
From Muratori to Caniggia: the origins and development of the Italian school of design typology

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Abstract. *This paper attempts to provide a better understanding of the development of the ideas of the Italian school of design typology. In the case of the two leading contributors to that school, the fact that one (Saverio Muratori) taught the other (Gianfranco Caniggia) is a dominant theme. However, as in the history of ideas more generally, it is difficult to trace the various influences on the thinking of these key individuals. Ideas about culture, philosophy and architecture that were circulating in Italy, in particular in the 1920s and 1930s, helped to stimulate Muratori's fundamental conceptions of architectural organism, type, tissue and built environment, urban development process, territory and active history.*

Key Words: architecture, design typology, history of ideas, Muratori, Caniggia, Italy

The meaning of the work of Gianfranco Caniggia (1933-1987) cannot be fully understood without knowing the motives, events and issues that drove Saverio Muratori (1910-1973) to devise his 'architectural' way of thinking, which he completed during the last decade of his life – especially between 1960 and 1968 – during the most intense, dramatic period of his teaching in Rome. During that time, he and his assistants had to wage a battle in defence of his architectural ideas and conception of the world. His school was a mine of teaching experiences, whence we must start in order to understand Caniggia, who is not, therefore, an isolated phenomenon but the key figure in a more extensive thought process involving at least

three generations of pupils over almost 50 years.

Muratori's Roman school

During my student days, Muratori used to start the academic year with an intense cycle of theoretical classes, which he gave personally to all third-, fourth- and fifth-year students taking his three architectural composition courses. He then advised his assistants on how to give instructions on weekly design themes, which were developed in workshops, until students were examined and passed by him.

In this way, his colleagues had a chance to

experiment with a sample range of innovative ideas that conflicted with the cultural standpoints of other faculty members, sowing the seeds of the school. Caniggia, who was the least combative, was however the most scientifically determined to widen his knowledge of the fundamental problems that exercised Muratori, hence his teaching of 'design typology reasoning', on which he then lectured to fourth- and fifth-year students: here he dealt with the building 'grid' of historic city centres and the designing of suburbs, focusing for the first time on the distinction between residential, or basic, building and specialized building.

By comparing and carefully analysing books produced by members of the school at the time – the volumes on Rome and Como and the booklet on *Esperienze operative sul tessuto urbano di Roma*, written in 1963 by Sergio Bollati, Caniggia, Giannini and Marinucci – we can already get an idea of Caniggia's distinctive features, in particular the way in which he differed from Muratori, especially in his approach to the interpretation of urban form: Muratori was more interested in the general design of historic Rome, whereas Caniggia was more concerned with the transformation of Como's tissues.¹

The key feature of these studies was their originality. Muratori's teaching paved the way for a new architectural approach to urban research: the use of the design project as a means of reconstructing the historical processes of the built environment on various scales. Designs must in turn be based on such reconstructions, defined as 'readings'. Thus arise the terms 'design typology' or 'planning typology' (in the sense of 'architectural planning').

The relationship between reading and project is the crux of Muratori's method of reasoning. He began by identifying the crisis in modern architecture as a crisis of civilization. To solve the crisis it was necessary to refresh in people's memories typological leitmotifs. These are all the more dense and stratified when they are subjected to the cyclical sequence of

historical events, as they have been particularly in the case of Italy. It is a matter of reading them to fully understand them. The typological leitmotifs should be carried forward within new buildings which, however, must no longer be conceived as isolated monuments but as adapted parts of a historically and linguistically consolidated whole.

This is the meaning of Muratori's architectural revolution. He overthrew the conventional terms of the planning relationship between subject and object in design, stressing not so much the form of new buildings as their capacity to blend into their surroundings, the real crux of architectural design. Hence there are the linked issues of 'environmental' reading and 'adapted' plan.

Muratori as a philosopher²

Though often quoted and used as an example, architects have scarcely ever played a major philosophical role in the history of ideas owing to their tendency not to think theoretically. Muratori is an exception: the only architect-cum-philosopher before him was Leon Battista Alberti, who had a humanist and literary background.

Having advocated modern architecture, with its unsolved problems, Muratori gradually devised a philosophical system through which he managed to explain processes of historical structuration of the anthropic realm 'architecturally', suggesting methods of conservation. From being a pragmatic discipline, architecture acquired the value of a theoretical 'lens' to be used methodologically (on various scales, like a sort of 'telescope'), to measure, interpret, preserve and, if possible, improve our world: a tall order in this day and age.

However, I should prefer to leave judgement on Muratori's thought to experts in philosophy and philology.³ Here it is worth drawing attention to the predecessors of the school of design typology, generally consisting of architects who shared Muratori's assumptions and theoretical-

methodological approach, and the prospects that were opened up by his assistants, especially Caniggia. The basic characteristics of the school were consolidated in various Italian faculties of architecture. The essential tenets were enhanced by new contributions, interpretations and designs, but always along the lines established by Muratori and Caniggia. However, there is still room for development.

There is one aspect that I believe has never been explored and that could prove to be of great interest: the identification of the sources and cultural referents of Muratori's way of thinking. For this purpose, it would be a great help to have more knowledge of the books in his library, which visitors to Muratori's house recall as being vast and rich in every field of humanistic and scientific knowledge. An idea of the great scope of his knowledge (as he mentioned to Vaccaro in private, he used architecture to basically satisfy his intellectual curiosity) is obtained by glancing through the citations in his books.

Muratori's cultural background

Even though Italy was not of world significance in the early 1930s, its cultural environment was highly original and of great interest. This was especially true of the new teaching systems in schools and universities. At the time, they were the subject of lively debate owing to the authority and undisputed standing of the two main protagonists, the philosophers Benedetto Croce (1866-1952) and Giuseppe Gentile (1875-1944).

As Minister of Public Education, the latter commenced a major reform of Italian high schools, characterized by a split between humanistic and technical knowledge and leading to the two main kinds of high schools: the Classical and the Scientific Lyceum. Like Croce's 'distinctionism', Gentile's philosophical system, known as 'actualism', arose from the desire to reform Hegel's idealism: to Gentile the 'mere act of thinking' was an endless self-creative and self-aware mental process. The life of the

highly individual universal spirit was envisaged as dialectically fluctuating between abstract (objective) and concrete (subjective) standpoints. To Gentile, the latter, as vital acts of thinking, must tend to prevail so that the spiritually more elevated philosophical moment can overcome and synthesize the unilateral standpoints of art and religion. Amongst other things, Gentile promoted the great cultural undertaking of the Italian Encyclopaedia, to which a wide range of Italian scientists and academics contributed.⁴

His antagonist, Croce, was no doubt the greatest celebrity in early-twentieth-century Italy. He wrote about virtually every field of humanistic knowledge, from philosophy to history, literature, politics and art. His way of thinking, known as 'neo-idealism', influenced several generations of Italian intellectuals and still permeates the mindsets of numerous scholars and universities today. He is world famous for his thoughts on aesthetics (he drafted the headword for the *Encyclopaedia Britannica*), on which he based his revision of Hegel's idealism. In his way of thinking, aesthetics is the original instinctive category, which precedes the other three distinct moments of spiritual life: logic, economics and ethics. His famous dictum 'art for art's sake' had major repercussions in modern art, the alleged freedom of expression of which finds ideological support in Crocean aesthetics.⁵ Initially Muratori thought along the same lines as Croce. As an architect, he then moved away, considering aesthetics as no longer the start but the end of the design process, characterized by the sequence of logic, economics, ethics and aesthetics, which are, therefore, no longer 'distinct' but part of a single process. Muratori's originality lies in having linked in the architectural project both Gentile's unifying act and Croce's distinction between moments.

However, to reconstruct the cultural antecedents of Muratori's architectural thought, it is necessary to identify the specific environment that engendered his architectural ideas which, right from the beginning, were not completely aligned with the Modern movement's international agenda.

This environment was the recently founded Faculty of Architecture in Rome (the *Scuola Superiore di Architettura* as it was called at the time), the first to be set up in Italy. It was established after numerous legal battles on the part of architects who, in order to practice, had to graduate at art schools before passing to the Faculty of Engineering: only after passing examinations in strength calculations did they graduate as architect-engineers.

This is why, right from the beginning, Italian schools of architecture had to pay the price to those who had helped, however reluctantly, to establish them. Accordingly, systems were overloaded with subjects, grouped according to their various institutional origins: the humanities from literature and philosophy (including new disciplines such as restoration and the history of architecture), technology from engineering and, lastly, the arts from the art schools.

We can deduce from chronicles and documents the debates and arguments over the Roman school's early years. It was in this lively, promising environment that Muratori trained; in the meantime, even as an architectural student, he had continued to cultivate his own philosophical interests, probably resulting from his classical grammar school education, initiated by Gentile's reform.

The architectural issue of technique and language

There were basically six unsolved design problems that Muratori recognized during his training period and intended to solve progressively during the course of his life.

The issues he addressed initially were clearly linked to the school of architecture in Rome. Those that arose in his later life stemmed from the broadening of his outlook, which led to his ranging over fields apparently unconnected to architecture, in which Italians were not world players.

Muratori's starting point was the architectural issue of technique and language. Until the Renaissance, the relationship

between form and structure had been crucial to classical architecture. The recurrent metaphor of the human body referred the thinking subject (the architect) and conceived object (the building) to a common conceptual denominator. This was valuable for forms on the ground and for the overall appearance of architectural form: the analogical relationship between host organism and guest organism ensured consistency with the principle of the human scale, fundamental to the general public's appreciation of a building.

According to Muratori, the modern architectural crisis arose from the nineteenth-century split between structure and form which, in the short term, affected the mindsets of designers (architects and engineers) and, in the long term, the common sense of builders and users, which is even more serious. The technical capacities of new materials came to be used quantitatively and simplistically in the serial reproduction of standardized buildings, indifferent to local tradition. Tremendous, probably irreversible, damage has been done to the environment since then. The fruitful relationship between nature and the built environment, which had typified human history in various cultures, radically changed in the wake of increasingly aggressive human settlement processes.

Muratori's thought on form-structure, which was latent in his early writings, played a key role between 1950 and 1960, when he designed and built his four major works: churches in Pisa and Rome, the 'ENPAS' office buildings in Bologna and the Christian Democrats' seat in the *Esposizione Universale di Roma (EUR)* district of Rome.⁶ He asked his students to plan the famous chapel in masonry, completely alien to the international architecture of the period. If a precursor does exist, it can be found in the national series by G.B. Milani (1876-1940), who wrote two works between 1920 and 1930 whose titles are significant: *L'ossatura murale* and *Le forme archi-tettoniche*.⁷ It is worth noting that Milani had been Professor of Building Technique in Rome during Muratori's student years.

Muratori's definition of an architectural

organism – ‘formal unity of co-operating, cohesive and conspiring structures, subject to transformation in space-time’⁸ – is, therefore, the last link in a thought process that took root during the Renaissance. Muratori adds the fundamental consideration of the transformability of man-made constructions in space-time, which implies the concepts of process and formation and of transformative processes, which later stimulated not only Caniggia but the entire school, and had a major effect on historical research and town planning in Italy.

The philosophical issue of typological ‘features’

The second issue inherited by Muratori is crucial to the development of his way of thinking. It is the more philosophical issue of the individuality and autonomy of works of art, a matter that was widely debated in Italy until the early 1970s. Crocean neo-idealists and Marxists clashed over it. Muratori, who had trained on Crocean texts, recognized that his ideological standpoint posed a dilemma. For an architect it was intrinsically contradictory: in fact, firms of architects broke away from the academy over its suddenly acquired belief that architecture was incompatible with figurative arts, painting and sculpture. This contradiction – which arose with the industrial revolution and the new materials and new building techniques upon which up-and-coming engineers depended – grew with town planning efforts and the accelerating demand for new dwellings, necessitating new conceptual tools to check and manage increasingly numerous, aggressive building processes.

How could the contradiction be resolved? The term ‘type’, as introduced particularly by German architects (see Klein’s famous tables on the *existenzminimum* of elementary dwelling cells),⁹ was ideologically essential for architecture to function and had become part of architectural design in the INA-Casa housing districts built after the war. Therefore, it appeared to satisfy building

needs, despite raising further qualitative issues about the distinction and coexistence of different typologies (row houses, in-line houses, tower blocks and gallery houses).

Muratori played a leading role in developing the idea of type, both as a town planner and designer of individual buildings. At the time, his university career had brought him to Venice as Professor of Distributive Features, a subject he had been taught in Rome by E. Calandra (1877-1946), who is not well-known (in fact, it is impossible to find any of his writings) but was sincerely appreciated by Muratori (who explicitly mentioned him in his inaugural lecture at his first Venetian course on ‘features’). Studying the historical tissues of Venice was essential to solving the typological issue because it provided convincing answers not only to the serial production of buildings with similar characteristics but also to consequential problems, on a larger scale, of their origins and coexistence in the same urban organism. In Venice, Muratori’s intuition and hypotheses were confirmed in *Vita e storia delle città*.¹⁰

However, no philosophers seem to be aware of the philosophical worth and importance of Muratori’s definition of building types as an *a priori* synthesis (clearly originating with Kant). This was despite its precise and convincing explanation of the mechanisms of design and building, mechanisms that have always accompanied human production of the built environment on all scales, from utensils to dwellings and from villages to towns and territories. Muratori defines building type, linking it dialectically in a roundabout way to the definition of architectural organism, thus attributing to it the value of the latest individual product of the typological process. Type initially springs into the minds of designers as the spontaneous cultural outgrowth of their backgrounds. Therefore, it is not only deep-rooted in the built environment but also in the collective unconsciousness, which instinctively assimilates it in an asymptotic process of progressive technical optimization and functional adaptation. Caniggia then

developed these notions, using them as the basis for his method of interpretation.

However, Muratori's definition of building type has philosophical and architectural antecedents, thus representing a particularly important moment in a thought process, whose founder, Aristotle, wrote: 'If we analyse the building process of a house, we see that the builder has the form of the house in mind; he knows what houses are all about. To a certain extent, houses originate from houses: from something intangible (their concept) that generates something that includes matter.'¹¹ Muratori could not have improved on this definition of building type. However, the only part of Aristotelian intuition included in classical architectural treatises is the typological development of temples from primitive huts and the architectural orders from wooden triliths. Later academic manuals (for example, those of Serlio, Palladio, Blondel, Durand and Quatremère de Quincy which, in particular, made an important distinction between type and model)¹² tend to invert the sequential order of progression implicit in the spontaneous principle of typological imitation, by regarding the most recent buildings, which had typified the Renaissance, as models for subsequent buildings. This attitude was then adopted in the typological classification of building features up to Muratori's time.

The constructional issue of the built environment

Muratori rejected typological classification as scientific objectivising. For him, historical building processes were based on the spontaneous type plan, the outgrowth of a particular cultural context. Muratori's Venetian experience led him to single out not only the typological persistence of the *casa-fondaco*, a tripartite Venetian warehouse with a through-hall, but also the capacity of these dwellings to be aggregated serially to form, within building tissue, the real backbone of the urban organism.¹³ Hence, with the concepts of environment and adaptation,

Muratori's vision is extended to the building scale, no longer focusing on individual buildings but on their context. Historical buildings therefore have to be protected from undue intrusion, which could threaten them and, in the long run, destroy them.

These ideas had been circulating among Roman architects for decades, perhaps as far back as 1890. It was then that the Associazione Artistica fra i Cultori di Architettura (AACAR) was founded to focus on understanding and safeguarding the building heritage of Rome and Latium, an interest reflected in two volumes of a series of books on minor architecture in Italy (probably the first to be published in the world on these topics).¹⁴ The same architectural movement, in vogue during the early-twentieth century, and known as 'Barocchetto' (which included virtually all AACAR members), should be reappraised in this light: perhaps it did not represent a stylistic whim but the desire to relate in a lower key to the last great period of Roman architecture.¹⁵

At this point, Gustavo Giovannoni (1873-1947) – one of the principal lecturers at the School of Architecture in Rome and an AACAR enthusiast – must be introduced. His most famous book, *Vecchie città ed edilizia nuova*, published in 1931, made great waves in the stagnant waters of Italian architecture. Ripples in the water were also created by the dispute between Giovannoni and Marcello Piacentini (1881-1960), who, as far back as 1915, had written a book on the same subject entitled, significantly, *Sulla conservazione della bellezza di Roma e sullo sviluppo della città moderna*.¹⁶

The bone of contention was one of the young Muratori's main concerns: how to blend modern architecture into historic towns. Apart from their actual bearing on the urban tissues of certain historic towns (first and foremost Rome, but also other Italian towns), the two opposite theories, Giovannoni's 'thinning out' and Piacentini's demolition, are the crux of the Roman school's teaching concerning the restoration of monuments and town planning. The dispute between the two practically led to the dissolution of the

AACAR and did lead to the foundation (on Giovannoni's initiative in 1939) of the Centro Studi di Storia dell'Architettura, which is still an important cultural reference for art historians in Rome.¹⁷

The urban issue of the development of towns

Piacentini, the best-known Italian architect of the Fascist era, took a much broader view of modern architecture. In fact, he was responsible for numerous public buildings and town plans during that era. These included the plan of EUR, a district created for the international exposition in 1940 but only completed after the war: its planners included the 30-year old Muratori who, together with Fariello and Quaroni, won the competition for the Piazza Imperiale.¹⁸ The war interrupted Muratori's professional activity but not his philosophical thought, which intensified until he devised his first systematic arrangement of concepts (underpinning his later philosophical system), a written version of which only appeared in his posthumously-published post-war essays.¹⁹

The theme of the city's development had suddenly become topical during the early 1950s because of the need to build new residential suburbs following war damage. The main protagonist of these events was once again an architect from the Roman school, Arnaldo Foschini (1884-1968), professor of architectural composition and a great admirer of Muratori. He was entrusted with co-ordinating the entire national public reconstruction programme after the Second World War. Between 1950 and 1960 Foschini devised, ran and completed the INA-Casa housing scheme. In every town damaged by the war, plans were prepared for new social housing suburbs.²⁰ Together with De Renzi, Muratori designed the plan for Tuscolano which, together with Tiburtino, was the main suburb of Rome at the time. The model was so-called Scandinavian empiricism which, as far back as the 1940s, had started to challenge the strict functionalism of the German *Siedlung*. It

provided a 'softer', more articulate, design in which building types in different hierarchical positions coexisted – in-line terraced houses along central axes, lateral 'combs' of row houses, and tower blocks along the edge. There were more public and private green areas and footpaths separate from streets.

However, despite being appreciated by critics, the district did not satisfy Muratori because it clashed with the thick fringe of speculative contemporary building and even more so with the historic centre's late-nineteenth-century tissues, the last to obey the law of continuity with older central tissues. He therefore felt the need to study the processes of urban transformation further, which induced him to search for a key to the problem in Venice. There, during the late 1950s – by designing the Sandbanks of S. Giuliano²¹ in phases – he was able to put into practice the innovative concept of 'operative' or 'active' history, which he maintained was the only way to unite the city's life and history.

To him it meant a breakthrough, as he himself admitted during a lecture:

I am not a child of the Academy but of modern vain ambition. In order to shake off this inclination, I laboriously questioned everything from the age of 20 to 40, as problems did not appear to be solved. From 40 onwards, I was busy studying the city of Venice. This major study taught me a great deal, as Venice's simple, linear urban tissue seemed to be in tune with modern man, who seeks redemption but is still a novice. Therefore, an attempt was made to understand Roman urban tissue ... The rather laborious work, however, revealed that Roman civilization, and civilization in general, is and always has been doubly cyclical: cyclical in its object (nature), which is constant and unchanging, and in its subject (man), which accelerates considerably at a time of crisis ... After this study, the territorial issue arose, that is the need to understand the entire territory, not just that occupied by towns ... Ten more years on this topic of territory, despite the decade having been pervaded by its predecessor, led to an emphasis on culture,

awareness and the self-awareness of man to build a world that should be realistic – even if man does not succeed completely – namely the adventure of civilization.²²

The geographical issue of the human environment

This autobiographical passage introduces the two concluding issues raised by Muratori: the closely-linked dialectic issues of territory and the internationalization of the civilized world. Their cultural antecedents can quite evidently not be traced in the field of architecture, which avoided this kind of problem at the time. Muratori's definition of territory as 'the positive, sole outcome of co-operation between man and nature' arises perhaps from his desire to resolve the dualism implicit in the forced distinction between the natural and the human world (in German between the *Naturlandschaft* and the *Kulturlandschaft*) made in geography, one of Muratori's favourite subjects. In Italy, during his formative years, both the *Atlante dei tipi geografici* by Olinto Marinelli (1874-1926), published in 1922, and the series by Renato Biasutti (1878-1965) on *Dimore rurali italiane*, published in 1938, were widely publicized. The latter had been preceded, as far as the theme of building country typologies was concerned, by a book entitled *Architettura rurale italiana*, co-authored by G. Daniel and Giuseppe Pagano (1896-1945), the latter being one of the best-known Italian rationalist architects. Among Muratori's geographical readings the volume *Ruralistica* by Amos Edallo, published in 1946, should also be mentioned.²³

However, Muratori's territorial concept goes beyond the purely descriptive, contemporaneous concept of traditional geography, which arose during the Enlightenment thanks to Alexander von Humboldt (1769-1859) and his school in Berlin. To Muratori, territory is under continual transformation, opening and closing the cyclical process of man-made organisms. Typically it takes its place in history through the sequence of territory-to-material-to-house-to-village-to-town-to-

territory, which is projected into both time and space and applies to all types of culture. Territory is, therefore, the maximum scalar organism produced by man, preceding, engendering and structurally sustaining all the others.

Full of implications and potential – and linking geography to architecture – the definition of this concept drove Muratori in his later years, after publication of the book on the operative history of Rome, to pursue a major atlas, *Studi per una operante storia del territorio*, unfortunately unfinished (tables had been printed but without a text). In this he intended to describe and compare the diffusion mechanisms of territorial civilizations on a large scale in order to gain an overview of the grandiose 'adventure of civilization' represented by world history.²⁴

The breakthrough of Muratori's school in territorial research was its theory of original ridge-top routes. Even though it is still either unknown to or underrated by geographers and historians, it is of great importance because it facilitates identification of the relationship between original migratory paths and promontory settlement systems, whose indelible mark can still be detected in the hilly and mountainous regions of Italy.²⁵

The historical issue of the development of civilization

The historical issue of the limits to the development of civilization is more complex. It was the open question concerning the destinies of man that intrigued the 'scuola storica italiana', founded by Giambattista Vico (1668-1744) and Ludovico Antonio Muratori (1672-1750). Vico is of particular interest to us as he was the first European intellectual to question, in his *Scienza Nuova* (1725 and 1730), the primacy of the so-called exact sciences. He argued for the supremacy of historical science and founded his historical conception on the theory of 'run and rerun', which is clearly an antecedent of Muratori's theory of historical cycles. His famous '*verum et factum convertuntur*' is a different way of asserting Muratori's concept

of the coincidence between history and structure.²⁶

Vico explicitly influenced even Croce. After the Second World War, one of his books, *La storia come pensiero e come azione*, practically became the manifesto of politically-committed intellectuals. It advocates the theoretical distinction between historiography and history (the former is theory whereas the latter is practice), often quoted by Muratori to back up his idea of operative history.²⁷

Two major works on the historical destiny of the world may well have influenced Muratori. The first, by the German Oswald Spengler (1880-1936), was widely debated on account of its visionary theses, founded on historical design, and their political implications. The second, by the great English historian Arnold Toynbee (1889-1975), compared various cultures and civilizations, based on the assumption of their intrinsic organicity, inevitably implying a birth, development and end. Muratori may also have been influenced by the *longue durée* theory of the French *Les Annales* school, founded in 1929 by Lucien Febvre (1878-1956) and Marc Bloch (1886-1944), who advocated the need to reform historical research methodologically, extending the study of documentary sources to material culture.²⁸ However, all these influences remain to be confirmed.

The scuola muratoriana

The work of the Muratorian school in Italy has recently been outlined in this journal.²⁹ The aim in due course is to develop the theoretical and methodological underpinnings of the school, to which several generations of followers have contributed. The prospect is that of founding a new science – the science of the built environment or territory.³⁰ However, the purpose of the remainder of this paper is to follow one major strand in the development of Muratorian thought that is found in the work of Caniggia.

When Muratori's assistants left Rome after his death, the school to which he gave his

name started to lose its unity. While some of his assistants, notably Guido Marinucci (1924-2001) and Enzo Flamini, laboured at interpreting and decoding the unpublished writings and later lectures of Muratori,³¹ the majority went on to lecture at universities, teaching what they had learnt from him in Rome. The individual contributions to the school can to some extent be linked to the 'Socratic' nature of the progress of Muratori's thought process. Muratori used to examine certain topics by interviewing interlocutors, who were usually assistants and who 'unilaterally' assimilated the part of his doctrine that he personally transmitted to them.³² They also went on to develop the doctrine on their own in so-called 'free courses' at the Istituto di Metodologia Architettónica, set up by Muratori, where each one of them had to discuss the various aspects of his teachings at seminars.

The progress of the school was itself cyclical. Its original ideological outward appearance started to wear away under the thrust of centrifugal pulses diverging on the opposite and complementary axes of reality (serial axis) and thought (organic axis). Former assistants, who had become professors, individually pursued a line of research focusing on one of Muratori's four degrees of organicity (s – occasionally serial; S – systematically serial; o – episodically organic; O – totally organic) and a certain scalar dimension, perhaps with a more or less unconscious desire to differ from one another. The Bollati brothers, Sergio (1929-2000) and Renato (1929-) concentrated on architectural aspects, and were largely responsible for developing the concept of architectural organism while teaching in Reggio Calabria.³³ Caniggia, in contrast, developed the potential in Muratori's definition of building type as an *a priori* synthesis, and, with the typological method, paved the way for a scientific approach to building as a science of the built environment.³⁴ Maretto (1931-1998) tended to teach design founded on actual surveys and interpretations of historical city centres in need of restoration and safeguarding against

the threat of modern architecture.³⁵ Giannini specialized in a series of territorial studies, which are unquestionably the most difficult, richest part of Muratori's later work.³⁶

In this regard, Caniggia's contribution was crucial for a number of reasons: primarily for having proven – in simple, general and accessible terms (without, however, oversimplifying the built environment) – the applicability of Muratori's design thought. This was an aspect about which Muratori himself was not exhaustive. Having outlined, for instance, Venetian and Roman history, he would ask his assistants to provide solutions for individual stages and specific urban specimens. Therefore Caniggia, by developing the typological method of interpretation-design, made Muratori's 'architectural' thought fully convincing, putting it into practice and providing the experimental support essential to uniting theory and practice.

Formative generation gaps

This view of the Italian school of Muratori is consistent with the personalities of Muratori and Caniggia and the fact that they were from different generations and undertook different training. There is an age gap of over 20 years. Muratori attended classical grammar school from 1920 to 1930, during the crucial years of the philosophical dispute between Croce and Gentile. At university he attended initial courses in the school of architecture, where he could relate his neo-idealistic and historicist Crocean convictions to the contemporary architectural dispute between Piacentinian modernists and 'traditional environmentalists', represented at the faculty by Milani and Giovannoni. From then onwards, his philosophical system started to take shape. It was founded first and foremost on the two conceptual benchmarks of architectural organism and built environment. In view of the necessities of design, these constituted then, as now, the real Gordian knot of any architect worth his salt. It took years of laborious design research by Muratori, and the rejection of his

cultural 'father', Croce, to solve the problem. He did this by defining building type, in 1954, as an *a priori* synthesis and setting out his philosophical system.

Caniggia went a very different, yet equally interesting, way. In Rome he attended a classical grammar school at the end of the war and enrolled in the faculty of architecture during the early 1950s. But the cultural climate was different from that of the inter-war years. Even though Crocean neo-idealism was still the dominant view, it had to reckon with new forms of thought. These included historical materialism, which had started to permeate the Italian intelligentsia politically, and French existentialism (the so-called 'crisis philosophy' typical of the post-war period), which briefly preceded and introduced French linguistic and anthropological structuralism in the early 1960s. At the time, architecture underwent equally radical changes. Functionalism and expressionism, opposite yet complementary, had just before the war adopted new characteristics, ranging from vague, standardizing repertoires of the international style, imported from America and Japan, to more European, especially Scandinavian, features heedful of social, environmental and naturalistic realities. Works produced at the time by the four leading modern architects (Wright, Le Corbusier, Gropius and Mies van der Rohe) are indicative.

This was the Italian architectural and cultural environment when Caniggia attended the faculty of architecture in Rome. At the time, the Italian professional class was busy producing the INA-Casa housing scheme devised by Arnaldo Foschini, who had continued in his prestigious Roman chair of architectural composition. The suburbs were a very real planning issue for numerous architects in countless Italian towns. Significantly the two Roman districts of Tuscolano and Tiburtino, symbolic of this town planning, were also planned by Muratori and Quaroni, who dissociated themselves from Fariello immediately after university, leading to the implacable disagreement that split the Roman faculty in

two. Whereas Muratori referred expressly to Scandinavian empiricist patterns in Tuscolano, Quaroni (with Mario Ridolfi and Federico Gorio) strove in Tiburtino to formally reproduce an Italian 'village' environment, like a film set, inaugurating, at the same time as Rossellini and De Sica's films, a brief 'neo-realism' period: perhaps a paradoxical way of re-proposing the inter-war environmental planning problem, albeit in superficial, basically romantic forms.

Naturally, the architectural students of Caniggia's generation were affected by these early town-planning events in Rome, led by the professors who had, in the meantime, joined the lecturing staff. Muratori was, of course, one of these professors. After his crucial experience in Venice, he had been recalled to Rome by Foschini himself to succeed him in the prestigious chair of architectural composition. Here he had the opportunity to transform planning. Until then it had been taught empirically, simply transferring professional experiences to faculty classrooms.

Muratori radically changed the character of teaching: right from the start, he gave his courses a highly critical and theoretical approach (his series of lectures on modern architecture was unforgettable).³⁷ He introduced a series of new design themes, including the fitting of an architectural organism into its environment, the repair of traumatized building tissues in historic city centres, urban expansions of various sizes and, above all, the famous chapel in masonry, which sparked off the antagonism leading to the isolation of his school.

However, Muratori's teaching, as experienced by Caniggia and many other contemporary students,³⁸ left its mark on the generation of Roman architects particularly interested in relationships between design and the history of architecture, the didactic role of which was always deemed central by the faculty (from the teachings of Giovannoni to those of Vincenzo Fasolo and De Angelis d'Ossat). This climate had a formative influence on Caniggia. As a student, he joined forces with Paolo Marconi and Paolo

Portoghesi to form a short-lived professional association, similar to that of the trio of Fariello, Muratori and Quaroni in the inter-war period. As soon as they graduated, the three distinguished themselves in a competition for the National Library, with a plan hailed by critics as one of the most expressive plans of Roman 'neo-liberty'.³⁹

I do not know why the group split up. The fact remains that each went his own way with a university career in a different field: Portoghesi in history, Marconi in restoration and Caniggia in architectural composition (after a brief season with Marino) as Muratori's assistant. It was a very hard choice to make – there was already anti-Muratorian feeling – and, in the long run, Caniggia certainly paid a price. However, what interested him most were the contents of Muratori's teaching, whose importance and potential he already sensed at the time.

Caniggia's studies of Como and his initial restoration of Como courtyard houses in the 1960s were as crucial to him as Venice had been to Muratori during the previous decade. Here he could test directly in the field, on the town's historical tissue, the innovative result of Muratori's conception.⁴⁰ He was then able to verify those tests through comparisons in the courses at the Istituto di Metodologia Architettonica, where a number of assistants were running the design syllabus for students virtually on their own. In this task Caniggia excelled, establishing the interpretative stages of the reconstitution of the historic city centre by building.⁴¹

This was Caniggia's starting-point, utilizing the potential of Muratori's definition of building type, applying it to the city's tissues and developing Muratori's concepts of elementary cell, and pertinent areas and strips. To these he added and related his survey of the formation of routes, devising a method of interpretation that was particularly effective in identifying walls and gates, which had become progressively obsolete in urban growth processes. It was a more specific, detailed interpretation than Muratori's in Venice and Rome, being based in large part on the reconstruction of the

typological process.

Caniggia based his urban surveys on basic building developments, from ancient substratum types to more recent twentieth-century types. The two autonomous issues of house and town – as a rule dealt with separately in studies by others – were strictly interrelated by him without deviation.⁴² His typological tabulations that support his interpretations of urban form are a different way of writing Muratori's tables: they are also space-time charts whose vertical axis represents diachronic changes to the building type and whose horizontal axis represents synchronic, or positional, variants. The novelty lies in the use of terminology which clearly refers to the linguistic structuralism of Ferdinand de Saussure (1857-1913), whose research methods are linked by Caniggia to Muratori's in his interpretation of 'human environmental structures'.⁴³

The relative accomplishments of Muratori and Caniggia

Taken individually, Muratori and Caniggia have very different personalities and personal histories. Muratori is more theoretical and philosophical in accord with his cultural, historical-philosophical interests and neo-idealist training. This attitude became more marked as his way of thinking matured, leading to his abandonment of architecture in later years to solve 'problems in the adventure of civilization'.

Having sensed the potential of Muratori's way of reasoning through the reading of urban form and the design project, Caniggia then rejected it. He not only opposed his maestro but became his alter ego, managing to prove inductively the validity of his theory, especially with regard to the dialectic principles of the organicity and generality of the processes of building transformation. In one sense, Caniggia concluded Muratori's work, putting into architectural practice (from where it started) the results of the typological method which, on the whole, confirmed the maestro's hypotheses. In other words, it can be said that he revised and proved Muratori's

theory.

It is useful to summarize the accomplishments of Muratori and Caniggia under four heads: aims, strategies, contents of thought processes, and type of writing.

In respect of aims, Muratori 'flew' increasingly high, especially in later life, to have an overview of the world in an attempt to grasp its historical essence. Caniggia, in contrast, always kept his feet on the ground, striving to understand the nexuses of the processes of building transformation, whose developments he was capable of tracing, phase by phase, on various scales.

With regard to strategies, Muratori consistently adopted schematic methods, setting up, for example, the analytical 'table' with four processes arranged along two axes of subject (consciousness) and object (structure) resulting in 16 blocks and showing the integration between subject and object in each individual block, but without ever losing sight of the total process. Caniggia avoided any strict schematic methods, working pragmatically according to the influence of linguistic structuralism. This helped him to find easier solutions, such as his process 'tabulations' of processes, open in time and space: but these did not contradict Muratori's tables.

To focus on key headings and words is an oversimplification when considering complex authors with a large scientific production, but useful in synthetically grasping the differences in the contents of their thought processes. In Muratori's case, the title of his posthumous work, *Autocoscienza e realtà nella storia delle ecumeni civili* (edited by G. Marinucci), and the word 'organism', are significant, whereas in Caniggia's case the title of his major work, *Strutture dello spazio antropico*, and the words 'structure' and 'building type' are significant.⁴⁴

In writing style, Muratori is difficult to read and sometimes obscure: it takes time and a good knowledge of philosophy to grasp his meaning. However, in certain passages, he manages to be brief and to the point, occasionally managing to be absolutely literal. Caniggia is always clear and

discursive in his desire to make the subject more comprehensible. He is unquestionably responsible for the diffusion of Muratori's teachings: his readers, and potential readers, outnumber Muratori's many times over.

Final judgement and criticism

Naturally the differences between Muratori and Caniggia are conditioned by the different – neo-idealistic and neo-enlightenment – cultural origins of their generations, which inevitably affected their aims. Muratori *deductively* aimed at conceiving a philosophical system capable of interpreting the history of civilization process-wise through architecture. Caniggia, in contrast, *inductively* set up a typological method capable of interpreting human environmental transformations in terms of design for architectural purposes. His work, therefore, reflects that of Muratori, whose theory systematically develops and accentuates the second term of fundamental dialectic couples. The following synoptic chart highlights some basic distinctions:

<i>Muratori</i>	<i>Caniggia</i>
theory	method
organism	structure
organic	serial
architectural organism	building type
architecture	building
territory	town

These distinctions shed light on the way the two men were criticized, both as individuals and in relation to the generation gap between them. The price that Muratori paid for his teaching in the Faculty of Architecture in Rome was ostracism and *damnatio memoriae*, especially by Bruno Zevi (1918-2000).⁴⁵ Caniggia, like other assistants, had to teach elsewhere, moving (in Luigi Vagnetti's footsteps) first to Reggio Calabria and then to Genoa and Florence before returning to Rome, unfortunately only for a short while. This long trip around Italy was, paradoxically, the reason for the diffusion of our school throughout Italy.

Caniggia's ideas attracted an increasing number of people outside the factious microcosm of Italian academic circles, mainly through the medium of his manuals.⁴⁶

Caniggia's major contributions to the progress of the Italian school of design typology can be summed up under six heads: first, his examination and development of Muratori's concepts of type, typology, structure, tissue, series and seriality; secondly, his setting up of the so-called method of 'processual typology' including the concepts of substratum type, leading type, synchronic variant, diachronic transformation and typological yield (with all their consequences and implications in the correlated fields of planning, restoring and reusing existing buildings); thirdly, his discovery and recognition of the *domus* courtyard substratum as the matrix, within Roman planning, of all subsequent basic, medieval and modern building types; fourthly, his distinction between basic and specialized building; fifthly, his theory of 'medievalization' regarding the spontaneous utilization procedures of planned structures – this theory in particular explains the typological processes of 'insulization' and 'tabernization' that determined the building tissues of numerous small Italian towns of Roman origin;⁴⁷ and finally, the method of interpretation by phases of a town's history, in connection with basic typological processes (as in the case of the interpretation of Florence and Florentine houses).⁴⁸

Conclusions

I have endeavoured to compare the lives of our school's two leaders, according to their different generations, training and cultural origins, and their different mindsets, strategies and aims. I have given an impression of them in a 'school' context as I maintain that their legacy lies in the continuity of open-mindedness, which still allows room to grow, especially with a view to founding a new disciplinary field. This requires further contributions, checks and insight on the part of a larger number of people in order to take

shape. Only in this way can the school solve the countless problems of environmental restoration – problems of man's recent senseless action. It is a tall order, reflecting a degree of self-consciousness acquired by the school during the course of a process of thought commenced by Muratori, pursued by his assistants, and applied by Caniggia. It has been verified by an increasing number of scholars, not only architects.

Naturally, I am speaking for myself, as a long-standing member of the school. I was lucky enough to have been one of Muratori's last pupils. I experienced his cultural standpoints at the age of 20, and have known (as a member of staff, colleague, and friend) virtually all his assistants one by one: Maretto, Caniggia, Giannini, Marinucci, and Renato and Sergio Bollati. Maffei, Vaccaro and I started an association at the Florentine Faculty of Architecture to consolidate the school, with which I therefore feel closely involved. In retracing the school's history, I do not expect to have been in every respect correct in my interpretation of the literary evidence. I just wanted to search for the thought process that unites us from within in order to be able to analyse it comparatively and retrospectively with a view to clarifying points of controversy, according to the concepts of the asymptotic approach to perfection taught by Muratori and Caniggia.

There are still major issues in the school to be solved. There are theoretical issues arising from the recent systematic comparison of various texts in drawing up our lexicon⁴⁹ that, in some cases, open up new avenues; always, however, moving in the same direction as our maestros. 'Bernardo di Chartres always used to say that we are dwarfs standing on the shoulders of giants'.⁵⁰

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