

***Res Aedificatoria* – frammenti di una riflessione**

Inaugural address given by Prof. S. Umberto Barbieri in the Aula of TU Delft on 21 May 2003.

Rector Magnificus, members of the Executive Board, fellow professors and other members of the university community, esteemed listeners, Ladies and Gentlemen, In the tradition of this academic ceremony, I shall present my inaugural address in Dutch. Although I have been living in the Netherlands since 1969 and have benefited from a university education at this technical university, and although the Dutch language has become the vehicle for my thoughts, both in society and in science, it will take some time and effort on my listeners' behalf to grow accustomed to the intonation and rhythm, tempo and cadence of my presentation. My apologies in advance for this. I do, however, place considerable value on my using the Dutch language, since I am totally convinced that language and architecture are inextricably linked to each other and that the development of architecture and language are synchronous processes.

'Res Aedificatoria': for insiders an allusion to the famous treatise of G.B. Alberti in which – in the footsteps of Vitruvius – knowledge of the discipline is classified, at the same time assessed as to its range and significance, and at the end of the day coupled to its potential applicability.¹ Vitruvius' 'elementary' and almost self-evident formulae – still to this day universally applied in the field of architectural education due to their didactic aptness and their clear formulation of the components of architectonic design – were subject to analysis by Alberti, who assessed their theoretical power and their applicability in actual practice. Alberti's 'De Re Aedificatoria', written between 1443 and 1452, forms the basis for the complete literary tradition of the Renaissance and the consequent amalgamation of culture and architecture, of theory and practice, of concepts and objects that characterise Italian architecture of the Cinquecento.

Now, in the age of Modernity and Postmodernity, we can no longer speak of 'De Re Aedificatoria', that is, of a monolithic entity of knowledge, methods and instruments with respect to design and construction. We can, however, speak of 'Res Aedificatoria', namely a diffuse system of approaches to the design and construction process of which architecture has become one of the many components.

This fundamental shift in the cultural and social position of architectonic formulation is the result of, amongst other things, a 'democratised' pedagogy in the construction process whereby architecture and culture, technology and economics, politics and society have become equal components of an all-embracing strategy which gives rise to transformation, construction and spatial reorganisation.²

The discipline's present-day 'nomadic' nature, which has developed from a monolithic entity (classicism) to become the splintered entirety it now is, is characterised by the absence of unified theoretical reflection. As a result, the discipline has become a free-for-all, at the mercy of the waves of the increasingly transient spirit of the age and of fashion and trends.

This nomadic existence is marked by the chameleon-like ability of architecture to merge, disguised, into the convolutions of society and culture. Architectural design is thereby never a statement but rather a supposition that, exposed and vulnerable, awaits remote-controlled impulses to move (forwards or backwards, to the right or to the left).

¹ See for Vitruvius and Alberti: (1) *I dieci libri dell'architettura* di M. Vitruvio, Tradotti et commentati da Mons. Daniel Barbaro eletto Patriarca d'Aquileia, da lui riveduti et ampliati; et hora in più comoda forma ridotti, Venice 1567. Ristampa Edizioni Il Polifilo Milan 1987. English version: *Vitruvius, An Architect's Handbook*, translated by F. Granger, Oxford, MA and (2) Leon Battista Alberti, *De Re Aedificatoria*, Firenze 1485. Reprinted, Edizioni Il Polifilo, Milan 1966.

² See (1) M. Tafuri, *L'architettura dell'Umanesimo*, Bari 1969, (2) A. Bruschi, Introduzione, in AAVV. *Scritti Rinascimentali di Architettura*, Edizioni Il Polifilo, Milan 1978, (3) E. Garin, *La cultura del Rinascimento*, Bari 1967, and (4) M. Tafuri, *Progetto e Utopia, Architettura e sviluppo capitalistico*, Bari 1973, English Edition, *Architecture and Utopia*, Cambridge, MA 1976.

To be able to fulfil this historical role optimally, architectonic formulation must meet two conditions: namely, a complete programmatic and formal limitlessness (or openness), and a technological and financial exactitude (or restraint). It is thus within these disciplinary preconditions that the future of architecture lies: it is on this basis that the conceptual pillars of 'De Re Aedificatoria' must be subjected to revision in order to function in 'Res Aedificatoria'. Alongside the relentlessness of 'firmitas' stand the capriciousness of 'utilitas' and the inevitable lightness of 'venustas', 'concinnitas', 'decorum', 'dispositio', 'numerus', 'finitio', 'collocatio' and so forth. In other words, technology and economics form the 'hardware' of architectonic formulation, while composition and style constitute the necessary 'software'.³ Architecture hovers as a variable component of the building process: its formal and programmatic features are – literally and figuratively – sustained by a strong technical apparatus and a mandatory materiality.

The revision of the form and content of architectonic formulation is accompanied by the changes in the role of architect and architecture in the construction process. The 20th century, after the Avant-gardes' razing of the holy temples in which truth and character, style and society, tradition and modernisation, composition and history were debated, has been characterised by architectonic quest for new foundations for the discipline. The pioneering work to find a suitable stronghold for architecture in the fields of technology and art is not yet complete.⁴

Fortune and crisis

In the early 1980s I reported on the situation regarding the architectonic culture. "In the second half of the 1970s," reads the introduction to *Design and Criticism* (Ontwerp en Kritiek) that I compiled along with Cees Boekraad, "urban development and architectonic questions, and for that matter design in general, have been attracting increasing public interest. Alongside critical architectonic reviews in professional journals, new columns are being created in the daily and weekly newspapers and magazines in which new developments in planning and architecture are discussed, usually in terms of beauty versus ugliness, variation versus monotony, humanism versus technology, planning versus spontaneity, sympathetic versus harsh, and so forth. The response of a number of architects to all this tumult is to take a professional stand: they feel compelled to express and justify their conduct and profession to the public. They attempt to explain the boundaries and limitations of their discipline within the totality of building and spatial planning."⁵

The observed upturn of the discursive component of architectonic culture was accompanied by a considerable stream of research and construction assignments. "Architecture is doing well," our colleague P. de Bruijn reported fifteen years later in his inaugural address in 1995. I quote: "Public interest is huge; the printing presses are spurning out books and magazines as never before. There could be said to be intensive architectural tourism ... the number of competitions and assignments is growing by the day. The many prizes, awards and honourable mentions are falling on us like a light shower of rain..."

The biblical years of plenty for architecture are not yet over. It is just that there is still a remarkable schizophrenia within the profession because fortune is always viewed against a background of disaster. Time and time again an architect stands up to wag a finger in warning against the dangers of formalism, rigidity and infertility. The downside of fortune, namely crisis, haunts the discipline, arousing fears and guilty consciences and calling for sobriety.

Despite good fortune, architecture is doomed to become an empty shell and architects clowns who... and I quote: "Perform their tricks for the highly esteemed audience," according to De Bruijn. Danger of decline, neglect and decay: onto this tragic

³ In this connection see, for example: Rem Koolhaas, *The Generic City*, in: S,M,L,XL, Rotterdam 1995, p. 1252.

⁴ Compare for example the attempts of Vittorio Gregotti in V. Gregotti, *Il Territorio dell'architettura*, Milan 1966. V. Magnago Lampugnani, *Modernità e durata Proposte per una teoria del progetto*, Milan 1999.

⁵ Barbieri and Boekraad, *Ontwerp en Kritiek*, Nijmegen 1982, p. 13.

diagnosis for the discipline is grafted a call for a cure, and medicines are prescribed to restore the health of the disciplinary body.

The proffer of a characteristic and individual poetry stands at the cradle of the rebirth, as does the call to strive united for an elevated cause and to seek a new prince who must be served. This *modus operandi*, this intellectual attitude, is characteristic of 20th-century architectonic culture.

"In recent times it has been frequently remarked that that which is so individual to our culture cannot be a natural situation, but rather indicates a disturbance of the equilibrium, a disease that has stricken the complete organism. This flush, the quick pulse, the introspection as well as the susceptibility to external influences must be regarded more as a syndrome than as the struggle for a great cause," according to Grandpré Molière in his inaugural address in 1924.

Design and planning

Between fortune and decline – imagined or real – architectonic culture has arrived at the 21st century. New goals are set, positions are swapped, fields of operation are altered and instruments, strategies and significance of design are adapted and transformed. Conspicuous in this radical process are the changes and adaptations of the reference points and of the means of interaction between architectonic formulation and its 'natural' surroundings. The inextricable bond between design, planning and construction that was characteristic of the post-war reconstruction period was followed in the sixties and seventies by overtures between the same designs on the one hand and the political and sociological ideologies on the other, resulting from the interest in artistic and populist movements.⁶ Recently, starting in the early eighties, architectonic culture has discovered the free market, the world of the media and the possibilities for design presented by globalisation and liberalisation. Breaking free from the chains of the classical and modern paradigm, and casting overboard the ballast of a design concept sustained by synthetic, synchronic, definitive statements concerning form, function and construction, result in a far-reaching restructuring of the architectonic craft and in the development of a new attitude aimed at the performance of specific and uncompromising research into design and to the pursuit of design in small and specialist teams. Manifestation of the consequences of programmatic starting points in the form of development models and schemes, generation of proposals for (urban) development possibilities that could incorporate various models, presentation of formal series in order to illustrate the scope of the potential manifestations, and experimentation with virtual realities to simulate future actuality for clients and users – all of these constituted the rudimentary domains in which the new generation of architects has been operating since the second half of the past decade.

Various parameters that often appear as a collection of diverse data form the foundation for the generation of new programmes and for undertaking new investments. In parallel with these and devoid of any mutual involvement, structural conditions are recognised and constructive frameworks conceived within which a solution can be found for the variable demands that are made in actuality (I refer, for example, to themes such as sustainability, flexibility, representativity, conspicuousness, safety or accessibility). Alongside these – autonomous and resting on its own individual logic – research into form is carried out which is in no way connected with, let alone influenced by, programmatic content or constructional features. This gives rise to exceptional architecture, architecture which at a conceptual level is comparable with quantum physics.⁷ How fascinating is that world of subatomic quantum particles that seem to possess their own will and taunt researchers with their random motion in space. At the same time, how frustrating, since they resist any attempt at description or organisation and are not subject to universally applicable laws. It is in this light that architecture, too, operates. The era of do's and don'ts, of rules and pointers, of methods and techniques, of

⁶ For this, see: (1) AAVV (edited by S.U. Barbieri), *Architectuur en Planning*, Rotterdam 1983 and (2) Weeber, C.J.M., W. Vanstiphout, *Het wilde wonen*, Rotterdam, 1998.

⁷ R.P. Feynman, QED, *The Strange Theory of Light and Matter*, 1985.

stable and recognisable situations and especially of the grand synthesis lies far behind us. The foundations of the disciplinary house have hereby been swept away, yet the building still stands; indeed, it appears, more than ever before, to be resistant to storm and tempest.

If the classical pillars of architectonic formulation, namely form, function and construction, are no longer inextricably intertwined, no longer dependent of each other, and form as true monads the new stuff of design, then it is finally possible to demolish the myth of architecture as the grand synthesis, a myth that has survived two thousand years of architectural history and that at long last is being subjected to major revision. The consequences of this are gigantic and unfortunately insufficiently recognised. Despite the facts that the signs of the upheaval are becoming ever more apparent and that the reorganisation of the profession is already insidiously in progress, insufficient conceptual instruments have as yet been developed and no explicit scientific attention has been turned to this 'devastating' phenomenon. We may offer the lack of manifestos and declarations of intent as an excuse, or the lack of loud and clear positioning or outspoken opinions from the architectonic culture. We can also hide behind the fact that everything will not go that quickly because present-day architecture can still be disembarked in the safe haven of the old paradigm and that there is no talk of a revolution, rather of a more-or-less gentle evolution in the spirit of these times.

And yet it is in my view precisely a scientific challenge to amplify the signals being emitted by this discipline and to subject them to laboratory research. At the same time it is useful to despatch straight to the virtual museum of architecture that component of architecture that poses as a synthesis of construction, function and form, or in other words as a synthesis between technology, ideology and culture. There it may provide some pleasure for historians of architecture.

Education and research

The radicalisation of a disciplinary shift that is happening in front of everyone's eyes, the debate and speculation about this phenomenon and subjecting its consequences – in terms of design and construction – to infinite magnification under the microscope must lead to exceptional discoveries. Discoveries that can at the same time influence design and design education profoundly.

It can also result in a reinterpretation of the content and significance of the historical architectures. The choice of the form of the construction or the programme independently as an overwhelming and dominating leitmotif which subordinates the other components has been more the rule than the exception in the evolution of great architecture. Burrowing deep into the past is not necessary. We need only look at recent examples such as the architectures of F. Gehry and A. Rossi, of D. Libeskind and R. Meier, of H. Koolhaas and R. Moneo, and of G. Grassi and R. Koolhaas, to name but a few who are hailed as the geniuses who have preserved the myth of the grand synthesis. However, studying their work even under a not-too-powerful microscope soon brings to light the monadic movement of fragments of design around a pronounced yet changing nucleus. This architectural practice may well still be 'traditional' in the sense that a nucleus is assumed around which the other components drift (the form, the function or the construction), but it is also modern because it transcends the classical synthesis – in which all components coexist in a labile equilibrium. We find this phenomenon in the architecture of Weeber or Coenen, of Van Berkel and Winnie Maas and of the many other up-and-coming architects.⁸ The belief in the ability to capture present-day architecture in classifications of movements and trends, of styles and cultural attitudes, rests on the assumption that design products can be distinguished as recognisable and consistent monoliths. But it is no longer the monolithic, but rather the chaotic and the monadic, that characterise architectonic formulation. At the close of the 20th century, the design of three and building of two significant Dutch museums were already characterising the change of direction in current architectural development.

⁸ Lootsma, Bart, *Superdutch: de tweede moderniteit van de Nederlandse architectuur*, Nijmegen, Sun, 2000

It began in Groningen, where for the first time not an architect but a spatial director assumed responsibility for the design.⁹ Under him have been working three designers who can propose form and contours, material and colour suitable for the presentation of a museum programme. A literal architectonic scenography is proposed – sustained by an advanced construction – that accommodates a lousy museum programme. The leitmotif is dictated by the formalistic collage technique. Tectonics and distributive issues are circumvented. The designers could have introduced an infinite number of variations on the specified theme that formed the core of the whole operation, namely the realisation of a utensil that manifests itself in the shop window of cultural institutions, in the manner of a coffee pot or an electric toaster...

In Maastricht, A. Rossi designed the Bonnefanten Museum.¹⁰ The design is tersely reduced to an outline of movement in horizontal and vertical directions and to an arrangement of an existing typology that form the architecture's variable component. What is constant, or the core of the design, is the mimetic form of this architecture, enabling it to function in the urban panorama. Around this element, which embodies Rossi's architectural statement, programme and construction twine as independent entities. The choice of the designers (Mendini and Rossi) and their designs was considered and deliberate: both designers complied exactly with the assignment as specified and produced with not a single element of surprise an architecture that complied seamlessly with the clients' original expectations.

In the case of the now famous extension of the Stedelijk Museum in Amsterdam, things went differently. A multiple assignment produced one architect and an architecture, the core of which is defined by its illustrative and evocative capacities. On the assumption that the proposed design would in the end not meet the requirements, R. Venturi and his design were jettisoned and the choice fell on a neomodernistic architect with a *modus operandi* derived from modernism. Alvaro Siza, a supporter of the classical architectural paradigm, offered a synthetic design in which the value of the construction is equal to that of the function and the form. Entwined and inextricably connected to each other, drifting with equal significance in a 'closed' design, form, function and construction are literally frozen and are in no way capable of coping with the dynamics of the management process. This raises the question of whether a good or beautiful design has become superfluous.¹¹

On the assumption that the development of architecture has reached a point of no return and that the contours of the future discipline have already become apparent, we ask ourselves what might be the place and the role of education and research in this new context. In the first place, a revision of the content of the initial phase of architectural education (Bachelor) might result from the analysis, conceptualisation and delineation of the present-day architectural constellation, with all its variable and constant components and elements.

The accentuation of the academic, technical and scientific component of this education – liberated from the ballast of any practical application and from artistic aspirations – constitutes in my opinion a first step in teaching the future structural engineer how to move in the weightlessness of architectural space. Raymond Queneau's 1947 experiment, *Exercices de Style*, in which the same event was described 99 times using different words, stylistic constructions, grammatical and syntactical techniques and fabricated linguistic rules and therefore in which the various combinations of form, content and (linguistic) construction are put to the test in 99 different ways, can serve as an indication to us for the organisation of the Bachelor phase.¹² The gradual adoption of techniques, methods and rules, of combinations and classifications of architectonic symbols, of architectonic structures and of architectonic

⁹ Speech, L. van Duin (1993).

¹⁰ This subject, in collaboration with S. Umberto Barbieri, has been dealt with in depth in OASE 31, *De tektoniek van de opstand & Aldo Rossi's plan voor het Bonnefantenmuseum*, December 1991.

¹¹ In the meantime Siza's design has been archived and a new circus to select an architect has been set in motion.

¹² R. Queneau, *Exercices de Style*, Paris 1947. This book has been translated and provided with commentary by: U. Eco, Milan 1983 for the Italian Edition and by Barbara Wright, London 1979, for the English edition.

composites – in all their unity and diversity – paves the way for learning and mastering the rules of the architectonic game. The subsequent playing of the many parties with an equal number of sets in which variations in opening and endgame are learnt, results in control and mastery of the compositive process. The analysis of the various parties, the investigation into the content, significance and extent of their sets, into combinations and configurations, but especially into their ingenious play, can characterise the didactic aspects of the Master phase.¹³ Might this be a first step towards a genuine reform of the scientific training of the future structural engineer?

I think that this suggestion is in line with the prophetic declaration of colleague C. Weeber from 1968 concerning the role of the future structural engineer, namely as developer of spatial parameters.¹⁴ In the experimental approach sketched above, which deviates from a chronological and mechanistic construction, a mixture of knowledge and skill, characteristic of the current didactical organisation that dates (with the exception of some didactic adaptations) from the post-war educational structure, the conditioning and regulation of spatial interventions is central. It is thus not about the determination of space, but rather about the formulation of conditions onto which the plan for a building, a suburb or the urban entity can be grafted.

The structural engineer, in other words, develops conditions and makes plans for objects and groups. He determines the rules of the game, sets out the playing field, prescribes the actors and the roles and subsequently joins in the game. The dialectics between conditions and actions, between frameworks and their contents, that I compare with those between a game and its rules, between pawns and sets, between figures and configurations, dictate form and content of the educative process and form the leitmotif of research. "The university," according to Rossi, "is not intended for the education of great masters of art but rather for the training of capable constructors¹⁵ who have mastered the logic of spatial construction and the machinations of spatial building and reconstruction."¹⁶

I am grateful to Carel Weeber, who is here today, and to Aldo Rossi, who is unfortunately no longer amongst us, as they were the authors of my architectonic and scientific training and those who induced in me my passion for education. Without their friendship, support and advice I could never have ascended this podium. Teachers are indispensable for the learning process and colleagues (and friends) are unmissable, and so my thoughts today go to my dear colleague Leen van Duin and to Henk Engel and Jan de Heer, who, just as Virgil and Beatrice guided Dante through hell, purgatory and heaven, showed me the way in the Netherlands – the culture, the architecture and the education system. With patience and friendship they were always ready to support, assist and advise me.

To the Executive Board, the College of Deans and the members of the Appointments Committee I owe my thanks. I shall do my utmost to do justice to the trust they have placed in me.

The support that I have received from Hans Beunderman, Dean of the Faculty of Architecture, from fellow professors and from the staff of my new department has also been considerable.

The young (academic) guard, including Roberto Cavallo, Marc Schoonderbeek and Filip Geerts, have stimulated me always to take a fresh look at the profession, research and education. Through provocative questions and remarks they – and indeed the colourful student population of Architecture – have kept alive my interest, my eagerness to learn and my curiosity in general.

¹³ V. Shklovsky, *Khod Konia*, Moskou-Berlijn 1923; English translation (Sheldon) *Knight's Move* 2005, Normal IL.

¹⁴ 'Schiet de opleiding tot architect aan de afdeling bouwkunde TH Delft al lang te kort' ('Does the training of architects in TH Delft's Architecture Department fail miserably?') *Delftse School* 1968.

¹⁵ This following the line of 'la costruzione logica' in Grassi, Giorgio, *La costruzione logica dell'architettura*. Venice, 1967. English translation: *The Logical Construction of Architecture*.

¹⁶ A. Rossi expressed this in an interview in the Italian newspaper *La Repubblica* in 1989.

"Our land," according to Grandpré Molère, "is one of the world's most beautiful ... everything on which the eye falls, the villages and towns amidst the soft carpet of the fields, everything that we understand as nature and art, is the care of subsequent generations." To that care and its maintenance, but also to adaptations and changes, I shall through education and research attempt to make my humble contribution.

I have spoken.