scalar degree of acquisition, of asymptotic approximation to the environment in its entirety and that every quantity increase corresponded to an upgrading of qualitative interpretation.

From the balance sheets of the four subsequent scales, we must grasp the general meaning of our interpretation method. First and foremost, it is a characteristic quality of 'organisms' to acknowledge each scalar term on which we have focused whenever we examine it in its relationship with a range of suitably sized components. In other words, a building is an 'element' if it is related to a larger system of scalar sizes, such as those required to reach a 'territorial organism' in its entirety. This does not mean that a building, assumed as an 'organism of systems' in turn has to reveal its essential 'organism' consisting of elements, structures and systems on a lower scale.
Having explored the notions of type, typological process and the evolutionary rules of human structures, we find ourselves with a reasonable, albeit provisional, certainty of knowledge about every similarity **between structure and the process formation of reality**, between **structure** and **history**. In particular, the notion of 'typological process' represents to us, through the sequence of formative 'concepts' of human objects, the key to understanding their development and, therefore, their structuring in each historic moment and for each location. It is not really a typological process distinct for each scale. In order to distinguish it, we isolated it for aggregated buildings, villages and ter-

ritories but, in actual fact, typological process is a single entity moment by moment, involving the whole human structure, the overall **environmental organism** in its multiple facets. That is to say, it is legible vertically for each scale in its proceeding from elementary matrices to complex derivations, but it is equally legible horizontally in the single historical configuration of the environment structured by man. Therefore, the typological process essentially operates in synchronic correlations for each horizontal section studied in various scalar versions, and yet it is also diachronic by definition, to the extent that a typology of tissue corresponds to a building typology, an urban organism typology and a territorial type. This correspondence describes an overall **phase unity** that alone represents a human structure characteristic of a particular moment in history.
Every phase, therefore, requires the conformity of the products of each branch of the typological process. This means that, for each chronological moment and for each cultural area, a single attitude of man is acknowledged in laying in place a type of all-embracing equipment of his environment, implying the unified acquisition of what he finds and what he introduces in a renewed structure: in other words, an **environmental concept** and **environmental type** inclusive of types of each scalar size. Consequently, civil progress can be read in a single **typological process of man's environment** and each phase can be represented in a system of connections between products achieved by each typological process in shaping each object that man has implemented in every different moment in history.

The human organisation of a place is, therefore, achieved in a systematic **phase sequence**, each with its association of typologies inherent to various scales. It can give rise to progressively increasing complexity, just as it can survive a drop in previously achieved complexity towards more elementary formulations. The former case occurs during boom periods and the latter during slumps. We can assimilate phases contained in different cycles and in similar reciprocal positioning but we cannot establish identical products; otherwise, we would not have a sequence of 'historical' phenomena, peculiar to a place and moment and constantly subject to change with time and place variations. This is because the cycle and phase sequence has to take into account and sum up structures built during previous eras. In other words, every cycle and phase differs because they have to accept the conditions imposed by previous phases

and cycles. Our current valley structure phase, with reference to an already adopted example, can only differ from its analogous Roman phase because existing plains at the time were divided up into lots, reclaimed and covered by a route tissue to the extent that they left their mark on the territory. Modern planning can only be less widespread, less decisive than the Roman phase, on account of the historical 'depth' of structures that we inherited, which is certainly much greater than the structures the Romans inherited. Consequently, modern working conditions can only be more complicated now than before because they include a greater number of inherited structures.

An essential piece of information results as a corollary of the formation processes of any structure. The environment structured by man enforces a spatial differentiation system, constraining current intervention possibilities. For example, an existing building contains a sort of constant **connection between place and building time**. The positioning of a building in an urban nucleus not only depends on the building date of the man-made construction that still exists, but largely derives most of its characteristics **from the first building date**, from the first building to precede it, and from which it inherits its position and the size of the built lot. In the same way, the building tissue to which it belongs obtains its way of being from its 'first plan'. Although it may be very much changed since the first building, it reflects a system of ineluctable constraints inherited since then in its current behaviour.

The knowledge of 'environment' must be referred to each place in connection with a particular version of 'human structure', given by the time or times of the overriding formation of man's presence in that place. Consequently, we reject the dubious notion that the 'historic centre' clashes with waves of expansion of the past century, which are absurdly declared 'unhistoric', and accept the notion of a **scalarly differentiated environment for each place in a town and territory as overriding**. If anything, places that stand out are places constituting a 'consolidated environment', in which building organisation has reached a relatively systematic and unified order. These are opposed to those places definable as unconsolidated environments, in which a provisional order is in force determined by a series of still sporadic interventions, still not correlated to the achievement of systematic organisation.

The knowledge of 'doubling laws' and the constant presence of legacies of each stage of type development in subsequent organisms are accompanied by a consciousness of the existence of systems of **complex modularity**, which likewise concern the possible scales of man's environment. We have found small- and large-scale component and compound modularity at the level of building types, of their component systems, of urban tissue and organism and of territorial systems. Peculiarly, modularities and doubling mechanisms are more efficient than simply adding organisms or expanding in size. They include, in each step, a system of relative dimensional and functional specifications and a reciprocal complement of each module and each doubling. The weight dimensions of each module are therefore inclusive – as already noted for urban nucleus location – of any other coefficient capable of modifying metric-numerical reciprocal relations, therefore correctively including all factors that could not be assimilated in metrically defined dimensions and distances.

To recapitulate, our interpretation leads us to understand the overall **organicity of reality** and, as part of this, the built environment – be it 'spontaneous' or 'planned' (or, rather, planned at the level of individual or joint action) – is densely structured and does not arise nor does it change by chance, but it originates from constant evolution guided by a unified system of formation and mutation laws constituting what we call the 'environmental typological process' in all its multiple branches. A characteristic intrinsic to each phase of this process is the existence of a system of progressive modularities between each scalar term, from an item of furnishing to territory. Consequently, man's individual participation in his structured world is connected to the multiplicity of men and things by means of a progression of increasing sizes, each inclusive or included by the others. All this must be taken as an intrinsic product of development, in itself guided by an evolution from elementary structures to gradual complexity, from 'matrices' to progressive developments.

No doubt many readers will have reacted negatively to such a clear-cut schematic method, to an excess of method and to such a desire to extract highly mechanical laws, postulates and behaviours. Many will have dismissed what we have written up to now with some label: determinism, evolutionism, historicism, etc. It must be remembered that

in all sciences, and particularly in human sciences, laws and postulates serve not so much because they can be applied directly to reality but to read their applicability as being guided by branches, by progressive distinctions of a necessarily general law in a close network of corollaries. It is true that there is an enormous difference between the pathos of a mono-cellular alga reproducing itself by budding and the pathos exalted in an amorous encounter between Romeo and Juliet; however, its evaluation depends on the specific aim with which we examine the two phenomena. A literary or theatrical appreciation has to neglect the former and take the latter into account, with all the aesthetic or emotional charge that can result from one of Shakespeare's works. On the contrary, a biologist could more restrictively accentuate both behaviours as correlated in the common denominator of their natural promotion of species reproduction, without being accused of incorrectness. Our task is definitely closer to the animus of the biologist than that of the art critic; it might be criticised by those who want other aims from other slants, which however only interest us slightly, as we consider more elementary, existential assets resulting from typological continuity as being prevalent.

Critical Glossary

Nicola Marzot

- **Base type**

  The primitive concept of 'dwelling/inhabiting' that can be detected in every single-room building with an entrance that provides air and light. It varies in size from 25-36 square metres due to the limitations imposed by the simplicity of the materials used. Once it lost the conventional independence it had built up over time, due to continuous alterations caused by the evolution of manmade processes, it became the elementary matrix that gave rise, in successive phases, to more complex building types.

- **Basic buildings**

  The materialisation of a sequence of building types, determined according to 'spontaneous consciousness', within the same cultural area, appertaining to housing and private property.

- **Block**

  This can be described in different ways according to the scale, or level, of complexity in an urban relationship, adopted as an applicable field of interpretation. It can be analysed, on a general level of investigation, as the modular element of a city, or as a building tissue system, due to the reciprocal arrangement of different pertinent strips.

- **Break-through route**

  This rearranges existing building tissue in order to connect existing polar points more easily or, alternatively, to link those that appeared after the consolidation of previous tissue. Due to the increasing value of land and the irregularity of the building lots obtained, these routes usually accelerate the improvement of specialised buildings, mainly at intersections. A break-through route confirms a state of crisis in an urban layout that was consolidated during a previous cultural phase and arises with the onset of a new interpretation of cities, which results in a relative interpretation that is explicitly subversive. The change of perspective is preceded by a selection of parts/components compared to the whole according to 'classes' and their relative 'applications' that are entirely new compared to those that founded the existing city. Once again, the collective project is preceded by an interpretation that, through the comparison of single improvement proposals, chooses and groups the results on the basis of detectable similarities to the parameters adopted, which seem to guarantee the best yield in the dialectic relationship between 'subject' and 'object'.

- **Building language**

  The act of making construction work conventional, i.e. the collective 'dwelling/inhabiting' project that is widely accepted by the members of a community in particular space/time conditions. It therefore defines the mutually agreed mediation between man's changes to the natural and/or built environment – 'tentative' in its intrinsic logic, in that it proceeds through trial and error – and the desire to create a 'social reality' that is clearly founded on the results of that same process, suitably compensating for the particular deviations of individuals or agents, in order to successfully adjust it to the pursuit of the common good. It is, therefore, a system of rules that, through relationships of reciprocal opposition and complexity between different terms, creates a unity in all buildings in a particular cultural area, irrespective of their typological differences.

- **Building plot**

  A regularly shaped piece of land earmarked for building purposes that is generally rectangular and fenced off, placed near a planned