

Annual Architecture Lecture 2014

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Is it worthwhile to use the term 'knowledge' when talking about architecture? I think that it is, particularly, for those, like me, who dedicate so much time and energy to teaching. For that reason, I wanted to give an account here today in the Royal Academy of London of what the term 'knowledge' has meant and can mean for an architect.

Clearly, architectural knowledge is manifest in historic buildings. Standing before a Gothic cathedral, the concatenated succession of arches and vaults, the complex geometry, the proportioned control of the elements, the constructive wisdom, the programmatic content of the iconography, the subtle visual nuances, the difficulty of its execution, all allude to the existence of an underlying body of knowledge. But what kind of knowledge? How does it develop and how does it evolve? These are questions to which architectural historians have responded elusively. That there is a body of knowledge behind these architectural works is clear, but the tendency has been to think of it as something diffuse, not specifically belonging to any one profession. 'The science of construction' (and I write this in quotes), was something shared among the different trades more so than it is today. The cathedral was a collective effort involving the clergy who established the theological program as well as the actual builders, the masons, the laborers, the quarrymen, the carpenters capable of designing the complex scaffolding systems and the countless people involved in all the aspects of erecting the cathedral.

One could say that the knowledge – or the know-how – existing then was consummated in every work. It was expressed in buildings only, never making its way into texts or drawings. And yet, paradoxically, architecture has rarely made use of geometry – a discipline so given to illustration and so close to drawing – as intensively and eloquently as it did during the Gothic.

But this knowledge, then, resisted separation – or better, independence – from the building process. The construction process was a collective effort without any single discipline claiming possession of the principles underlying the work. Among the few drawings and texts that have come down to us, it is Villard de Honnecourt's notebook that offers us the clearest idea of what the Gothic architect considered to be 'knowledge'. How remote these simple drawings feel from the subtle expression of Thomas Aquinas's *Summa Theologica*! The Gothic cathedral is a perfect symbol of its time, a paradigm of architecture's synthetic capacity to reflect a particular moment in history. It could be said – and its builders may have felt so too – that the Gothic cathedral was the most authentic testimony that its society could offer of itself. Obviously, it is a concept very remote from us where few would expect that a work of architecture today could reflect the nature of our society.

This unity of architectural knowledge and construction was lost in the Renaissance, when Humanists strayed from the theocratic view of the world dominant during the Middle Ages. In the 15th century, the perfection of the Gothic ideal gave way to a desire for the paradise lost of Greek and Roman antiquity, where gods and humans shared the same passions. Architecture also participated in this resurgence of Antiquity. The great monuments of Roman architecture were founded upon knowledge distilled in texts and treatises like that of Vitruvius discovered by Poggio Bracciolini in 1415 in the Abbey of Saint Gall. Soon thereafter, and we should assume that Leon Battista Alberti was familiar with Vitruvius, we recognize in Alberti's 'De Re Aedificatoria' the architect with a newly defined role. While Vitruvius's 'Ten Books' must be seen as a compendium of what the Roman architect knew, 'De Re Aedificatoria' was a book that traced the practice of the profession for a new age. Alberti's architect was a figure exalted for his command of principles which, idealistically – or platonically, if you wish – went beyond mere construction. Architecture was based on a 'body of knowledge', a priori, that could be expressed with a given form, as Alberti showed in his treatise.

And it was no accident that Alberti did not illustrate his treatise. He made the distinction between one who had the abstract idea of the building and one who had mastered the techniques of building. The Renaissance architect had little in common with the Gothic master builder. The architect, according to Alberti, was versed in the principles of building and familiar with the ornamental details present in the monuments of antiquity, but was not responsible for the physical execution of the building. So it was that in the early part of the Renaissance, the architect was seen as an artist. Alberti expressed this clearly in his foreword to 'De Re Aedificatoria': 'an architect is neither a carpenter nor a joiner... The artisan, the manual worker, is an instrument in the hands of the architect, whose skill lies in carrying out the construction... And to do this he had to have an in-depth knowledge of the most noble sciences.'

But what I want to emphasize here is that in the 15th century, architecture was understood as an abstract activity, based on a body of knowledge described in what we call the treatise. In the Gothic, architecture, the construction of buildings, had been subjected – we understand – to the process of construction. With changes of the Renaissance, the construction of a building began with the idea, an abstract notion that Alberti, in book I, describes in this manner:

'the whole matter of building is composed of lineaments and structure. All the intent and purpose of lineaments lies in finding the correct, infallible way of joining and fitting together those lines and angles, which define and enclose the surfaces of the building. It is the function and duty of lineaments, then, to prescribe an appropriate place, exact numbers, a proper scale, and a graceful order for whole buildings and for each of their constituent parts, so that the whole form and appearance of the building may depend on the lineaments alone.'

There is not a single page in 'De Re Aedificatoria' that is without a reference to antiquity. The whole treatise rests on classical precedent, stretching the term 'classical' to include all Ancient History – from Egypt to Persia. And surprisingly, when speaking of the temple, there is no mention of more recent examples. The culture of the Middle Ages is willfully and deliberately ignored. For Alberti, the only true temple was the Greco-Roman temple. Christian temples were simply basilicas. It is truly astonishing that there is no reference to more recent architectural works (except for an unfavorable mention of St. Peter's Basilica), particularly considering that Alberti's treatise was presented as the alternative to a recognized and celebrated architectural heritage.

If I have dwelt so much on 'De Re Aedificatoria', it is because Alberti's treatise initiated a new conception of the idea 'knowledge' in architecture. Throughout the 15th century, treatises were a popular means for expressing what architects understood to be knowledge. Among other contemporaries of Alberti, Filarete's treatise of 1460, with inspired texts and beautiful drawings

for buildings which were never built, and the 'Trattato Francesco di Giorgio Martini' provides accurate schemes of buildings, with a clear notion of measure and proportion with respect to the human figure that speak of a new horizon in architectural principles.

But the most popular version of Vitruvius was Cesare Cesariano's translation to Italian, published in Como in 1521 and illustrated with splendid wood engravings. Its success may have come as the result of its attention to contemporary issues; the Vitruvius of Como introduced and discussed contemporary buildings such as the Cathedral of Milan. Unlike Alberti, Vitruvius gave full priority to being useful to the builder. It was in Book One that Vitruvius defined the architect's training and the principles underlying his work:

'the architect must study grammar, be skilled in drawing, know geometry, have no lack of knowledge in optics, know history, have studies in philosophy, know music, not ignore medicine, be familiar with jurisprudence, and understand astronomy and the movement of the firmament.'

As for the principles, Vitruvius explained what concepts like order, arrangement, eurhythmics, symmetry, decorum, and distribution meant for him as the basis of a good work of architecture. Vitruvius later spoke of different kinds of buildings, such as temples, baths, and theaters, paying special attention to constructions in the countryside as well as in the city. In one book Vitruvius described orders, and in another one he looked at the ornamentation of buildings, and following with books about hydraulics, gnomics, and machines. We can read Vitruvius as a compendium of knowledge for architects, some of it related to building, and other parts dedicated to doctrine and the instruction of the language of orders. Only in this way can a work have the *firmitas*, *utilitas*, *venustas* that underlies all good architecture. Vitruvius provides us with an extensive manual, useful both in the practical and the theoretical, while serving as a guide for the linguistic and decorative elements.

But what I want to point out, above all, is the way Vitruvius composed his treatise – something, perhaps to his dismay, already present in Alberti – which served as a template for later efforts. Certainly one of the most important aspects of Vitruvius' legacy was the manner in which he defined the profession, anticipating future architectural treatises, by uniting the theory of architecture with its practice.

In the following years, we can see that Sebastiano Serlio follows the Vitruvian precedent. The Platonic view of construction underlying Alberti's treatise gives way to a more applied and technical approach. Divided into eight books, Serlio's treatise shows architectural knowledge to be divisible and autonomous. And so in 1537, in Venice, he published Book Four, 'Regole Generali di Architettura', which presents the quasi-canonical Vitruvian principles. In 1540, also in Venice, he published 'La Antiquità di Roma'. In Paris in 1545, in French and Italian, came Books One and Two, the first addressing geometry and perspective and the second, stage design. In 1547 in Paris, in French, and in 1551 in Venice, in Italian, he published *The Extraordinary Book* of 'inventions'. In 1575 in Frankfurt and in 1584 in Venice, in Italian and Latin, he published Book Seven, 'Habitazioni di tutti li gradi degli homini'. And finally, a manuscript was left unpublished, which offers a series of houses, modest and monumental alike, studied case by case and illustrating that architectural knowledge belongs more to the real, of that which is already built, than to the realm of the abstract. Serlio represents a clear step forward in how architecture, and its professional practitioners, should be understood. The treatises were intended for a new kind of professional – one rather similar to the architect of today.

And naturally this brief recollection of treatises should include Vignola's 'Regola delli cinque ordini di Architettura', from Rome in 1562, on the orders, and Palladio's 'I Quattro Libri dell'Architettura', from Venice in 1570. Vignola because his treatise becomes the expression of a standard, a canon whose interest is reduced to language, and Palladio, because he confirms a

new professional direction.

Despite Palladio's familiarity with ancient architecture, he directs his treaty to professionals, not to humanists contemplating architecture. Following the Vitruvian tradition, we find a balance between theory and practice. But it should be noted that 'I Quattro Libri' offers a remarkable novelty – Palladio uses it to publish his own works and projects.

And since we're here in London, I should say that England was not immune to these developments. In 1563 John Shute published 'The First and Chief Groundes of Architecture', using as references Vitruvius, Alberti and Serlio. But it was Inigo Jones who answered to the nostalgia that English architects felt for Italy, as the spokesman for a Palladianism that endured throughout the eighteenth century, producing texts such as 'Vitruvius Britannicus' by Colin Campbell in 1715, 'Book of Architecture' by James Gibbs in 1728, and the 'Complete Body of Architecture' by Isaac Ware in 1756. And I won't go further since I am sure many of you here will be better acquainted with this episode in history than I.

Let us say, to simplify the story, that architects made use of treaties to shape their knowledge until the early nineteenth century, when we should mention one last example, the 'Precis des Leçons d'Architecture' by Jean Nicolas Louis Durand in 1803. In the early nineteenth century, the significance of the term 'architect' seems to move in two opposite directions. Without a clear separation between the professions of architect and engineer, architectural knowledge absorbed the positive sciences related with the growing concern for public health. Materials and their resistance, structural calculation, hydraulics and fluid mechanics, etc., are incorporated into the curricula of schools at the same time as other emerging disciplines related to hygiene. The once dominant Platonism based on the immanence of formal principles, gives way to pragmatism in which the Vitruvian triad is reduced to the duality of 'firmitas, utilitas' with a fading interest in 'venustas'. This implies, of course, doubts with respect to the value of the Classical orders.

There is a moment in which new techniques – iron construction, for example – seem to claim a new image for buildings. This situation suggests that perhaps the architect can be a builder once more and that building itself will give the architectural profession its significance. But ultimately linguistic inertia prevails and cast iron columns show how construction is not possible without a pre-established formal language. Or as John Ruskin said: 'the time is probably near when a new system of architectural laws will be developed, adapted to entirely metallic construction'.

And soon, this linguistic doubt brought a need to look for formal alternatives. Architects turned to history, which was then considered a positive science, and began to study architectural monuments with the same care and rigor that botanists applied to the study of plants or mineralogists to rocks. The architect, free to clad the structure in whatever style, now had the vast archive of history at their disposal. Architects travelled, made drawings and studied to make use of the wealth of architectural experience found through history. And as a result we witness the paradox that the Industrial Revolution, with its innovative metal structures, dressed itself with the stylistic trappings recovered from history. And you, in England, have such a broad expression of it.

It is the work of Viollet-le-Duc which illustrates most clearly what knowledge represented for architects in the second half of the nineteenth century. Few, if any, recent architectural theoreticians have enjoyed his breadth of influence. How is this new knowledge consolidated and passed along? What I would like to emphasize is that the treaty is no longer the format. The architect – who, over the course of the 19th century, had acquired a well-defined professional profile and status – knows that he cannot build by simply applying the principles found in treaties. Instead, the architect now has at his disposal all that has been built, with an explanation of the relationship inherent between building systems and materials. Viollet-le-Duc reveals how he thinks with respect to built work in 'Entretiens' and, aware of the impossibility of systematizing

this knowledge of the concepts and elements of architecture, he offers us his 'Dictionnaire Raisonné'. Thought is conveyed in an encyclopaedic format – not as a treaty. And when we read the treatises at the close of the 19th century, like that of Guadet, we understand this reluctance.

I have this image here to explain how the transition of knowledge in architecture toward history and the new technologies of construction was accompanied by the spread of information through publications that reached countries all over the world. And consequently architectural magazines began to serve a fundamental role in the dissemination of knowledge. Today it is impressive to see, when one looks over the magazines published at the end of the 19th century and the beginning of the 20th, the impact that the new printing techniques and photography had for the diffusion of architecture. But that would deserve another chapter of the lecture and we have no time for that now.

And moving forward to modern times, we can see that the panorama after World War One had changed. In Germany, the Bauhaus, endorsed the philosophical tradition that understood art as an abstract analysis of form, while adding to it the architectural knowledge based on the construction process. The Bauhaus modeled the artist on the *homo faber*, reestablishing the architect's role in construction. It was no coincidence that Lyonel Feininger's woodcut of a Gothic Cathedral accompanied the Bauhaus' manifesto. And we know that the Bauhaus pedagogy was based on a direct and immediate disciplinary practice where contact with materials played a key role. Paul Klee's *Writings on Form and Design Theory* define this paradigm where an artist, in accordance with the Apollonian ideal, combines the *homo faber* while engaging the unconscious in their work. And in the Bauhaus' desire to create form – and architecture – by making use of a series of formal principles, we find again some qualities present in the treatises. It was undoubtedly the most ambitious pedagogical project after World War One.

And in the Weissenhofsiedlung of Stuttgart in 1928, the architects of the Bauhaus came across Le Corbusier, the most belligerent architect of his generation, as well as the most conversant with the ideas, and knowledge, that lay behind architecture. Although the Weissenhof gave rise to what was called the 'International Style', there were important differences between the attitude of the Bauhaus and Le Corbusier. The architects of the Bauhaus still believed that the visual aspects of built form depended on certain principles. For the Bauhaus, inquiry into form, was an essential task prior to the architect's work. Le Corbusier's aims were different. The idea was to create architecture inspired by the 'zeitgeist', the spirit of the times. Mirroring the spirit of the times was, in his opinion, an obligation and ensured that the quality of architecture would come as a result of its intrinsic formal coherence. Architecture, therefore, did not much differ from the instruments and machines that had come into being at the dawn of the 20th century, and which would bring a world improved by technological progress.

'*Vers une architecture*' was the result of a collection of different writings with a common message: that architects should express this 'esprit nouveau'. And he believed that the path to this expression was related to the discipline of the engineer. The engineer did not corrupt form with unnecessary elements. Perhaps as a result of his formal education, he insisted that the architect move toward the aesthetics of the engineer. His first bit of advice in chapter two – 'Trois rappels à messieurs les architectes' – is explicit. '*...l'architecture n'a rien à voir avec les styles*'.

Architecture could not rely on a formal world from the past. It had to exploit what the new modes of production could offer. Transatlantic liners, automobiles, locomotives, and airplanes, were the inspiration of a new era. The text was clearly a manifesto that encouraged architects to become part of the present without forgetting the lessons of the past.

Following 'Vers Une Architecture', many more books followed. In 1925, 'L'Art décoratif d'aujourd'hui' and 'Urbanisme', in 1928, 'Une Maison un Palais', in 1930, 'Précisions sur l'état présent de l'Architecture', in 1937 'Quand les cathédrales étaient blanches', in 1938 'Des Canons,

des munitions? 'Merci! Des Logis S.V.P.', in 1947 'Le Modulor', followed by many others... And it is important to mention the publication of his 'Oeuvre Complète', which, in the Boesinger edition, became the canonical representation of his work. These titles reflect the spectrum of architectural knowledge. Le Corbusier, in perhaps a less structured manner, can be understood in the tradition of treatise writers, engaging many of the same questions which they addressed. And we should emphasize that his writing has always been supported with illustrations and examples of his own work.

It is also important to emphasize that all of his writing, with the same tools, along the same lines, assume the same tone. They possess a narrative voice that has little in common with the analytic character of the Renaissance treatises. They always have something of the manifesto. That urgent, imperative tone demands that we share his opinions. They are the writings of a believer who is obliged to spread his credo – showing very little in common with the spirit of 19th century architectural theory. His literary style is impregnated with a rhetoric of persuasion and in which imperatives and interjections abound, as well as his relentless use of photographs and drawings. All in line with the proselytizing of his ideas that make his books a valuable instrument for the quick and easy diffusion. And so we could say that Le Corbusier had a way of understanding the profession in which the architect presents himself as an artist, as a builder, as a theoretician, and that his work reflects each of these aspects of his activity.

But what is it that Le Corbusier wants? What does he imagine he can offer his colleagues with his books? To what sort of professional is he directing his efforts? If, in the 19th century, the temptation of the architect was to make of the profession a practice not far removed from those who used applied science, abandoning the search for a new architectural languages in deference to history, Le Corbusier, on the contrary, affirms the architect's commitment with formal investigation. His experience as a painter led him to write, in 1925 with Amédée Ozenfant, 'La Peinture Moderne' which carries over to architecture. 'Architecture is an artistic fact, an emotional phenomenon, outside the question of construction, beyond it.' But also, construction, and the architect's involvement in the process of construction, is crucial for him. And so is the need to establish the principles of building in reinforced concrete, the new material which characterized the first half of the 20th century. And at the same time, in linguistic terms, he shows us how to compose with solids. He writes to inspire architects to recognize the spirit of the time, the 'esprit nouveau'. And with his writing come illustrations of his own work. The success of an architect's work is related to their ability to faithfully express a historical moment, implying a vision of the present and the future at once. As such, we discover a new way of looking at history as a source of knowledge for the architect.

And even though it may seem a paradox, because the Modernists not were inclined to study history, it could be said, that histories have been the most important 'body' of knowledge for architecture since the end of World War Two. History, as a source of knowledge, appears again as a useful instrument for the architect, but with a different meaning than it had in the 19th century. The history of architecture – or better – the histories, allow the architect to understand the evolution of architecture and to endow it with the meaning – aesthetically and ideologically – that it seeks. The histories of architecture as told by Sigfried Giedion, Walter Curt Behrendt, Bruno Zevi, Reyner Banham, Leonardo Benévolo, Manfredo Tafuri, Allan Colquhoun, Kenneth Frampton or William Curtis, serve as the alternatives to the treatises. During those years, they manifest their ambition to correctly anticipate the future. The spirit of the time was only understandable through the study of history. The use architects made of it transforms it into an operative tool with all the ambiguity that that implied: the cult of the 'zeitgeist' transformed history into an instrument capable of moving architecture forward.

And as a means of orienting oneself among these histories, there was criticism. Architectural criticism, following the lead of art and literary critics, became an instrument for interpreting and

understanding the architectural process. To place oneself, with the help of the critic, alongside the architect whose work is being considered, is a parallel exercise with obvious pedagogic value. This is not the moment to cite the critical texts that I consider essential, but rather to insist on how much they complement a reading of the histories. On the other hand, the will to broaden the frontiers of knowledge in the education of the architect led to the recent introduction of texts once remote from professional practice, with the understanding that they fulfilled Vitruvius's mandate for the architect's broad culture. Architects acquired an interdisciplinary knowledge, on the one hand, engaging related disciplines like sociology, anthropology, linguistics, applied economics, etc. – and on the other, attentive to considerations of edification in general – in the energetic efficiency, or sustainability.

And when we consider all that which has been recently presented as architectural knowledge, including the philosophical speculation that unites architecture with the most advanced contemporary thinkers, we see that the precipitated application of these disciplines has given rise to hurried and awkward adaptations that show, once again, the peculiar and specific character of a discipline that does not always allow such direct borrowing: architecture resists becoming a simple graphic representation or an illustration of ideas.

Today we recognize how difficult it is to establish the limits of knowledge relevant for the architect. The most recent attempt would be the present Biennale authored by Rem Koolhaas. Koolhaas has made a catalogue of the instruments he claims necessary for architecture. In this radical and synthetic vision, he tries to establish what could be defined as the body of knowledge for an architect at the beginning of the 21st century. And one is grateful for such an effort from an architect of his stature, perhaps the most influential architect in architecture schools around the world, and the one who has most faithfully followed the Le Corbusian model of publishing and building together. And yet this similarity in disseminating ideas has not altered the fact that their vision of the profession is significantly different. In as much as Le Corbusier conceived of the architect, like Alberti, as an omnipotent artist, and also capable of introducing the constructive inventions of engineers, Koolhaas sees the architect from a much more pragmatic point of view, recognizing that construction no longer lies within the architect's control, and that an architect's responsibility is in the definition of the structural and formal strategy of buildings.

And this is how we should understand his first, and perhaps definitive book, 'Delirious New York', as a response to a Le Corbusier who had not properly understood Manhattan. The book, as Koolhaas tells us, is 'A retroactive manifesto for Manhattan'. Koolhaas recounts how Manhattan was built, what role architects played along with developers, in order to explain in the last chapter how much Le Corbusier resisted the New York skyscraper.

'It is Le Corbusier's all-consuming ambition to invent and build the new city commensurate with the demands and potential glories of the machine civilization... It is his tragic bad luck that such a city already exists when he develops this ambition, namely Manhattan...'

And one last quote that expresses Koolhaas' thinking with respect to Manhattan's architecture.

'The make-believe of Manhattan's architects - pragmatism, efficiency, rationality - have colonized the mind of the European.'

Forty years later, Rem Koolhaas, another European, celebrates Manhattan and its skyscrapers anew. 'Knowledge', he tells us, is no longer in the hands of architects but rather in those of the developers and builders who built these towers. What, then, is the type of knowledge required by the architect? Rem Koolhaas answers this question with his writing and his architecture. Naturally, his writings can't be associated in any way with those earlier treatises. Something that, as I mentioned earlier, we could say of Le Corbusier. His texts are often occasioned by the desire to make a point about a specific aspect of contemporary culture, such as 'Junkspace' or

'Shopping' or the examination of a recent historical moment, such as with his recent publication about Japan. These are writings that don't pretend to assume the weight of a treaty and often shouldn't be understood as typical books. The most significant of these is 'Small.Medium.Large.XtraLarge.'. It is like a 'Dictionnaire Raisonné', including all sorts of observations. The deliberate will to avoid a structured text makes the format the dominant feature and thus becomes a provocative cognitive proposal.

But let's focus on the Biennale. His proposal is clear. 'Fundamentals. Architecture not architects.' The exhibit is structured in three sections: 'Absorbing Modernity', 'Elements of Architecture' and, finally, 'Monditalia'. Obviously it is the second one that is relevant to today's topic:

'Elements of Architecture looks under a microscope at the fundamentals of our buildings, used by any architect, anywhere, anytime: the floor, the wall, the ceiling, the roof, the door, the window, the façade, the balcony, the corridor, the fireplace, the toilet, the stair, the escalator, the elevator, the ramp. The exhibition is a selection of the most revealing, surprising, and unknown moments from a new book, Elements of Architecture, that reconstructs the global history of each element.'

Koolhaas recollects the exhibit material in a series of small pamphlets and the result is a *vade mecum*, neither continuous nor systematic, that provides the architect with all necessary information regarding each element. And so, Koolhaas can speak of a 'body of knowledge'. One of the primary objectives of the exhibit is to situate each element in the history of architecture because, in Koolhaas' words, 'since science has shown that in our deepest selves we have Neanderthal genes, in each element, we can observe the passage of time.' The elements, therefore, are the substance and the structure of a universal architecture in which the past is as alive as the present. Oversimplifying to the extreme, one could say that what Koolhaas shows us in the Biennale is that the elements comprising the architects' 'body of knowledge' owe more to the initiatives of builders and inventors than to the architects themselves. A 'body of knowledge' is the only authentic patrimony - and it leads him to speak of architecture, not architects. He would then return, once again, to the ideas expressed in 'Delirious New York': that it is not the architects so much as the developers that give form to Manhattan's skyscrapers.

As this Biennale tells us - that there is architecture without architects, an affirmation that seems to contradict his well known axiom, 'where there is architecture nothing else is possible' - then we should ask what the role of architects is according to Koolhaas? What purpose do they have in the construction process today? Can we do without them?

Because it is clear that if we look at some of Koolhaas recent work - the CCTV building in Beijing, the House in Bordeaux or the new office towers of Rotterdam, for example - one has to admit that there is evidence of both a knowledge of the elements as well as the less easily defined presence of an architect. How are the geometric and formal principles determined that inspire the volume of the CCTV building? Who composes the elements that form the Bordeaux House? How has the silhouette of the towers along the Rhine been assembled with such a sharp eye? Should we admit that the presence of the architect is limited only to the creation of a strategy behind the construction of buildings, something he has suggested at throughout his career, and affirmed with his emphasis on the value of diagrams? Beyond the elements, there is inevitably an architect, an agent charged with making sense of the indiscriminate cloud of information that accompanies the catalogues of the Biennale. It is clear now that there is no need to offer the architect a set of formal principles, a grammar, or, ultimately, a universal language, and that our global culture with increasingly diffuse formal frontiers resists norms that accompany architectural knowledge - that which we refer to in the treaties. But if it is not so easy to get rid of the architect - as illustrated by Koolhaas in his own work dominated by the clarity of his solutions portrayed in diagrams and the visual impact of the image - what should they know? What knowledge will architects employ to do their work?

Now that the specialists have taken over the specifics of architecture, and with the liberty and flexibility afforded by today's engineering – our ability to build just about anything has devalued the notion of 'firmitas' leaving architecture with only 'utilitas' and appearance, or the iconic value of the building, its image – who will assume the responsibility society had once invested in the architect – and how will they do it? Behind the three works of Koolhaas cited above, is an architect, in possession of skills that go far beyond those elements assembled in the Biennale. Abilities, without speaking about intuition and sensibility, that imply an education as an architect. One that makes use of information, of a body of knowledge that can be codified, archived and catalogued. Viollet-le-Duc had seen that what he knew of architecture could not be easily systematized and therefore wrote the dictionary, avoiding a treaty.

Accepting that architectural knowledge cannot be described in a systematic way, we should define what the education of an architect should be. In my view, the education of the architect should allow the professionals to use information without being restrained by it. A mastery of the only remaining category of Vitruvius' trinity, 'utilitas', and an ability to deal with the meaning and cultural significance of the image can only come when the architect feels themselves to be well-educated. And that, in my view, means being able to enjoy all the historical knowledge I have mentioned here. The architect is no longer the amateur humanist of the Renaissance, nor the gentleman of the 18th century, nor the engineer of the Industrial Revolution. The architect of the 21st century bears the responsibility to define the form of buildings and comply with the commitments architecture has always had with society. Not much different than an artist, a film director, a novelist, or even a fashion designer, who work without the support of a well defined practice, and yet all of them have afforded making their jobs throughout a special preparation throughout their lives.

Architects should try to do the same. To arrive to the profession through what I would like to call education. To define what this education should be would be today's alternative to the treatises and obviously is the target of the schools. In my view such an education should be able to collect what knowledge has been in the past because it gravitates over us. But also it is a matter of pleasure – whoever loves architecture enjoys the heritage of what the discipline has been before. Obviously it would be difficult to say that we are going to live with Albertian principles and yet I will dare to say that all that has been knowledge in the past still bears upon us. And that would imply that an architect's education takes into account all the architectural knowledge to which we have referred in these pages. And it is with this vote for an architect's education that doesn't forget the architectural knowledge of the past, that I respond to the question raised today.