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WHY TRAVEL DRAWING MATTERS

CONNECTING ARCHITECTURAL DESIGN SKETCHING AND
TRAVEL DRAWING:
A CASE STUDY OF LE CORBUSIER'S ACROPOLIS
SKETCHES

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Abstract

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This dissertation is arranged in two principle sections. First a discussion of theories about the role of sketching in in the design process of architects and its relationship to travel drawing. Second is a case study of Le Corbusier's travel sketches of the Acropolis to test the conclusions of the first part.

The results of the graphic analysis suggest that travel drawing and design sketching are essentially linked, combining the same creative processes and achieving equivalent results.

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BIBLIOGRAPHY

- 23,000 words, 128 illustrations including 70 of the author's sketches -

PART 1

Introduction

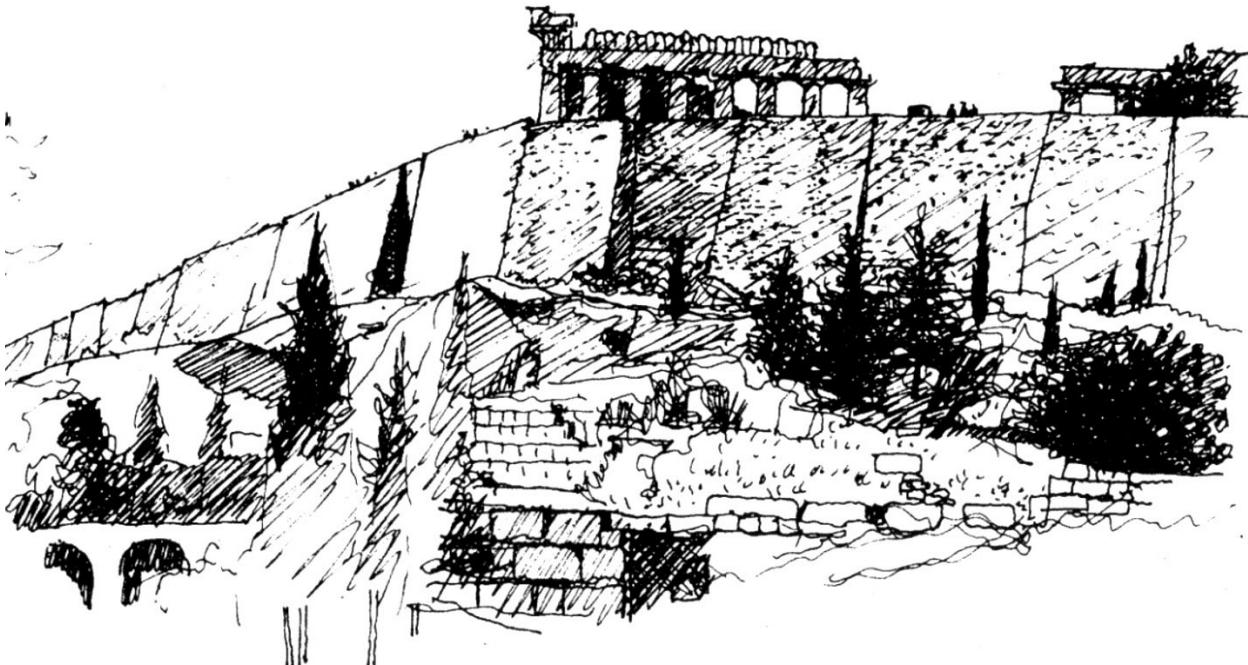


Fig. 1 – Arne Jacobsen - Travel sketch of the Acropolis in Athens from the South

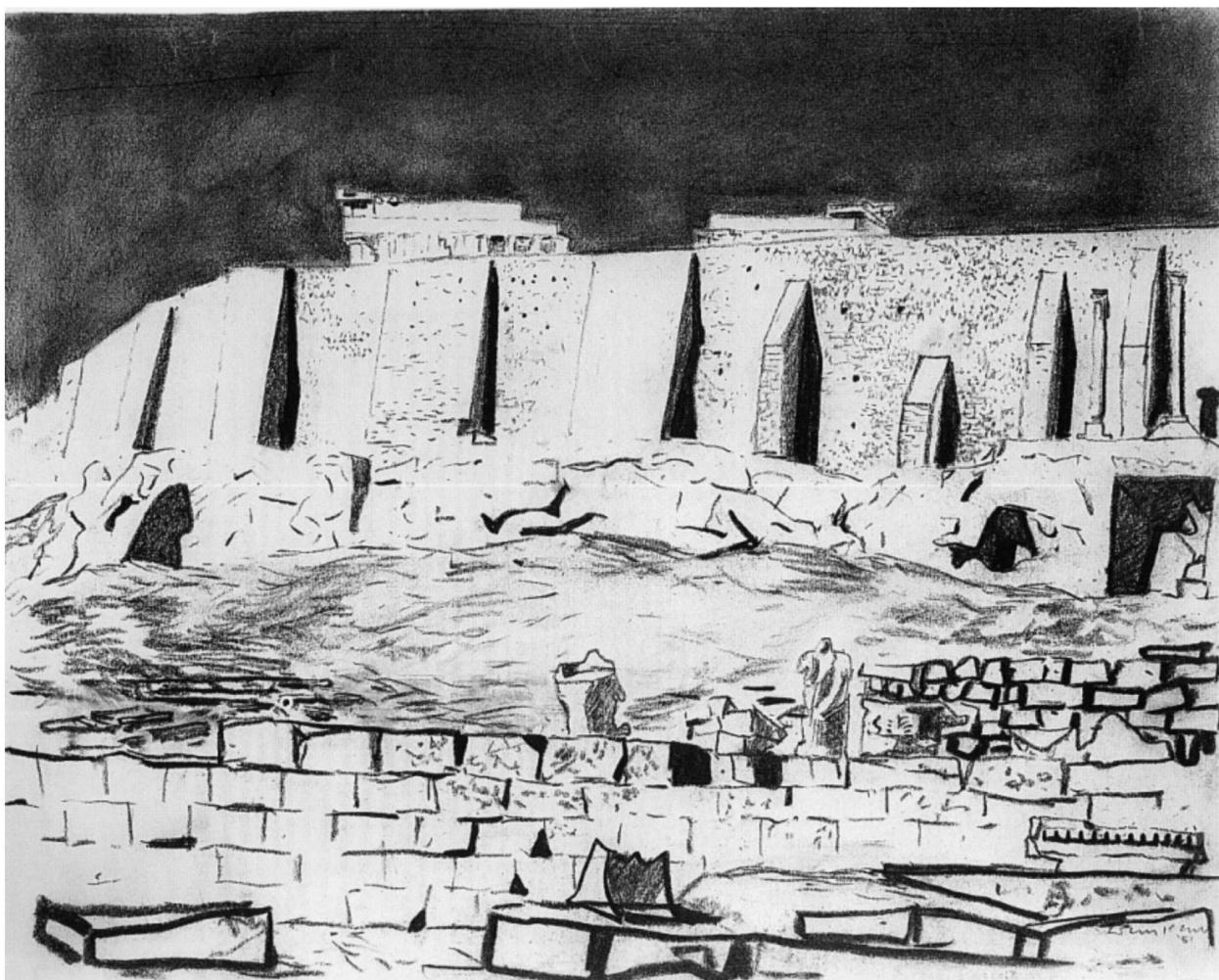


Fig. 2 – Louis Kahn - Travel sketch of the Acropolis in Athens from the South

1.1 - Hypothesis

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Travel sketches made by architects may be linked to architects' use of concept sketching in their design work. The practice of travel sketching may assist design sketching and hence enrich the design process of the architect, through widening the scope of the ideas, and facilitating the transformation of creative imagination into tangible forms.

Two drawings by different architects made from the same viewpoint illustrate the importance of personal interpretation in travel sketching. Although both deal with the same subject, each highlights aspects which appear most significant to the architect concerned, and portrays the subject in a manner appropriate to the architect's mental framework and often recognisable in that architect's projects. Jacobsen divides the Acropolis wall into a regular set of modules (Fig.1), while Kahn emphasises the massive 3 dimensional quality of the buttresses (Fig.2).

Although observed from life, travel sketches are often highly contrived. Louis Kahn paid great attention to the compositions of his sketches, which in some instances have a strongly abstract design quality to them (Fig.3).

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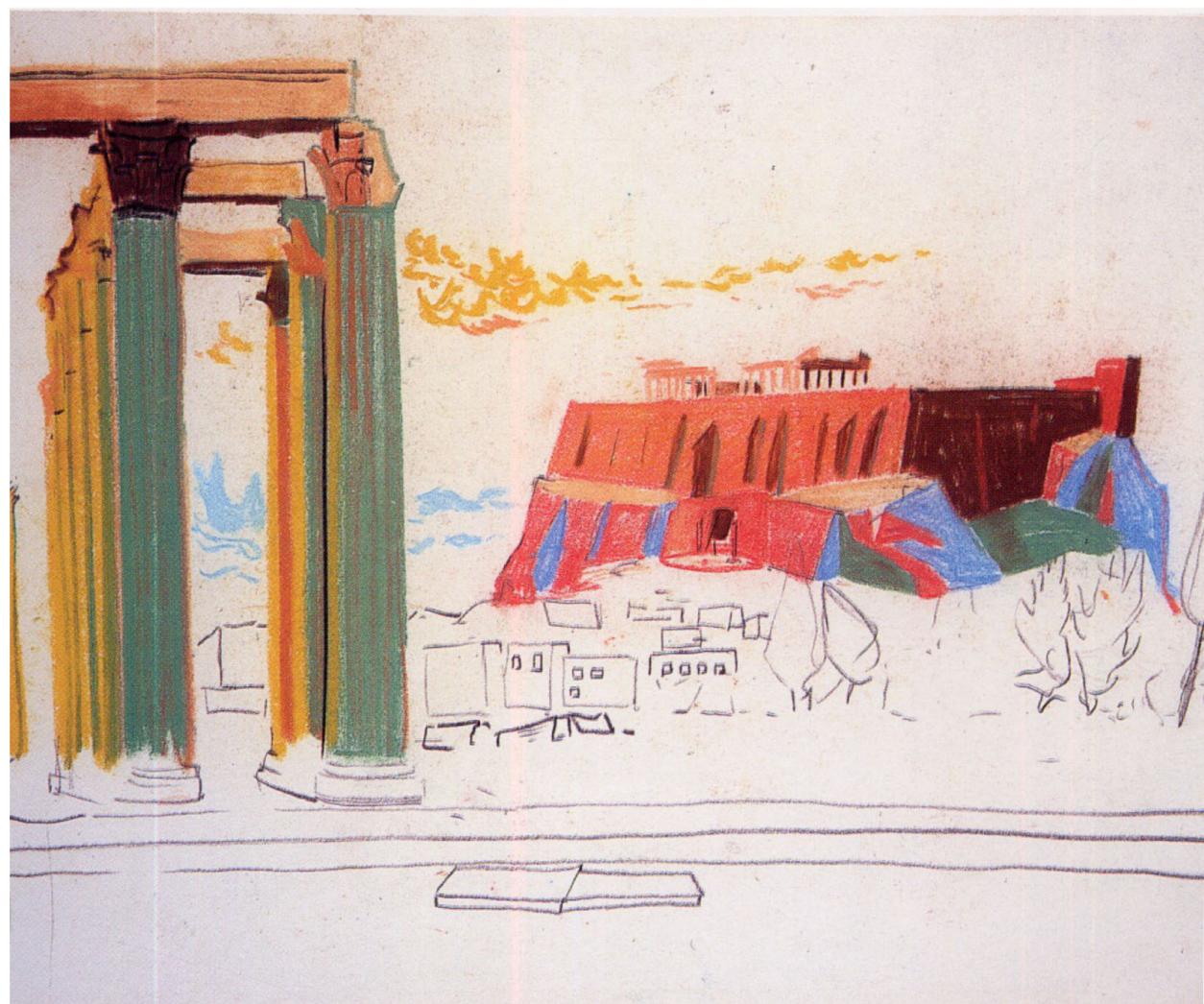


Fig. 3 - Louis Kahn - Travel sketch of the Acropolis in Athens from the South East

1.II - Does travel drawing matter?

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Although drawing buildings is usually considered a “good thing” for architects to do, it has become increasingly rare amongst the emerging generation of architects. Currently, concept or design sketching during the creative process of designing a building usually involves a considerable amount of sketching in ink, pencil, in sketchbooks, on transparent paper etc. Computer aided design is brought in often after the initial concepts have been sketched out. For example, Renzo Piano insists on a 3-stage design cycle, first drawing by hand, then computer drawing, then model making, followed by drawing by hand, etc.¹

Currently, many architects and students would agree with the usefulness of free hand sketching as an aid to forming the first ideas for a project, as the anthropologist Edward Robbins concludes from a survey of international architects.² However the relevance or usefulness of travel sketching becomes less and less clear. The alternatives offered by modern technology are faster, easier, and often more convenient than drawing freehand. The process becomes a vicious circle; the less accustomed one becomes to drawing in situ, the more personal effort it requires, and hassle is added to apparent pointlessness.

The term travel drawing or travel sketching is used here to name any drawing observed from life and made on location (*in-situ*) which

refers to the built or natural environment. Here the term is also used solely in reference to the travel drawings of architects, who by their training and experience will have a well-informed understanding of the environments they choose to draw. (Fig.1+2)

If “drawing” is the general term for making pictures using lines or marks, then “sketching” usually implies a drawing with a certain degree of roughness or quickness. However the distinction is often ambiguous, especially in the case of architects’ drawings, where quick “sketches” may contain large amounts of very specific information, measurements, annotations etc. Therefore in this dissertation no distinction is made between the two terms.

A basic premise of this dissertation is that architects see buildings differently to non-architects, and hence a drawing of a building by an architect is likely to contain different qualities than made by a non-architect. (Fig.3) This difference may be relative and hard to quantify, but may be thought in equivalent terms to the surgeon who views the human body in an analytical manner which those without the surgeon’s knowledge would not appreciate. Likewise, the trained western musician listens to western music in a way which balances emotional response with technical understanding, while the non-musician may be left with a musical sensation but may not grasp the conceptual challenges faced by the composer and performer.

Although many architects value travel drawing greatly, and hold the sketches of Le Corbusier, Kahn, Aalto, Siza, Jacobsen, Utzon, Asplund,

1 K. Frampton, conversation, 2nd of June 2011, Barcelona.

2 E. Robbins, *Why Architects Draw*, MIT Press Cambridge MA, 1994



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Fig. 4 - Sebastian Harris - Hephaisteion and Tholos, Agora, Athens, 2004

Although the intention had been to show the foundations of the Tholos against the backdrop of the Acropolis skyline, this was not allowed by the site guards as the view point was considered too close to the ancient remains. The composition therefore shows the relief of the Acropolis against the foreground remains of the great ancient drain, the cloaca maxima. (Fig.6)

Drawings made on the opening day of the 2004 Olympics in Athens (note balloons and airships floating beside the Parthenon. (Fig.5)

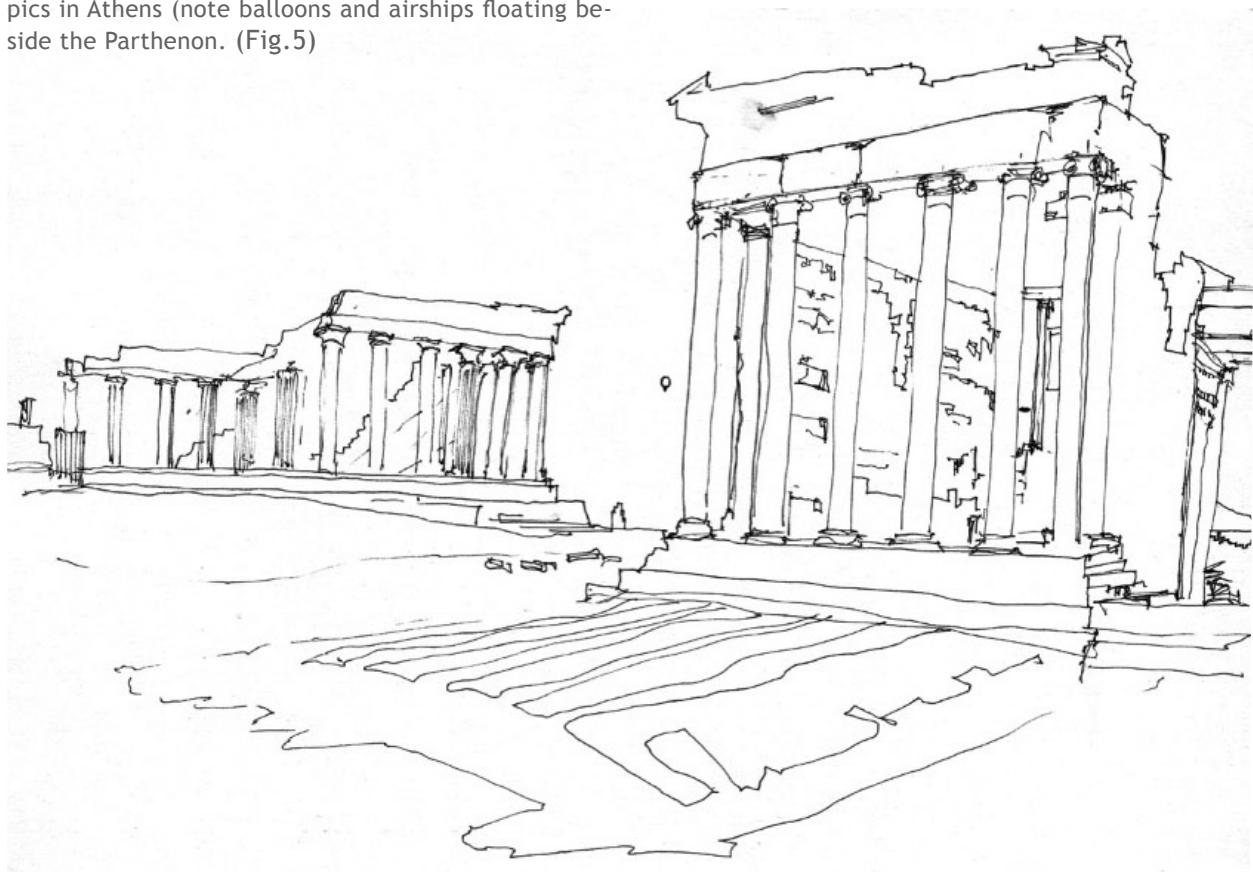


Fig. 5 - Sebastian Harris - Parthenon and Erechtheion facing South, Athens, 2004



Fig. 6 – Sebastian Harris - Acropolis seen from the Agora, Athens, 2004

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among others, in high regard, the actual reasons why it is worth an architect taking a sketchbook, as well as a camera, on their travels is rarely made clear.

It should also be pointed out that drawings - in this case drawings of buildings by architects - are not simply observations of reality recorded in a sketchbook. Personal interpretation is fundamental to any sketch - however carefully observed, a drawing, and especially when drawn by someone with a good understanding of the subject, is not simply a reproduction of a 3 dimensional view onto a 2 dimensional sheet of paper like a photograph. This is clearly demonstrated by the two drawings by Kahn and Jacobsen made from effectively the same viewpoint. While Kahn emphasises the massiveness of the fortified wall and buttresses, (Fig.2) Jacobsen divides the wall into an almost regular modular system. (Fig.1) It is interesting to compare these two points of view with the buildings of each respective architect. However such comparisons of travel drawings with later projects are outside the scope of this dissertation.

From the author's point of view guided by practical experience of travel drawing and the issues it involves, travel sketches may also prove a particularly interesting drawing type to analyse precisely because they are made outside of the usual working environment. As a result they tend to be more direct, faster, more open to external influence through a combination of all one's senses, and therefore are potentially more revealing about an architect's thinking. (Fig.3)

Much research has been done on the role of drawings in architecture at all stages in the architectural process. The majority of analytical writings focus on measured drawing. In the book "Commentaries on the drawings of twenty contemporary architects", Raphael Moneo and Juan Antonio Cortés use original measured drawings to explain the critical interests and preoccupations of each architect.³ The authors read the principle aspects of each from the way in which each architect has chosen to draw, more than through analyzing the actual architecture represented in the plan or section. The means of representation alone - such as line-weights, level of detail, selection of the composition, drawing type etc - reveal a considerable amount about what it was that each architect considered most important. (Fig.5)

However, the research published about architects' travel drawings, even the most significant architects of the 20th century, usually tends to be either restricted to the historical context, or stop with an aesthetic appreciation of the sketch, or at most read the theories of the particular architect into the often rather ambiguous jottings left in their travel sketchbooks.

This last point sometimes leads to confusion, as the widely published theories of many of these architects were constructed and published at totally different periods of their careers to the

³ R. Moneo and J.A. Cortes, *Comentarios sobre dibujos de 20 arquitectos actuales*, ETSAB, Barcelona, 1976.

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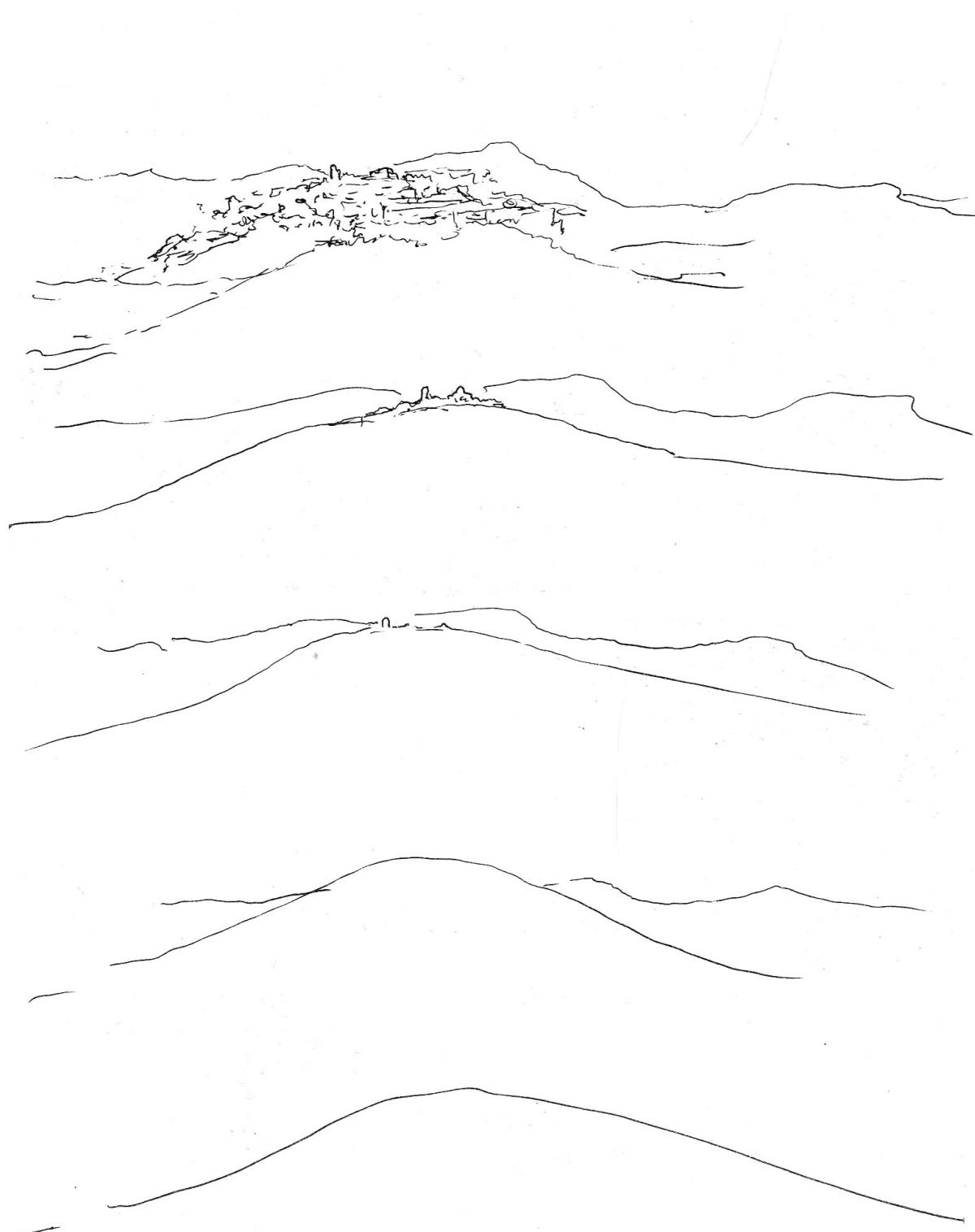


Fig. 7 - Alvaro Siza - Sequential travel sketches of the approach to Salemi, sketchbook 61, Sept 1980

date when the sketches were drawn. As Allen Brooks points out in the case of Le Corbusier, he wrote very few notes about the Acropolis when he was there, but wrote his essay *Le Parthénon* largely from memory 3 years later. His later writings about the Parthenon, were made following later visits, and do not necessarily reflect his thoughts whilst drawing as a young man in 1911 at all.⁴

Of the authors mentioned below, architects, sociologists, anthropologists, architecture critics, and scientists, all agree that today drawing is an essential part of the way architects imagine, develop and describe their projects.

The principle idea of this dissertation is that travel sketches form simply an earlier step in the creative process, one stage further back than the concept sketch. As the travel sketch starts off from a given objective reality (the particular view or building drawn), the analysis of a set of travel sketches may in fact demonstrate the development of the drawer's interpretation more clearly as the starting point or inspiration is already defined. As such, a travel sketch is in fact a kind of conceptual design sketch which can be analyzed to show a creative process equivalent to that in a design-development drawing.

Kenneth Frampton in fact feels that in some cases travel sketching and design sketching may merge seamlessly into one another, and result in a design fundamentally rooted in the character of the place. Frampton cites the drawings of Alvaro Siza, which provide a means

of engaging with a site and, according to Siza, architectural ideas and solutions may begin to emerge from the drawing itself.^{5, 6, 7} (Fig.7)

Therefore this dissertation analyses a set of travel drawings from an architect's perspective, taking advantage of personal understanding of architectural travel drawing in order to see what conclusions may be formulated from the images themselves without recourse to later theories, or secondary sources.

This dissertation is arranged in two principle sections. First a discussion of theories about the role of sketching in the design process of architects and their relation to travel drawing. Second is a case study of Le Corbusier's travel sketches of the Acropolis to test the conclusions of the first part.

4 A. Brooks, *Le Corbusier's Formative years. Charles-Edouard Jeanneret at La Chaud-de-Fonds*, Chicago and London, 1997.

5 K. Frampton, conversation, 2nd of June 2011, Barcelona.

6 K. Frampton, 'Il disegno veloce, Le annotazione di Alvaro Siza', *Lotus*, vol. 68, Milão, 1991, p. 73.

7 K. Frampton et al., *Alvaro Siza Esquissos de Viagem/Travel Sketches*, Oporto, Portugal: Documentos de Arquitectura, 1988.

1.III - Literature review

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Edward Robbins treats drawing from an anthropological perspective. He examines the historical evolution of the role of drawing in architecture, and then explains the current use architects make of drawings through a set of case study interviews with international architects. Robbins separates his theoretical analysis into two parts: the “cultural” role of drawing (ie regarding the graphic information conveyed in the drawing); and the “social” role of drawing (which describes how drawing may be used to communicate ideas, and how the role of drawing is effected by the relationships between people such as architects, assistants, clients, builders, critics. etc.).⁸

Many architects have written extensively about drawing, in Spain prominent authors include, Rafael Moneo, Juan Navarro Baldeweg, Mansilla, as well as many others who have written articles and opined on the drawings of other architects. The article written by Michael Graves is used here as a representative explanation of the way architects make use of drawings to develop their architectural projects, from initial inspiration, to describing design concepts, developing these into feasible proposals and proving that they work practically. The article was written in 1974, and is illustrated with the author’s own design sketches for a house. Although the Postmodern project illustrated sometimes makes use of early sketches in a rather literal way, (sketches include variations on classical architecture including English follies, and projects by Ledoux amongst others), Graves’ classification of types

of design sketches, and the purposes they each fulfil is complete, and clearly described. Nevertheless, the author admits that sketches are inevitably ambiguous and can never be decisively placed within strictly defined categories⁹.

The article by Josep Llinas points out a contrasting attitude towards architects’ drawings. Drawings are best avoided; architectural creation should ideally be a cerebral matter where the role of drawing is only to capture and convey a design to others. Design sketches are often needed to help understand the consequences of one’s designs, however they have a life of their own, and unless carefully controlled can distract from the principle issues¹⁰.

The sociologist Richard Sennett argues that making is thinking. He conveys the idea that manual production is profoundly linked to thought and mental creativity, and hence that one cannot be successfully separated from the other. In reference to drawing, he suggests it is the manual act of drawing which makes one think and reflect, engaging with the subject in a way that is not possible through observation alone.¹¹

9 M. Graves., “The Necessity for Drawing: Tangible Speculation”, *Architectural Design*, Vol 47, Nº 8, 1977 (p.384-394)

10 J. Font, I. Crespo and P. Martinez, “Los dibujos de Josep Llinàs” *Las Razones del Dibujo tecnico, Catálogo de Exposición*, ETSAV Barcelona, 2004.

11 R. Sennett. *The Craftsman*. New Haven: Yale University Press, 2009.

8 E. Robbins, *Why Architects Draw*, MIT Press Cambridge MA, 1994

Fig. 8 – Comparison between the blank approach wall & Caryatids of the Erechtheion (left) with the approach wall of the chapel at La Tourette (Monastery designed by Le Corbusier)



A number of scientific studies refer to the mental processes behind sketching, and specifically how sketching affects the creative process. The overall attitude of these may be outlined with the following three articles: Gabriela Goldschmidt¹², Jonathan Fish and Stephen Scrivener¹³, Donald Schön and Glenn Wiggins¹⁴. These articles generally agree that design via sketching is a roughly cyclical process involving imagining, drawing, editing and redrawing.

Writing on the role of travel sketching for architects is currently limited to a number of descriptions of the travels and sketchbooks of a handful of the most significant architects of the 20th century. There is no scientific research equivalent to that regarding design sketching, despite the fact that, as a brief glimpse through the sketches of Le Corbusier, Aalto or Kahn will show, extremely fundamental and individual mental processes of selection, interpretation, expression, and editing are combined with prior knowledge and pre-meditated concepts. Some research into architects' travel sketches has been made in painstaking detail, while other writings focus purely on the more superficial

12 G. Goldschmidt, "The dialectics of sketching" *Creativity Research Journal*, Vol. 4, No. 2. 1991, pp. 123-143

13 J. Fish and S. Scrivener, "Amplifying the Mind's Eye: Sketching and Visual Cognition", *Leonardo*, Vol. 23, No. 1, 1990, pp. 117-126

14 D.Schön, Donald and Glenn Wiggins "Kinds of Seeing in Designing," *Creativity and Innovation Management*, Vol. 1, No. 2, June, 1992.

aspects of the sketches. A common theme is to compare and contrast the buildings and projects of a given architect with that architect's travel sketches. (Fig.8) There is clearly great scope for this line of research particularly in the sketchbooks of Le Corbusier and Kahn.^{15, 16}

There is however a lack of detailed research into the travel sketches themselves, as opposed to their historical context and presumed influence on later projects. Furthermore, there is very little graphic research into travel sketches, whereby sketches may be dissected into their principle elements and compared to others in the set to demonstrate the development of themes of interest and understanding in the architect.

Although the sketches of Le Corbusier have been analysed more thoroughly than those of almost any other architect, there are many gaps and uncertainties as to his contemporary attitudes to the places and buildings that he visited. Although Le Corbusier himself published many later reflections on his travels, only his in situ sketches actually bear witness to the development of his ideas in front of the stones themselves.

15 Ksiazek, S., 'Review of the exhibition "Drawn from the Source: the travel sketches of Louis Kahn" 1997 Jewish museum, New York' *Journal of the Society of Architectural Historians*, Volume 56, Number 1/March 1997

16 Daza. R., *El Viaje de Oriente. Charles-Édouard Jeanneret y Auguste Klipstein. 23 de mayo - 1 de noviembre 1911*, Tesis doctoral, UPC, Barcelona, 2009.

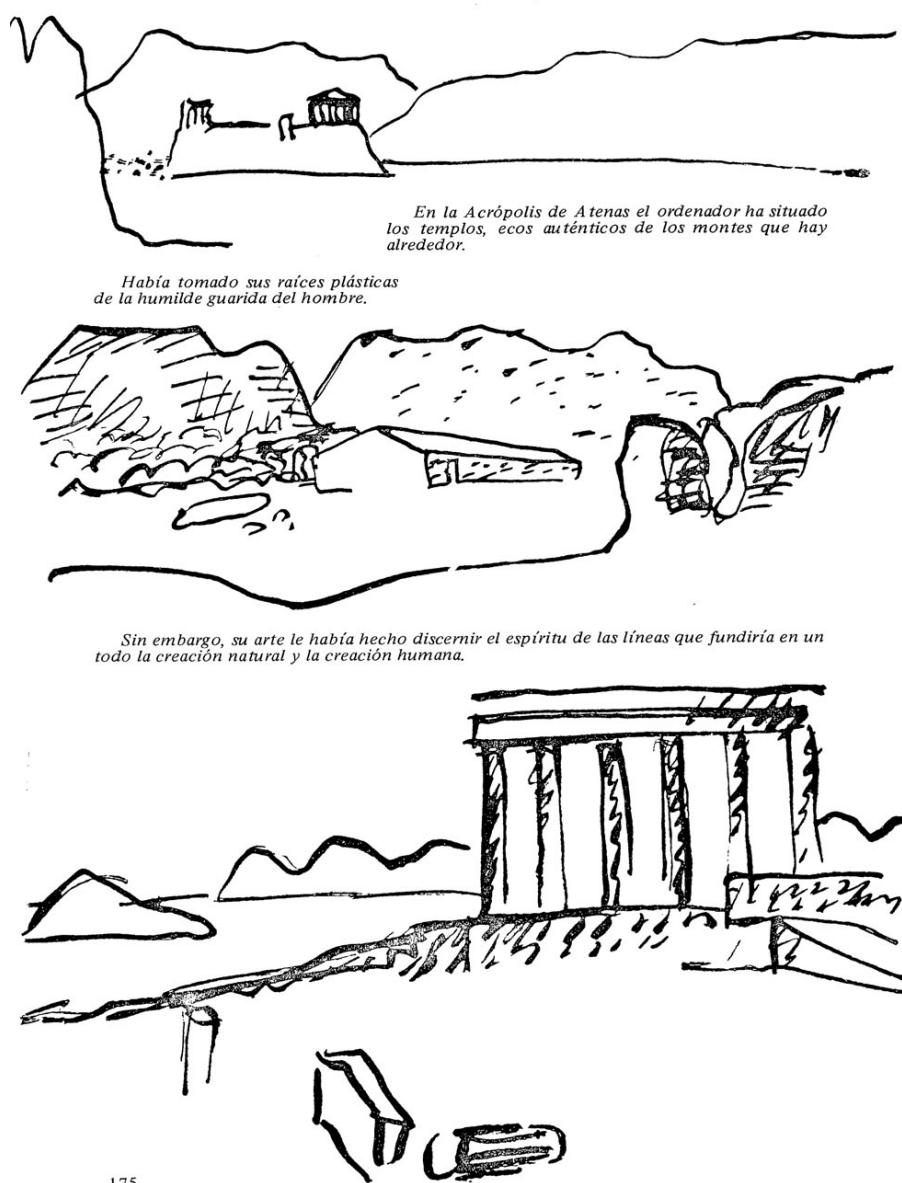
Although there appears to be potential for much interesting and illuminating research in this direction, the purpose of this dissertation is the enquiry into what the purpose of travel drawing for an architect actually is.

As such, the sketches of the Acropolis by Le Corbusier have been selected simply as an example - in this case a particularly clear case-study from which more general conclusions as to the role of travel sketching may be reached.

For an overview of the literature and research on Le Corbusier's Voyage to the Orient, see part 3.1 - B below.

Le Corbusier returned to his impressions of the Acropolis many times in his later writings, lectures and projects. These diagrammatic sketches have been made from memory to explain what he considered to be the vital elements of the Acropolis. (Fig.) They focus on the geometrical form of the Parthenon in its landscape setting perched on the summit of the hill dominating the surrounding plain, and the relationship of the temples and the rhythm of vertical columns to the distant horizon. As explained below, these ideas were developed while Le Corbusier was making his first travel sketches of the Acropolis in 1911

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Fig. 9 - Le Corbusier - Illustration of the Acropolis in "La Maison des Hommes"

1.IV - Six reasons for selecting travel sketches by Le Corbusier

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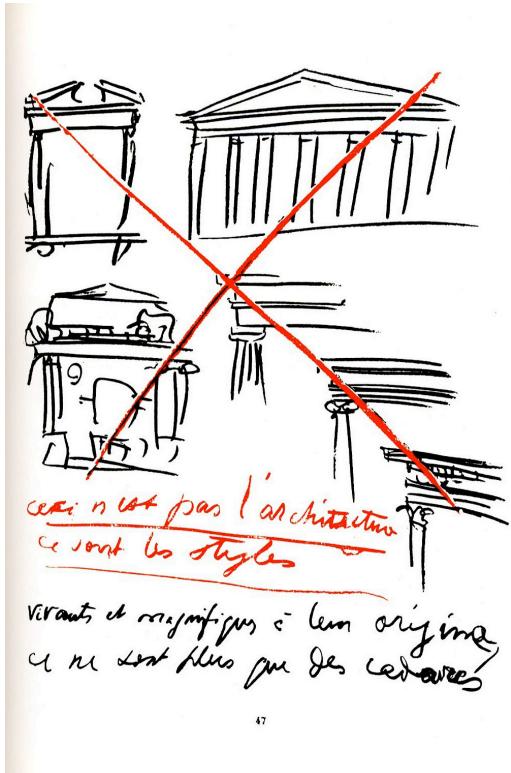
Le Corbusier has been selected partly because of the great clarity with which he expressed his architectural intentions through sketching. His freehand drawings would later become his characteristic method of explaining his architectural opinions and theories in articles, books and lectures. (Fig.9+10)

The selection of one architect alone instead of a comparison of a variety of architects intends to avoid the confusing “cross-fertilization” of influences between different architects and their opinions and knowledge of the travel sketches of their peers.¹⁷ Le Corbusier drew these sketches in September 1911, well before Aalto, Jacobsen and Kahn visited Athens.¹⁸ Although he may have seen some travel sketches of Asplund’s travels, his main source of prior information would have come from architectural books (particularly Choisy’s History of Architecture, and the photographs from Maxime Collignon’s books on Greek art - see below).

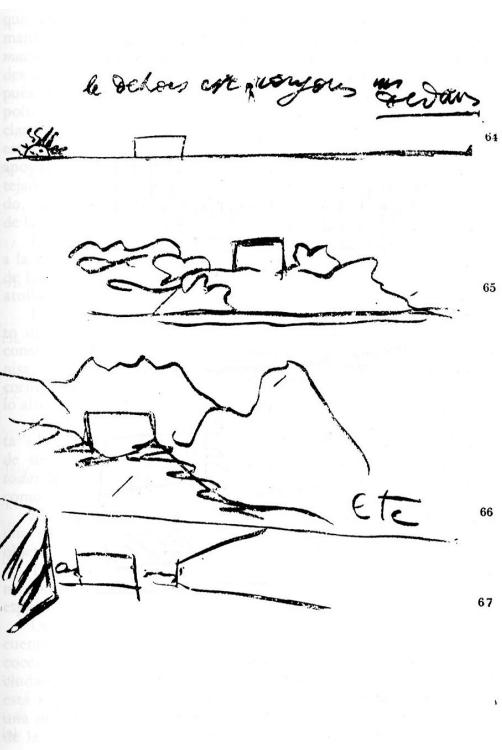
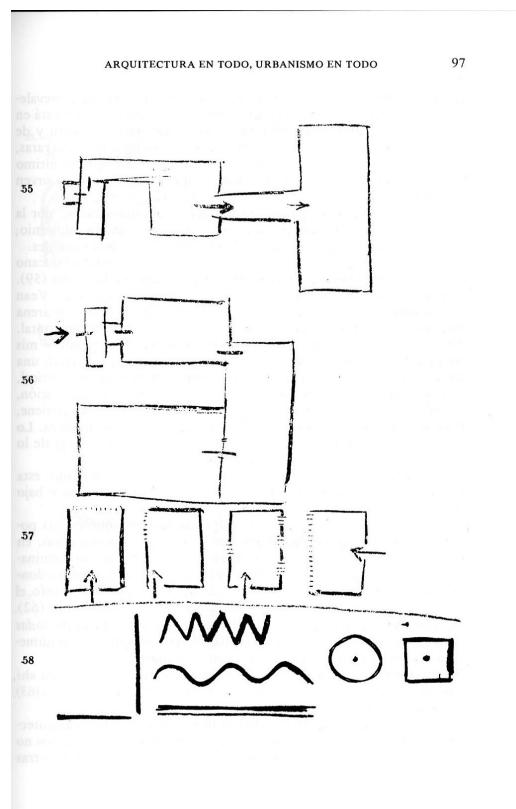
Le Corbusier’s drawings of the Acropolis in particular have been selected as they form a compact sequence of sketches made during a two week period, which show a development of the architect’s attitude and conception towards the Acropolis and its buildings.

17 T. Benton, conversation, 2011, Valencia

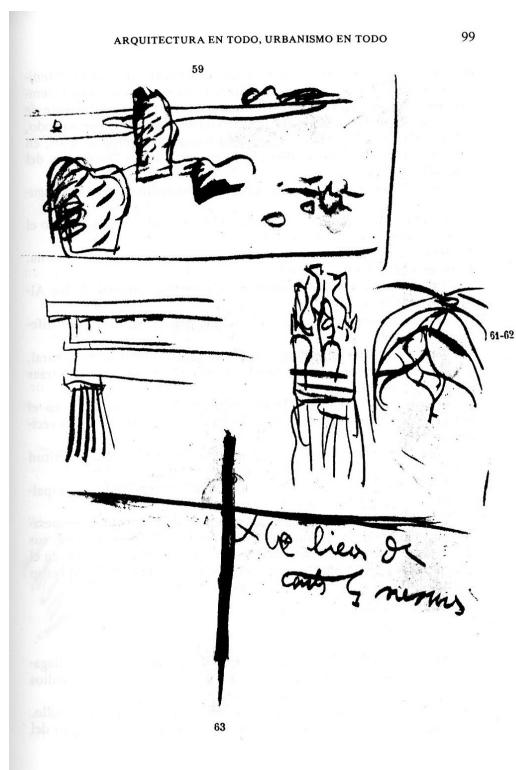
18 Ibid., Aalto, for example, was very familiar with many of Le Corbusier’s sketches before visiting Greece.



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Le Corbusier often drew in order to communicate his fundamental architectural ideas. These illustrations (later published in the book *Precisions*) were drawn during the course of a lecture series he gave in South America. Drawn on large sheets of paper hung on the wall, Le Corbusier would explain his theories to the audience whilst drawing. By the end of the lecture entire walls would be covered by his graphic theorizing. (Fig.10)

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This dissertation follows on from a previous exercise with Professor Josep Quetglas in the analysis of a sequence of design sketches and notes made by Le Corbusier for a house-studio for Artisans (project 1924-5).¹⁹ (Fig.25,27,28)

In order to understand the link between travel sketching and design sketching, a set of pencil sketches drawn by Le Corbusier has been analyzed graphically. This sequence of sketches was made in late September 1911 during Le Corbusier's first visit to the Acropolis in Athens during his Voyage to the Orient²⁰. These sketches have been chosen for the following reasons:

1 - They provide a particularly clear example of analytical architectural thought by one of the 20 century's most influential architects

2 - They form a complete set of pencil sketches during the three weeks Le Corbusier spent in Athens in 1911. They also remain in likely chronological order due to their locations in the Carnet 3 of his sketchbooks.

3 - These sketches were all almost certainly observed from life whilst on location. A number of Le Corbusier's other sketches of the Acropolis were made elsewhere and at different dates.

4 - These Carnets from the Voyage to the Orient have been reproduced in facsimile, allowing the study of the effectively original source instead

of secondary copies of the illustrations. These reproduce the original size, tone and sequential order, complete with all Le Corbusier's contemporary written annotations.

5 - Although the Voyage to the Orient has been researched in great detail, and many of its sketches analyzed with respect to their viewpoints, there is currently no published detailed graphic research into the development of these specific sketches. Giuliano Gresleri, the foremost expert on these drawings, has suggested viewpoints for the various sketches, although some of these have been contested²¹.

6 - It is also interesting to see how, through these particular drawings, Le Corbusier appropriated and engaged with the architectural ideas of a foreign and ancient culture, ideas to which he returned throughout his career in writings, drawings and projects. (Fig.9,10)

19 MPIA, La Salle, Barcelona 2010-11

20 Le Corbusier (Ch.-E. Jeanneret), *Voyage d'Orient, Carnets*, Milán, Electa / París, Fondation Le Corbusier, 1987

21 See Part II below re Sketch 127, and Daza. R., *El Viaje de Oriente. Charles-Édouard Jeanneret y Auguste Klipstein. 23 de mayo - 1 de noviembre 1911*, Tesis doctoral, UPC, Barcelona, 2009.

1.V - Method and Intentions

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The use of sketching as a design tool has been extensively researched in terms of its historical evolution, its cognitive functioning, and its practical uses and implications for contemporary architects. However, although considered by many to be an important part of an architect's education, the use and functions of travel drawing remain fairly vague.²²

The object of this dissertation is not to present a direct balanced comparison between the roles of design sketching and travel drawing. Instead, the uses and functions of design sketching are first explained in order to give a starting point from which to analyse the purposes of travel drawing for architects.

The first part of this dissertation intends to provide a general overview of the main roles of free hand drawing in contemporary architectural design.

The second part graphically analyses a set of travel sketches in order to observe the analytical and creative processes inherent to architectural travel drawing. These observations are then examined to see how they may assist the development of the practitioner's architectural understanding and ideas.

The theoretical discussion of the first part is then used as the basis from which to make informed suggestions about the uses and functions of travel drawing for architects. Conclusions may then be made

This may make clear to what degree architects' design sketching and travel drawing are interconnected.

This method has been limited to a graphic analysis based on de-constructing the pencil sketches into their primary graphic parts (composition, outline and tone) which are then compared to one another to detect changes in the emphasis given to certain elements. A more detailed explanation of the analytical method is given below in section 3.I-C.

The chronological evolution of the most prominent architectural ideas in each sketch is then worked out. In some cases, alternative composition or tonal diagrams are provided to help deduce the reasons for the decisions made in the original in situ sketches.

This is not a historical analysis, and it does not attempt to reproduce the period during September 1911 that Le Corbusier spent in Athens. Neither does it rely on later writings or theories by Le Corbusier, or the subsequent interpretations of others. The intention is to interpret the graphic evidence provided in the original sketches and see how this interpretation may relate to theories about the function of sketching in the process of architectural design.

22 K. Frampton, e-mail, "Of course travel drawing's important.", June 2011

PART 2

A Comparison Of Theories About Why Architects Draw

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Fig. 11 – *Elevation of an Egyptian temple at Ghorab XVIII dynasty. Parchment. University College London*

A COMPARISON OF THEORIES ABOUT WHY ARCHITECTS DRAW; THE ROLE OF DRAWING IN THE DESIGN PROCESS; HOW "TRAVEL" SKETCHING RELATES TO DESIGN SKETCHING; AND WHAT OTHER CONSIDERATIONS TRAVEL SKETCHING MAY INVOLVE.

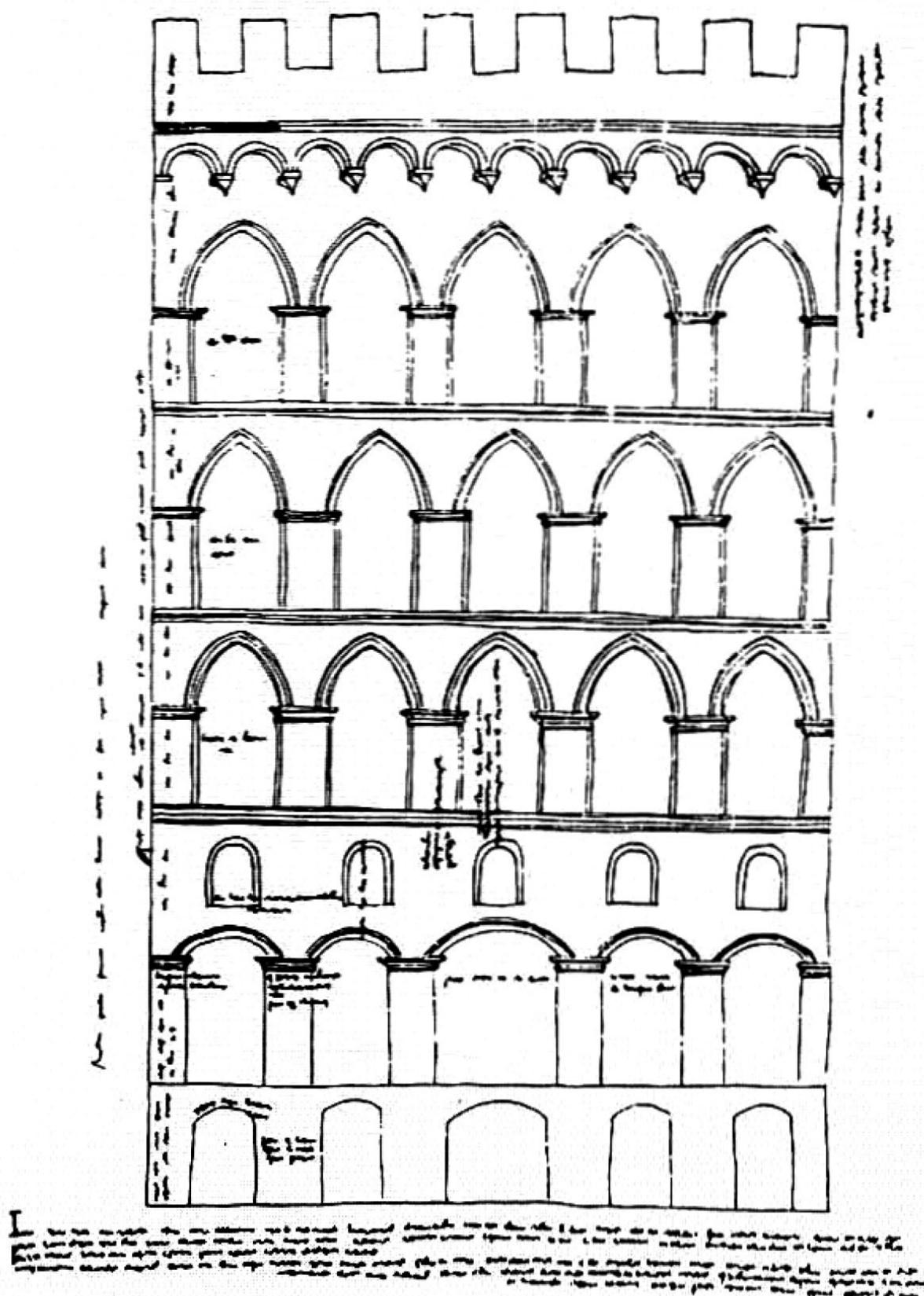


Fig. 12 - *The Sansedoni elevation, C.14, Palazzo Sansedoni Siena*

2.1 - Historical Overview Of The Uses Of Drawing In Architecture

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Although most architects would agree that drawing is now central to almost every aspect of their work, according to Edward Robbins, this is in fact a relatively recent occurrence. The role of architectural drawing has gradually evolved along with the changing role that the architect, or the equivalent, has played in the design and construction of buildings throughout western civilization. In fact the role architects have played in society is closely related to their use of drawings and in some cases may have actually depended on it. Changes in the use of architectural drawing have repeatedly occurred before changes in the way architecture was produced. This is most clearly demonstrated in the Renaissance with the shift from master masons to “gentleman architects”, and the distancing of design work from manual craft.

“This last transformation of the architect from craftsperson to artist (during the Renaissance) was accompanied and, arguably, made possible by the new centrality and importance of drawing as a critical instrument of architectural creation and production.”²³

However, the role of drawing in architecture has been different in each culture and age.

In Ancient Egypt, ground plans and pictorial images of buildings have been found. (Fig.11) Sketch plans on flat pieces of limestone have also been identified and were probably used as guides on site. Robbins claims that the architect was probably based permanently on site, as although these drawings may have served as

23 E. Robbins, Why Architects Draw, MIT Press Cambridge MA, 1994, p.10

memory aids, they would have been insufficient by themselves to explain the construction to a builder.

There are various opinions about the role of drawings in Greek architecture. Architects were probably nearer to stone masons in this period, and may have worked largely from written design descriptions relating to measurement and proportion. The term architect literally meant “citadel-maker”. However, the extreme sophistication of Greek temple facades would have been, as Roberts points out, “extremely difficult to achieve without preliminary drawings to scale”.²⁴

Certainly few Greek drawings remain, although some working sketches to scale have been found for the temple of Apollo in Didyma.²⁵ Centuries later Vitruvius notes the importance of graphic information in Classical architecture - (mentioning plans, elevations and perspectives), but he may have been referring mainly to Roman architecture as confirmed by many mosaics and wall paintings. Nevertheless throughout the ancient world architectural drawings seem to have had a largely practical

24 Robbins. Op cit.

25 These appear to explain the proportions of various circles and lines which set out the profiles of the column base moldings. The article suggests that they may have been carved in the stone at the rear of the inner cella as a record for future generations of masons, given that the construction period of the temple would have lasted many years. Lothar Haselberger (1985) “The Construction Plans for the Temple of Apollo at Didyma,” *Scientific American*, 253(6), 126-132.

During the Renaissance, many architects spent time studying ancient ruins at first hand. Brunelleschi spent years in Rome painstakingly surveying and drawing classical ruins but was extremely secretive about his drawings themselves. According to Manetti, his biographer, Brunelleschi would not even explain to his companion Donatello why he was so interested in crumbling pagan remains. During the sixteenth century, Palladio also made detailed drawings of Classical architecture. (Fig.) The purpose of Brunelleschi's drawings appears to have been to analyse and understand ancient orders and proportions, Palladio's drawings (which repeat a particular format of elevations and axonometrics) appear more as a comparative analysis between ancient buildings and a record for future use.

28

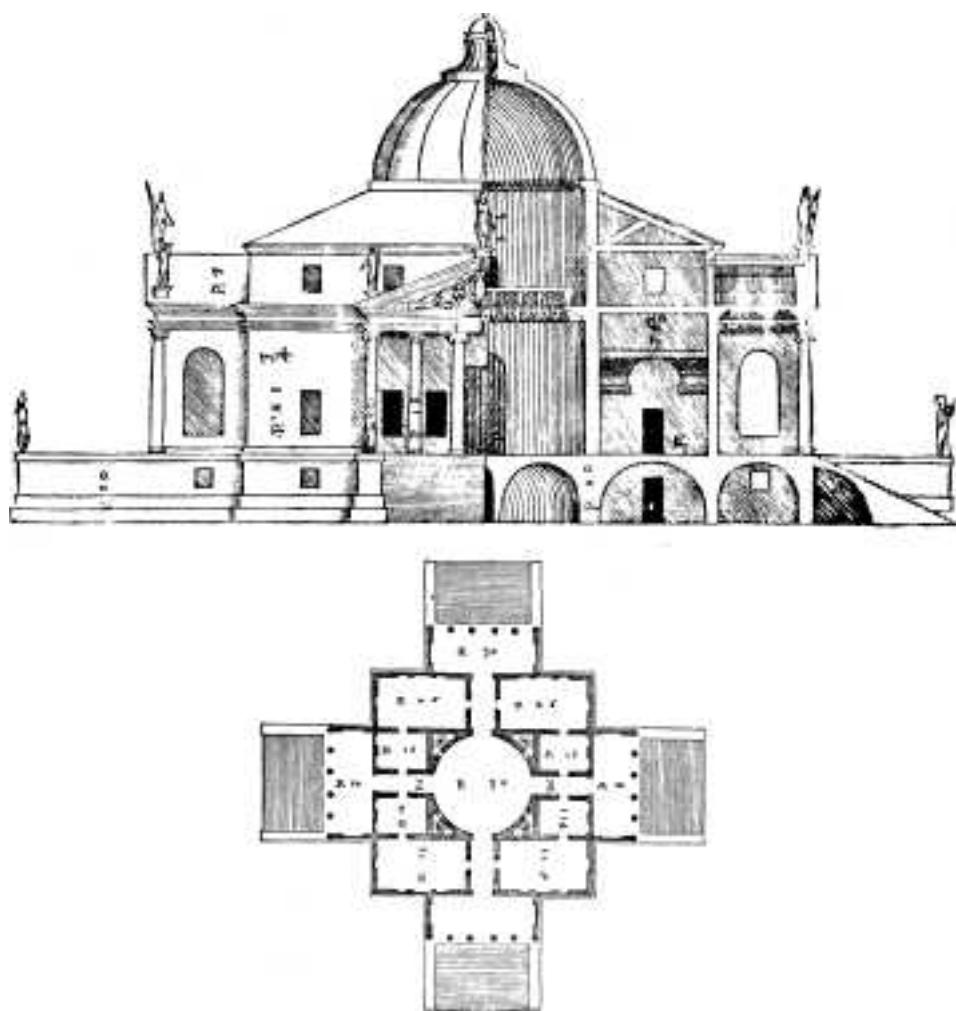


Fig. 14 – Palladio - Villa Rotonda, *Quattro Libri* (treatise by Palladio C.16)

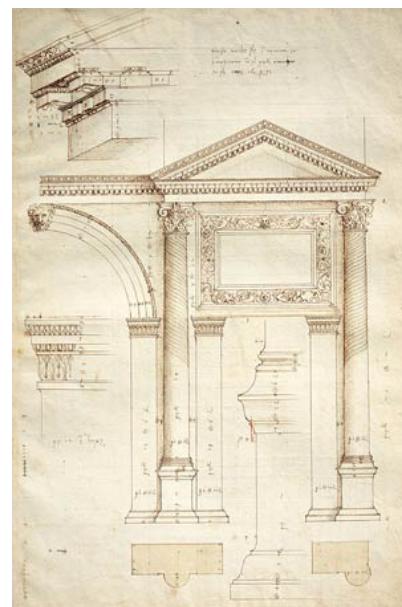


Fig. 13 – Palladio - Measured drawing of the Arch of Jupiter Ammon, Verona, ca. 1540 RIBA drawings collection

29

role, describing the process of construction, rather than being an instrument of design.

During the middle-ages, drawing appears to have played a less important role in architecture. Although the late Gothic masons did develop a much wider range of drawing types, from sketch designs to construction diagrams, these drawings still required the presence of the master-mason to interpret them on site. The elevation of the Palazzo Sansedoni is drawn to scale, and includes dimensions and written construction notes.²⁶ (Fig.12) However these may reflect more the wishes and comments of the patron than the complete practical information sufficient to construct the building.

During the Renaissance, the idea arose that drawings could be used as a design tool, which might allow the architect to show all the fundamental aspects of the conceived architecture, demonstrating function as well as harmonious form and proportion. (Fig.14) As Alberti wrote, “It is the role and function of the drawing to give buildings and parts of buildings a suitable layout; an exact proportion; a proper organization; a harmonious plan, such that the entire form of the construction is borne fully within the drawing itself.”²⁷

However even in the Cinquecento in Florence,

26 Palazzo Sansedoni, Piazza del Campo, Siena, C14.

27 Alberti, Leon Battista. *De re aedificatoria*. On the art of building in ten books. (translated by Joseph Rykwert, Neil Leach, and Robert Tavernor). Cambridge, Mass.: MIT Press, 1988

drawings could not substitute the authority of the architect when he was not present. Although he was exceptionally secretive about his drawings and the ideas they contained in order to avoid plagiarism by others, Brunelleschi did draw at different stages of the design process and at very different scales. Manetti, Brunelleschi's biographer, describes how in one of his buildings, a precise scale drawing was utterly ignored by those working on site whilst Brunelleschi was away, resulting in an inferior building.²⁸ On another occasion, according to an account by Giovanni Battista Gelli, he drew out sections through the ribs of the Florence cathedral dome at full scale.

In the summer of 1420 Brunelleschi organised a huge bed of sand to be flattened out on the bank of the river Arno downstream from Florence. In order to get the complicated geometry exact, he traced the outline of the quinto arch showing the curvature and depth of the cavity between the dome's two skins. From these full scale working drawings timber centering was then made in sections and reinforced with metal. This could gradually be shifted up between the 2 skins of the dome as construction progressed providing the guide for the stone ribs and the inclined brickwork panels

28 “He [Brunelleschi] presented a drawing precisely scaled in braccia. . . . In it are many various and fine considerations and the reasons are understood by few. He explained it orally to the master builders, the stonemasons, certain citizens, the leaders of the Guild, and to workers assigned to the undertaking since he had to be absent for a time.” - Tuccio Manetti, *The Life of Brunelleschi*, 1480, edited by Howard Saalman (University Park and London: Pennsylvania State University Press, 1970)

between them.²⁹

By the mid sixteenth century, working drawings to scale were finally perfected allowing the separation of architectural conception from realization. (Fig.13)

“Drawing would be a critical instrument that architects would appropriate in the process of making themselves predominantly designers and mind-workers. The drawing would be utilized to separate the architect from those who realized the design through their hand work.”³⁰

This stage in the evolution of drawing signaled an important shift in the work of the architect allowing much greater specialization of professional roles. This specialization, where architects primarily draw, has gradually developed to the current situation.

29 Gelli, Giovanni Battista. *Brevi vite di artisti florentini*, cited by R. King. *Brunelleschi's Dome*, Pimlico, London, 2001, p.85

30 Robbins. Op cit.

2.II - The Role Of Drawing In The Architectural Design Process: Three Points Of View

33

THE FOLLOWING THREE PERSPECTIVES ON ARCHITECTURAL DRAWING HAVE BEEN CHOSEN TO SHOW DIFFERENT SCALES OF ANALYSIS.

THESE START FROM THE BROADEST EXTERNAL VIEWPOINT OF AN ANTHROPOLOGIST, TO THE INVOLVED BUT GENERALIST VIEW OF SEVERAL ARCHITECTS, TO THE MOST SPECIFIC SCIENTIFIC SCALE OF THE MENTAL COGNITION INVOLVED IN THE CREATIVE PROCESS.

A - According to an anthropologist: an external opinion

The following opinions have been selected primarily because they provide a general overview of the role of drawing in architecture as seen from outside the architectural profession. Being an anthropologist, Edward Robbins portrays the role of drawing in a wide historical and social context, referring to the social implications which the development of architectural drawing has entailed otherwise not mentioned by architects themselves.

According to Robbins, one fundamental role of drawing is to communicate ideas and relate information from one person to another.

This happens at many stages of the architectural process, from discussing ideas and concepts between a group of designers, to communicating concepts and designs to a client

or third party, and finally as working drawings to instruct a builder about every detail of the project to the point that construction can take place with only occasional visits by the architect. The alternative, which in the past was verbal or written description, has long been distrusted as a highly ambiguous form of architectural communication.

As Francesco di Giorgio wrote in the mid 15th century, "There have been worthy authors who have written at length about the art of architecture...although to the writers themselves it seems they have elucidated their designs according to their intentions, to us it seems that through a lack of drawings there are few who understand them."³¹

The anthropologist also goes on to note how a drawing expresses as much about the architect as it does about the design. Equally, in his view, drawings are a tool for appropriating the important ideas of others - ie one learns, understands and remembers other buildings through drawing them. Consequently, the notebooks of well known architects often become important texts for later generations of architects.³²

31 Robbins. Op cit. p.40

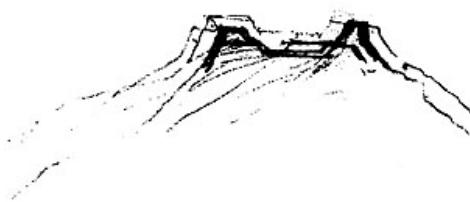
32 The sketchbooks of Le Corbusier, Asplund and Kahn are obvious examples



Both sketches illustrate a similar compositional idea of asymmetrical but balanced dual-centers, which Michael Graves has recorded for future use. (Fig.)

34

Fig. 15 – Michael Graves - Referential sketch of Botticelli's Annunciation



A set of travel sketches and explanatory drawings showing variations on a particular theme which Utzon had recorded from his experience. (Fig. 17, 18, 19) He translated these ideas directly into his own architecture in the platform and cloud-like forms of the Sydney Opera house.

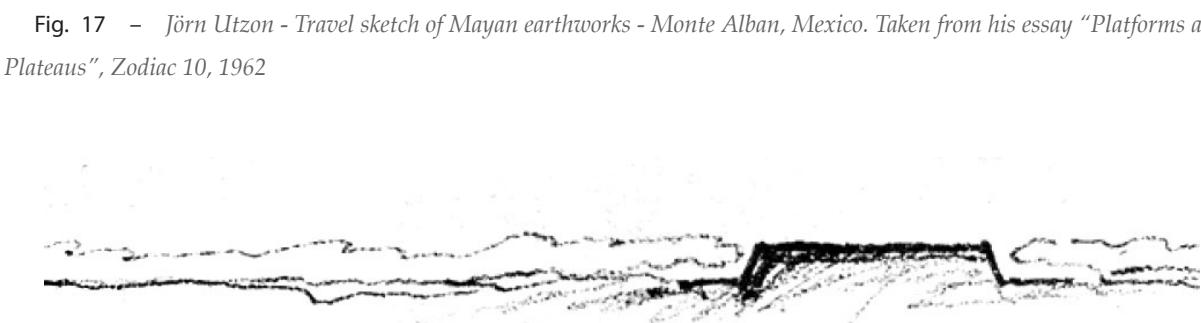


Fig. 17 – Jörn Utzon - Travel sketch of Mayan earthworks - Monte Alban, Mexico. Taken from his essay "Platforms and Plateaus", Zodiac 10, 1962



Fig. 19 – Jörn Utzon - Oriental temples

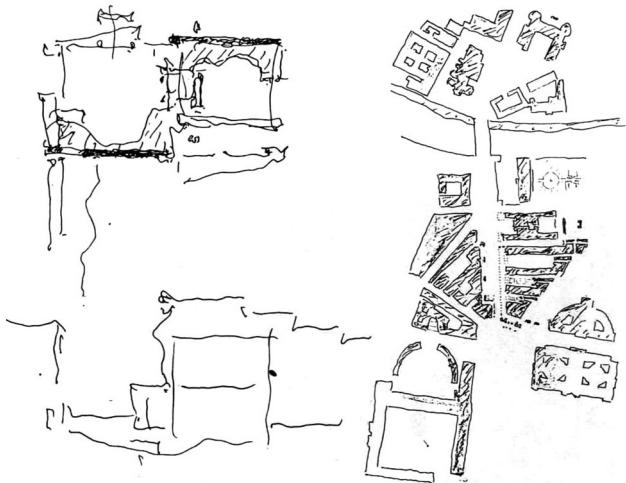


Fig. 16 – Michael Graves - Referential sketch of Asplund's project for the Royal Chancellery

B - According to architects: the practitioner's views

“One could ask whether it is possible to imagine a building without drawing it. Although there are, I presume, other methods of describing one’s architectural ideas, there is little doubt in my mind of the capacity of the drawn image to depict the imagined life of a building.”

Michael Graves, “The Necessity for Drawing”³³

The American architect Michael Graves in 1974 wrote a detailed account of the role of drawing in architectural design taken from his own personal experience and illustrated with his own sketches. His opinion is therefore weighted strongly in favour of the vital importance of drawing on the development of design.

The architect Michael Graves chooses to categorize his own architectural design drawings into 3 groups which correspond to the first, second and third stages of the design process. He points out that this is inevitably a generalization as some drawings will fit into two or more categories for different reasons, nevertheless distinctions can be made in broad terms to justify the various different reasons behind each type of drawing.

The first type is referred to as the referential

sketch. (Fig.15,16) By this, Graves is referring to an initial sketch which contains the basis of an idea which can be referred back to at any stage of the building’s design. This concept sketch may be quite unrelated to the tangible problems of the project, in fact it may be a scribble relating to a totally different subject but one which suggests an idea which may be used or transformed in the later development of the project. In this case the referential sketch is a drawing which may be fairly abstract or drawn from an unrelated theme, which provides inspiration for the creative process. Graves describes the referential sketch as a kind of architect’s diary, like a sketchbook where the architect takes note of interesting elements in his surrounding environment. (Fig.17-19) For Graves, these drawn notes are first of all a memory aid, not only by recording the information for future use, but because the very act of drawing impresses the subject matter on one’s memory in a much deeper way than through simply looking.

In line with Robbins’ comment about drawings describing the architect as much as the subject matter, Graves states that “in making this record of our observations, we do so with a point of view”.³⁴ Whatever the subject, the architect will inevitably impose his or her own mental framework on the drawing. Therefore, the resulting sketch reveals an examination of the architect’s artistic conscience, telling more about the architect than the subject drawn. However this mental framework, or “bias” as Graves calls it, is what allows the architect, whilst drawing, to interpret and re-see the

33 Graves, Michael. “The Necessity for Drawing: Tangible Speculation”. *Architectural Design*, Vol 47, No 8, 1977 p.384-394.

34 Graves. Op.Cit. p.384

These three drawings from different stages of Utzon's design process appear to illustrate the three categories of design drawings explained by Graves: the referential sketch, the preparatory study and the definitive drawing. (Fig.20,21,22)



36

Fig. 20 - Jörn Utzon - Concept sketch for the Sydney Opera House, 1957

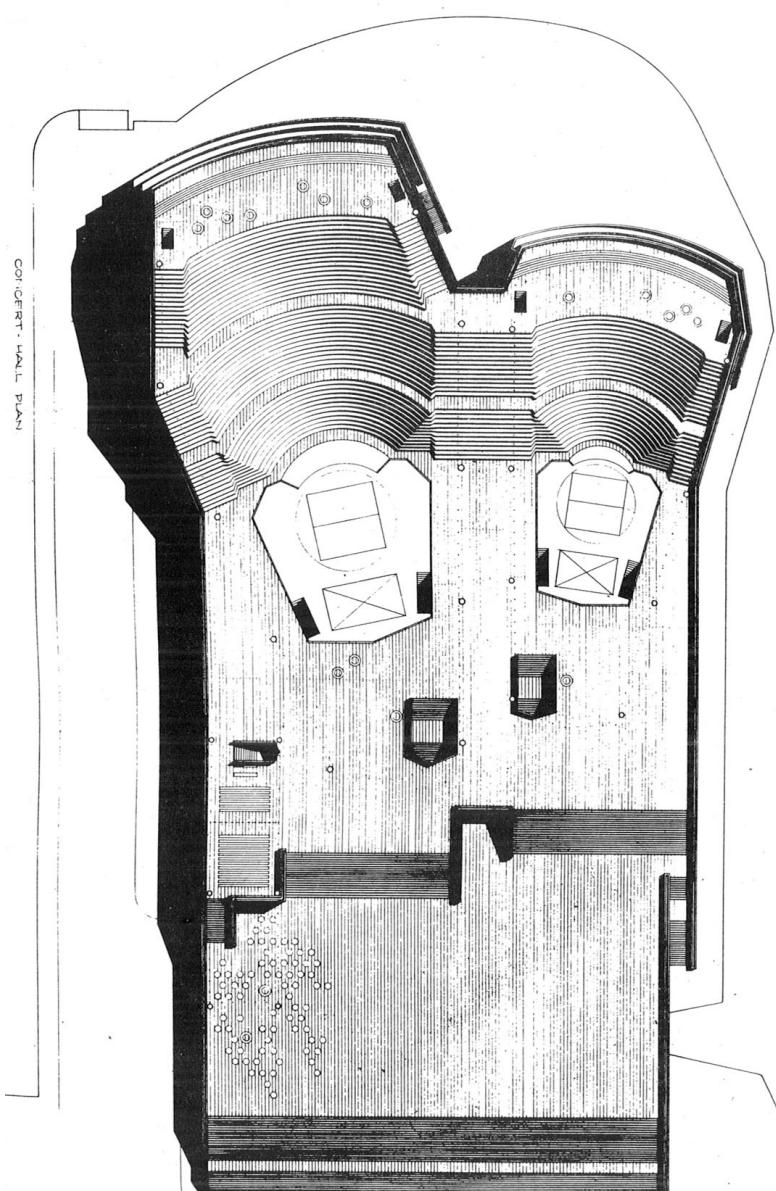


Fig. 21 - Jörn Utzon - Competition drawing, Podium plan, Sydney Opera House, 1957

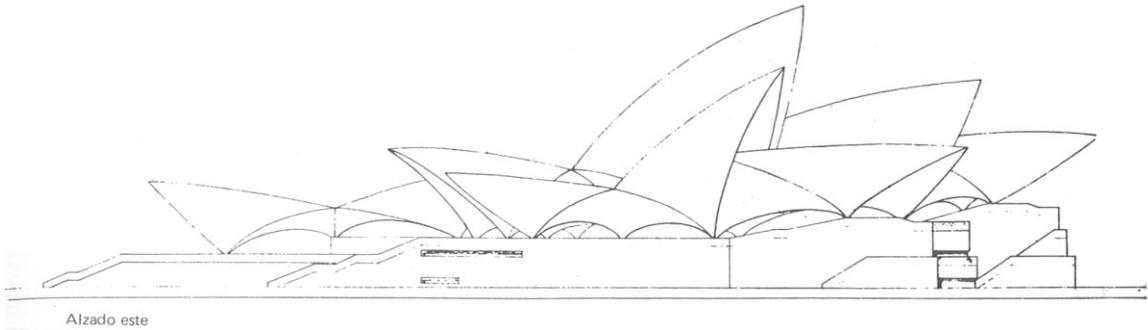


Fig. 22 – Jørn Utzon - Definitive Elevation, Sydeney Opera House

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subject and hence to identify with the image being drawn.

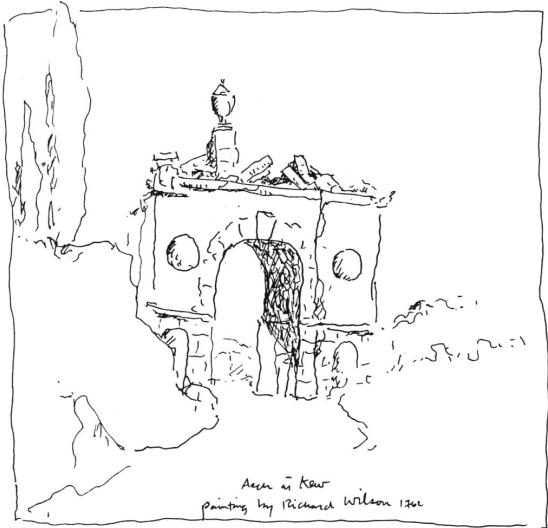
As such, the referential sketch is some kind of travel drawing made from observing reality, which may be used later on as the inspiration for a project. The act of drawing encourages the architect both to remember and to identify with the subject matter. But to some degree, it is impossible to identify with something without beginning to understand it. The act of drawing involves relatively careful observation, mental analysis followed by creative re-interpretation and the manual expression of these creative decisions. This complex process may be, to a greater or lesser degree, intuitive, but an architect who draws a building will inevitably learn and understand the architecture more deeply as a result of this effort. To quote Confucius: “Tell me, and I will forget. Show me, and I may remember. Involve me, and I will understand.” In this sense, drawing serves as means to involve the drawer, and consequently understand the subject matter.

As Graves points out, this subject matter may be extremely varied - he goes on to cite two of his sketches which have the same dual structuring principle: while one sketches out a Renaissance Annunciation diptych, the other shows a plan of Asplund’s dual-centered project for the Royal Chancellery.

Grave’s second drawing type is the preparatory study. These are experimental drawings which develop the ideas of a project and form groups, where ideas gradually evolve from one sketch to another. Although this design evolution is not necessarily linear, preparatory studies

often form a set of variations on a theme. This process of trial and error means that the architect may evaluate the ideas in each sketch and make critical judgments requiring new solutions and alternatives in the following drawing. As these sets of preparatory studies develop, the ideas and solutions are gradually refined, the project becomes more specific and tuned with the successive decisions made in each drawing. These drawings have an important element of ambiguity which allow the sketch itself to suggest new and unintentional design solutions.

The final type is referred to as the definitive drawing which takes the conclusions arrived at in the previous experimental drawings, and tests them out. (Fig.22) The earlier ideas are now made final and quantifiable - proportions, dimensions and composition are specified exactly. Graves points out that while the life of the drawing itself was the essential characteristic of the previous two drawing types, the purpose of the definitive drawing is to evaluate the architecture itself leaving the drawing to become “an instrument to answer questions rather than to pose them”.³⁵ Here Graves distinguishes the act of drawing (life as he puts it) in the referential sketch and preparatory study, from the static and objective definitive drawing.



38

Fig. 23 – Michael Graves, referential sketch of a painting of an arch in Kew Gardens London

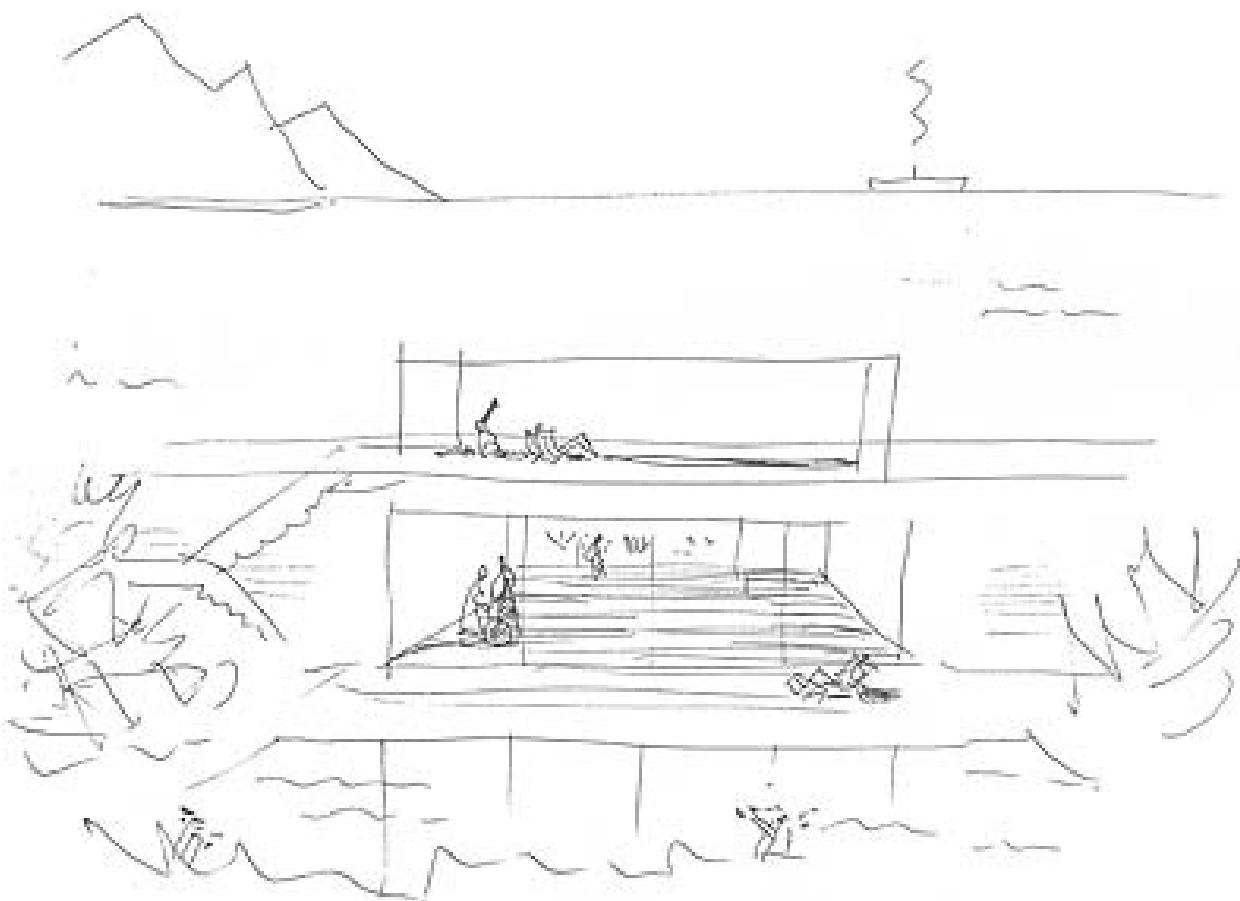


Fig. 24 – Alejandro de la Sota, Design sketch for houses in Alcudia, Mallorca, 1984

Fig. 25 – Alvaro Siza, Piazza San Marco



Although Michael Graves attempts to categorize and explain architects' drawings, many architects would disagree about the design direction that these groups suggest - design sketches do not always evolve in neat sequential sets, gradually polishing out the problems and difficulties of each idea to reach a clear and well-resolved solution. Others would feel uneasy about Graves' description (and particularly his illustrations of triumphal arches) of the referential sketch as the "metaphorical basis" for a design, given that historical inspiration often led to such superficial results with much Postmodern architecture. (Fig.23)

The Catalan architect Josep Llinas treats both criticisms with caution. Like Graves, his views are based on broad and well-respected professional experience. However, for Llinas, this experience has been in a substantially different architectural climate, cultural environment and representational era of the digital age. The opinions expressed here form an interesting counterfoil to those of Graves.

Quoting Spanish architect Alejandro de la Sota, he is extremely clear that architectural drawing should be kept to the absolute minimum.³⁶ Architectural thought is predominantly an internal mental creation which should be fully conceived before being drawn out. As such, de la Sota felt that drawing as a design tool is best avoided as it can cloud architectural thought more than clarify it. Drawing therefore becomes the representation of a finalized idea rather than a dynamic experimental process. (Fig.24)

Llinas feels this ability to design through pure reflection is an ideal which may only be arrived

at with great experience. Otherwise architects are obliged to develop their ideas and test out their solutions using sketches. Mies van der Rohe was an example of this. He drew as little as was necessary and his sketches, like his plans and details, were as minimal as possible.

39
Llinas agrees that design sketches (preparatory studies) do evolve one's ideas, but rarely in the consciously desired direction - what ends up on the paper never coincides with the way one had imagined it. Hence one has to try other alternatives, the occasional fragment of which may generate new unconsidered ideas. On the whole however, when design sketches are allowed to develop spontaneously, each successive sketch can cloud the original concept and lead the project towards banal solutions.

In stark contrast to the austerity of de la Sota's suspicion of drawing, Alvaro Siza draws intuitively and incessantly. Drawing for the sake of entertainment is indistinguishable from drawings of other buildings or sketches of his own developing projects. (Fig.25)

Likewise, whereas Paladio may have only drawn once his architectural ideas were fully formed, Michelangelo seems to have used sketches as a tool to help him develop his thoughts.³⁷

In either case, Llinas, de la Sota and Siza would all agree that architectural drawings must be looked at critically for their architectural content, without being misled by the aesthetic appeal of the drawing. In fact Siza claims to draw only with a biro, precisely to avoid the attractive variations of pencil line and tone which distract from the image portrayed.³⁸

37 Robbins. Op cit.

38 F. Perez Oyarzun, conversation, October 2000, Cambridge.

Design sketches drawn by Le Corbusier and most likely his cousin Pierre Jeanneret. Plans, sections, and perspectives refer to different ideas and solutions being gradually worked out. These sketches do not necessarily demonstrate a linear development of ideas, but show a variety of experiments and tests which are refined until the end published project. (Fig.)

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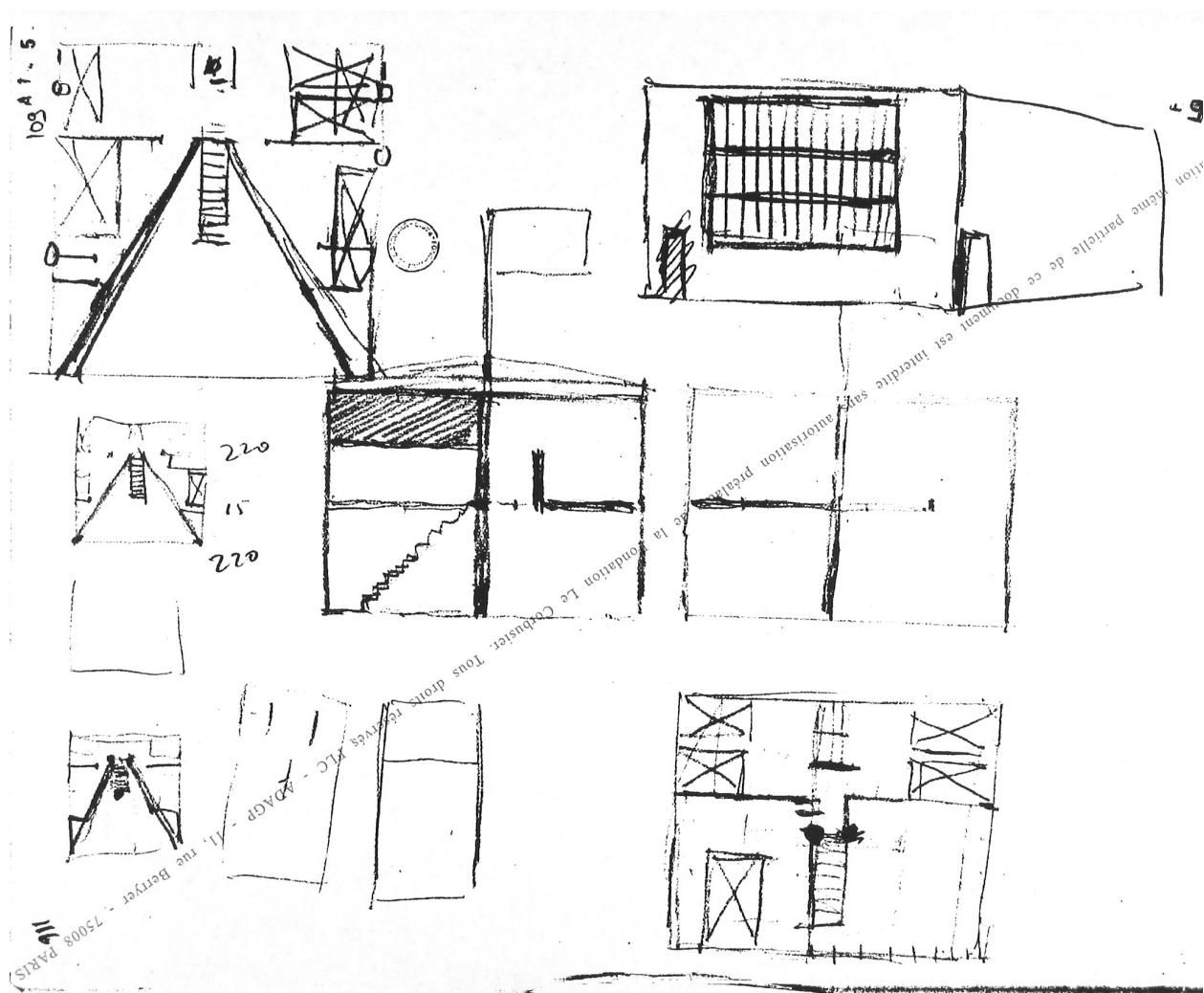
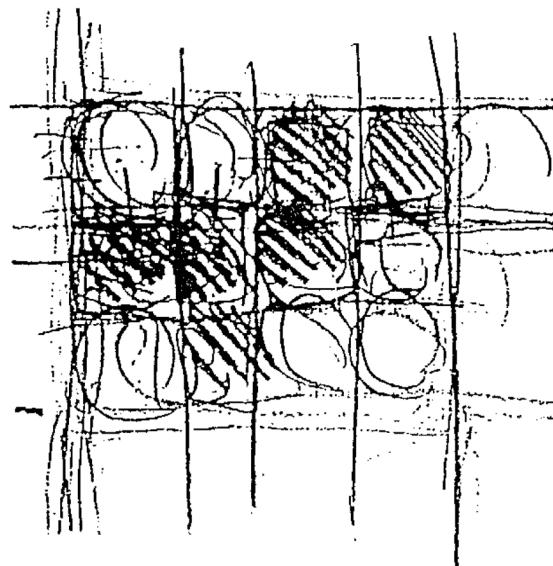


Fig. 26 – Le Corbusier & Pierre Jeanneret, design sketches for a house for artisans, 1924

Fig. 27 – G. Goldschmidt - "Kasbah" concept sketch



41

C - According to cognitive scientists: 3 opinions on the cognitive process in creative design drawings

In order to understand what actually occurs during the design process and how it may be affected by sketching, the ideas of three of the most prominent researchers in the cognition of creativity are briefly summarised.³⁹

Gabriela Goldschmidt claims that design sketching is a dynamic process, “sketching is not merely an act of representation of a pre-formulated image...it is, more often than not, the search for such an image”.⁴⁰

This appears to contradict the purely mental creativity advocated by Alejandro de la Sota where drawing is confined to describing the finalised architectural project.

The idea that the purpose of drawing is to search for the image of a design, suggests that drawing is an undefined changing process. The outcome of this process is bound to be unfinished and ambiguous. As such these ambiguous sketches are often interpreted by architects as metaphors for their projects. This

is reminiscent of Grave's referential sketch. Goldschmidt explains that architects extract two types of reasoning from these ambiguous design sketches: one looks for new meaning in the sketch (often metaphorical), while the other considers the consequences of this newly discovered meaning. These two thoughts are nearly simultaneous and may be reconsidered many times in quick succession.

She gives the example of an abstract grid-like concept sketch. (Fig.27) When shown to a group of architects, one starts by interpreting a possible meaning in the sketch suggesting that it refers to a Kasbah. Presumably this is on account of the viewer's prior knowledge of grid-like moorish planforms which superficially resemble the structuring lines of the sketch.

Once this metaphor has been stated, others in the group then continue with the second type of reasoning. Now the lines and forms of the sketch are read and interpreted in relation to the viewer's understanding of a Kasbah. As a result the areas of black and white are interpreted as spatial zones with territorial limits. More specifically, they resemble the solids and voids of an Arabic urban plan with houses built against one another opening onto inner private courtyards.

Once the sketch has been “reasoned” out to this stage, the basis of an architectural concept can be applied to the project at hand. These thoughts regarding spatial organisation and territorial divisions can be judged to determine whether they are appropriate or productive for the design project, and can then be either developed in subsequent sketches, or ignored.

39 Van der Lugt. R. “Functions of sketching in design idea generation”, *Creativity & Cognition*, conference, Loughborough University, 2002 p.131

40 Goldschmidt. G. Op.Cit

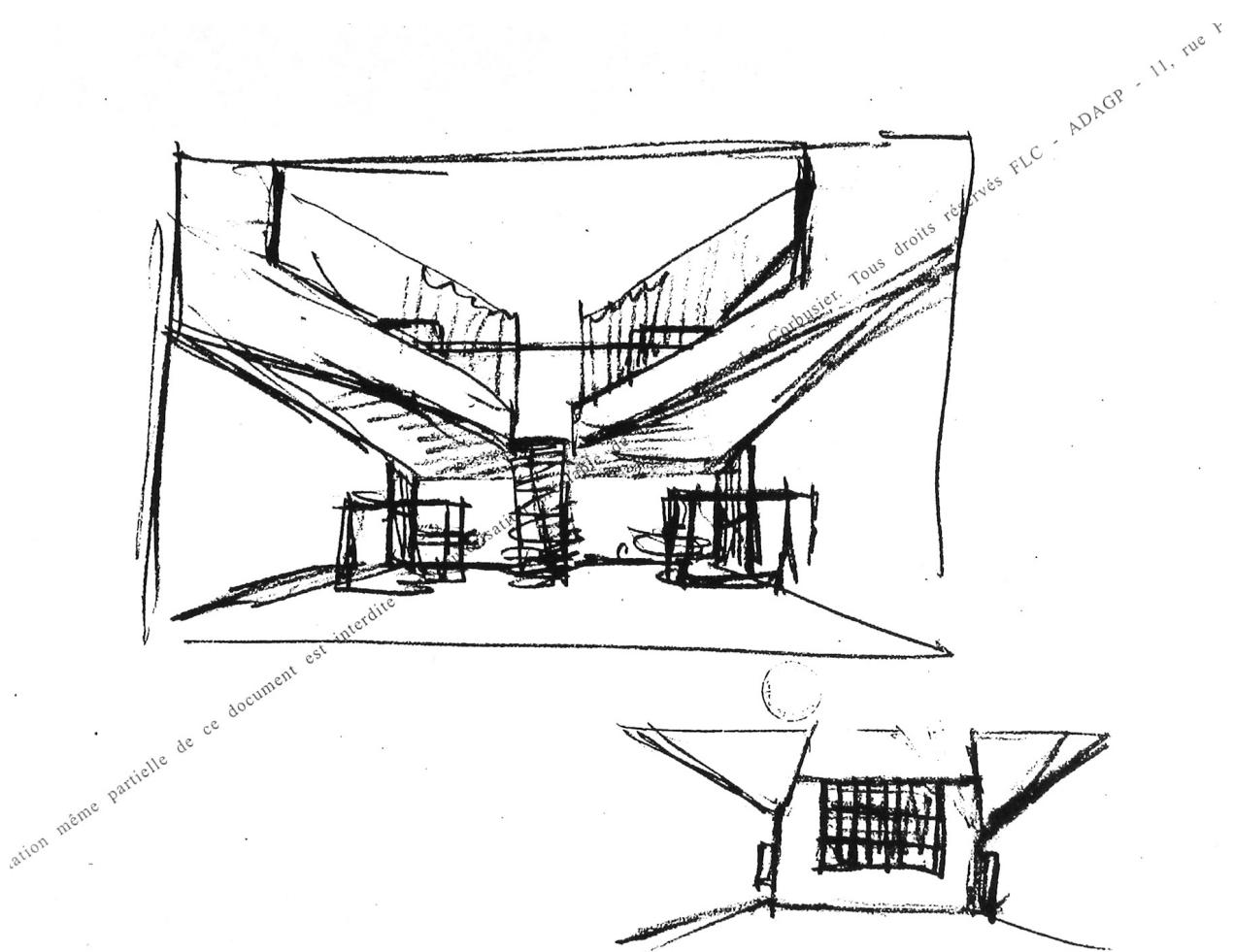


Fig. 28 – Le Corbusier & Pierre Jeanneret, design perspectives for a house for artisans, 1924

According to Donald A. Schon and Glenn Wiggins, design sketches are the record of a conversation between the designer and the drawn image.⁴¹ This conversation works in a cycle involving sketching, interpreting the sketch and re-sketching. In this case, the architect may draw out an idea for a project. Then once drawn, the architect can stand back from the sketch, in order to reflect on it and criticise it. Following this editorial revision, the architect may redraw the sketch emphasising selected aspects and suppressing others. This second sketch may then be re-evaluated in a similar way and lead on to an entire sequence of sketches gradually developing certain ideas. (Fig.26)

According to this explanation, the sketch allows the architect to distance himself from the design idea so that he may pass a more objective judgement upon it, evaluating its good and bad points, and thereby selecting what features of it to develop in the subsequent sketch.

However as Josep Quetglas points out, when analyzing the sketches of others, one must always be aware that only a fraction of the original mental activity and reflection ever leaves its trace on the page.⁴² (Fig.26,28,29) Therefore the idea of a “conversation with the paper” will inevitably be extremely one-sided. Or to put it another way, the complex mental considerations that the architect goes through before and whilst sketching will be greatly

41 D.Schon & G.Wiggins. Op.cit

42 J. Quetglas, lectures Escuela de arquitectura de La Salle, Barcelona 2011

reduced and abstracted by the time the idea reaches the page. Therefore if the project is objectively reconsidered on account of each new sketch in isolation, then an enormous amount of prior reflection is likely to be ignored, and the project may not develop in the optimal direction.

This explanation appears to reduce the role of drawing to a set of isolated design tests.

According to Jonathon Fish & Stephen Scrivener, the process of design sketching facilitates the transition from general descriptive knowledge to specific depiction.⁴³

In other words, “descriptive knowledge” refers to an idea of an object - for example the word “chair” suggests an idea of an object for sitting on, but leaves out all other information.

“Depiction” defines this idea physically and spatially. For example, a drawing of a rocking chair can serve to explain the form, dimensions, proportions, and specific functioning of the particular type of chair.

If this is transferred to architectural design, the sketch translates the architect’s idea of a project into tangible forms, depicting the physical reality which the architectural idea will entail.

This “depiction” can then be interpreted and give rise to new descriptive ideas which a new sketch may then transform into new depictions.

43 J.Fish & S.Scrivener. Op.Cit

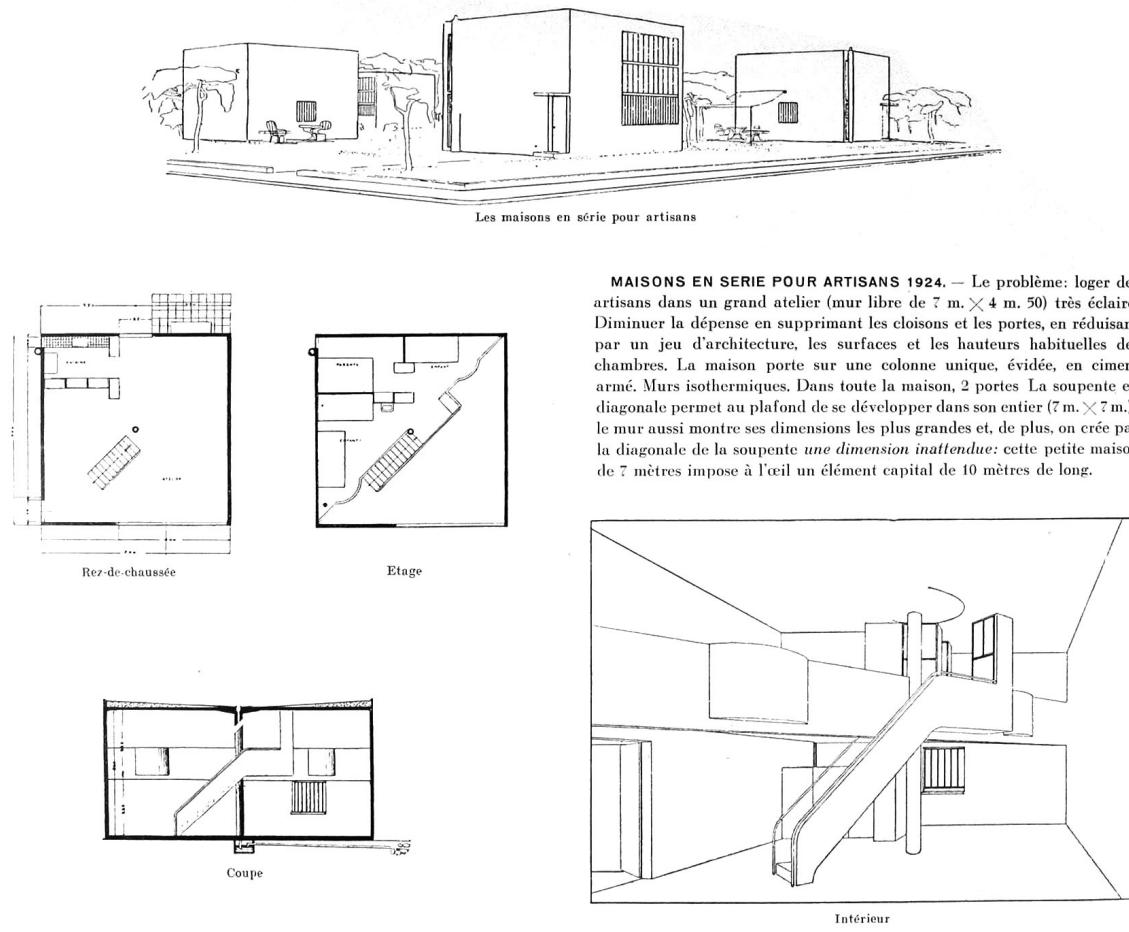


Fig. 29 — Le Corbusier & Pierre Jeanneret, published drawings of a house for artisans, 1924

In this case it is the act of sketching which allows the designer to transform ideas into real proposals rather than only providing a means to test out and criticise a design.

These cognitive scientists all describe sketching at the design conception stage as being a cyclical process. This is not to say the design ideas produced evolve either in one particular direction, or in a more chaotic fashion, but rather, the process of drawing followed by reflection on the drawing is repeated many times to push the conceptual ideas into more tangible form.

Schon & Wiggins describe the process as a conversation. This seems to imply that one part is happening or the other, but not both simultaneously. One draws, stops, reflects, draws again etc.

Goldschmidt's explanation, on the other hand suggests that the process of design sketching is not so fragmented. The sketch is not a predefined image to be reflected on once it has been completed, but rather, creative ideas come from the actual act of making the design sketch. This process triggers the rapid interchange of creative ideas and the designer's interpretations of those ideas throughout the duration of each drawing.

This suggests that the creative process is linked simultaneously with the manual act of drawing, and recalls Richard Sennett's claim that

"making is thinking".⁴⁴

It also starts to explain how the design sketch can take on a life of its own, suggesting new ideas and possibilities which the designer would not have come up with independently of the drawing. As already mentioned, Josep Llinas believes that the design sketch never correctly corresponds to the idea one has in mind. And so it is precisely this difference between the mental picture and the tangible representation which can be either misleading or create new ideas.

Fish & Scrivener on the other hand appear to consider the creative idea in one's mind as quite distinct from the possibilities released by the sketch. So instead of saying the design sketch takes on a life of its own, they believe that the unpredictable quality that is inherent to design sketches is due to the difficulty our minds face when transforming mental ideas into tangible forms. Once these often ambiguous forms are drawn, they may be compared back to the mental concept. Both sketch and concept may then be edited and corrected with the next sketch.

The mention that finding forms to express intangible ideas is a difficult and incomplete process, recalls Sennett's point that drawing is a way of trying to understand new unknown

44 R. Sennett. *The Craftsman*. New Haven: Yale University Press, 2009.

concepts.⁴⁵ The very fact that this mental translation is so imprecise means that the resulting sketch will be to some degree ambiguous. This ambiguity then leaves the drawing open to new interpretations, which may generate new conceptual ideas which will require new translations into tangible forms.

Therefore while architects use the act of drawing to release creative ideas, the conscious directing of these ideas comes with reading the drawing - the process of reflection, criticism and reconsideration.

It seems probably impossible to tell whether the moment of reflection always occurs before drawing, or whether the act of drawing is simultaneously linked to our imagination. From the various explanations above, combined with personal experience, it appears that these two stages are almost instantaneously interwoven. So it may be said that it is the act of drawing an architectural design sketch which encourages ideas to appear, be refined and take on physical form.

45 “Difficulty and incompleteness should be positive events in our understanding” R. Sennett, *The Craftsman*

D - Final opinions about how design sketching works and why it is a useful design tool

From the thoughts and arguments explained above, it would seem that for architects, drawing currently has a variety of functions.

Drawing provides a simple and potentially straightforward way of recording information and ideas, which can be far clearer and faster than equivalent written descriptions. Drawings may also serve to communicate such information and ideas effectively to others.

The act of drawing itself helps the drawer to not only remember the subject, but to learn about it, understand and to some degree identify with it. This happens through the mental process of drawing: observation, analysis, interpretation and reinterpretation.

Drawing is the result of the mental translation of concepts into tangible forms. Some would say one can only imagine a space if one is capable of drawing it. And so the manual act of drawing helps develop descriptive ideas into the depiction of a specific physical design.

Drawing may also be used to encourage the development of creative thoughts. The process of trial and error allows design solutions to be refined through sequences of sketches.

More finalized drawings also allow one to stand back and criticize a design solution with relative objectivity, and thereby prove the success or failure of a design.

For architects, design drawings and sketches can have the particular advantage of ambiguity. They may be instinctive, and can encourage a more subconscious and sensitive type of analysis open to important but less obvious factors.

However, the role of drawing in the design process should also be regarded critically, as its negative consequences can mean that the clarity of a design can quickly become obscured due to the ease and vigor of sequential sketch variations.

To conclude, all of the authors mentioned here testify to the significance of drawing on the creative process. Whether it is the act of sketching or the drawn image itself that is most important, in either case drawing appears to assist the creative development of ideas and formulation of design proposals as well as providing a fast and effective means of testing out potential designs.

It would therefore seem unlikely that the faster, more accurate representational techniques through modern technology can provide the same profound level of support to the creative process, while retaining the exceptional flexibility and openness to experimentation and innovation that sketching allows.

“The hand is the window on to the mind,”

IMMANUEL KANT

2.III - Design sketching and travel drawing - how do they relate?

51

Travel and design sketches are often considered to be different types of drawing for the simple reason that while one observes and interprets reality, the other translates the imagination into tangible forms. However, on closer inspection, the process of drawing from reality and from the imagination have much in common.

With design sketches, these tangible forms will inevitably take on the shapes and forms of things one already knows or has seen or drawn. The way one translates an idea into a tangible form is based on one's own experience, hence the broader this architectural experience is, the greater breadth there may be in developing one's ideas into design drawings. Likewise travel drawing for an architect involves a certain level of understanding of the architectural intentions of the subject being drawn.

The mental process of interpreting the view therefore involves not just the abstraction of three-dimensional forms into two-dimensions according to optical rules and graphic conventions, but more importantly it incorporates a comprehension of the architectural rationale behind the form of the building being drawn. This process of "interpreting" a view incorporates observation, analysis, understanding, and transformation of the underlying essential concepts back into a concentrated (reduced and simplified) tangible form, this time in two dimensions.

In this case although the design sketch may start from a mental image of an idea, whereas the travel sketch may start with a mental image

of a physical object, both involve a similar part conscious/part sub-conscious process of creative interpretation.

It is important to note that for these two drawing processes to be similar, the drawer must be sufficiently trained and experienced to be capable of analyzing and comprehending an architectural rationale in the subject-matter. If not the result will be more pictorial representation than architectural expression.

The travel drawing and the design sketch have much in common, however there are a number of factors which may affect the former but are unlikely to arise with the latter. These are often practical concerns to do with the place and conditions in which the travel sketch is made, but they will have substantial implications on the way the drawing turns out.

Such factors may be negative in some respects but positive in others; in either case they bring the observer one vital step closer to the subject than through drawing a photograph.

Below is a selection of some of the more common of these factors, and specifically those which I have found important in my own experience.

When selecting a view point and composition at a well known site, the drawing often avoids the most obviously representative perspective. The purpose of the sketch is to find something new in the building which one was unaware of from previous knowledge. (Fig.30,1) In the case study of Le Corbusier's drawings of the Acropolis, he only chooses to draw the main entrance facade from below after having thoroughly explored buildings and drawn other more investigative sketches. (Fig.47)

52

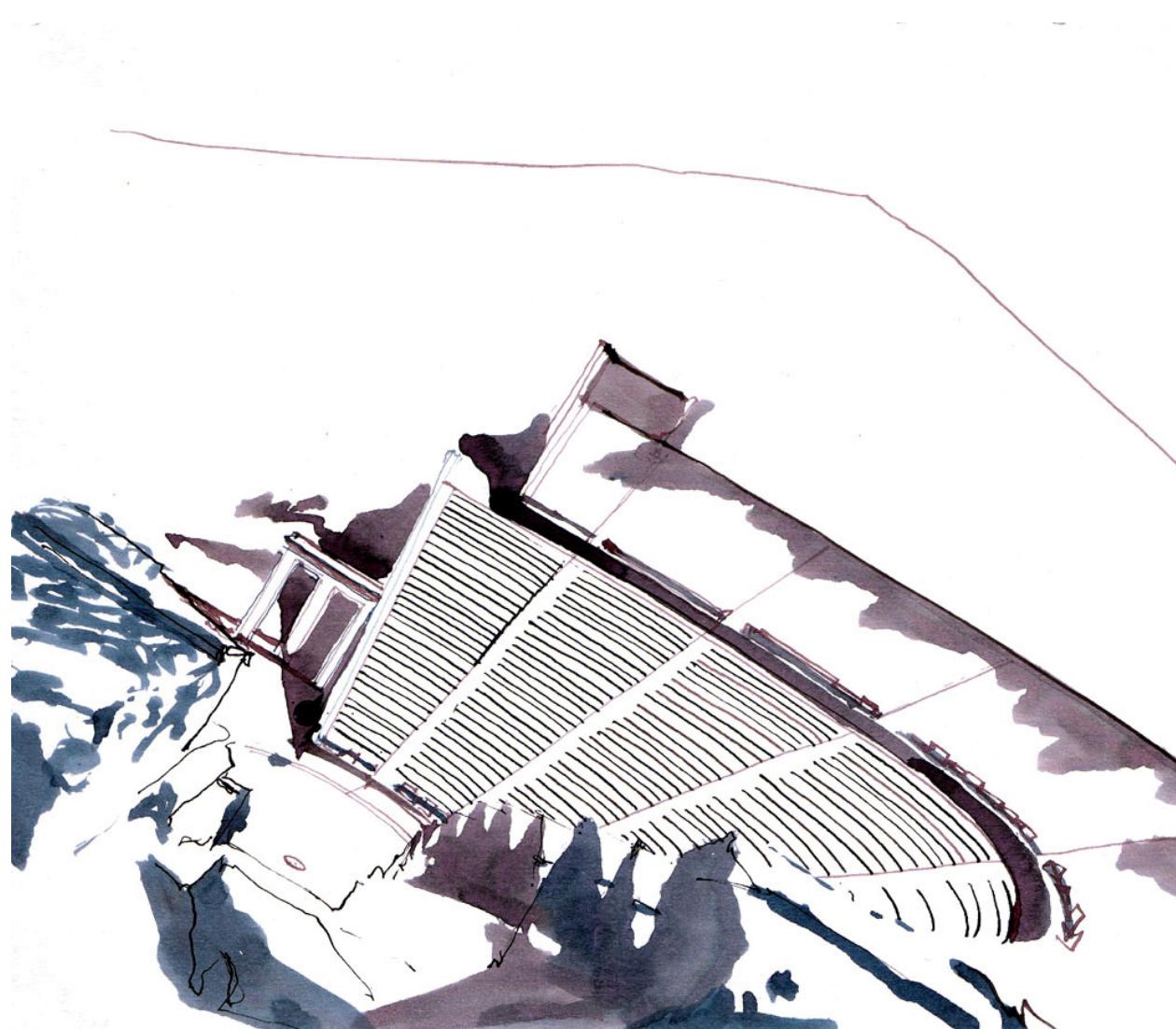


Fig. 30 - Sebastian Harris, inks - Theatre in Epidavros, Greece, 2004

Fig. 31 – Sebastian Harris, inks - Temple in Lindos, Rhodes, 2004



53

A - Viewpoint and composition

Often when travel drawing, one has a prior knowledge of the subject, and usually its most generally representative view. Le Corbusier was well acquainted with photographs of the Acropolis and the Parthenon in particular before he arrived in Athens. However in reality these are often not the viewpoints one chooses to draw. Maxime Collignon's photographs concentrate on the Parthenon, whereas Le Corbusier chose to concentrate on the Propylaea in his carnet.

The specific viewpoint of a sketch often depends on practical concerns (a convenient seat, shade, shelter from the wind or rain, privacy from other people or animals, places where one is permitted to be etc) quite as much as on the ideal framing of the view.

A first step in the drawing process is to adapt the composition of the sketch to the practical constraints of the chosen view. (Fig.30) This may result in removing certain elements while emphasizing others. Trees, streetlights, gates etc sometimes block out or confuse the composition of a sketch (Le Corbusier chose to ignore or at most hint at the modern city sprawling around the slopes of the Acropolis) (Fig.43), while in other cases, they may become

important elements in the structure of the drawing (for example the incorporation of the tower crane rebuilding the temple at Lindos in Rhodes which situates the building in its current state of being reconstructed by modern means to become an image of what the 21st century would like it to have been).⁴⁶ (Fig.31)

46 Likewise much of the Acropolis has been reconstructed, meaning that what Le Corbusier saw was substantially different to what may be seen today. But even in 1911, parts of the Propylaea had been rebuilt as Le Corbusier was aware.- Le Corbusier, *Le voyage d'Orient*, p. 163.

Originally the sketch had intended to show the central doorway framed by the finely carved Koranic inscription. Given that this border is not purely decorative but made up of text with an important meaning, whatever it may be, it seemed important to observe and portray the sculpted writing with care. However during the course of the sketch, care became impossible a growing crowd of small children assembled in front of the view, insistent on going through every item of the pencil case, and making concentration impossible. As a result, the drawing ends up focusing on the 3 dimensional cavity of the niched doorway in stead of the ornately carved facade plane. (Fig.32)

54

The area of La Mina is one of Barcelona's most socially disrupted areas. Of these two drawings, the second shows the central street between two 1970s slab blocks, 11 storeys tall and over 200m long. (Fig.34) The sense of insecurity, as well as the extremely intimidating built environment has made the second sketch faster, with a distorted perspective and heavier line weight than the first drawing made from the more civilized approach to the area.



Fig. 32 - Sebastian Harris, inks - Entrance gate to the Caravanserai, Egirdir, Turkey, 2004

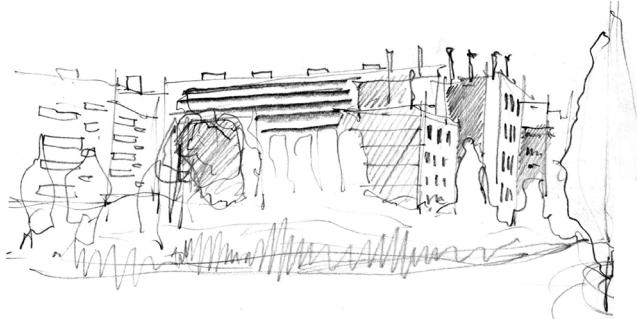


Fig. 33 – Sebastian Harris, - *La Mina Vella from outside, Barcelona, 2011*



Fig. 34 – Sebastian Harris, - *La Mina Nova interior, Barcelona, 2011*

55

B - Time and interruption

The speed of a sketch often has a decisive impact not only on the quality of draftsmanship but also on the selection of the most critical elements of the image on which to concentrate. (Fig.34) It is often an architect's fastest drawings which are the most explicit about the architect's own interpretation of the building, while more formally finished and complete sketches can leave the same concept comparatively obscured by secondary elements in the drawing.

However, in practice the length of time for a sketch is often determined by factors out of one's own control, be they opening hours, climatic conditions, the impatience of others, being aboard a moving boat,⁴⁷ as well as one's own patience. Distraction can at times also play a critical role in the outcome of a drawing. This may be due to passing crowds of people, or more persistent onlookers. (Fig.32) All of these factors may alter unexpectedly during the course of a drawing affecting the overall balance of the sketch, leaving the main emphasis on unintended parts of the image.

⁴⁷ A number of Le Corbusier's sketches of Constantinople made earlier in the Carnet were drawn from the deck of the passing steamer.



Fig. 35 - Sebastian Harris, Chinese ink - Paestum, Italy, 2003



Fig. 36 – Sebastian Harris, inks - Temple of Segesta, Sicily, 2003

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C - Mood and spirit of place

Although it would seem likely that one's own personal mood should influence a drawing more than most other factors, from personal experience I have found this to be quite the reverse. The act of drawing may take some conviction to start, but once underway can be an absorbing experience. One's concentration fixes on reconstructing the subject matter on the page, whilst remaining partly conscious of one's surroundings. As a result my mood more often than not varies according to the development of the drawing rather than vice versa.

The sub-conscious side of travel sketching is very important as the decisions made on the page will to some unintentional degree reflect the surrounding environment. The mind may be concentrating primarily on visual observation, but is also observing with all the other senses. This is important in the case of travel drawing, because the drawing is being made away from one's usual habitat, one is an outsider in a largely unknown and strange environment. It is therefore only a natural impulse that the brain should be especially vigilant of all external sensory experiences. This may partly explain how a sketch may be capable of suggesting the "spirit of place" with only a few lines. (Fig.126)

Two Doric temples in a roughly comparable state of repair. The impression made by the spirit of site in each case was extremely different which clearly shows in the two sketches. Paestum (Fig.35): black Indian ink and pen-nib / Segesta (Fig.36): coloured ink, bamboo pen and brush.

“Tactility , relation, completeness, are physical experiences that take place during the act of drawing. Drawing represents a more ample range of experiences, in the same way as writing, that covers editorial revision and rewriting, or as musical execution, that involves the repetitive exploration of the mysterious qualities of a certain chord. Difficulty and incompleteness should be positive events in our understanding.”

The Craftsman

Richard Sennett

D - Opinions as to the purpose of travel sketching

These considerations are included here simply as practical observations. Their impact is often crucial to the outcome of the sketch, however they are rarely quantifiable or verifiable later on, and almost never recorded by other more identifiable means.

As Richard Sennett points out, manual tasks involve a kind of thought process, in other words “making is thinking”.⁴⁸ It is the act of drawing most of all which makes one aware of one’s physical environment. Through the process of drawing, editorial revision, and redrawing, as well as the slow process of observation and execution, one’s physical experience of a place becomes far more intense. The process of drawing is more significant than the end result - the finished drawing will never fully capture one’s experience of the place. Instead, it is the act of tackling the difficulties of representing the subject on paper that helps one to understand whatever it is one draws.⁴⁹ (Fig.69)

To conclude, the architect may choose to make a travel drawing for any or a combination of the following reasons:

To record points of interest, details etc without the clutter of a photo

The act of drawing requires a greater length of time to take in the subject and makes one observe in detail, noticing different parts otherwise missed

The act of drawing forces one to analyze and abstract reality in 3 dimensions into 2 dimensional forms, thereby understanding the subject to a far greater degree

This moment of concentration and interpretation helps to fix the subject in one’s memory.

The architect’s travel sketch is therefore important partly for the drawing itself (many important architects of the 20th century made considerable use of their travel sketches in later publications and projects)⁵⁰, but more importantly, it is the act of drawing, regardless of the graphic results, that helps the architect to observe, understand and remember the subject.

50 Utzon’s seminal essay *Platforms and Plateaux* include his travel sketches. (Fig.17-19) Vers une architecture is illustrated with a number of Le Corbusier’s travel sketches of the Acropolis for example. (Fig.43, 94)

Le Corbusier, *Vers Une Architecture*, Paris 1923 - (*Toward an Architecture*, English translated by John Goodman)

48 Sennett. R. Op.cit

49 Ibid.

Utzon, J., “Platforms and Plateaus: The Ideas of a Danish Architect” *Zodiac* 10. 1962, pp. 112-140

PART 3

Analysis Of Le Corbusier's Sketches Of The Acropolis

GRAPHIC ANALYSIS OF A SEQUENCE OF
LE CORBUSIER'S TRAVEL SKETCHES OF
THE ACROPOLIS IN ATHENS SHOWING THE
DEVELOPMENT OF THE ARCHITECT'S CRITICAL
OPINION TO THE ACROPOLIS THROUGH THE
PRACTICE OF DRAWING.

Voyage To The Orient, Carnet 3
September 1911

THE ACROPOLIS: ATHENS

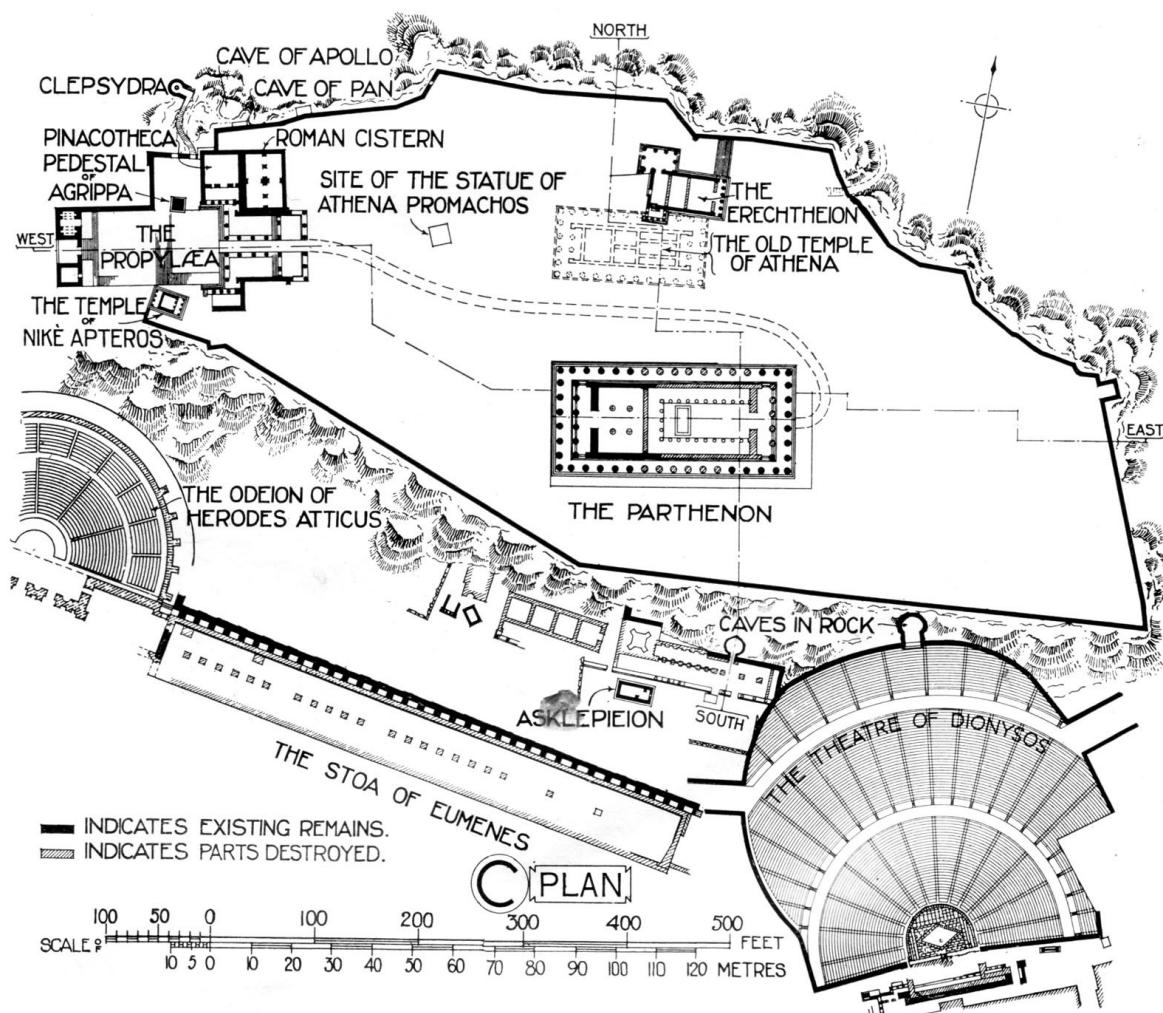
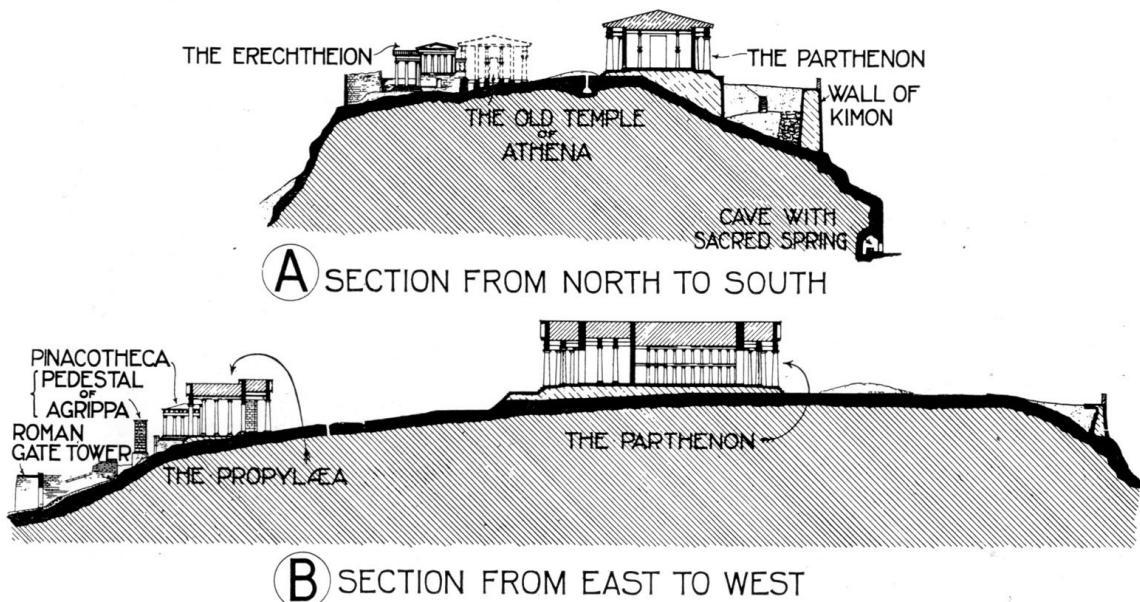


Fig. 37 - Banister Fletcher - Plan and sections of the Acropolis, Athens from "A History of Architecture on the Comparative method" London 1901

3.I Foreword to the analysis

A - A note on analyzing travel sketches:

It is important to consider the distinction between the architectural content of a sketch and the aesthetic quality of the drawn image. Whilst some of Le Corbusier's sketches may appear graphically naive, their caricature-like appearance serves to convey the architectural meaning with great immediacy. From the architect's perspective, the success of an architectural sketch depends far more on the ideas it expresses than the care of its draftsmanship.

Nevertheless content cannot be clearly separated from the means of expression. The impact of many of Le Corbusier's sketches comes across on account of his aesthetic understanding and control - the boldness and balance of the compositions, the tonal contrast etc. (Fig.47)

Of the seventy or so travel drawings made by Louis Kahn, many have been made with great aesthetic awareness and care. (Fig.3) Peter Smithson however expressed what might be said of many architect's travel sketches, "Kahn's drawings range from the remarkable to the abysmal. This drawing of the battlement at Carcassonne is for me just so much graphic mess!".⁵¹ What the comment does not make

51 Ksiazek, S., Review of the exhibition "Drawn from the Source: the travel sketches of Louis Kahn" Jewish museum, New York. 1997. *Journal Of The Society Of Architectural Historians*, Vol. 56,(1). March 1997

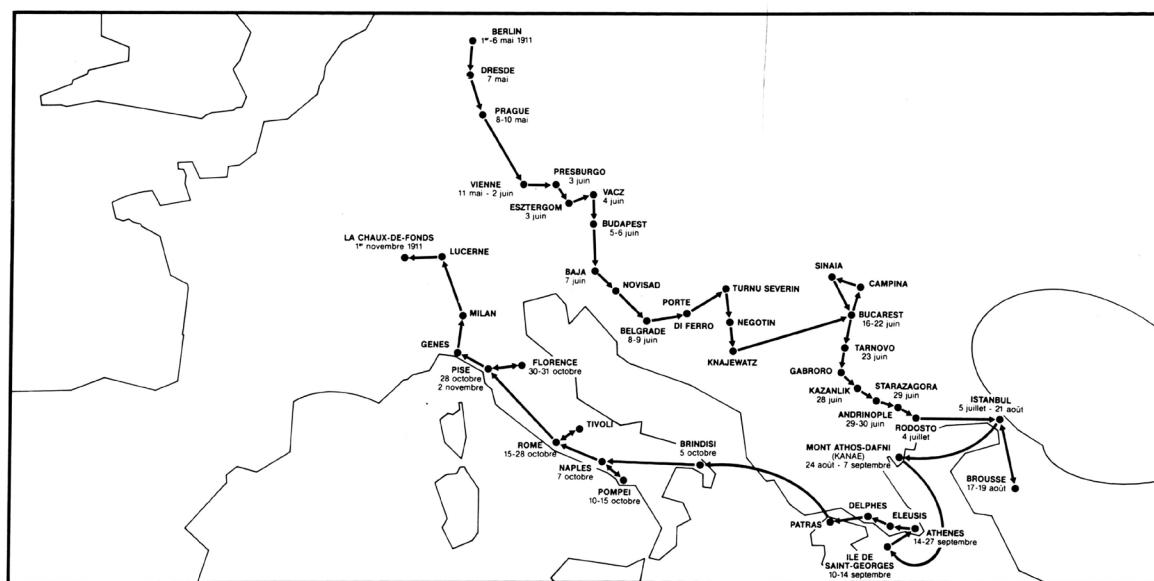
clear is whether the drawing of Carcassonne is nothing more than a bad superficial scribble, or whether Kahn has a clear architectural idea behind the drawing, but for one reason or another has managed to botch his graphic expression of it.

Although it may not be possible to distinguish clearly between the conceptual intention and its graphic expression, the analysis of a travel drawing must treat the aesthetic qualities of the image as the information with which to understand the architectural concept behind it. Therefore, if lines are drawn quickly, or inaccurately and redrawn, or not redrawn, if substantial parts of the view are left out, or misrepresented, these may all be seen as evidence to uncover what really is the important point of the drawing, and to appreciate what the purpose of doing the drawing was.

Whilst only a fraction of the author's intentions and thoughts may find their way onto the page through drawing, they do provide an immediate view of the major concerns of the architect - his "creative conscience" at that particular moment.⁵² Even Le Corbusier's own writings suggest contrasting attitudes towards these buildings, let alone the evidence from other sources and later reports and memories. As such the claims made in this graphic analysis may be compared directly to the original source material. The logic of these diagrams depends only on their own consistency and their correlation to Le Corbusier's sketches, not on other historical research or secondary sources.

52 Graves. Op cit

Fig. 38 – Route of Le Corbusier's "Voyage to the Orient" 1911



B - A historical explanation:

100 years ago, in May 1911, Le Corbusier set out on a journey from Berlin, to his home town in Switzerland of La-Chaux-de-Fonds via Constantinople, Athens and Italy. (Fig.38) This grand tour, subsequently referred to by Le Corbusier as his “Voyage to the Orient”, the major sources for it include Le Corbusier’s own memoirs written much later, his letters to friends and parents, his journal, assorted photographs and his 5 sketchbooks known as the “carnets”.

The most important secondary sources are accounts written by Allen Brooks⁵³, Giuliano Gresleri⁵⁴, and Ricardo Daza.⁵⁵

Travelling with his friend Klipstein, Le Corbusier intended to visit, write about, photograph and draw all kinds of architecture that he passed, from the vernacular buildings along the Danube, to the mosques of Constantinople, Greek

53 A. Brooks, *Le Corbusier's Formative years. Charles-Edouard Jeanneret at La Chaux-de-Fonds*, Chicago and London, 1997.

54 G. Gresleri, *Le Corbusier. Il viaggio in Oriente*, Venice, 1984

55 R. Daza. *El Viaje de Oriente. Charles-Édouard Jeanneret y Auguste Klipstein. 23 de mayo - 1 de noviembre 1911*, Tesis doctoral, UPC, Barcelona, 2009.

temples, Orthodox monasteries, Roman palaces or the buildings of Renaissance Italy. (Fig.40)

Le Corbusier arrived in Athens on the 12th of September on board a steamer. Upon arrival the Steamer was quarantined for four days at the island of St George, in the strait between the island of Salamis and Piraeus, the port of Athens. Le Corbusier would have seen the Acropolis as the boat arrived, but was then forced to wait aboard for four days before being allowed ashore. It appears he then spent the afternoon in an Athenian cafe waiting until the evening before ascending to the Acropolis at dusk in order to have the most dramatic of first impressions. He then spent the next two weeks repeatedly visiting the Acropolis, and the archeological museum, as well as enjoying the more worldly delights the city had to offer.

At this stage Le Corbusier was 24 years old. (Fig.39) He had some experience of building in his home town, but had travelled little outside of Switzerland. His impressions of the Parthenon perched on the very top of the Acropolis high above the plain of Athens overlooking the Aegean, and bathed in the intense mediterranean sunlight of late September, unsurprisingly made a lasting impression on him. Probably all the moreso for having been quarantined for four days aboard ship within sight of the pure white Parthenon.

Although Le Corbusier had kept a journal until leaving Constantinople, as Allen Brooks notes, from his stay in Athens, no contemporary account exists.⁵⁶ Le Corbusier wrote no letters

56 A. Brooks Op.Cit



Fig. 39 – Le Corbusier in front of the Parthenon. Photograph Lipstein, Sept 1911



Fig. 40 – Sketch of Le Corbusier by his companion lipstein, Sept 1911

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to either his parents or his friend L'Eplattenier, and the few notes scribbled in his notebook often refer to his other experiences of Athens. In 1914 he wrote about his impressions in Greece in an essay called "Le Parthenon",⁵⁷ but as Brooks points out, we do not know how much his ideas had changed during the intervening 3 years. Therefore apart from a collection of postcards, and photographs, some by his friend Klipstein, the sketches in the carnet and 4 watercolours are the only personal, contemporary testimony that remains of his first visit to the Acropolis.

Of the few notes written in the carnet, on page 158, Le Corbusier states that the Acropolis "harbours the essence of thought." But even this was probably written some days after leaving Athens.⁵⁸

The drawings themselves also emphasise different parts and aspects of the Acropolis to the photographs. They focus on the spatial juxtaposition between masses of different size, height, transparency, and usually show asymmetrical but balanced compositions. As Brooks observes, "Details were not recorded, only the relation of part-to-part. Irregularity, not regularity, caught the eye."⁵⁹

Nevertheless, the Acropolis clearly impressed Le Corbusier profoundly. As Brooks writes, for Le Corbusier "this one building, on its immortal site, achieved the Ideal: the absolute

perfection of an idea."⁶⁰ It is precisely this architectural "idea" which Le Corbusier has tried to capture in his sketches. Furthermore, given the role of interpretation which travel sketching involves, this set of drawings documents the evolution of Le Corbusier's appreciation and understanding of this architectural idea. Therefore the detailed study of these drawings may allow an incomparable contemporary insight into how the architect analysed and developed his thoughts which he was to return to so often throughout his later career, in his own projects as much as his writings and lectures.

57 Le Corbusier. *Le Parthenon*. 1925

58 Le Corbusier *Carnets*, Op.Cit.

59 Brooks, Op.Cit. p.283

60 Ibid

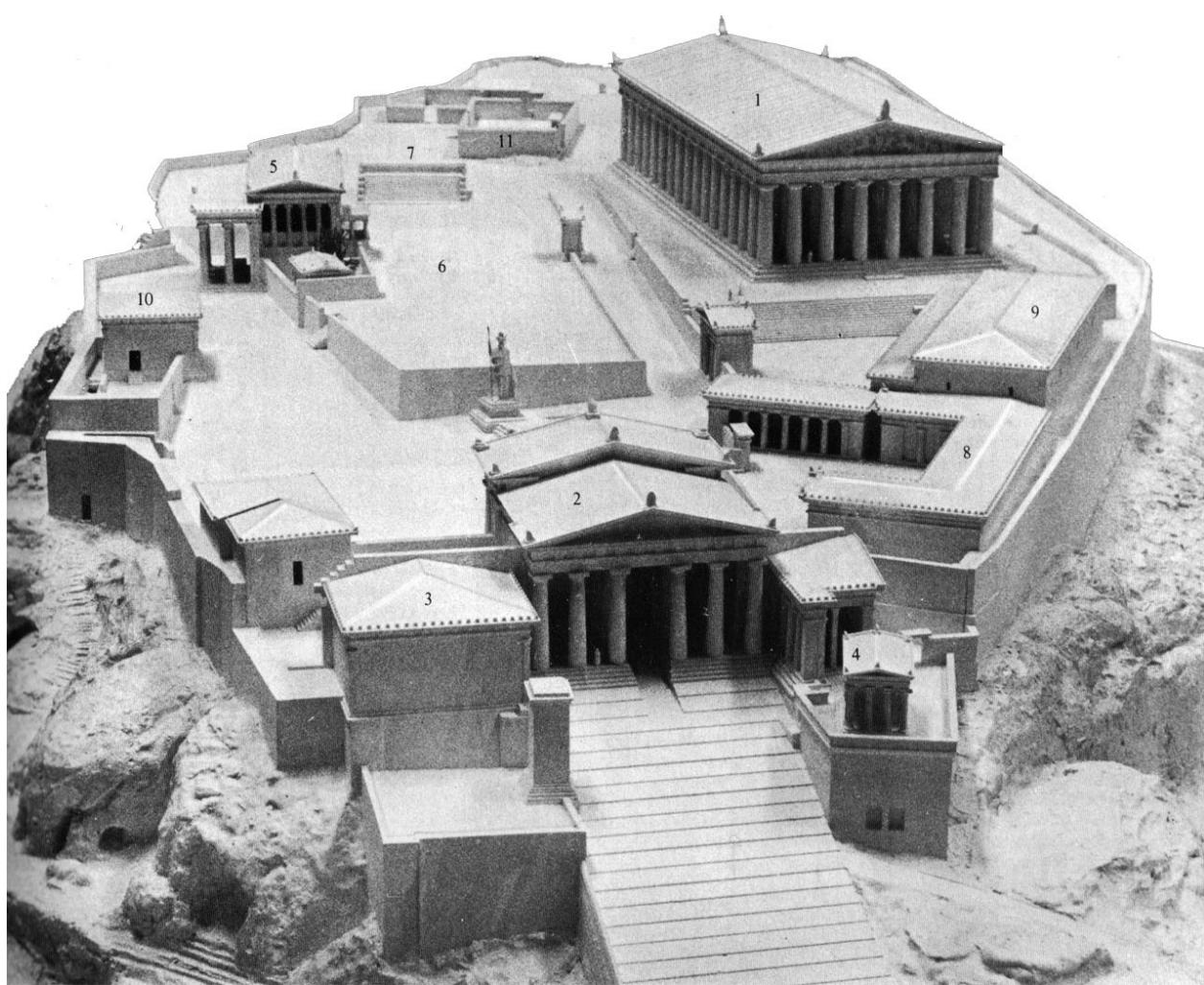


Fig. 41 - Model of the Acropolis, Athens in the third century BC

C - Structure of the analysis

The analysis of each of the 3 groups is structured in the following manner:⁶¹

1 - An introduction to the drawings with an explanation of the reasons for their selection

2 - A description of the overall effect the drawings produce and the immediate impression they convey

3 - Detailed analysis arranged according to the following themes:

- i - composition
- ii - outline
- iii - tone
- iv - colour

4 - Commentaries about other aspects of the drawings

5 - A summary of the principle aspects observed in each drawing, and conclusions as to the role played by drawing in the conceptual development of each group.

The author's illustrations (marked SH) are intended as diagrams to isolate and make clear certain specific aspects of each sketch and allow direct comparison with other

61 Moneo uses a similar method to describe the measured drawings in his book.
R. Moneo and J.A. Cortes, *Comentarios sobre dibujos de 20 arquitectos actuales*, ETSAB, Barcelona, 1976.

sketches in the same group. This demonstrates the particular emphasis of certain drawing techniques in particular sketches.

Composition, outline and tone have been chosen as the most important characteristics shared across all of these drawings. When analysed separately, they show important variations in emphasis, speed and attention paid to different elements of each drawing. The order of these categories varies in each group depending on relative significance of the information contained in each.

Some illustrations are included as partial alternatives to the original sketches in order to clarify certain aspects which Le Corbusier specifically avoided showing in his drawings.

These diagrams, along with supplementary illustrations, which Le Corbusier was familiar with during his visit to the Acropolis, allow an interpretation of the conceptual development of the architectural ideas in each image.

The intention of these diagrams is to present a graphic analysis which comes as close as possible to being objective. Although these diagrams are themselves interpretations of the original sketches, the fact that they maintain the original medium and size, and as far as possible the specific characteristics of Le Corbusier's lines and mark-making, means that they can be cross-checked back against the original drawings at any moment. This helps to ensure accuracy and consistency across the group, and allows justifiable conclusions to be formulated about the developing ideas contained in each sketch.

Fig. 42 – Map of Athens, Baedeker guide to Athens 1910



- 1 The Acropolis
- 2 Mount Licabeto
- 5 Piraeus
- 6 Quarantine island of St George

D - Description of the drawings and their categorization into 3 groups:

These drawings are presented here in three groups in order to clearly demonstrate the stages of conceptual development which appear from the graphic analysis.

The sketches presented in these groups are related through particular themes: the Acropolis in its landscape; the approach to the Propylaea; and the Acropolis plateau with its temples.

These groups are not strictly chronological - according to the page numbering, sketch 123 in group A was most likely made after the sketches of the Propylaea, and 115 was probably done on the same visit as 106-113, whilst 127 was presumably made after his visit to the museum on page 119.

With the exception of the final watercolours, and ink drawings, these sketches are all taken from Carnet 3 of Le Corbusier's voyage to the Orient, drawn a century ago in September 1911.

The carnet is small and conveniently pocket sized, measuring 17 x 10cm. It is composed of approximately 200 pages of thin off-white paper, suitable for soft pencil. Each page has been numbered by Le Corbusier in one of the outer corners. The book is bound (glued and stitched) in a semi-rigid black cover with rounded outer corners. Facsimile copies of the 5 carnets from the Voyage to the Orient have

been published by the Le Corbusier Foundation, complete with an extra volume which french transcriptions of all the annotations.⁶² The sketches of the Acropolis selected here range from pages 98 to 127.

Although the numbered order of the pages suggests a likely chronological sequence, it may not be entirely relied upon. When drawing outside, it is easy enough for the wind to catch two pages not one, leaving a blank page which one may choose to fill later on. The partial sketch of minarets and a boat is extremely similar to Le Corbusier's drawings of Istanbul earlier in the Carnet, but appears on page 100, after the first drawing of the Acropolis. It may have been done from memory, or may have been a rapid attempt to capture a momentary glimpse of the Istanbul skyline⁶³ behind the square sailed boat from the deck of the steamer leaving port, and hence in haste the carnet may well have opened to the wrong page.

Nevertheless, the majority of the sketches are most likely in the correct chronological sequence. There appears to be a distinct development of ideas through the three groups of sketches analysed here, with the possible exception of sketch 106, which may have been added after the subsequent drawings on a spare

62 Transcriptions by Giuliano Gresleri
Le Corbusier, *Voyage d'Orient, Carnets*, 1987

63 This seems more likely given the speed of the lines, the fact it is on the upper, left hand page, and has been abandoned unfinished - see point 4 of Group A

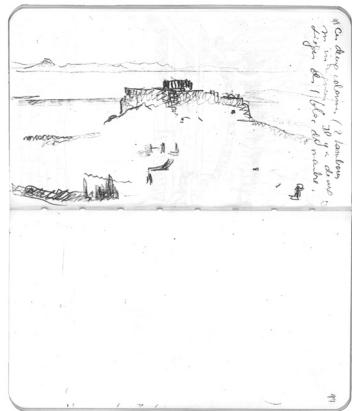
page beside the frontal view of the Propylaea.⁶⁴

Equally Le Corbusier appears to have made a number of visits to the Acropolis, museum and other sites during his 2 week stay in Athens, and apparently only drew on some of these occasions.⁶⁵ These sketches certainly are not first impressions, as Le Corbusier had seen the Acropolis from the sea sailing into port, and during the four days the ship then spent in quarantine in St George's Island in the Salamis strait. According to his notes, he chose to see the Acropolis at first hand in the evening without sketchbook or camera so as to make the most of the emotional impression of the site and temples.⁶⁶ (Fig.42)

64 It is certainly very uncommon that Le Corbusier should draw on two facing pages, given that it tends to smudge both drawings, especially when drawn with a soft pencil.

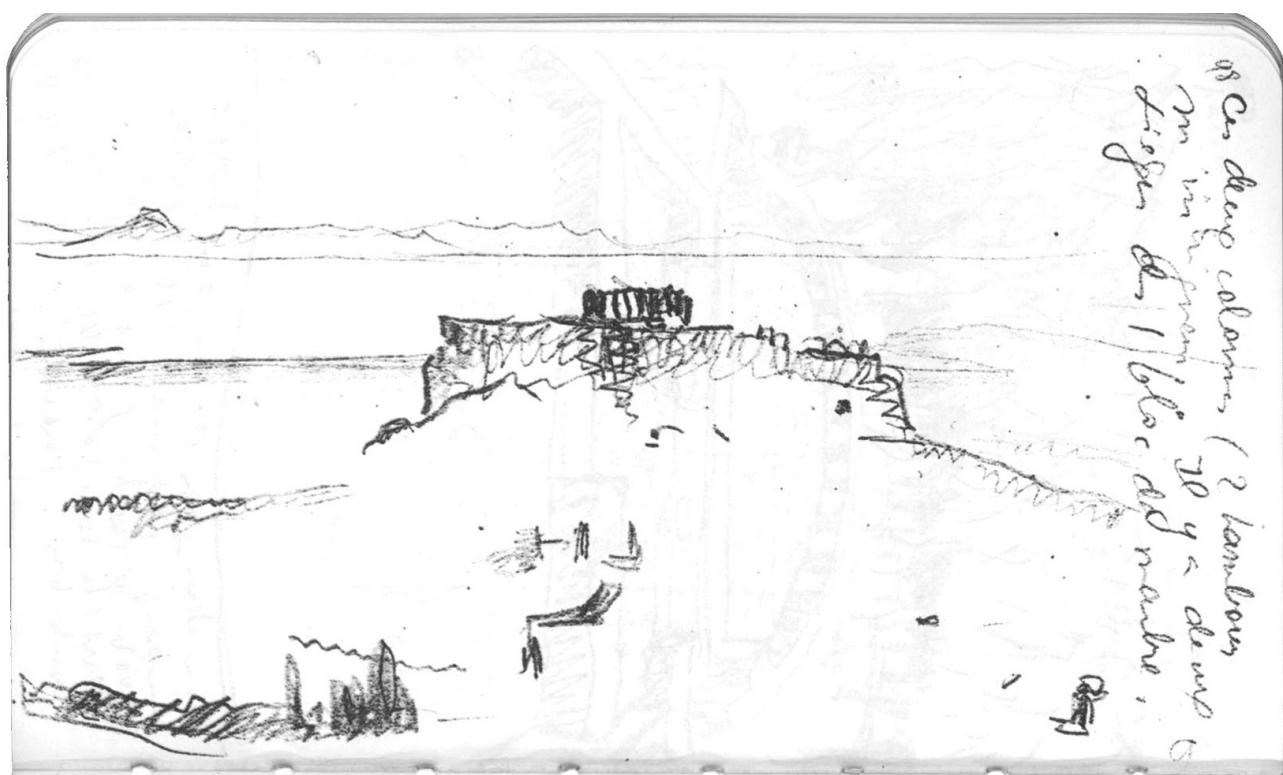
65 A. Brooks Op.Cit

66 Le Corbusier, *Le voyage d'Orient*. Ed. Parenthèses, Paris, 1966, p. 158.



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Fig. 43 - LC - Sketch 98, The Acropolis from Mount Licabeto, Athens, Carnet 3, Voyage to the Orient, Sept 1911



Q Ces deux colonnes (?) bambous
sont dans un form. de gypse déposé
dans un bloc de marbre.

3.II The Acropolis in its setting

SKETCHES 98, 103, 104 & 123.

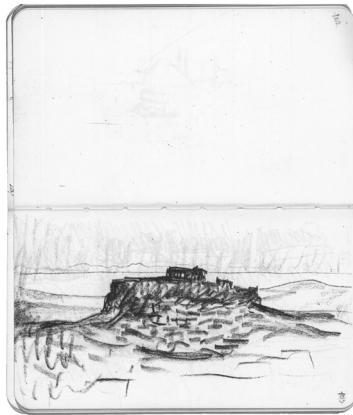
Voyage to the Orient, Carnet 3, late September 1911

75

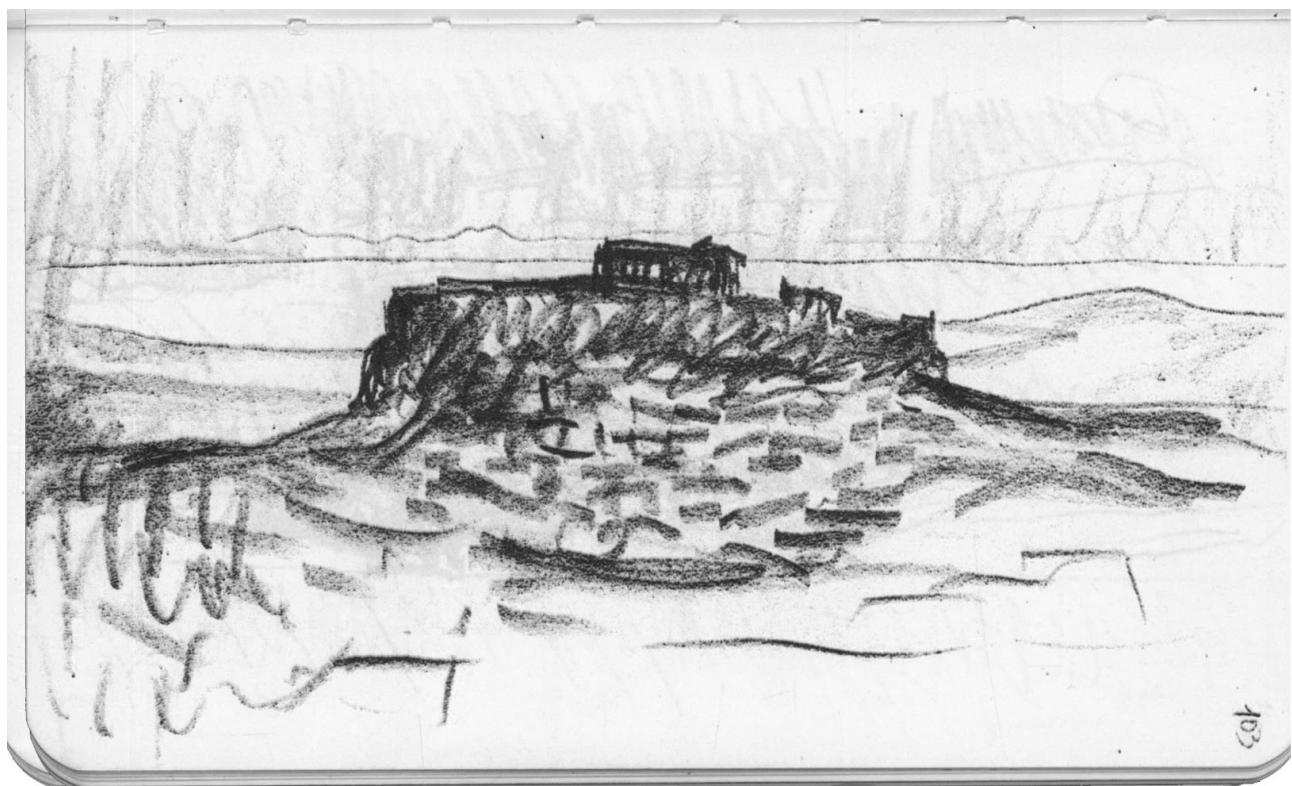
A - Introduction to the drawings and the reasons for their selection

Carnet 3 contains 4 drawings showing the Acropolis in its geographical setting. The first three (p.98, 103 & 104) have been drawn from a similar viewpoint on mount Licabeto some distance to the northeast of the Acropolis. The fourth has been drawn during a later visit from nearby the Pnyx facing up towards the main western entrance of the Acropolis, including the approach path, the Propylaea and the Parthenon. (Fig.49)

These four sketches show the development of Le Corbusier's understanding of the Acropolis in its context during the course of his stay in Athens. The thread of this conceptual development may shed light on the role of drawing in Le Corbusier's understanding of the place.



76 Fig. 44 – LC - Sketch 103, The Acropolis from Mount Licabeto, Athens, Carnet 3, Voyage to the Orient, Sept 1911



When compared as a group, the following questions arise:

- Why has Le Corbusier repeated an extremely similar view three times?
- Are the first two merely practice sketches for the final more elaborated sketch?
- Did he trying to express different concepts in each subsequent sketch?
- Was he trying to fix the image in his memory?
- Was he drawing in order to observe more closely: the more he drew, the more he saw and hence the more he wanted to show in the next drawing?
- Was he analyzing as he drew, and therefore drawing to investigate visually what are the most significant points about the acropolis in its context: in other words sketching by trial and error?



78

Fig. 45 – LC - Sketch 104, The Acropolis from Mount Licabeto, Athens, Carnet 3, Voyage to the Orient, Sept 1911



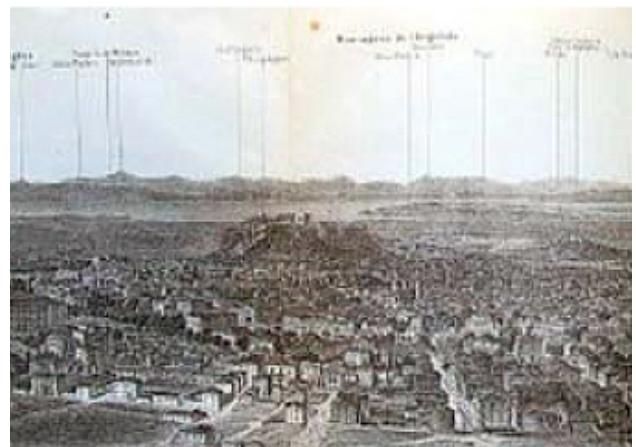


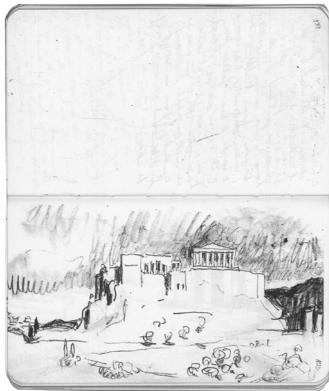
Fig. 46 – *Panoramic view of Athens from Mount Licabeto, published in Baedeker, 1910*

79

B - The drawings' effect

The main visual focus changes with each drawing. Sketch 98 concentrates on the centrally placed Acropolis site dominating the plane and horizon. Sketch 103 shows the Parthenon forming part of geological rock outcrop. Sketch 104 shows the Acropolis as just another hill amongst a wider landscape of city, coast, islands and sea beyond. Sketch 123 portrays the Acropolis, fortified walls, buttresses, steps and Propylaea capping the hill, and appearing as a geological plinth on which the Parthenon stands.

This step by step evolution in the treatment of the Acropolis, shows an architectural idea evolving through trial and error, ending with a more carefully and consciously composed, definitive understanding of the relationship between the Parthenon and the landscape. (Fig.46,48)



80 Fig. 47 - LC - Sketch 123, Western facade of the Acropolis from the Pnyx, Athens, Carnet 3, Voyage to the Orient, Sept 1911

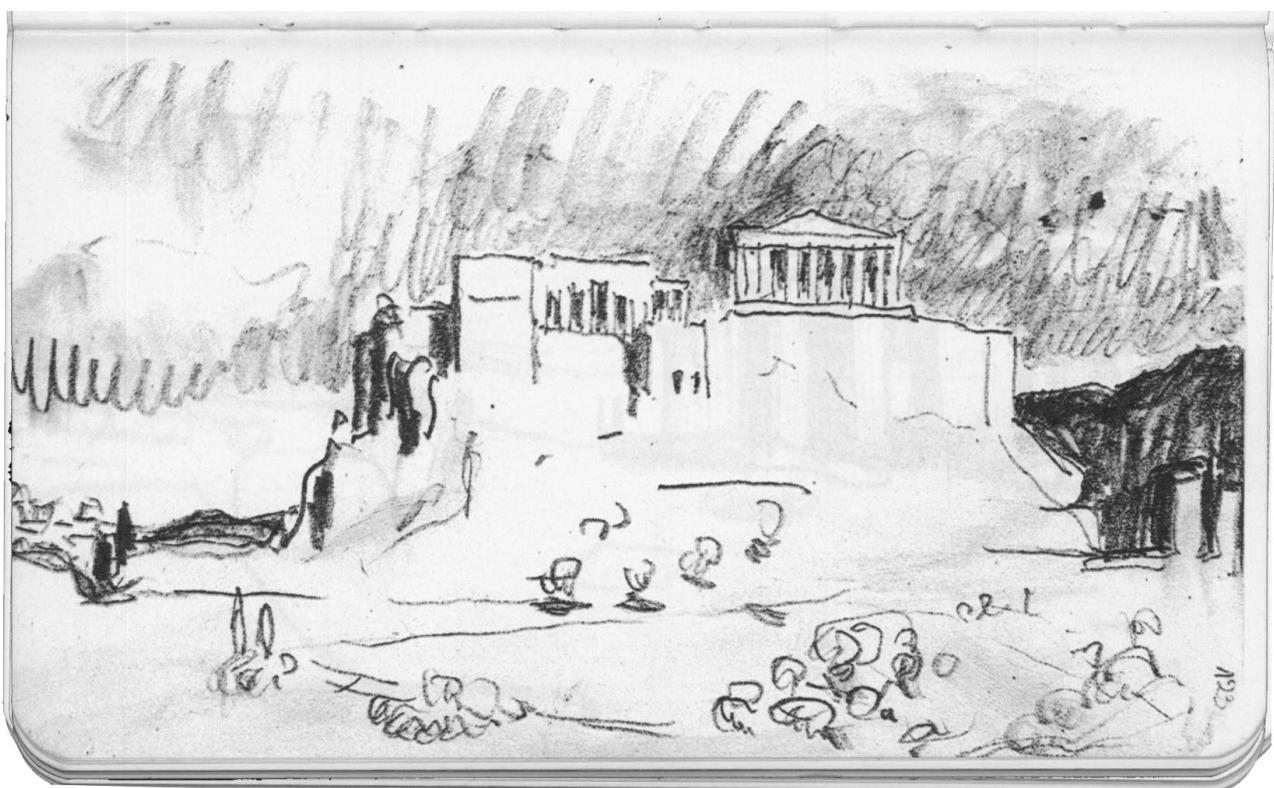




Fig. 48 – Postcard of the west facade of the Acropolis, 1911 with Mount Licabeto behind

Fig. 49 – Map of Athens, Baedeker guide to Athens 1910

81



- 1 Acropolis
- 2 Mount Licabeto
- 3 Sanctuary of the Pnyx
- 4 Agora

Composition

82

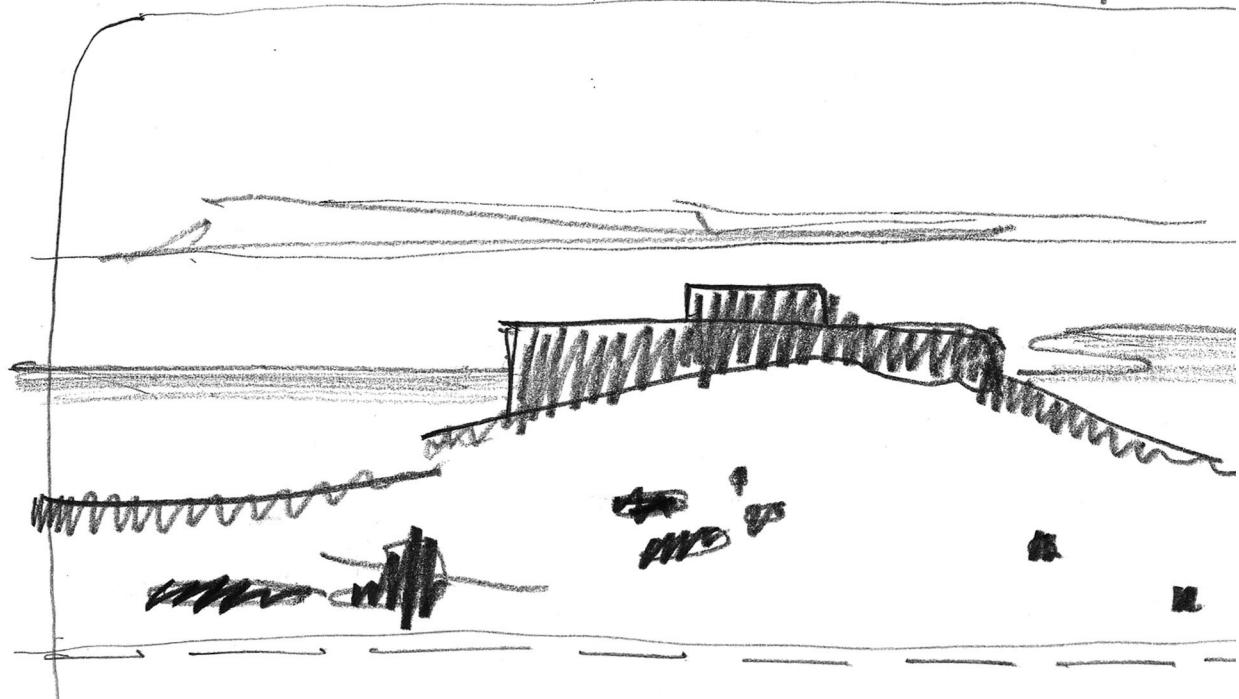
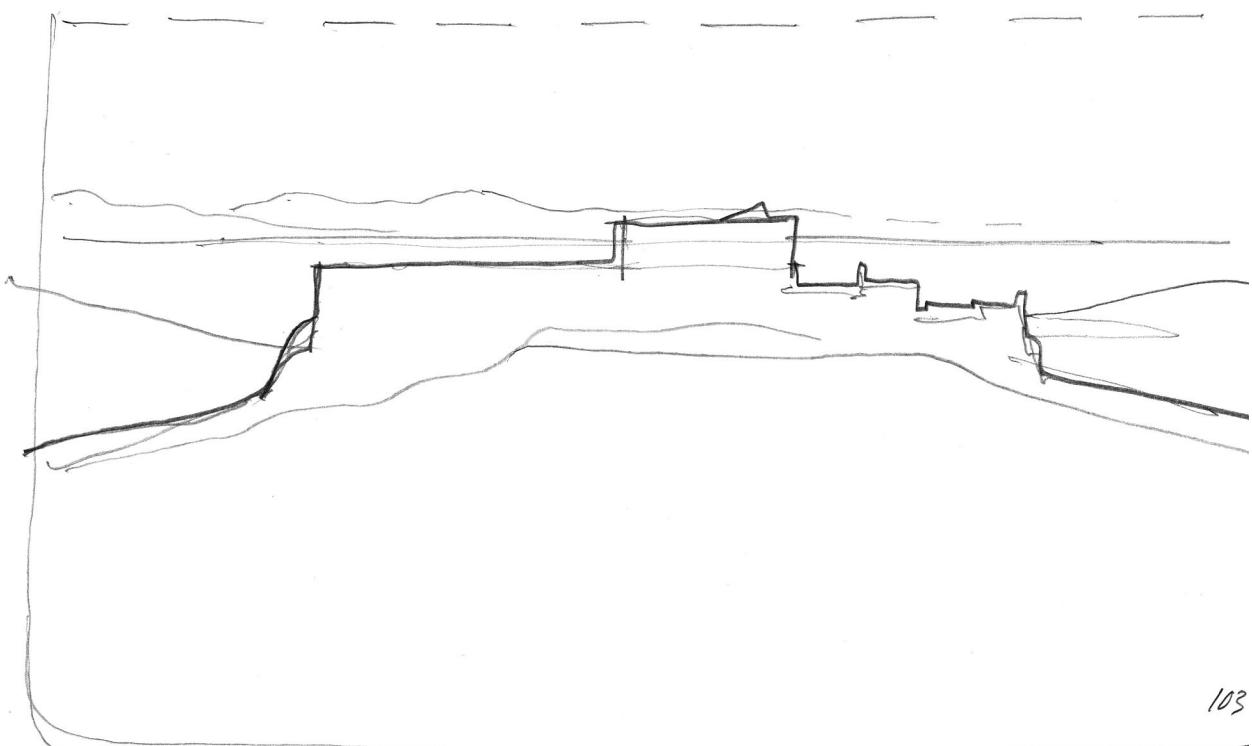


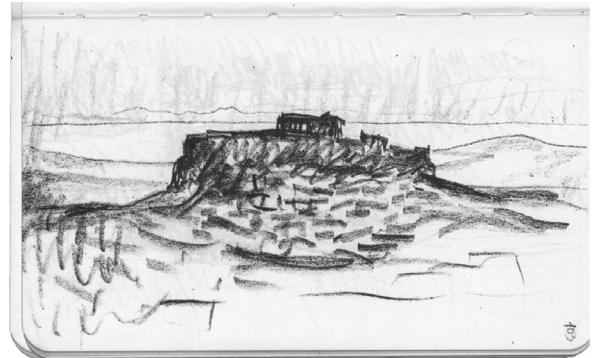
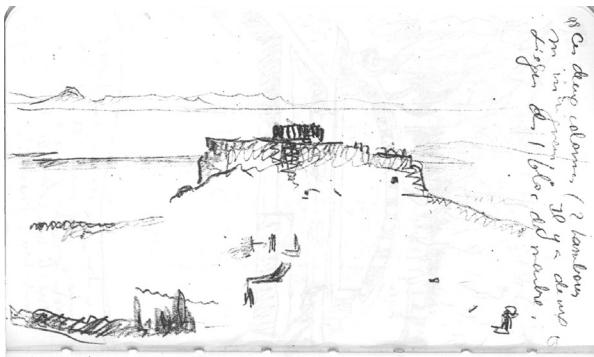
Fig. 50 - Composition diagram of Sketch 98 - SH

103

Composition + horizon lines

Fig. 51 - Composition diagram of Sketch 103 - SH





C - Analysis in detail

i - COMPOSITION:

Despite a similar view point in the first 3 sketches, the compositions of each vary significantly. Sketch 98 shows the Acropolis occupying the centre of the page but with enough of the background to show the Piraeus and the dominant hills on the horizon. The view is segmented into 4 distinct planes, far distant hills and horizon, the Piraeus and Athenian coastline in the middle-distance, the Acropolis itself occupies a solitary position in the middle ground, whilst the foreground contains a scattering of isolated abstract forms.

The modern city, which in 1911 occupied the entire foreground up to the slopes of the Acropolis,⁶⁷ has been left out, in order to concentrate on the dominance of the site over the surrounding original landscape. However this approach would leave the Acropolis floating in the middle of the page with no substantial ground beneath. The nearest abstract forms serve to suggest a foreground without defining it as city. (Fig.50)

Sketch 104 shows the horizon line crossing the Parthenon suggesting that the view point may be lower down the hill. (Fig.46) More significantly, the rock and fortifications of the Acropolis now fill the majority of the centre of the page, leaving enough space to the sides to suggest the Athenian coastline and the distant

horizon and hills. This second composition emphasizes the relationship of the Acropolis to the distant horizon, dramatically interrupted by the silhouette of the ruined Parthenon. (Fig.51)

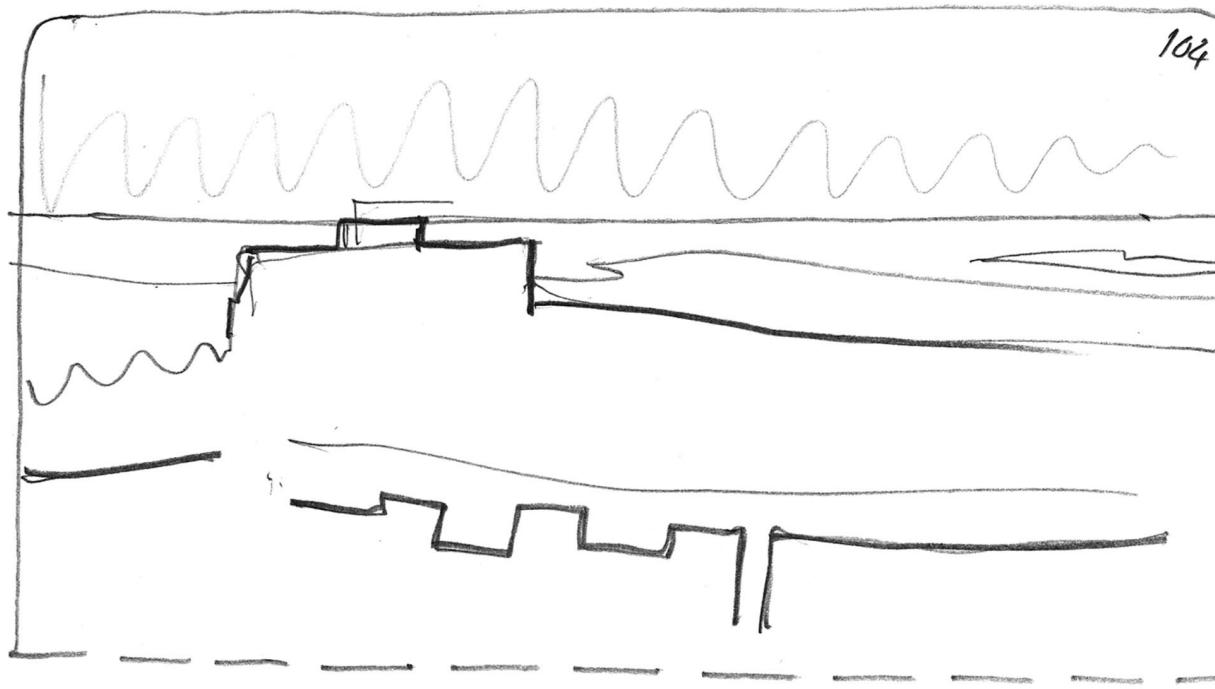


Fig. 52 – Composition diagram of Sketch 104 - SH

COMPOSITION

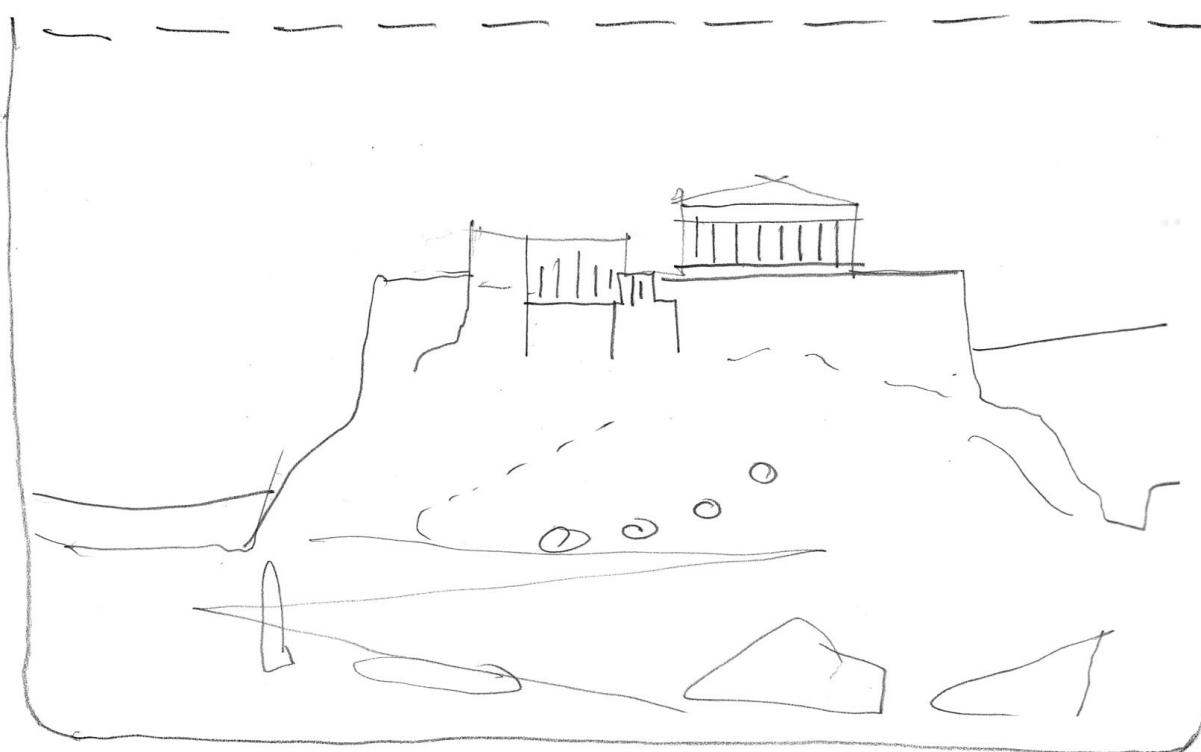
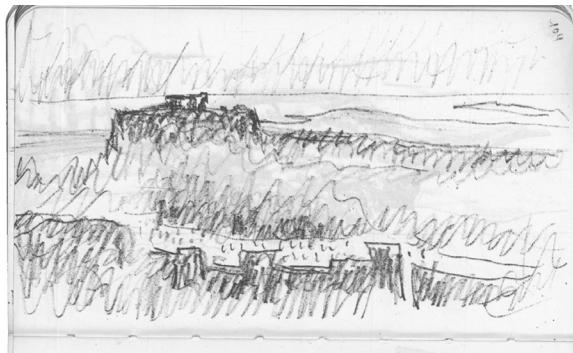


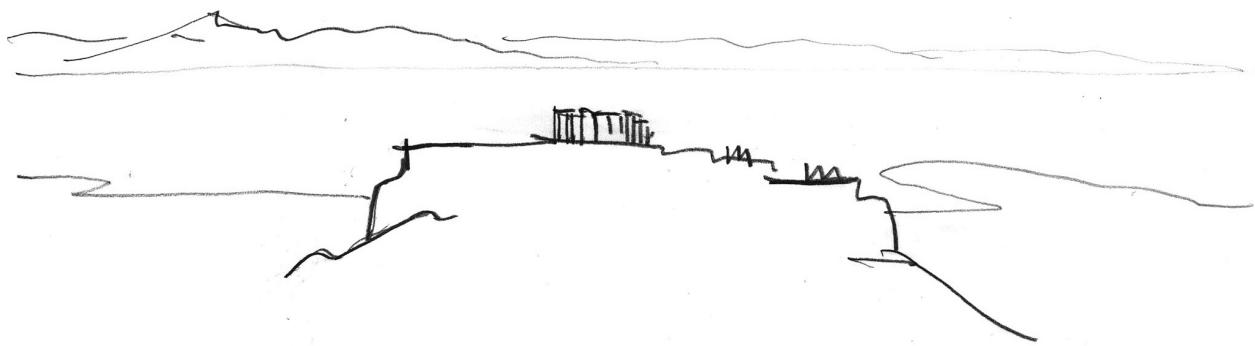
Fig. 53 – Composition diagram of Sketch 123 - SH



The third sketch is drawn from the summit of the Licabeto hill as in p. 98, but here the Acropolis is reduced in scale occupying a small part of the upper left of the page, allowing the landscape in the middle distance to extend beyond the Piraeus promontory and as far as the islands of Salamis and St. George. The foreground is occupied by a bright continuous facade which serves to suggest part of the foreground city. In this sketch the Acropolis is seen as one element of a wider geographical context. Rather than dominating the landscape or competing with the horizon and glittering sea beyond, the Acropolis is shown in a secondary position, integrating its cliffs more into the wider topography around it. (Fig.52)

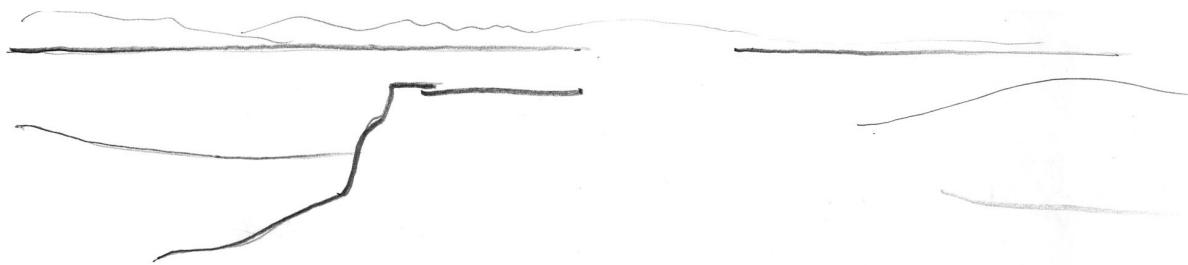
Sketch 123, done some days later, shows a different approach to the Acropolis. The composition is carefully balanced showing a frontal view of the entrance and western facade of the hill and buildings. The foreground recedes into the entrance path of the hill, with the Acropolis occupying the centre of the page flanked and highlighted by hills with a darkened sky in the distance. (Fig.53)

The depth of the drawing is simply and clearly explained by the vegetation and zigzagging path to the entrance gate, and the distant hills flanking the sides of the Acropolis. The overall composition is central, occupying the majority of the page, and showing the balanced asymmetry of the buildings on the left and right of the central axis.



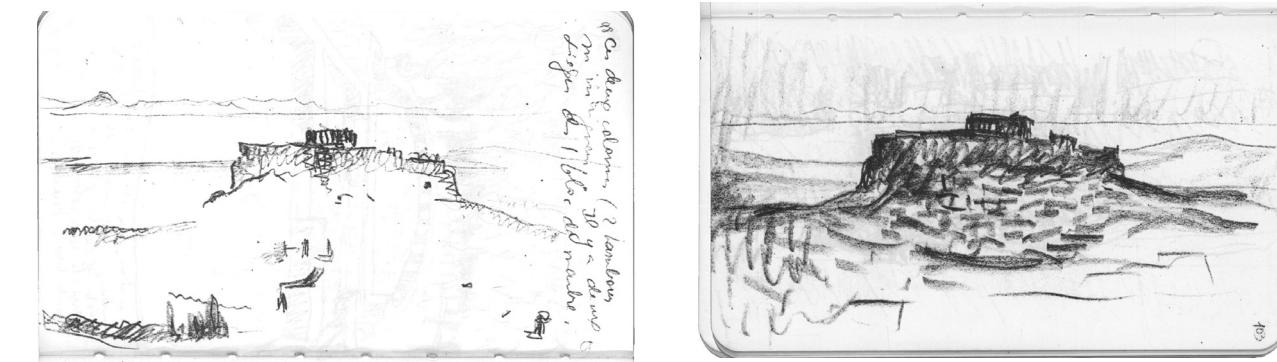
86

Fig. 54 – Outline diagram of Sketch 98 - SH



103
DEFINITE OUTLINES

Fig. 55 – Outline diagram of Sketch 103 - SH



ii - OUTLINE:

Sketch 98 has been drawn clearly in outline, with different line weights emphasizing the contours of the Acropolis and Parthenon against the distance. The overall drawing, its composition and depth, are clearly understandable from these few lines alone. (Fig.54)

In sketch 103, outlines are far less important serving more as guidelines for subsequent shading, or at most to highlight specific edges, such as the left-hand wall of the Acropolis, and the dark horizon line. (Fig.55)



Fig. 56 – Outline diagram of Sketch 104 - SH

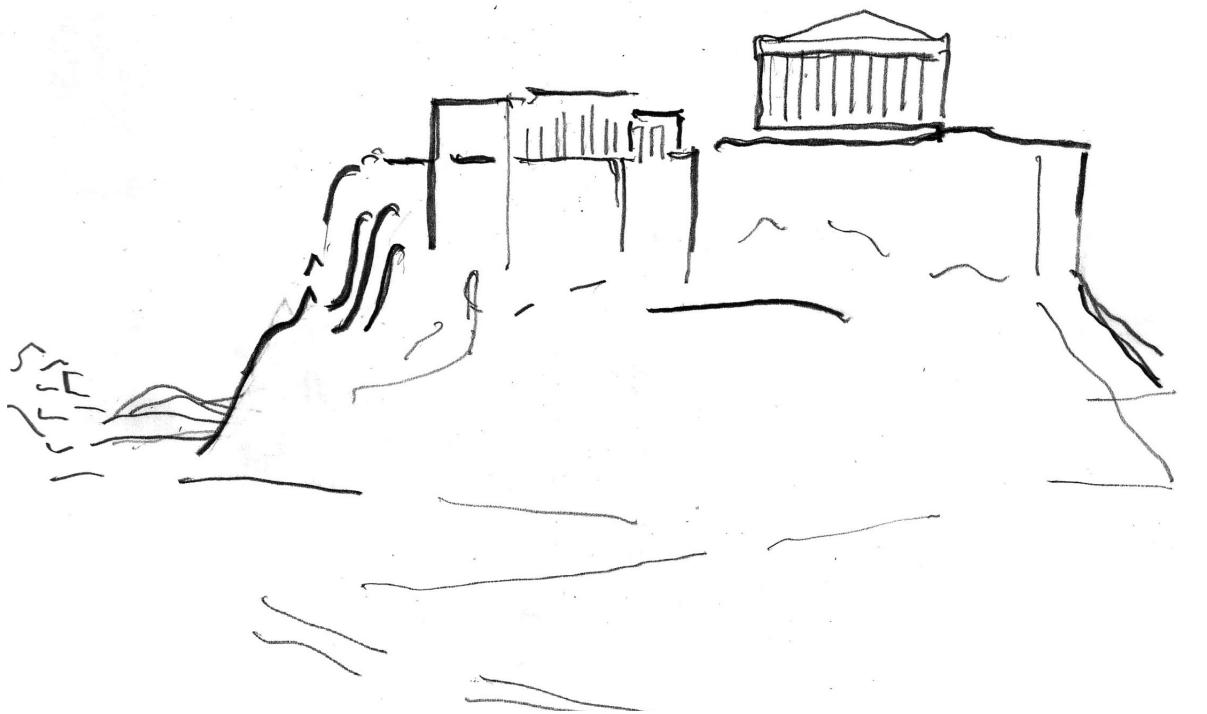
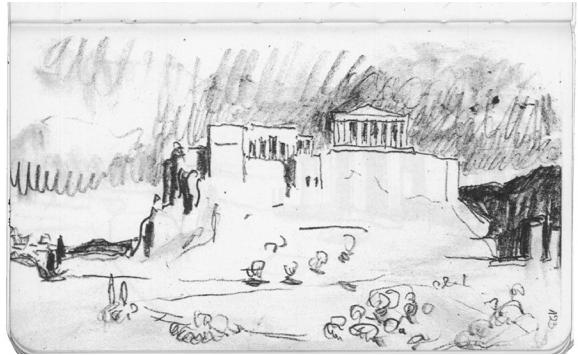
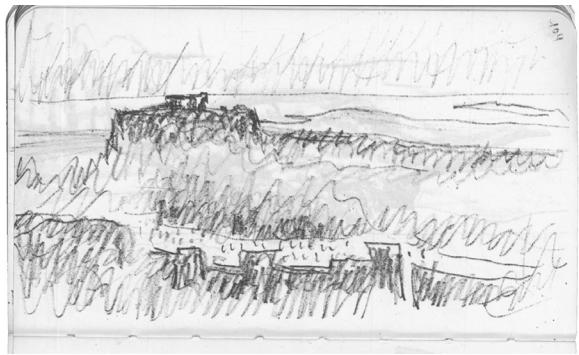


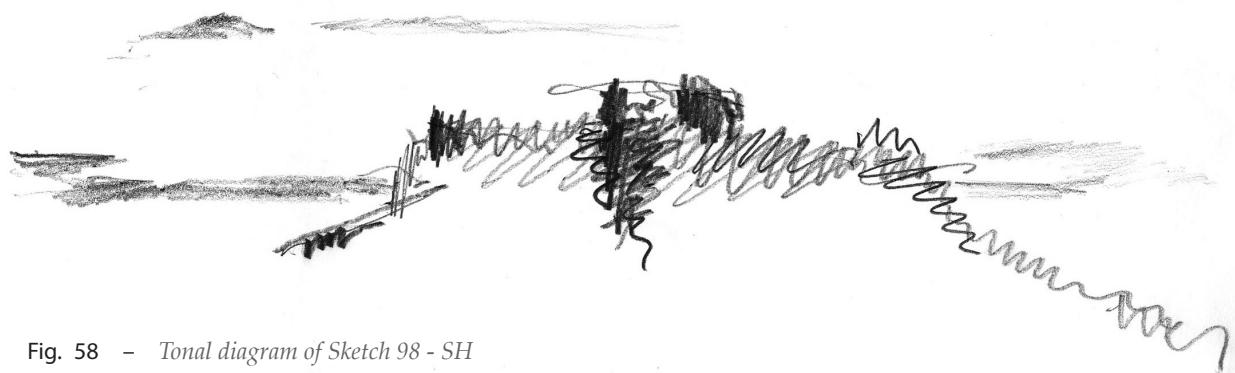
Fig. 57 – Outline diagram of Sketch 123 - SH



89

Sketch 104 uses soft continuous lines to denote the landscape and coastline. Heavier but shorter pencil strokes highlight the contour of the hill and the outline of the city facade below. These strokes are sometimes repeated more definitely in order to emphasize these particular edges. (Fig.56)

In sketch 123 outlines have been used to show the limits of the rock and distinguish the various building elements, as well as indicate distinct architectural elements such as columns and entablatures. Fainter lines have also been used to mark out the proportions of the initial composition, leading to the various adjustments to the position to the right hand wall. (Fig.57)



90

Fig. 58 – Tonal diagram of Sketch 98 - SH

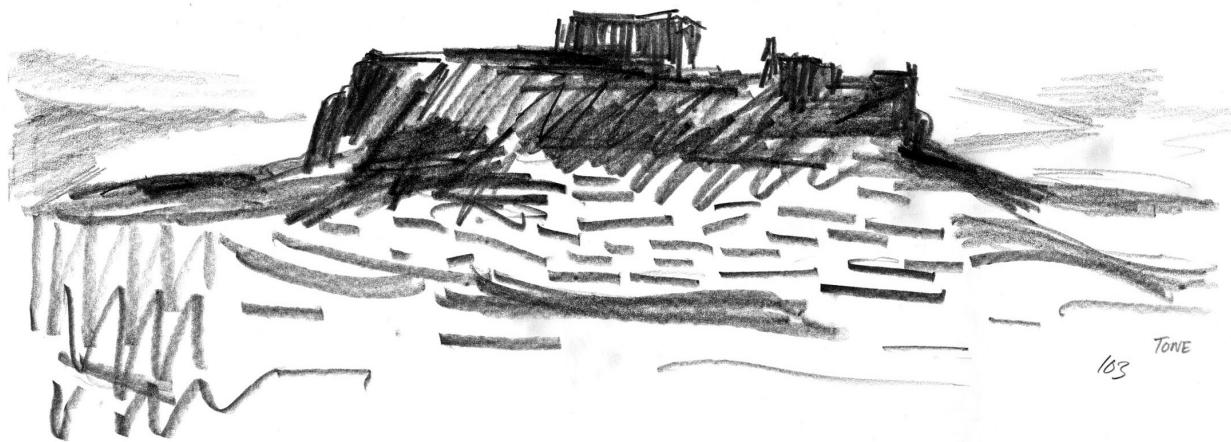
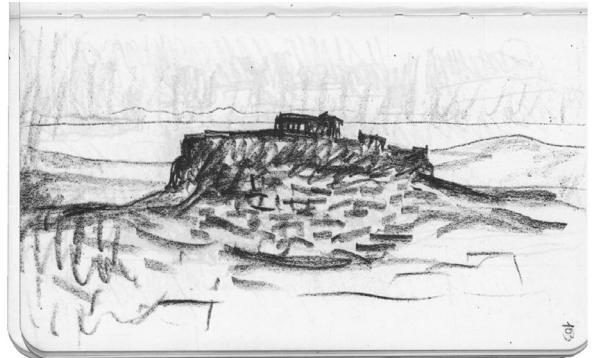
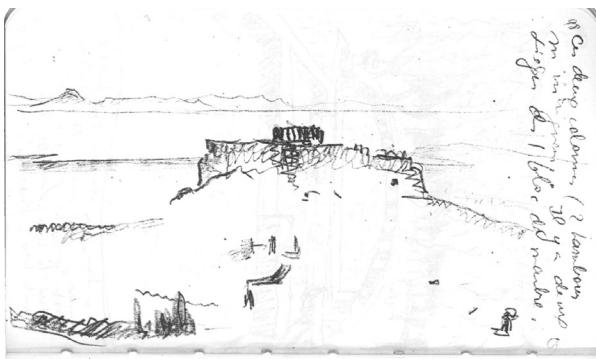


Fig. 59 – Tonal diagram of Sketch 103 - SH



iii - TONE:

Shading is kept to a minimum in sketch 98. The drawing is in fact legible on account of the outlines alone. The use of tone serves to enhance the solidity of the main elements and emphasize the contrast between the Acropolis and the distant sea beyond. The Acropolis remains an isolated peak in the centre of the mainly white page. The heaviest shading deliberately draws the eye to the Parthenon as the central focus of the drawing. (Fig.58)

Sketch 103 however relies almost entirely on different grades of shading to explain foreground, the massiveness of the rock and Parthenon, and the various parts of the distant landscape. The darkness of the shading emphasizes the monolithic single mass of the Parthenon and the rock face it appears to emerge out of. (Fig.59)

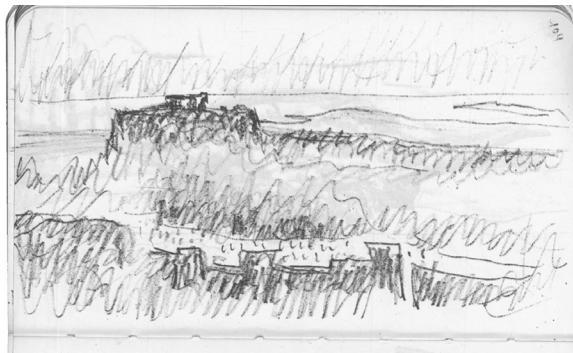
92



Fig. 60 – Tonal diagram of Sketch 104 - SH



Fig. 61 – Tonal diagram of Sketch 123 - SH



93

Sketch 104 uses lighter tones than the previous sketch, but again uses shading to highlight the bright foreground facades and the mass of the Acropolis. However the depth of tone does not suggest the distance of the different layers of the drawing, from the foreground facades to the distance. This use of tone to highlight the most significant parts instead of depth can be seen in the Acropolis, being darker than the foreground shading. The foreground facade is left white even though it faces away from the sun and hence would logically appear in shadow. (Fig.60)

Sketch 123 makes careful use of tone on the background hills to make the Acropolis stand out as if it were in bright sunshine (similarly, the Parthenon is highlighted against a darkened sky). Tone is also used to show the three-dimensional form of the Acropolis rock with south-westerly afternoon sun throwing the northern facing cliffs into shadow. (Fig.61)

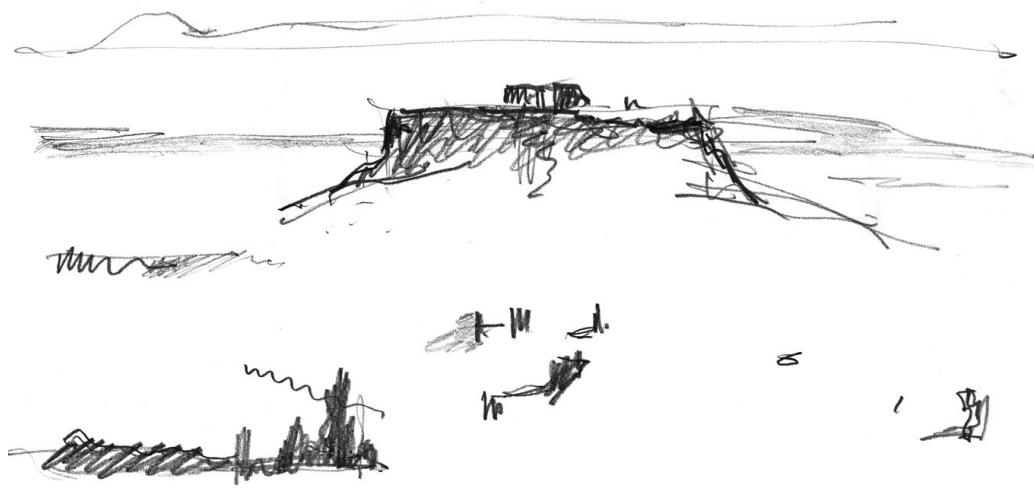
D - Further thoughts

From redrawing both outline and tonal studies, these four sketches appear to form 2 distinct pairs: 98 and 104 are both relatively faint in tone, and have been drawn first in outline. Shading has then been added hastily to both judging from the imprecise and overlapping hatching. 103 and 123 however show much darker tones, broader pencil marks and in 103, the mass of the acropolis appears to have been filled out from the start with heavy shading lines. Both of these two sketches show much greater care taken over the accuracy of hatching (with the exception of the expressive storm clouds in 123.) In fact 103 is clearly composed in 3 sections from foreground to the middle ground, using different types of hatching to suggest the different gradients and textures of the cliffs and cityscape.

The first, and apparently faster of the two pairs have been drawn on the upper (left-hand) page of the carnet, whilst the more carefully shaded pair are on the bottom (right-hand) page. One may speculate therefore that on account of the rapidity, inexactness, faintness, that sketches 98 and 104 may have been drawn whilst Le Corbusier was standing, holding the carnet open with his left hand, which would naturally make it more comfortable and stable to draw with his right hand on the upper page. The more carefully drawn, darker sketches 103 and 123, may have been drawn more slowly whilst seated allowing Le Corbusier to rest the carnet on one knee, and making it easier to control the pencil more precisely as well as press more heavily

on the lower page. One exception to this idea is the sketch plan on the left hand page 106. However in this case, the carnet has been turned 90 degrees, which would make it easier to hold and draw whilst seated.

Although as already mentioned, the shading in these first three sketches does not necessarily denote shadow, and hence the direction of the sun, it would seem likely that during his trip up Mount Licabeto, Le Corbusier drew sketch 98 whilst the sun was high creating the minimum shadows on the northern face of the Acropolis. The second sketch (103) may have been later in the afternoon when the northern face and the slope below were cast in considerable shadow silhouetted against a glittering September sea. The third sketch may have been late in the afternoon when storm clouds had begun to gather over the Peloponnesian mountains. Sketch 123 would also appear to have been drawn in the afternoon judging from the shadows on the cliffs and walls, and the appearance of storm clouds.



96

Fig. 62 – Architectural concept diagram of sketch 98 - SH

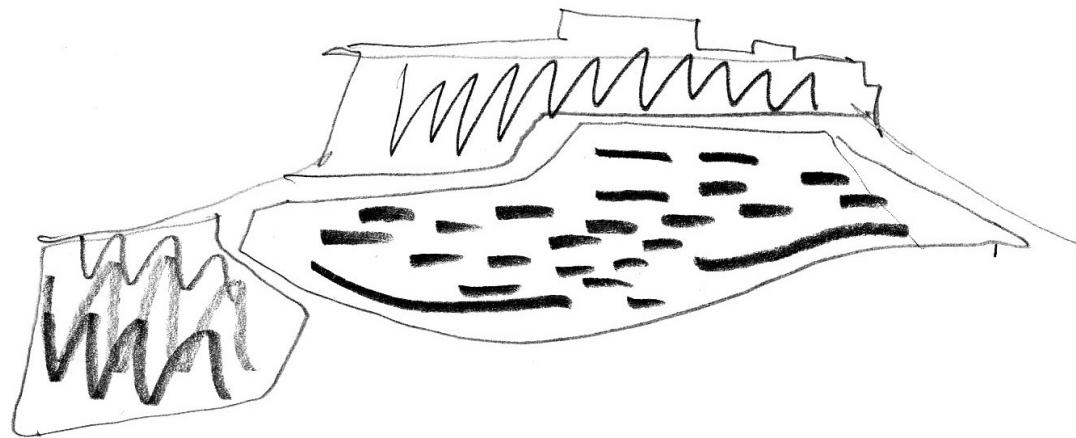


Fig. 63 – Architectural concept diagram of sketch 103 - SH

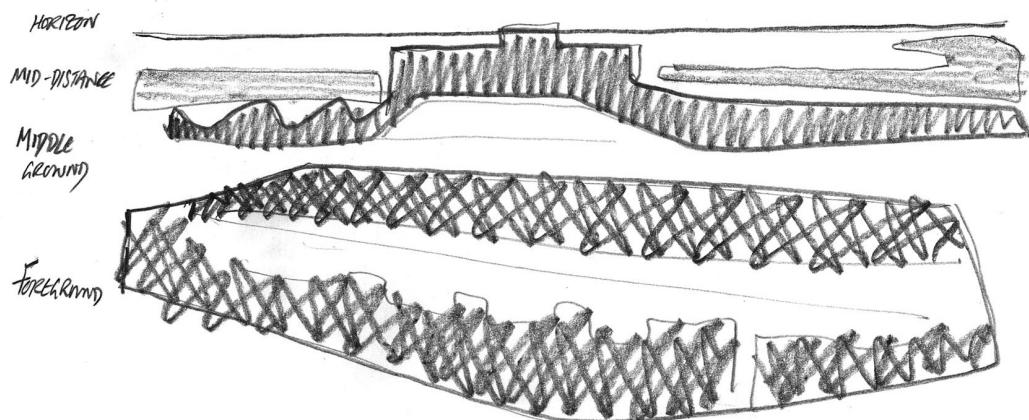


Fig. 64 – Architectural concept diagram of sketch 104 - SH

E - Conclusions:

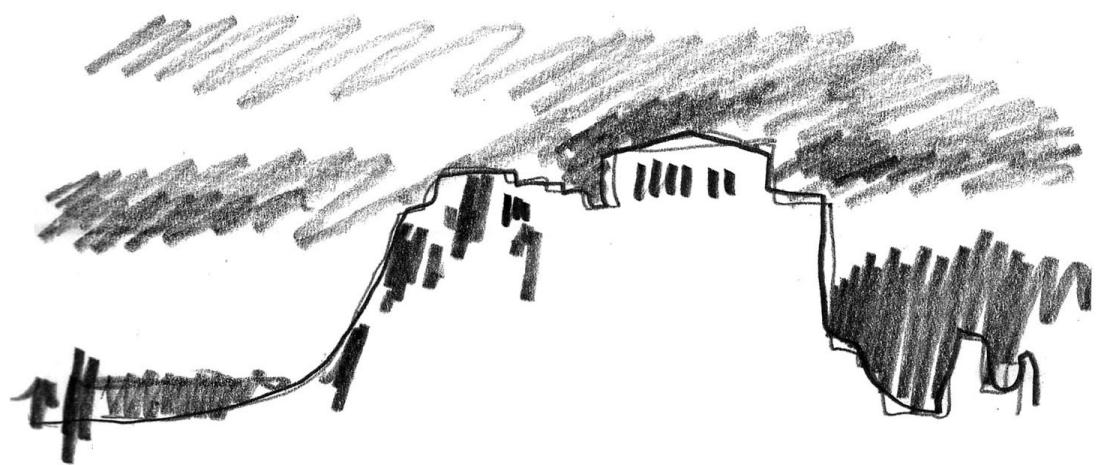
i - A SUMMARY OF OBSERVATIONS

Analysis of the compositions, and the use of outlines and tone in these four sketches suggest that each image has been drawn to emphasize different aspects of the Acropolis. The repetition of view and change in the treatment of the Acropolis in the first three sketches suggest that Le Corbusier used these sketches to try out different approaches to the Acropolis. This trial and error method starts with the Acropolis isolated high above a continuous landscape, (Fig.62) then changes to show the horizon broken by the Parthenon which forms part of the silhouette of the rock face which in turn emerges from a rough sloping hillside. (Fig.63)

The continuity of temple rock and hillside continues in the third sketch but is reduced and moved off-centre to show a far wider context of the Athenian plane, coastline and part of the surrounding city. (Fig.64)

By the fourth sketch, these ideas have evolved and become more deliberate. The centralized and almost symmetrical composition recalls sketch 103 albeit inverted in tone - bright against a dark sky. The Propylaea and fortifications merge into the cliff-face as in 103 and 104, (Fig.65) however the compositional treatment of the Parthenon as forming part of the Acropolis rock (sketch 103 and alternative A) is reversed due to the emphasis of the

horizontal pencil lines on the temple steps. (Fig.66) The Parthenon is drawn standing upon the plateau of the Acropolis as if it were a sculpture resting on a plinth. (Fig.67)



98

Fig. 65 – Architectural concept diagram of sketch 123 - ALTERNATIVE A - SH

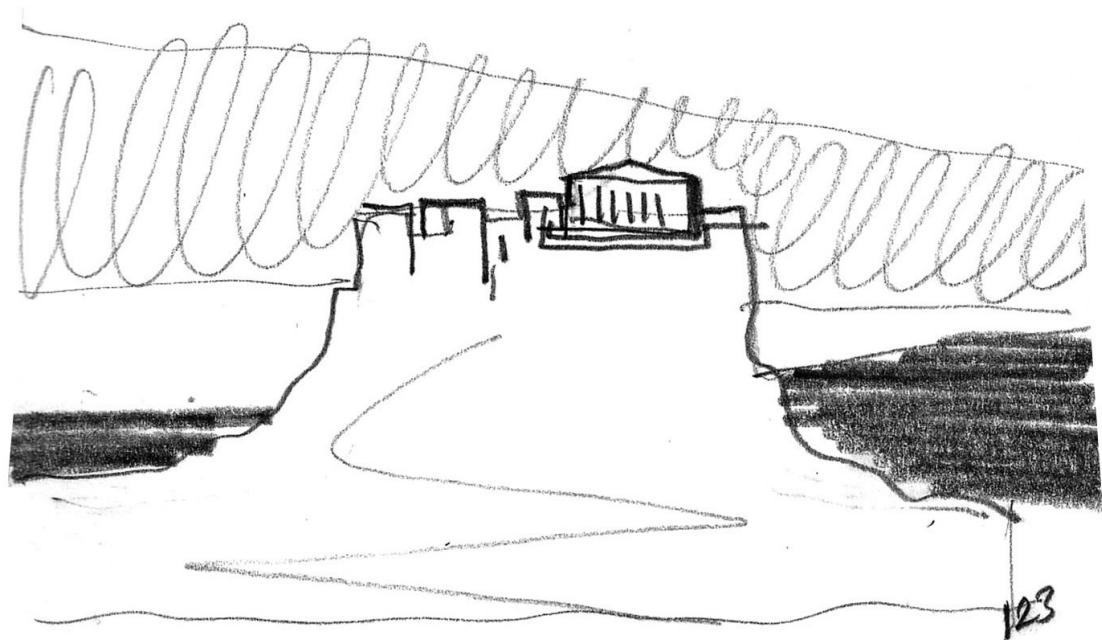


Fig. 66 – Architectural concept diagram of sketch 123 - ALTERNATIVE B - SH

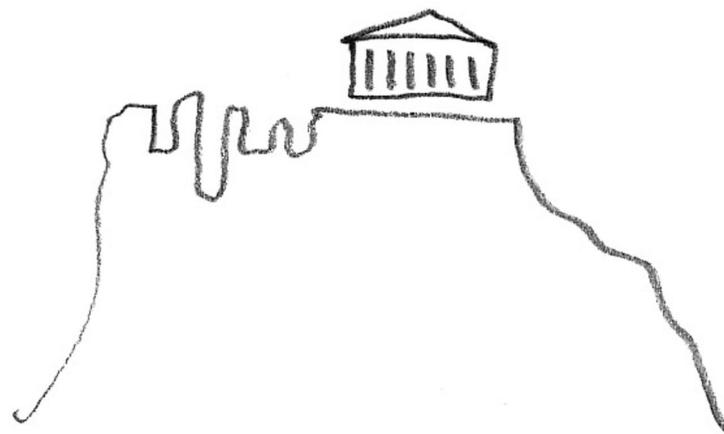


Fig. 67 – *Architectural concept diagram of sketch 123 - RESULT - SH*

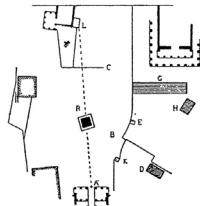
99

ii - CONCLUSIONS AS TO THE PURPOSE OF THESE DRAWINGS

This process of trial and error shows these drawings were more important as a means of investigating and learning, than simply recording or helping to remember specific architectural points. The sketches are repeated as much to aid careful observation and subconscious reflection as to try out alternative ideas and ways of describing the Acropolis. The carefully “designed” final sketch however shows a more definitive conception of the architectural composition of the Acropolis. Here the drawing becomes a “proof” of the architect’s way of understanding the buildings and their landscape setting as well as a record for future reflection.

In the first instance the primary role of such travel drawing is the actual act of drawing itself more than the finished image (as in the case of Graves’ preparatory study), whilst in the final sketch, the image itself resembles Graves’ idea of the definitive drawing which serves “to answer questions rather than to pose them”.⁶⁸

68 Graves. Op cit. p.387

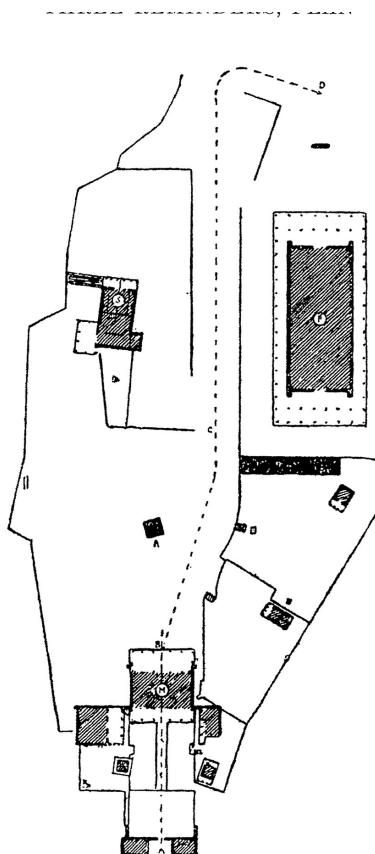


THREE REMINDERS TO ARCHITECTS

100

III PLAN

THE ACROPOLIS IN ATHENS. View of the Parthenon, the Erechtheum, and the Athena Parthenos from the Propylaea. It must not be forgotten that the site of the Acropolis is very uneven, with considerable differences of level that were used to constitute imposing plinths for the buildings. The slightly canted angles produced rich and subtly effective views; the asymmetrical massing of the buildings creates an intense rhythm. The spectacle is massive, elastic, charged, devastating in its acuity, dominating.



THE ACROPOLIS IN ATHENS. The seeming disorder of the plan will fool only the profane. The equilibrium is not small-minded. It is determined by the famous landscape that extends from Peiraeus to Mount Pentelikon. The plan is conceived for distant views: the axes line up with the valley and the slightly canted angles are the skilled interventions of great stage director. The Acropolis on its rock and its supporting walls is seen from afar, as one block. Its buildings are massed together through the incidence of their multiple planes.

Fig. 68 - Choisy - illustrations of the "promenade architecturale" - reproduced by LC in "Vers Une Architecture" 1922

3.III The Entrance through the Propylaea

SKETCHES 106, 107, 109, 111 & 113.

Voyage to the Orient, Carnet 3, late September 1911

101

A note about Le Corbusier's prior knowledge of the Acropolis.

In his "Histoire de l'architecture" (1899), Auguste Choisy, (French architectural historian 19th-early 20th century), described his reconstructed vision of the Acropolis.⁶⁹ In particular, apart from reconstructed views of the various buildings, Choisy explains his theory that each part of the Acropolis was intended to be seen from a moving viewpoint. In a series of views and plans, he explains how buildings, steps, walls and entrances are carefully aligned producing oblique views of the geometrical volumes instead of frontal symmetrical elevations. This leads the eye and the viewer on through a sequence of spaces and perspectives from the entrance to the Parthenon. This "cinematic" understanding of the positioning of buildings and their parts, is similar to the filmmaker Eisenstein's composition techniques. He described the Acropolis as "the perfect example of one of the most ancient films."⁷⁰

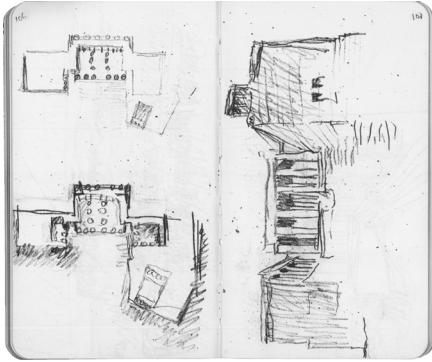
Le Corbusier was familiar with Choisy's interpretation of the Acropolis before his visit. He later appropriated these ideas of the promenade architecturale, and used the

example of the Acropolis to describe the way in which the viewer appreciates architecture through motion. He published a number of Choisy's plans of the Acropolis in "Vers Une Architecture" to illustrate the point.⁷¹ (Fig.68) It is interesting to see how sketching allows earlier ideas - in this case Choisy's theory of understanding the Acropolis from a moving viewpoint - to be appropriated by the person drawing. In the same way that both Robbins and Graves explain that drawing allows one to relate to and appropriate architectural ideas from other buildings, sketching can also provide a means of combining prior knowledge with personal experience. In this instance, Le Corbusier's drawings are part observation of the reality in front of him, and part projection of previous ideas taken from books and photographs. It is the act of sketching itself which combines the two, and provides a means for Le Corbusier to reflect on them both, develop his own interpretation and reach his own conclusions.

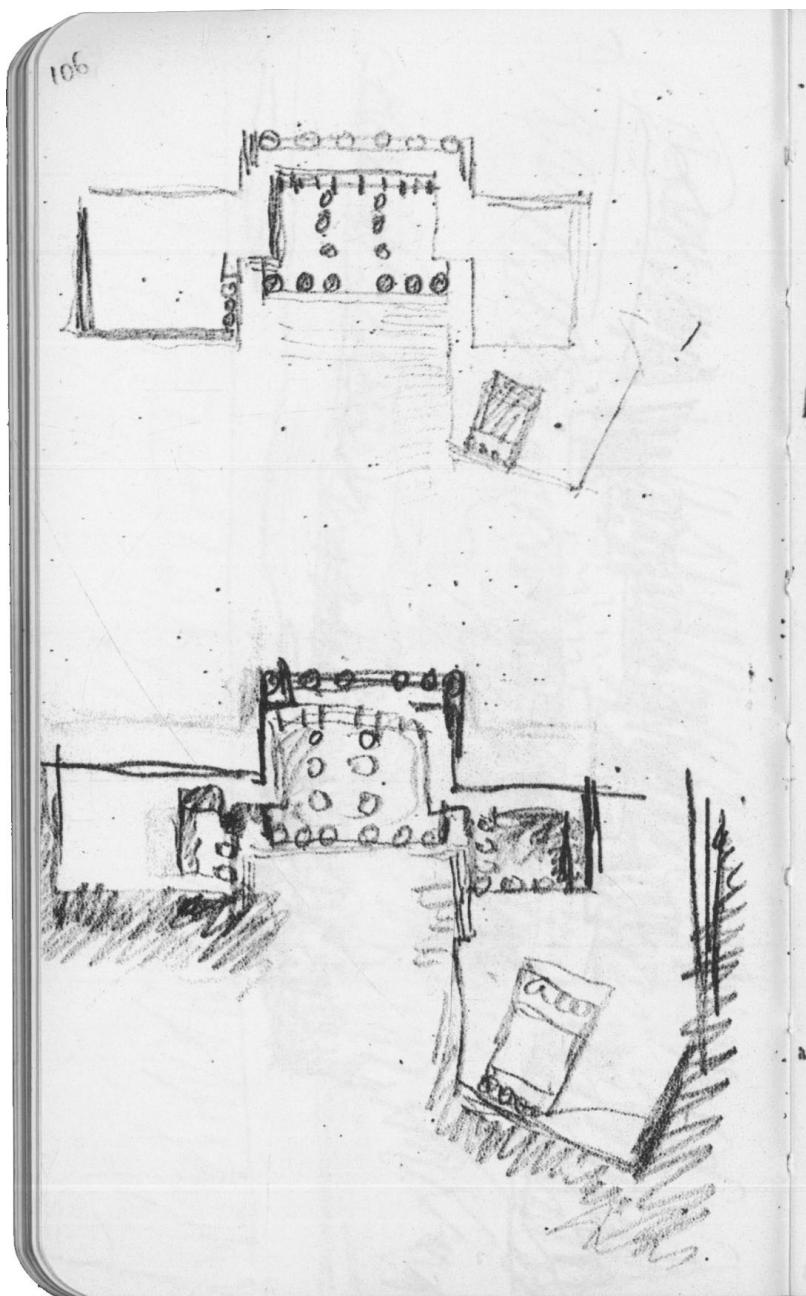
69 A. Choisy, *Histoire de l'Architecture*, Paris. 1899 (*Historia de la arquitectura*, Ed. Victor Lerú, Buenos Aires, 1978)

70 G. Bruno, *Atlas of Emotion: Journeys in Art, Architecture, and Film*. Verso, New York. 2002. p56

71 Le Corbusier, *Vers Une Architecture*, Paris 1923 - (*Toward an Architecture*, English translated by John Goodman)



102 Fig. 69 - LC - Sketch 106, Sketch plans of the Propylaea, entrance gate to the Aropolis, Carnet 3, Voyage to the Orient, Sept 1911

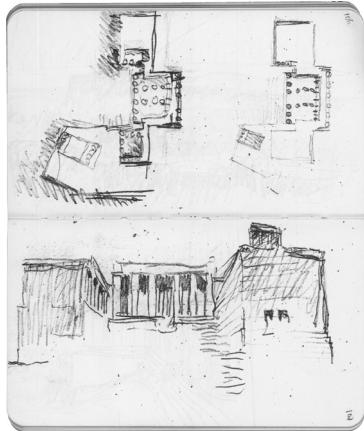


A - Introduction to the drawings and the reasons for their selection

These sketches portray the front of the entrance gate to the Acropolis, known as the Propylaea. (Fig.37,41)

Views from various angles show the spatial configuration of stairs, walls, temples and columns. Two sketch plans have also been drawn.

This group shows the development of Le Corbusier's understanding of the Propylaea and also demonstrates a deliberate decision to concentrate on the entrance and approach avoiding cross views through the Propylaea showing the threshold or the interior of the Acropolis. These sketches suggest a combination of experimentation and deliberately pre-formed ideas. They allow an understanding of how sketching may enhance the relationship between these two points.



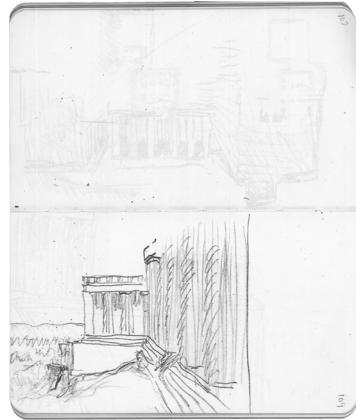
104



Fig. 70 - LC - Sketch 107, Frontal view of the Propylaea, Carnet 3, Voyage to the Orient, Sept 1911

In particular, this set of drawings raises the following questions:

- Why do some sketches show the Propylaea in isolation and others show the landscape context?
- Does the decision to draw facades rather than “through-views” show a deliberate intention to illustrate earlier ideas (possibly related to Choisy), or are they made up as he goes along? In other words, do these sketches illustrate preconceived ideas, or do they analyze the architecture in-situ to find its most important attributes?
- Consequently, is the primary purpose of these sketches to describe, or to work out ideas?



106



Fig. 71 - LC - Sketch 109, view of the Propylaea and Pinacotheca, Carnet 3, Voyage to the Orient, Sept 1911

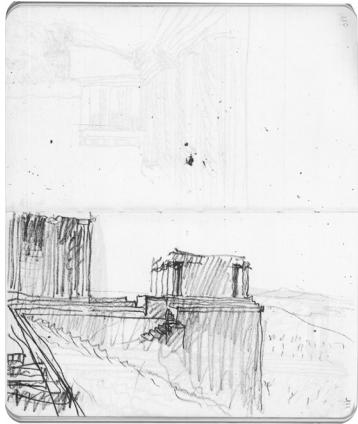
B - The drawings' effect

This set shows a variety of main interests. The frontal view in sketch 107 highlights the asymmetrical yet balanced relationship of architectural parts. The sketch plans on page 106 show the architect trying to work out proportions (although without measurements) and consider volume and mass. Sketches 109 and 111 show the upper wings of the Propylaea in relationship to the landscape below, while 113 focuses on the mass/void relationship between the porticoed facade and the temple of Athena Nike with particular attention to the tectonic arrangement of steps and plinths.

The first plan on page 106 shows the entrance building in terms of the rhythm of columns, while the second shows the building represented as a collection of masses and volumes defined by thick white walls and screens of columns.

In this group it is clearly the act of drawing (not just reflecting on the finished sketch) which assists both the refining of plan and proportions through trial and error, as well as the development of a 3-dimensional understanding, with the suggestion of masses and volumes. The primary interest shifts away from the dominance of the site overlooking the landscape below, to focus on the relationship of parts of the Acropolis entrance. The separation of the spaces outside the entrance threshold from those inside on the Acropolis plateau, is similar to that in the reconstructions of the Propylaea drawn by Choisy, and suggests the

significance of the role that preformed ideas may play in the process of drawing.⁷²



108

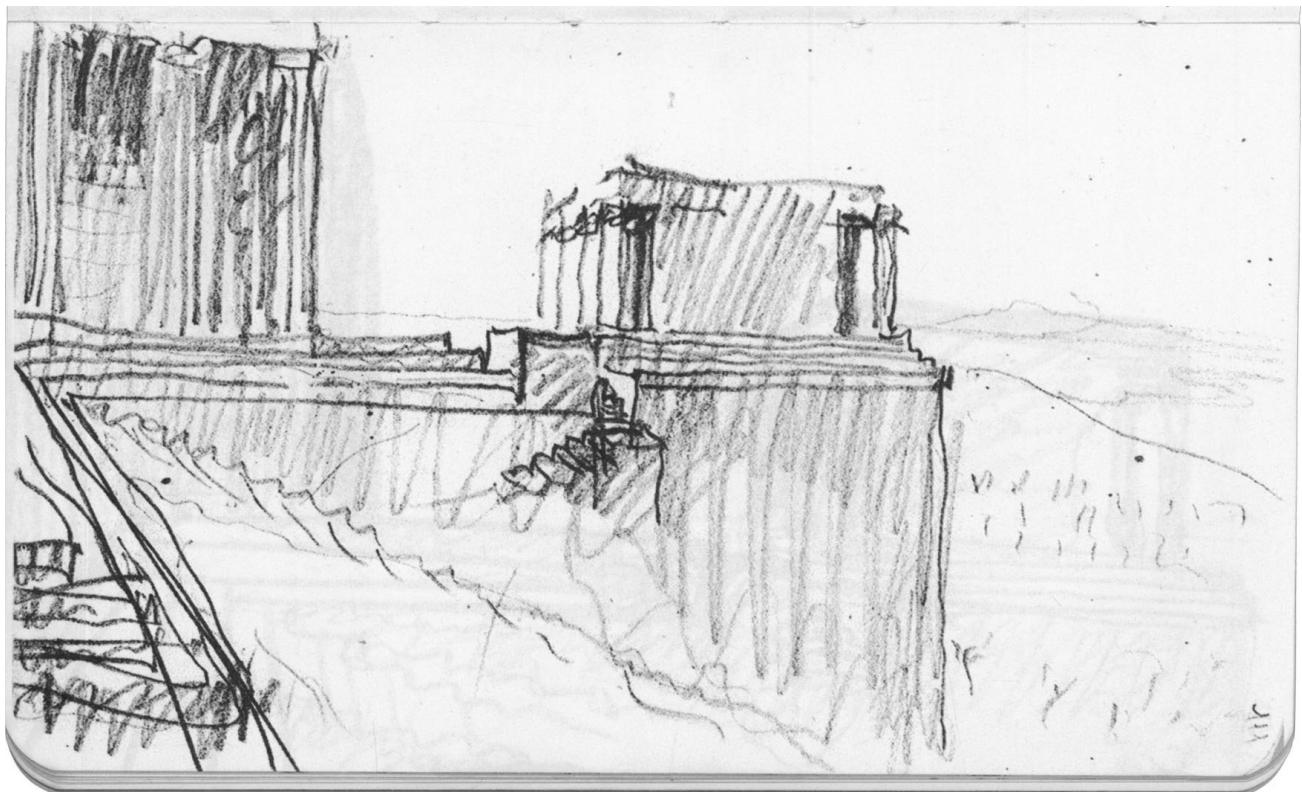
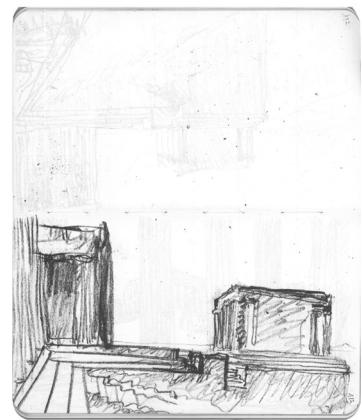


Fig. 72 - LC - Sketch 111, view of the Propylaea and temple of Athene Nike, Carnet 3, Voyage to the Orient, Sept 1911



109

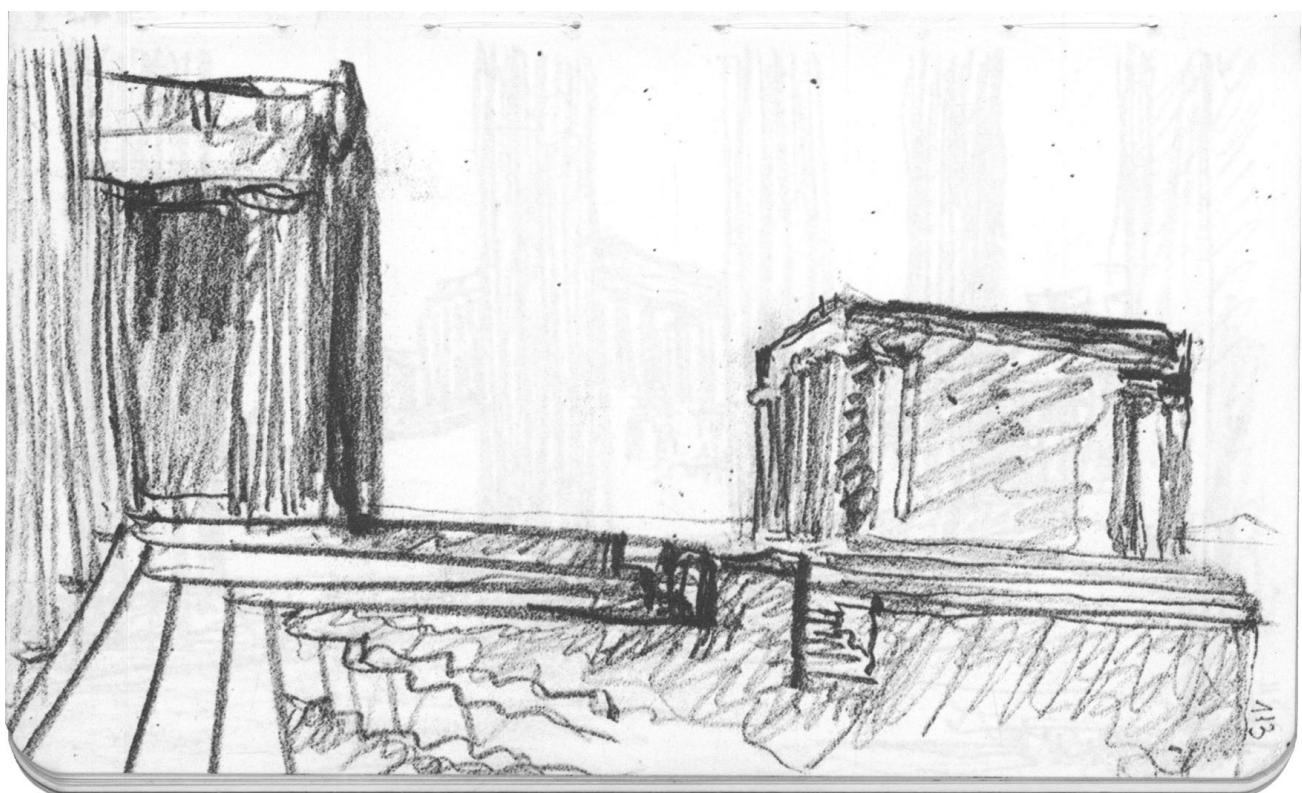


Fig. 73 – LC - Sketch 113, view of the Propylaea and Pinacotheca, Carnet 3, Voyage to the Orient, Sept 1911

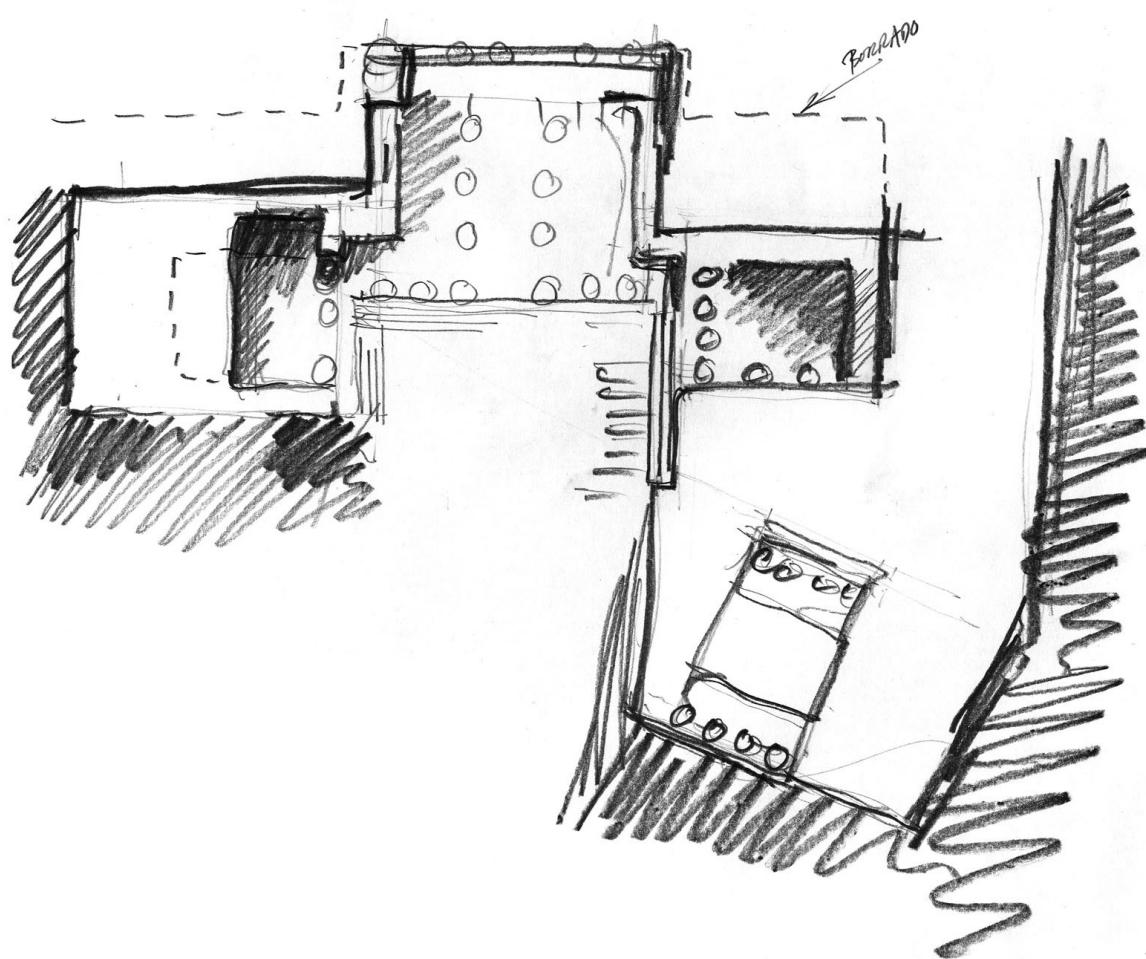
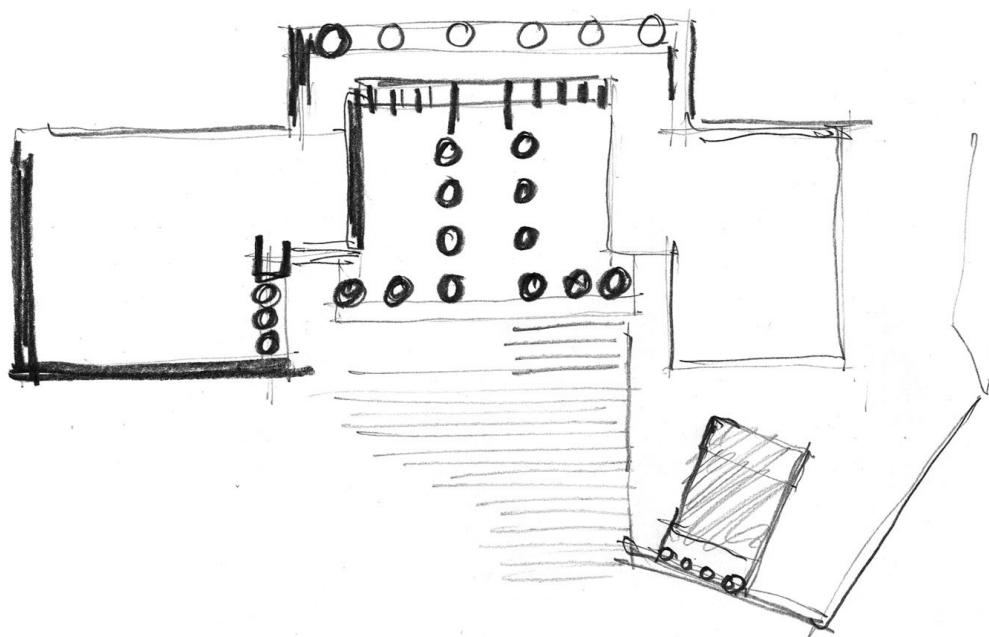


Fig. 74 – Tonal diagram of Sketch 106 - SH

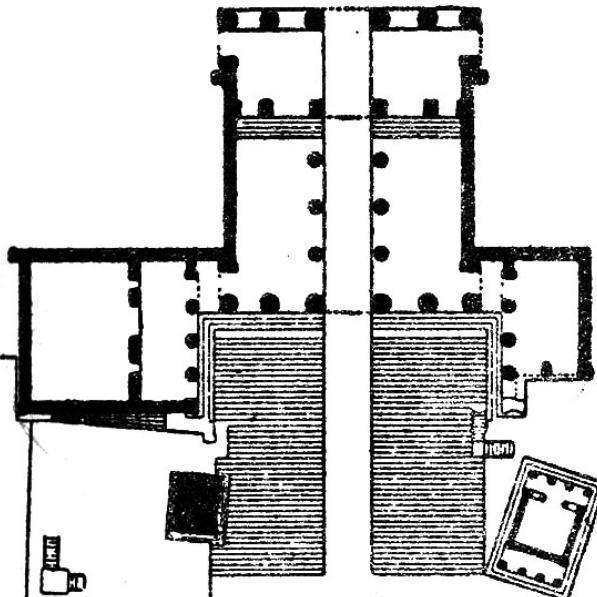


Fig. 75 – Plan of the Propylaea, from "History of Architecture", Auguste Choisy 1899

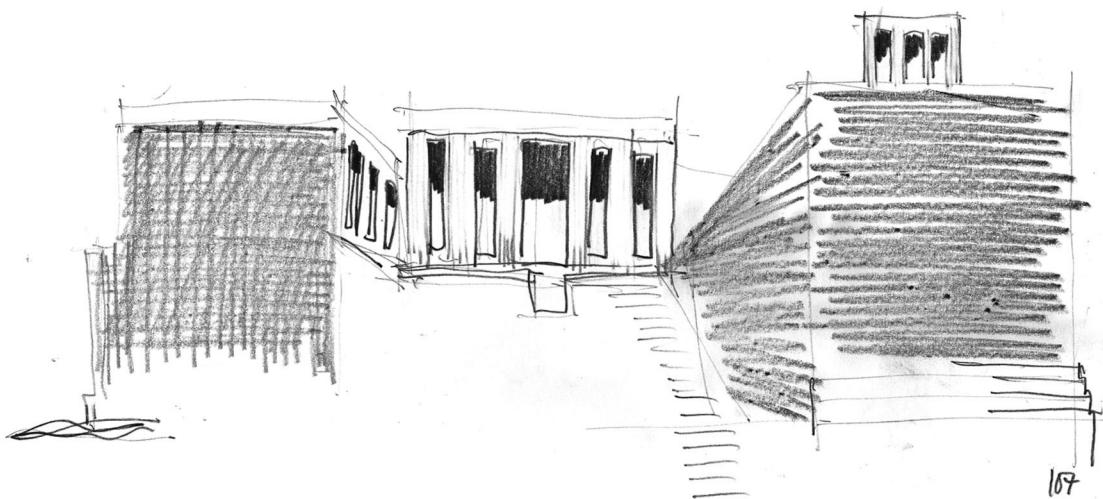
C - Analysis in detail

i - TONE:

Page 106 incorporates two plans of the entrance to the Acropolis showing the Propylaea, Temple of Athena Nike, Pinacoteca, and entrance steps. Both plans refer to the same level, although the upper plan is unfinished. Presumably Le Corbusier moved on to the second plan in order to improve the plan's proportions. Although these are still inaccurate, faint lines show where Le Corbusier erased previous lines refining the depth of the Pinacoteca and Southern wing. These inaccuracies show that Le Corbusier was using these two sketches as a means of working out the proportions of the plan form in front of him without recourse to an existing plan. (Fig.74,75) (This does not appear to have been the case with the ink section drawn through the Propylaea which appears to copy very closely a section previously drawn by Choisy - see Group C, point 4).⁷³

The tonal emphasis between the lines of the first plan and the shading of the second also suggest that apart from refining the proportions of the plan form, these two plans show an important change in the idea of the buildings. While the top plan looks more closely at columns and their alignment and rhythm, the second emphasizes the massiveness and sculpted quality of internal spaces and external fortifications by means of shading, and making

the outlines of the walls darker but leaving the thickness of the walls white. This second plan represents the Propylaea as a collection of masses and volumes defined by thick white walls and screens of columns. (Fig.74)



112 Fig. 76 – Tonal diagram of Sketch 107 - SH

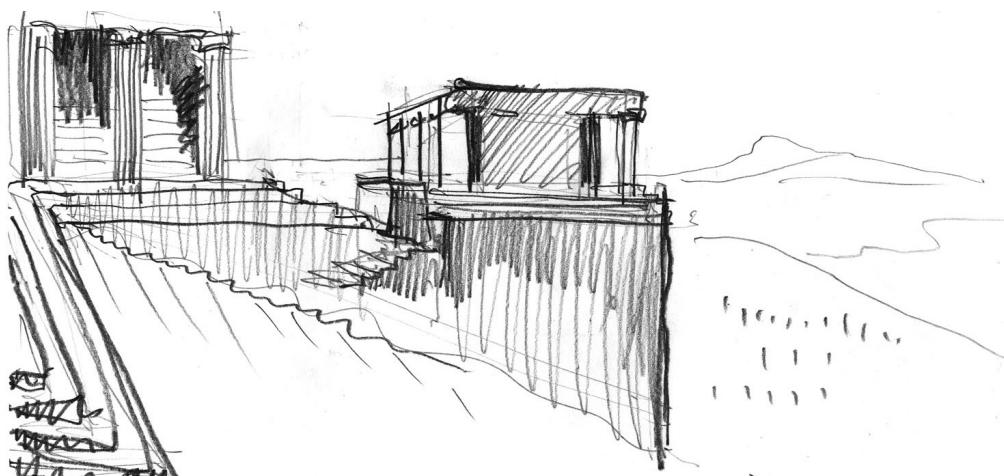


Fig. 77 – Tonal diagram of Sketch 111 - SH

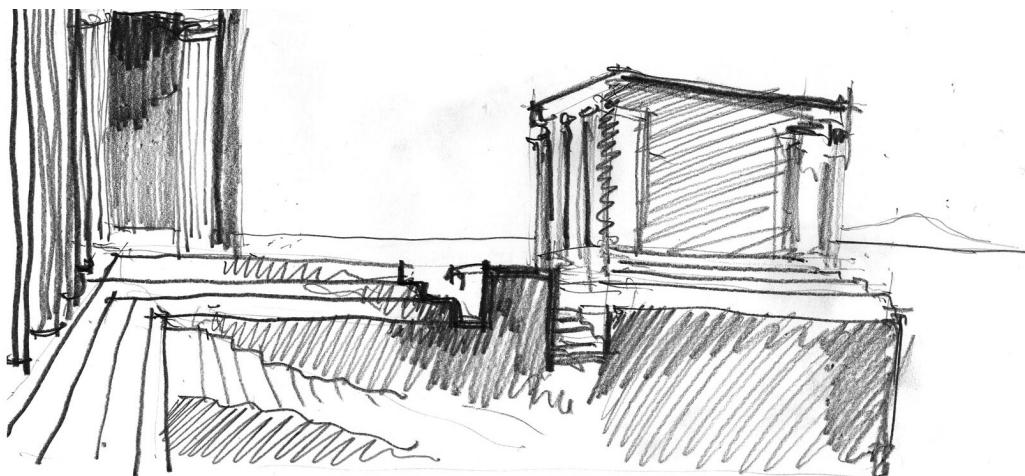


Fig. 78 – Tonal diagram of Sketch 113 - SH

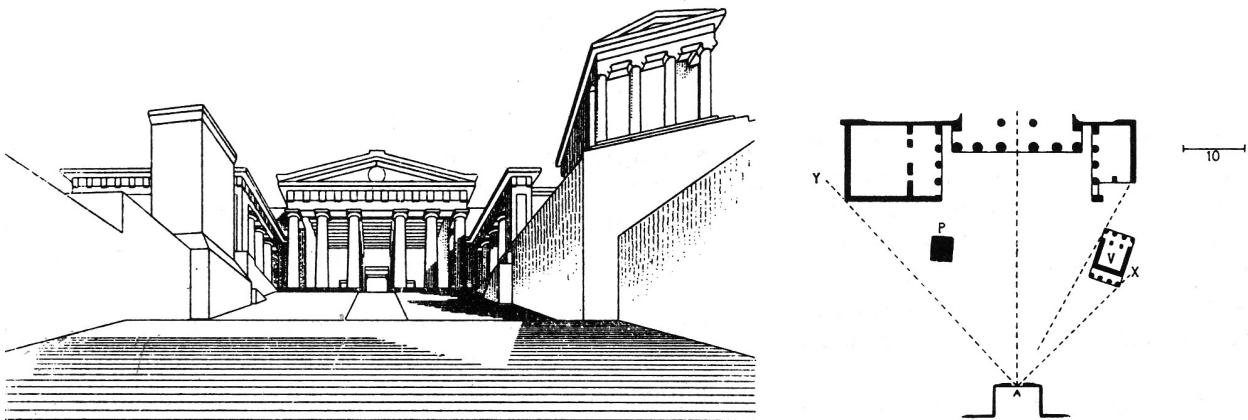


Fig. 79 – Reconstruction of the Propylaea, from "History of Architecture", Auguste Choisy 1899

113

The wing-walls in sketch 107 are roughly hatched in a mid tone, while the recesses behind the central colonnade are shaded heavily to pick out columns and show the depth of space beyond. Tone is used to explain volume and mass, rather than depict actual sunlight. (Fig. 91, 92) For example there is no shading on columns or pediment even though both would be in shadow. This sketch may have been done in the morning with the sun behind, or at least in the south to the right, nevertheless the main purpose of the drawing is to explain the relationship of solid and void. (Fig. 76)

Sketches 109, 111 and 113 show a similar limited depiction of shadows cast by the sun. Sketch 109 appears to show sunlight falling on Pinacoteca and apparently on the front edge of the Propylaea colonnade. Sketches 111 and 113 show Athena Nike and Acropolis walls in shade, but use hatching selectively to highlight certain areas, whilst leave the fluting on the columns clearly distinguishable as single lines. (Fig. 77, 78)

In sketch 113 the Propylaea steps (the stylobate which forms the base for the columns) are outlined more darkly and decisively than in sketch 111. The steps themselves are left unshaded making the stylobate plinth stand out against the darker columns. Sketch 113 also emphasizes the dark return wall on the southern wing and the dark roof line of the temple of Athena Nike. Equally, Le Corbusier has gone back over the small central steps with much heavier lines highlighting corners and profiles, probably to correct earlier lines.

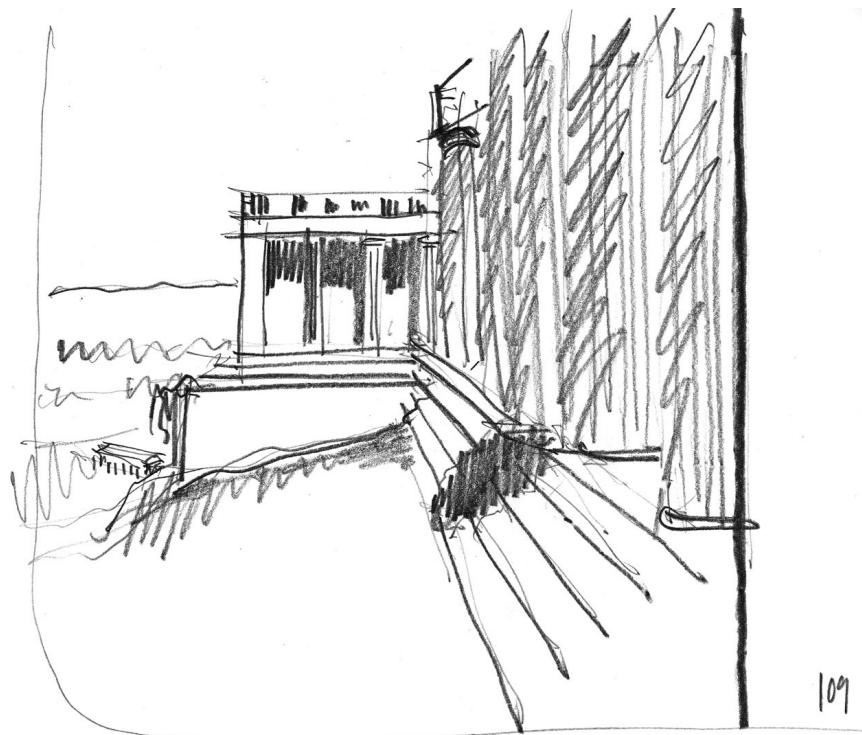


Fig. 80 – Composition diagram of Sketch 109 - SH

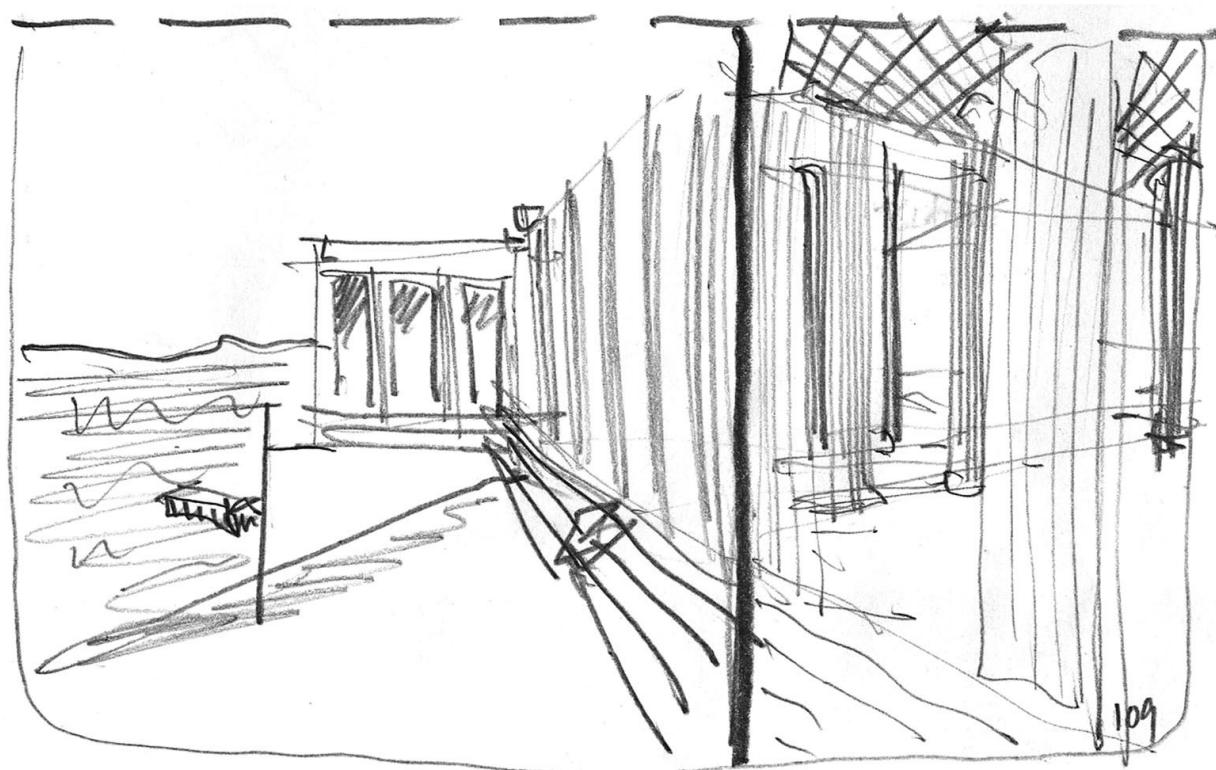


Fig. 81 – Alternative Composition diagram of Sketch 109 - SH

ii - COMPOSITION:

Sketch 107 shows a frontal view of the Propylaea as seen from the present (in 1911) entrance gate lower down the hillside. Unlike earlier drawings, the horizon line or any reference to background mountains or skylines has been left out. The sketch itself occupies the uppermost part of the page, leaving the lower part white, connected only by the lowest steps. Even without a horizon reference line, this placement on the page serves to emphasize the dominant elevated position of the fortified entrance.

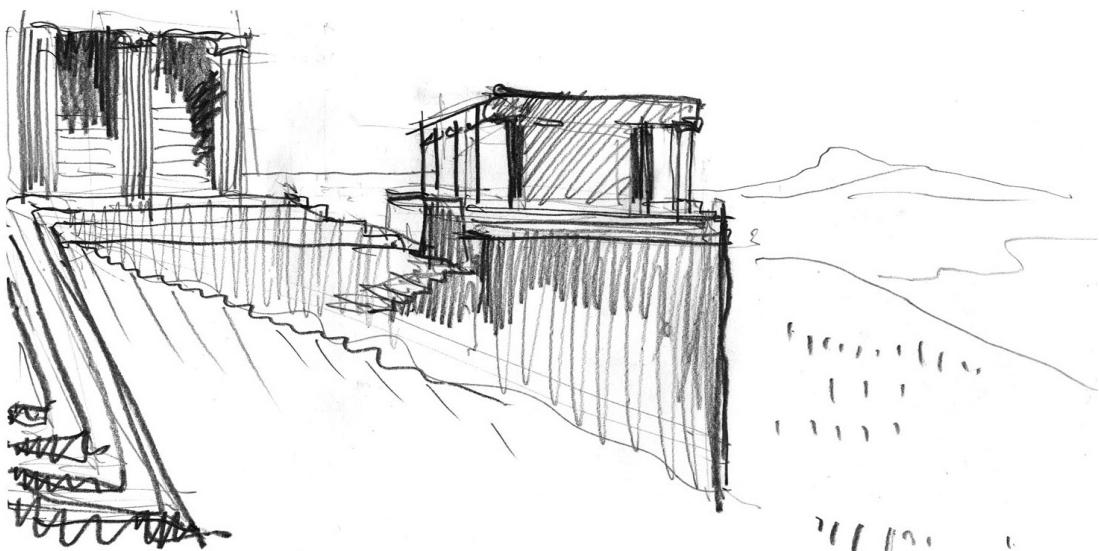
Sketches 109, 111 + 113 show views from the top of the Propylaea steps facing towards the wings of the entrance walls in either direction. These might be seen as a sketch sequence to describe the entire entrance ensemble panning from right to left facing outwards.

However the compositions of these three drawings seem haphazard, or at least not decided on until well into each sketch. The Pinacoteca in sketch 109 occupies only the left half of the page, with a heavy vertical line in the middle of the page framing the drawing. (Fig.80) Sketch 111 shows the southern wing of the Propylaea and temple of Athena Nike against the backdrop of the Athenian plain, distant hills and sea, but just misses out the entrance colonnade of the Propylaea, and awkwardly suggests the main steps. Sketch 113 very nearly repeats the angle of 111, but fills the page at a larger scale incorporating the entrance columns but missing out the landscape

setting.

The composition of sketch 109 presumably started off intending to fill the page from the left, therefore only hinting at the landscape beyond (showing the distant mountain ridge and Temple of Hephaestus, but excluding the city sprawl). The main emphasis lies on the relationship of architectural parts; columns to steps, and the oblique view of the entrance portico framed by the perpendicular Pinacoteca colonnade.

Had the sketch continued to the right filling the page, the perspective would have shown the intermediate covered space of the Propylaea, and a glimpse of the open Plateau of the Acropolis beyond. (Fig.81) As the vertical framing line emphatically stops the sketch at the line of facade columns, it would seem Le Corbusier deliberately avoided showing the internal space of the Propylaea and any sense of transparency through to the plateau beyond.



116

Fig. 82 – Composition diagram of Sketch 111 - SH

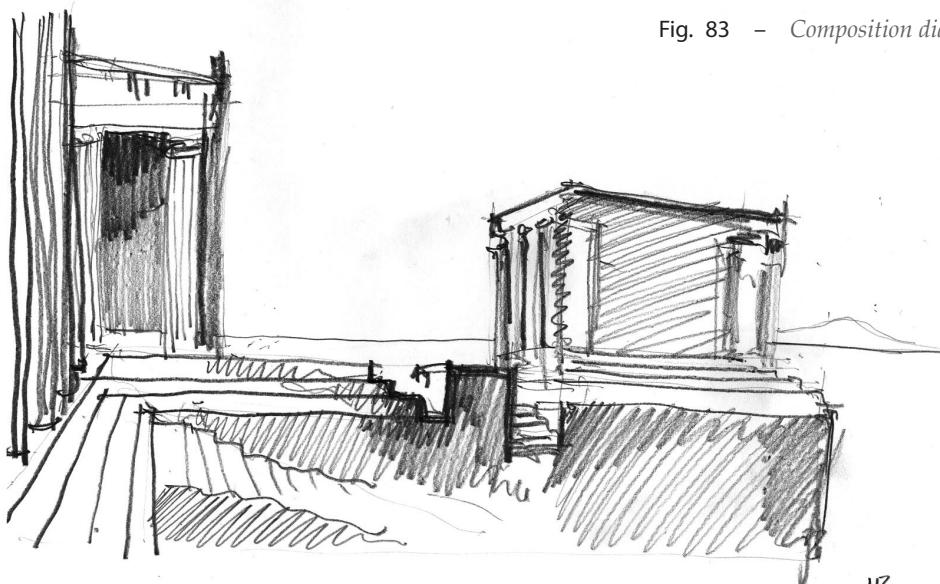


Fig. 83 – Composition diagram of Sketch 113 - SH

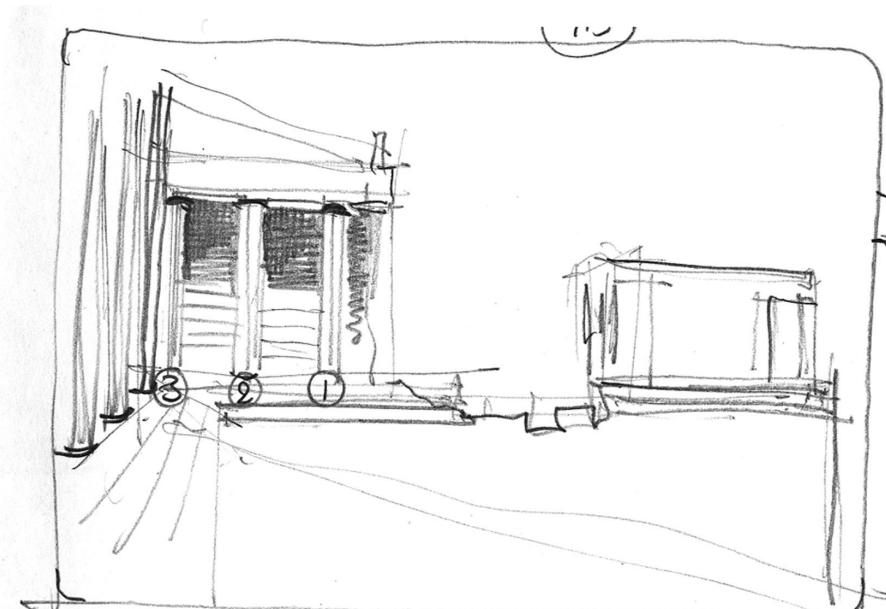


Fig. 84 – Corrected composition diagram of Sketch 113 to show actual viewpoint - SH

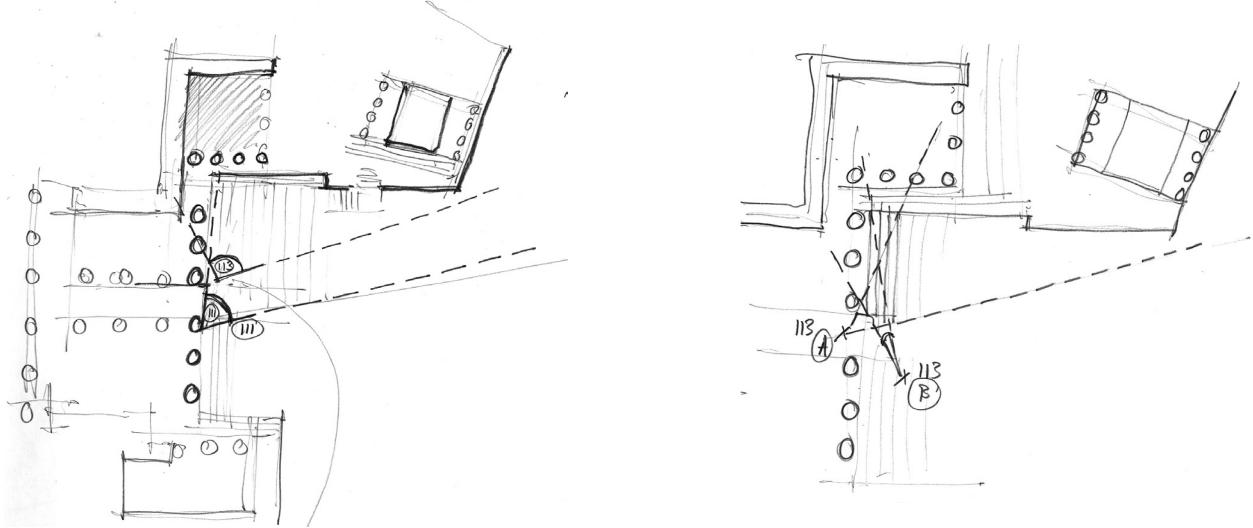


Fig. 85 – Viewpoint plans for sketches 111 and 113 - SH

117

Sketch 111 places the central visual focus on the temple of Athena Nike, standing separately at a different angle on the top of the walls facing out over the landscape. The composition shows the scale of the small temple in relation to the height of the wall, the height of the Propylaea southern wing, and the steepness of the approach steps. (Fig.82)

Sketch 113 reduces the landscape elements further to a simple horizon line and one distant hill top. (Fig.83) But rather than simply redrawing the previous sketch to incorporate the entrance columns and make an equivalent view to 109, here the scale of the buildings is significantly increased, with the horizon line much lower down the page than 111.

However on closer inspection, the line of entrance columns has actually been contrived, moving across so as to fit on the page but overlapping the far wing of the Propylaea which now has only one bay instead of the two visible in sketch 111 (and according to the sketch's primary viewpoint on plan). Therefore it would seem that Le Corbusier did not start off intending to make a sequence of three sketches panning round from NW to S, but to describe the buildings in a different way in each drawing. (Fig.84,85)

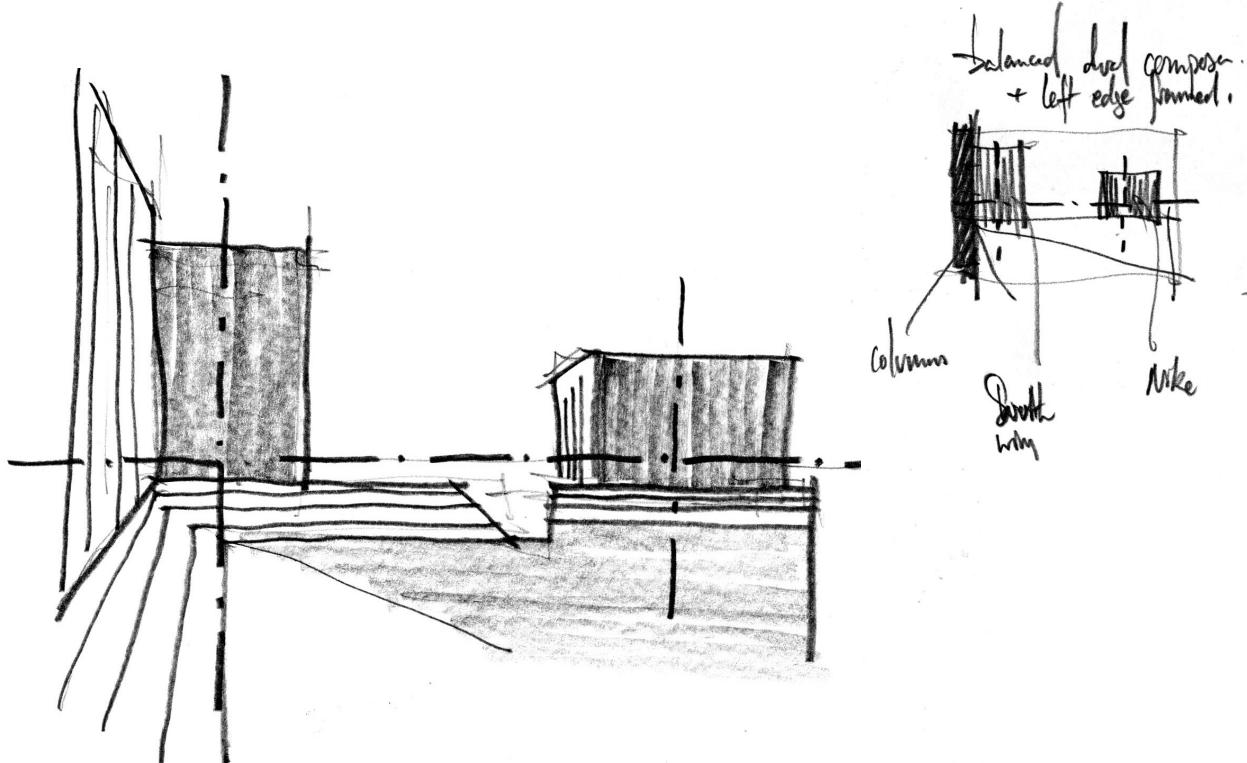


Fig. 86 – Architectural concept diagram of sketch 113 - SH

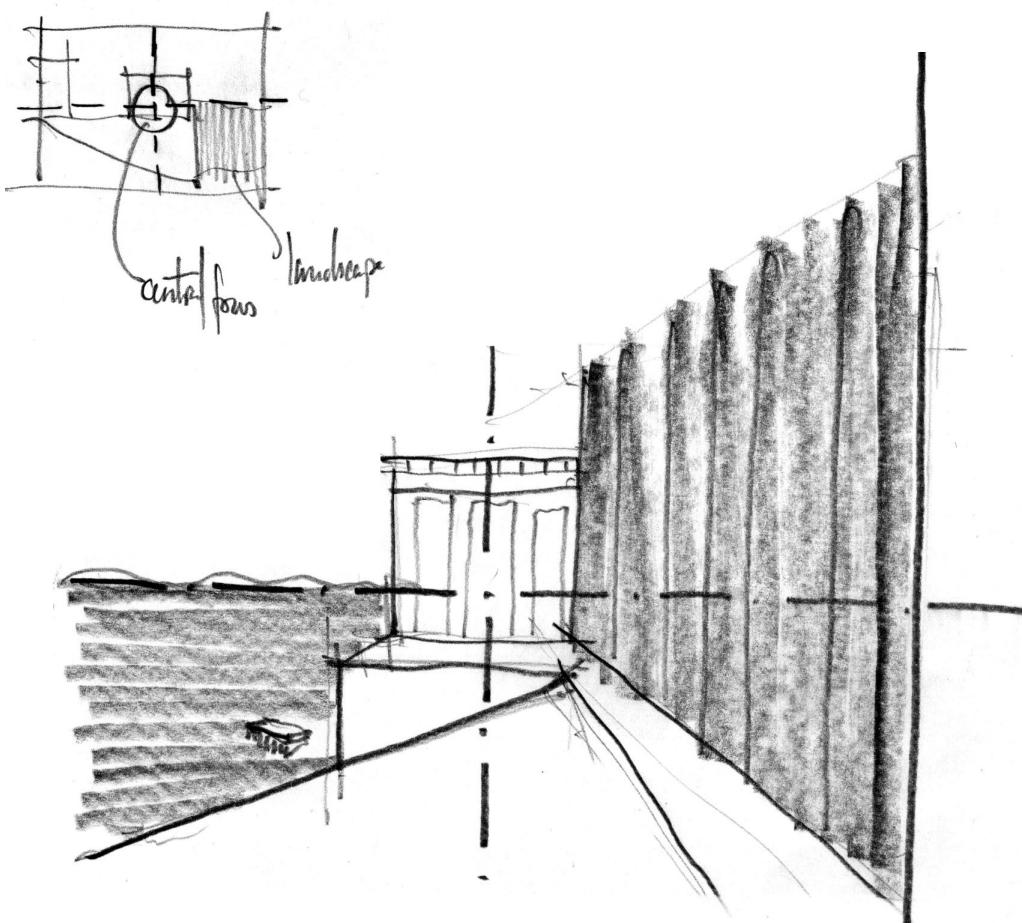


Fig. 87 – Architectural concept diagram of sketch 109 - SH

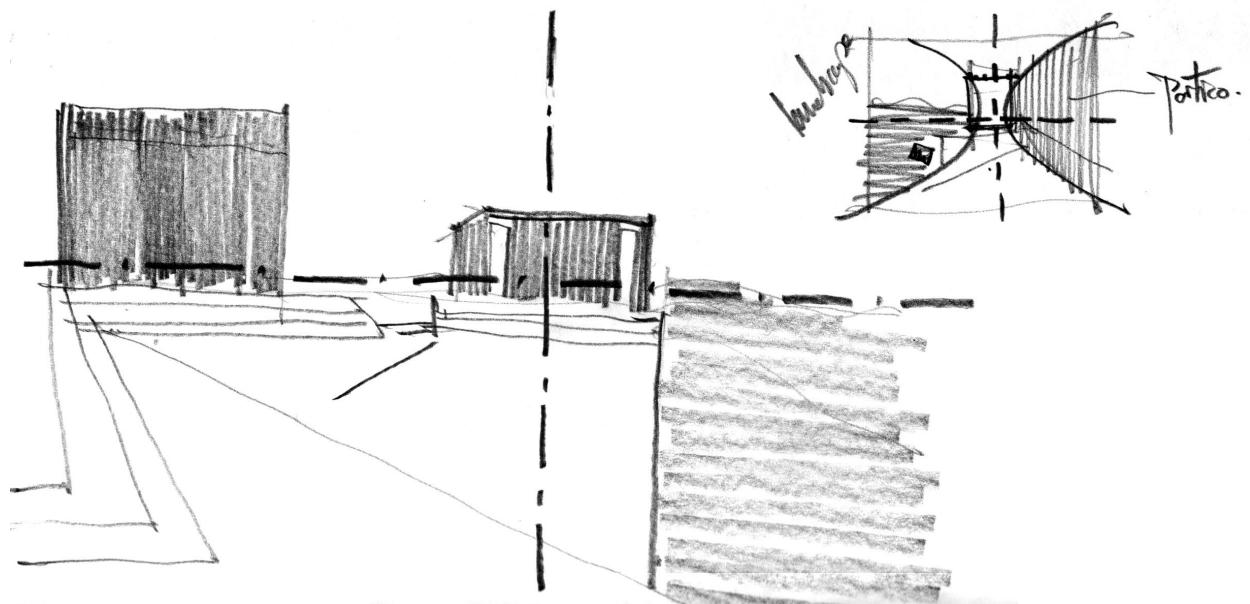


Fig. 88 – Architectural concept diagram of sketch 111 - SH

119

D - Further thoughts

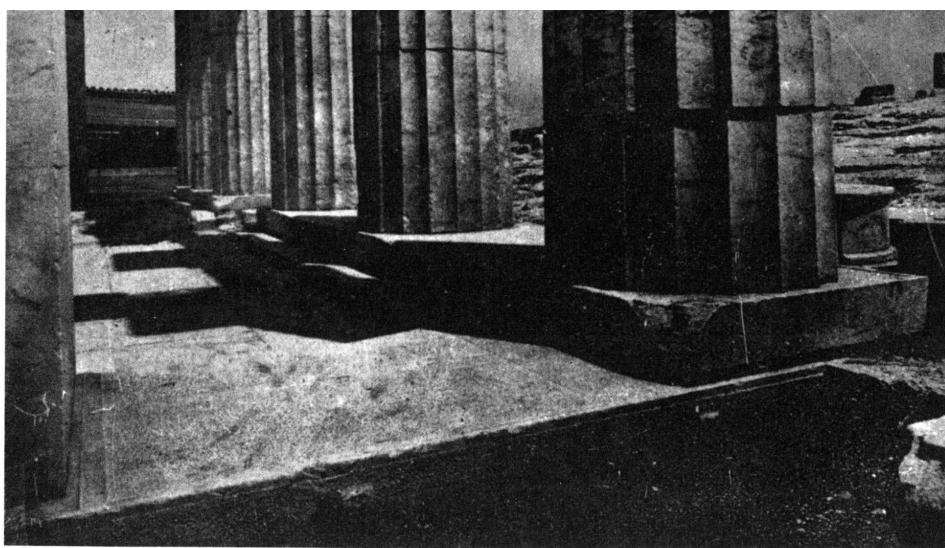
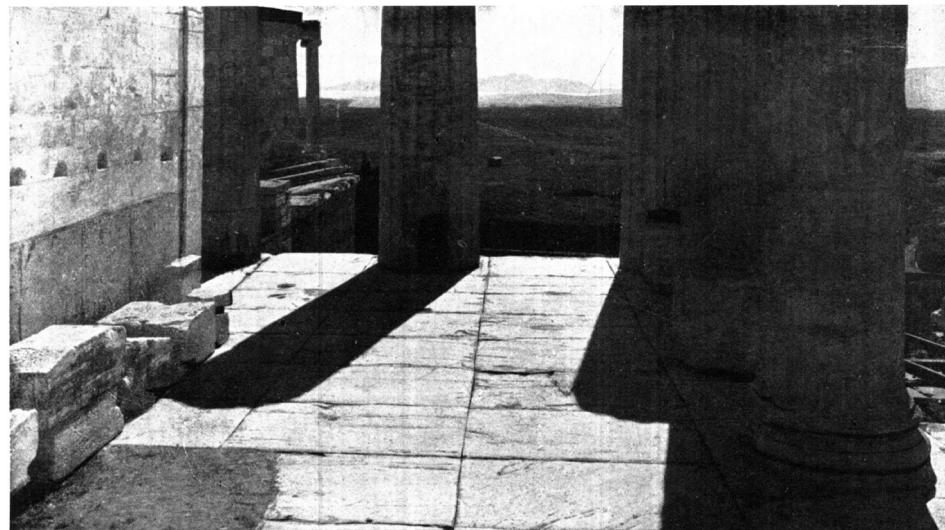
In this group of drawings there is nothing to stress the transparency of the Propylaea or the entrance path through the middle. (Fig. 90) In fact the sketch plans on page 106 show the route through blocked by dark lines (which do not correspond to anything drawn in sketch 115). Neither is the gap in the approach steps clearly shown.

VIAEA. — The emotion comes from a unity of intention. From an unbending determination that dressed the marble with a will to the purest, the clearest, the most economical. They sacrificed and stripped away until the moment when it was imperative to remove even more, to leave only those concise and violent things, sounding clear and tragic like truncheons.



120

PROPYLAEA. — Where does the emotion come from? From a certain relationship between categorical elements: cylinders, polished floor, polished walls. From an accord with the things of the site. From a plastic system whose effects encompass every element of the composition. From a unity of idea extending from unity of materials to unity of contour modulation.



Inner porch of the Propylaea. The plastic system declares itself in unity.

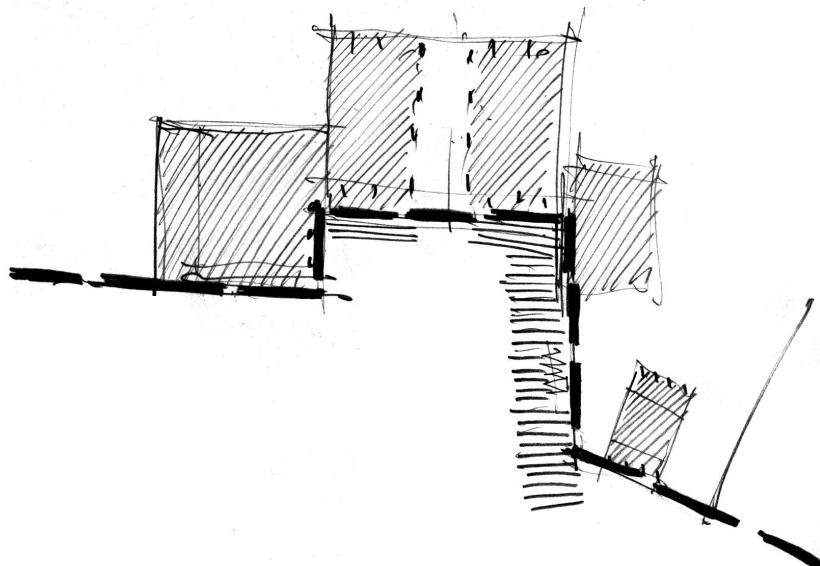


Fig. 90 – *Architectural concept diagram of sketch 109 - SH*

121

This is in contrast to the photographs Le Corbusier later chose to illustrate *Vers une architecture*. Of the three images of the Propylaea, all show views from between the columns facing either the distant horizon, or other parts of the Acropolis. (Fig.89)

This may suggest, that Le Corbusier attached far greater importance to Choisy's "promenade architecturale" in 1923 when he was assembling his *Vers une Architecture*, than 12 years before when drawing the Propylaea.⁷⁴

74 A. Choisy Op.Cit
Le Corbusier Op.Cit 1923

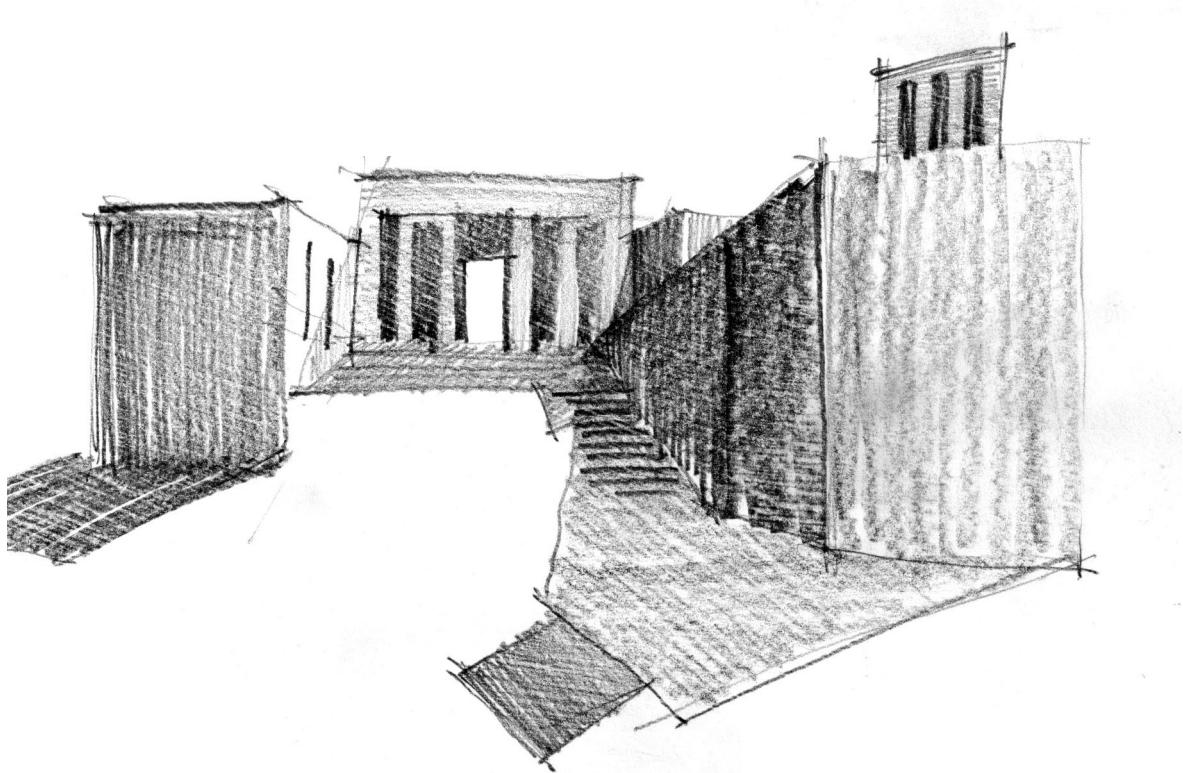


Fig. 91 – Corrected sunlight/shade diagram for sketch 107 - SH

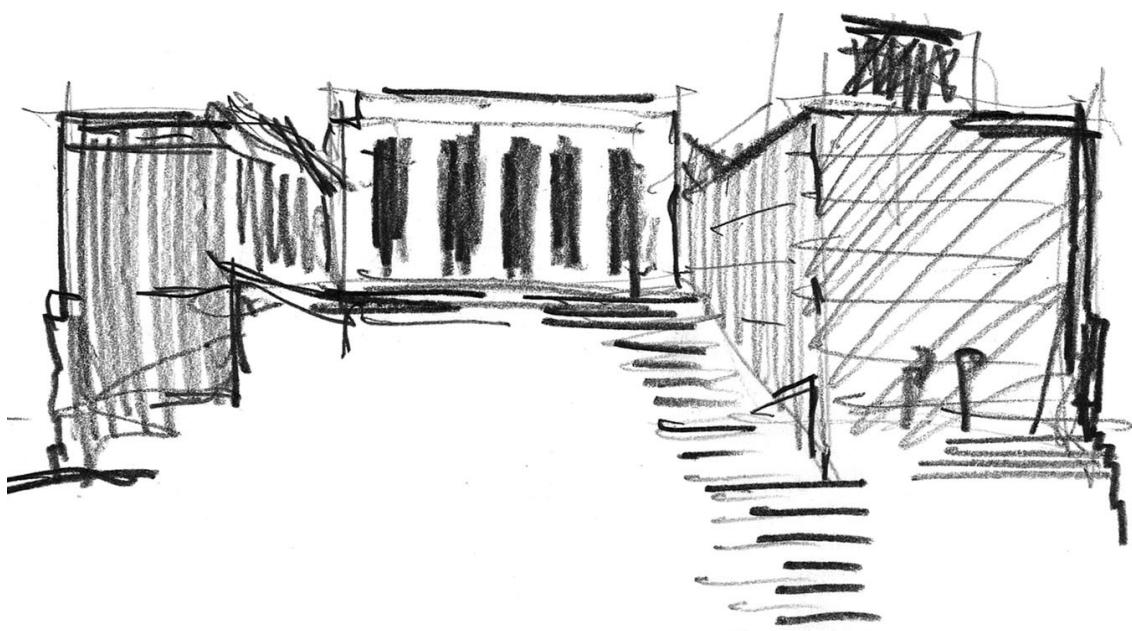


Fig. 92 – Sunlight/shade as illustrated in sketch 107 - SH

E - Conclusions:

i - A SUMMARY OF OBSERVATIONS

To summarize, in this group certain drawings show experimentation during the course of the sketch, literally as working jottings. The differences between the upper and lower sketch plans on page 106 show a conceptual development from the proportional rhythm of columns to describing the 3-dimensional volume and mass of the building, as well as improving the spatial proportions through trial and error.

The facade view of the Propylaea in sketch 107 is drawn from an obvious and practical spot - the modern day entrance with the visitor's first unobstructed close-up view - but is also reminiscent of the drawings by Choisy which Le Corbusier was already familiar with.

In others there appears to be a certain amount of indecision in the compositions between on the one hand, experimenting to find the architectural essence during the course of the sketch, and on the other, stressing a pre-meditated architectural idea. Sketches 109 and 111 again show the dominant setting of the Propylaea overlooking the Athenian landscape, but 109 deliberately avoids showing the interior of the Propylaea, while 111 focuses on the small temple of Athena Nike but misses the Propylaea columns off the left of the page.

The scale of sketch 113 is increased from the scale of the previous two drawings, showing the balance of masses on either side of the page and the precise stepped bases of each. Nevertheless the column facade of the

Propylaea is considered more important than the proportion of the southern wing, allowing the composition to be contrived from 2 different viewpoints.

One of the principle factors throughout these sketches is the conception of the Propylaea as an entrance gate and a territorial limit. The sense of moving viewpoints evident in later sketches, and the plans of Choisy, is not yet apparent. Instead the buildings are drawn as if they were a theatrical backdrop, standing out against the sky and horizon, but not showing spatial depth and transparency through to the spaces beyond.

Kenneth Frampton writes that "Le Corbusier's sketches invariably carry data and dimensions" stressing the importance of annotations on the drawings, Le Corbusier seems to have developed this more deliberately analytical method later on his travels, as may be seen in his sketches of Pompeii and Hadrian's Villa.⁷⁵ These drawings of the Acropolis rarely show measurements or dimensions.

They do however show a careful interest in proportions, although this is often manipulated as sketch 113 shows. Le Corbusier regularly modified his perspective drawings in later projects to better convey his intentions, as in the house for Artisans where internal corners and edges are carefully omitted to avoid the box-like sensation of space and trick the viewer into a surprising feeling of spaciousness despite the compact volume of the building (7 x 7 x 4.75m).

⁷⁵ Kenneth Frampton, email, 29th of June 2011.

ii - CONCLUSIONS AS TO THE PURPOSE OF THESE DRAWINGS

The sketch plans have been made as exercises in order to learn and understand about the Propylaea. Their purpose lies in the act of drawing, involving trial and error and providing a means of working out, visualizing and understanding the spatial and proportional relationships between parts.

The frontal facade view recalls the graphic reconstruction made by Choisy, although by no means a copy, the choice of viewpoint and composition shows that any travel sketch of a famous view is bound to be made with precedents in mind. Tim Benton states that Aalto has seen nearly all of Le Corbusier's travel sketches before he went to Greece,⁷⁶ while Kahn deliberately chose the viewpoints of other architects' sketches. And according to Sarah Ksiazek, "Kahn sometimes drew from other people's representations of a site in devising his own compositions".⁷⁷

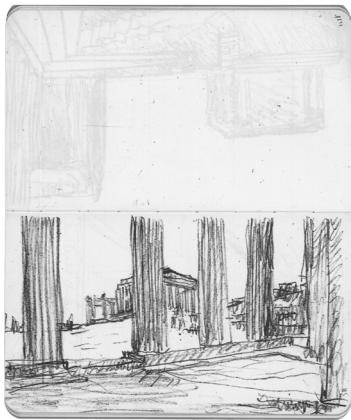
The compositional variations and hesitations in the remaining sketches suggest that the primary concerns behind each drawing evolved with each new sketch, much like in the earlier landscape drawings. Following a process of experimental drawing, followed by post criticism, followed by refinement in the next drawing.

However, both the contrived compositions and the abstract treatment of daylight show that in these interpretations of the Propylaea (sketches 107, 109, 111, 113), the architectural concept takes precedence over a correct naturalistic depiction of the buildings.

Therefore these drawings would have been most useful as a memory aid to recall the essence of the Propylaea for later use. In other words to record the pre-meditated architectural concept rather than attempting an objective sketch to accurately analyze and investigate the fundamental themes in the building.

76 Tim Benton, conversation, ETSAValencia, 10th of March 2011

77 Ksiazek, S. Op.Cit



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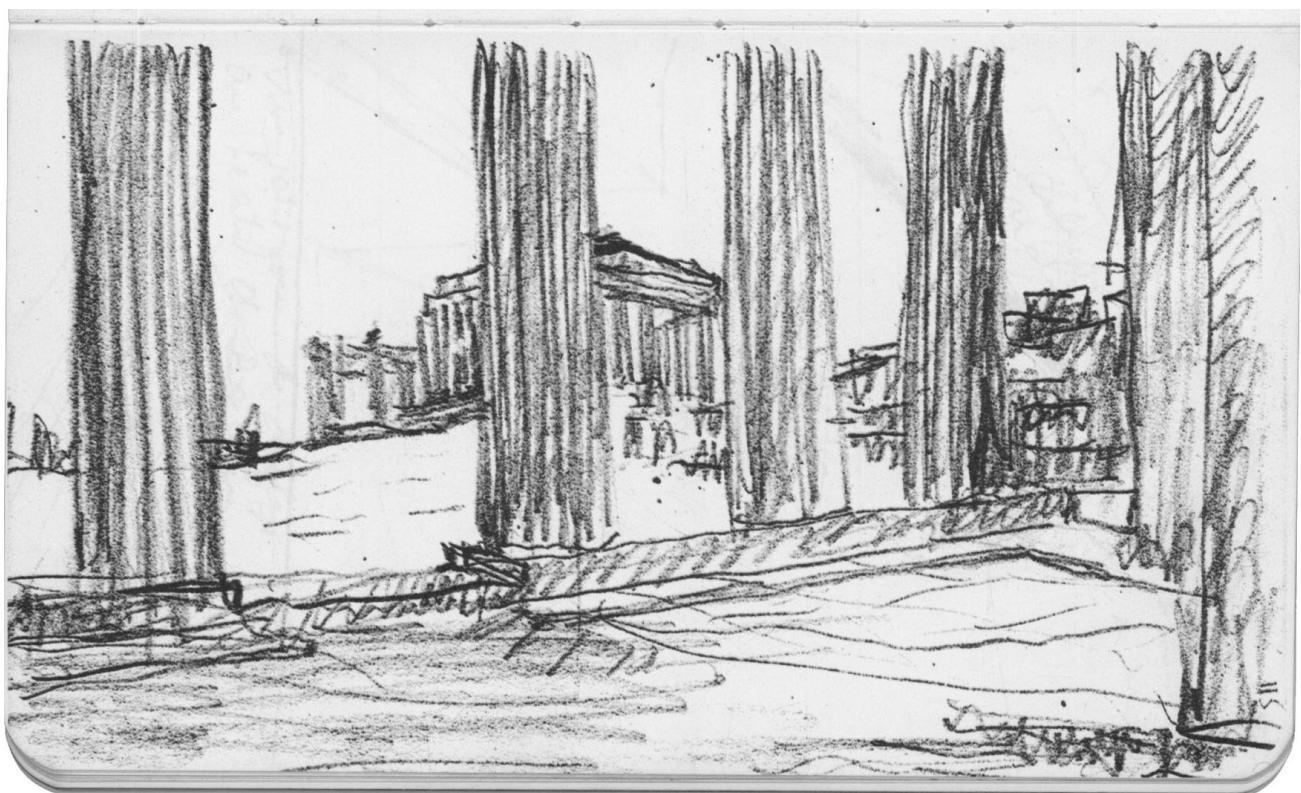


Fig. 93 – LC - Sketch 115, view from the Propylaea East to the Parthenon, Carnet 3, Voyage to the Orient, Sept 1911

3.IV On the Acropolis

CARNET SKETCHES 115, 125 & 127, & 4 WATERCOLOURS OF THE PARTHENON

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A - Introduction to the drawings and the reasons for their selection

Three further sketches in Carnet 3 show various parts of the rock plateau at the top of the Acropolis and the main remaining buildings. (Fig.37,41) Sketch 115 takes a view from the inner part of the Propylaea looking towards the Parthenon, 125 faces back towards the rear of the Propylaea from higher up the slope, and 127 shows an unfinished view of the lower northern portico of the Erechtheion facing north east towards Mount Licabeto in the distance which has been vigorously scribbled out. Le Corbusier also made several watercolours of the columns around the Parthenon on separate sheets of paper. Three plan and section drawings in black ink show the Parthenon, the Propylaea and the Erechtheion, all drawn on separate undated sheets. (Fig.111,112,114) The pages of the carnet are much too thin to hold water-based pigments, so even if small, watercolours would still have to be drawn on a different weight of paper.



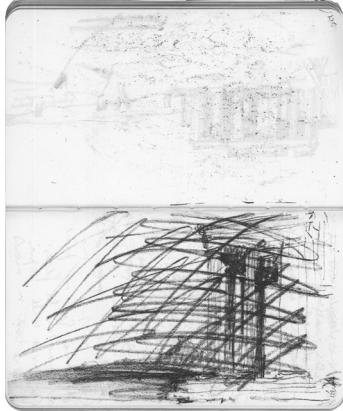
128



Fig. 94 - LC - Sketch 125, view of the Eastern facade of the Propylaea, Carnet 3, Voyage to the Orient, Sept 1911

This group of sketches raise the following questions:

- Why do these drawings suddenly show views through the Propylaea in contrast to the preceding sketches?
- Why are there no further sketches in the Carnet of the Parthenon which Le Corbusier apparently considered the principle building on the site?
- Why did LC only draw the external columns of the Parthenon facing outwards, and only in quick watercolours?
- Why is the drawing of the Erechtheion scribbled out?
- What relationship is there between the ink drawings and the carnet - do these tell us about Le Corbusier's prior knowledge?



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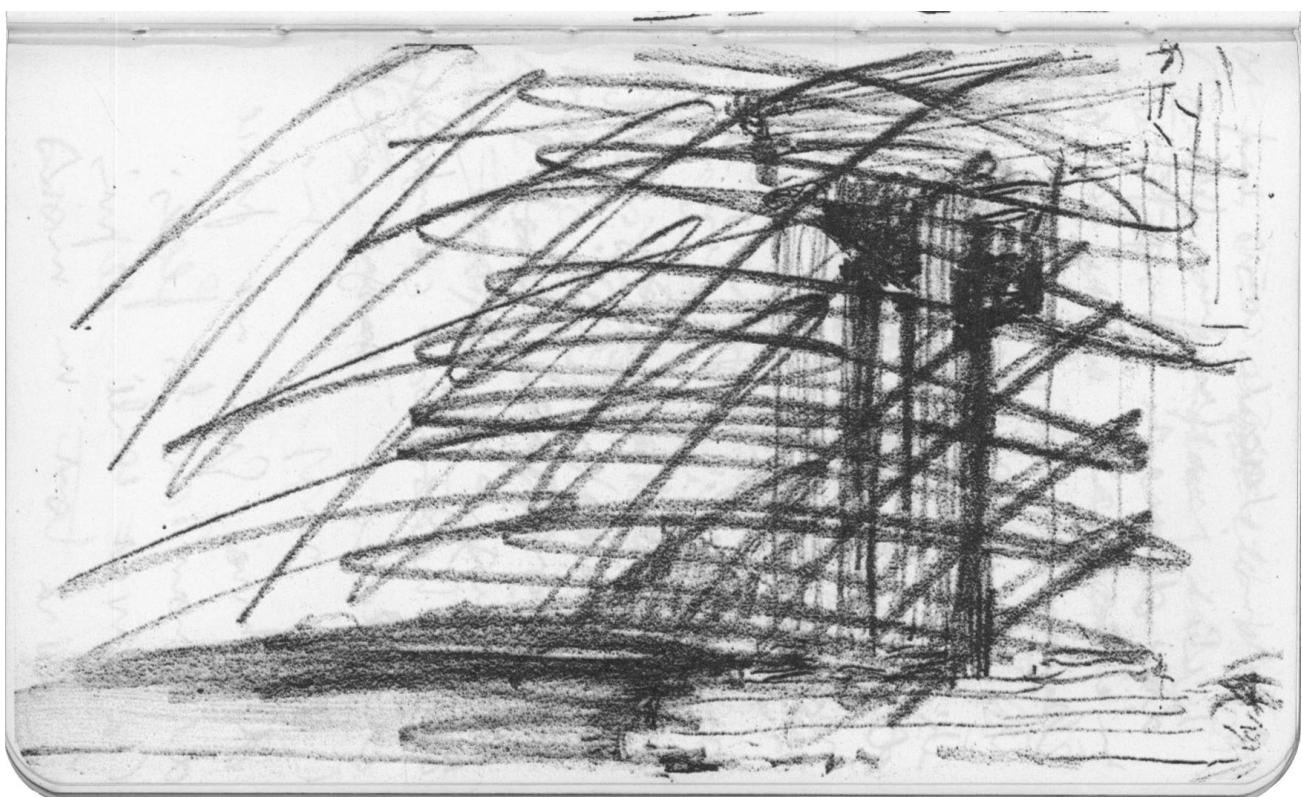
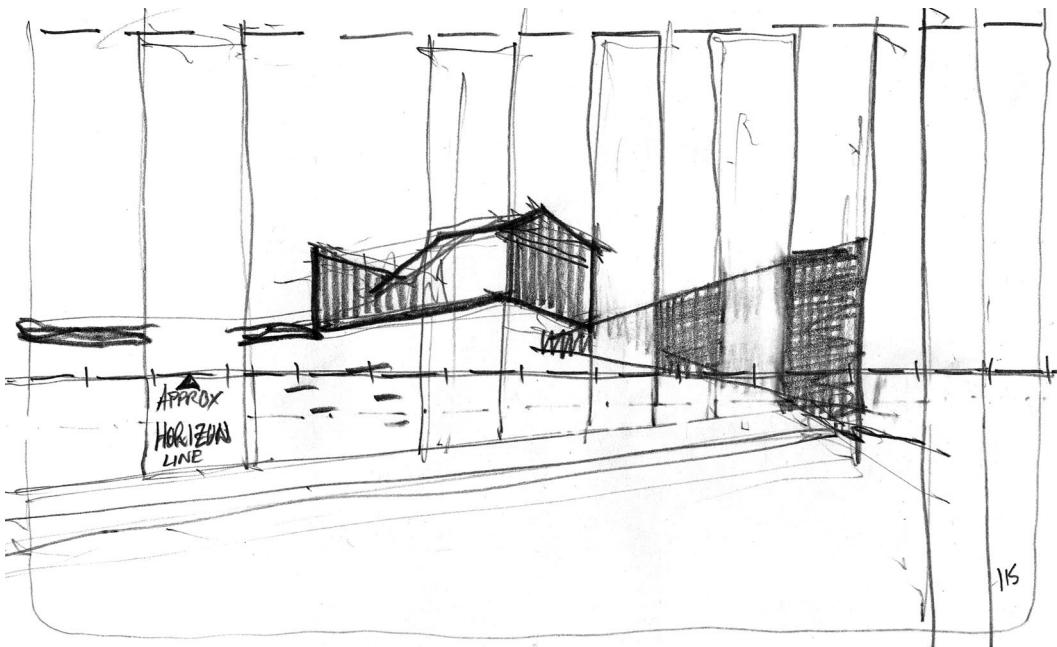


Fig. 95 – LC - Sketch 127, view of the northern porch of the Erechtheion, Carnet 3, Voyage to the Orient, Sept 1911

B - The drawings' effect

The focus of these drawings changes abruptly from the previous group to illustrate transparency and spatial sequences. This may reflect Choisy's ideas of the Acropolis being seen from a moving view point, which Le Corbusier would later refer to as the "promenade architectural". Sketch 115 shows a foreground interior space with the intermediate external plateau and the Parthenon making the central focal point in the distance. Sketch 125 shows a view from the Erechtheion back down towards and through the Propylaea with the distant horizon continuing behind it, still visible through the entrance way. The final watercolour sketches focus on the utterly basic elements - column, step and distance - all in related colours and repeated with very small variations as if for the sake of repeating the experience of drawing, rather than to improve the sketch.

The essence of these final drawings of the Acropolis may show the last stage of his ideas about it whilst in Athens. They demonstrate the final conclusions which the previous sketches had led him towards with the last drawings of the Parthenon, which would serve as the drawn conclusion to his visit.



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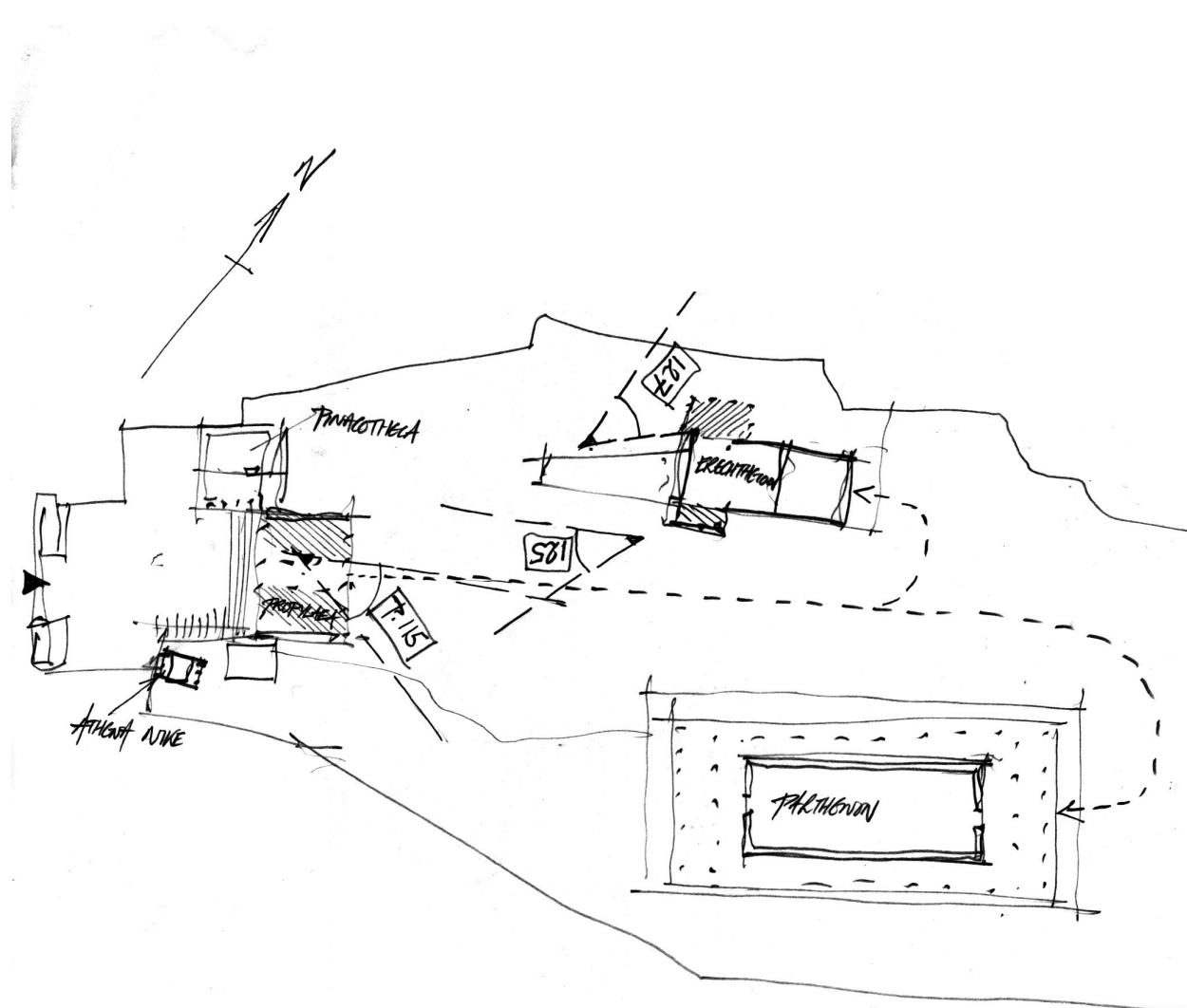


Fig. 97 – Viewpoints for sketches 115, 125 & 127 - SH

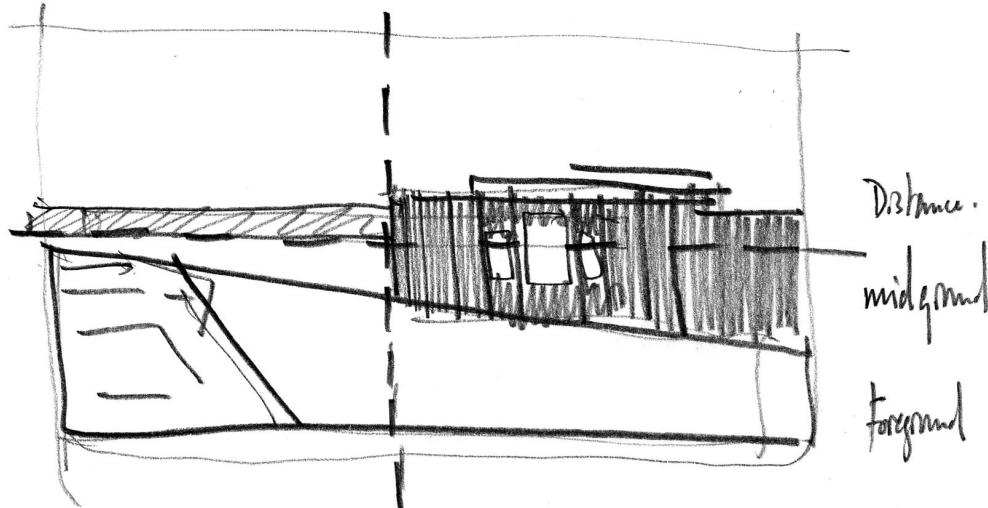


Fig. 98 – *Composition diagram of Sketch 125 - SH*

C - Analysis in detail

i - COMPOSITION:

Sketch 115 shows the view of the Parthenon on entering the Acropolis behind the rear screen of columns of the Propylaea. The composition of the sketch shows a sequence of spaces, from the semi-enclosed portico at the rear of the Propylaea to the sloping ground plane and its ruins culminating in the Parthenon set at an oblique angle high up on its stylobate. (Fig. 96) The view point is low emphasizing the slope uphill towards the Parthenon. This spatial sequence shows the transparency of the Propylaea and captures the moment of the visitor's first close up view of the Parthenon. The Parthenon is now the central focus of the drawing, and the viewpoint is carefully selected so that the foreground columns do not obscure either the main facade and pediment of the temple, or its receding northern facade of half collapsed columns.

Compositinally, the foreground is linked to the temple in the background by means of a triangular shaded swathe of ruins to the right. However these irregular stones have a far lesser presence in the later drawing facing back towards the Propylaea (sketch 125). (Fig. 98) This suggests their main role here is compositional, forming a substantial link (unlike the scattered stones to the left) between foreground and distance. In this way the focus of the sketch is directed towards the central Parthenon, whilst the colonnade becomes a

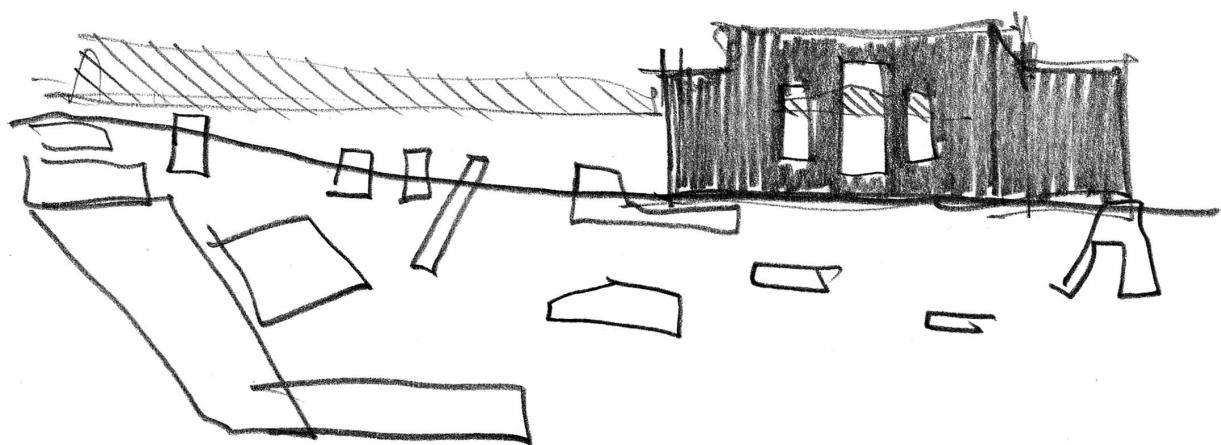
framing device to show the spatial depth.

As well as this, the composition of sketch 115 shows the importance of spatial transition; the uneven shaded area to the right frames the direction of the route into the Acropolis. The horizontal lines to the left suggest a pathway. The sketch describes the entrance path moving from the semi-enclosed entrance threshold, to the open hill-top plateau, past the side of the Parthenon to the (originally) semi-enclosed temple colonnade and its enclosed internal cella.

This idea of movement is in stark contrast to the previous static, frontal views of the buildings and walls flanking the approach stairs to the Propylaea. (Fig. 97)

Ideas developed in previous drawings regarding the Acropolis in relation to the landscape, reappear in a more deliberate manner in sketch 125. Here the landscape is reduced to a range of distant hills on the left of the page which continue behind the Propylaea but are clearly visible through the main entrance arcade, again stressing the openness of the Propylaea.

According to Ricardo Daza, Giuliano Gresler has suggested that the actual view of the city has been replaced by a fictitious view of the sea. In this case Le Corbusier must have become so convinced by the idea of the Acropolis seen against the distant horizon that he felt it reasonable to substantially falsify the



134 Fig. 99 – Tonal diagram of Sketch 125 - SH



Fig. 100 – Composition diagram of Sketch 127 - SH



Fig. 101 – Postcards of the Northern porch of the Erechtheion in 1911, Fondation Le Corbusier

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composition to fit his concept.⁷⁸

The sketch is also more boldly composed than earlier drawings with the middle ground occupied only on the left half of the page by the Propylaea. This has been emphasized with stark contrast between bright light on the columns, deep shade in the colonnade and glimpses of the bright horizon beyond. The foreground slope is shown by many heavily drawn stones and ruins strewn at irregular angles. (Fig.99)

Unlike the ineffective foreground device produced by the few abstract shapes at the bottom of sketch 98, in this drawing the irregular outlines and shadows are more numerous, well positioned and reduce in scale into the distance producing a far more readable depiction of the space between the focal point of the Propylaea and the viewer.

Beneath the crossing out lines on sketch 127, with care one can distinguish a tetrastyle porch on the front of a blank wall with a molding or entablature of some kind, which turns vertically downward to the right of the columns. (Fig.100) In the distance the shape of the hill closely resembles that of Mount Licabeto,

which, together with the uncommonly slender proportions of the columns and the scrolls of an ionic capital on the far left column show the view point to be facing Northeast towards the lower Northern porch of the Erechtheion. (Fig.101)

78 “El profesor Giuliano Gresleri ha sugerido que en este dibujo, Jeanneret ha reemplazado el panorama de Atenas por una inexistente vista del mar¹¹³. De ser así, es razonable que haya hecho esta modificación intencionada para enfatizar aun más la relación harto señalada entre el templo y su paisaje circundante, así como para recalcar el modo en que aquí el mar queda atrapado entre el Piero y la costa del Peloponeso.” Ricardo Daza, Op.Cit p.287

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Fig. 102 - *Tonal diagram of Sketch 115 - SH*

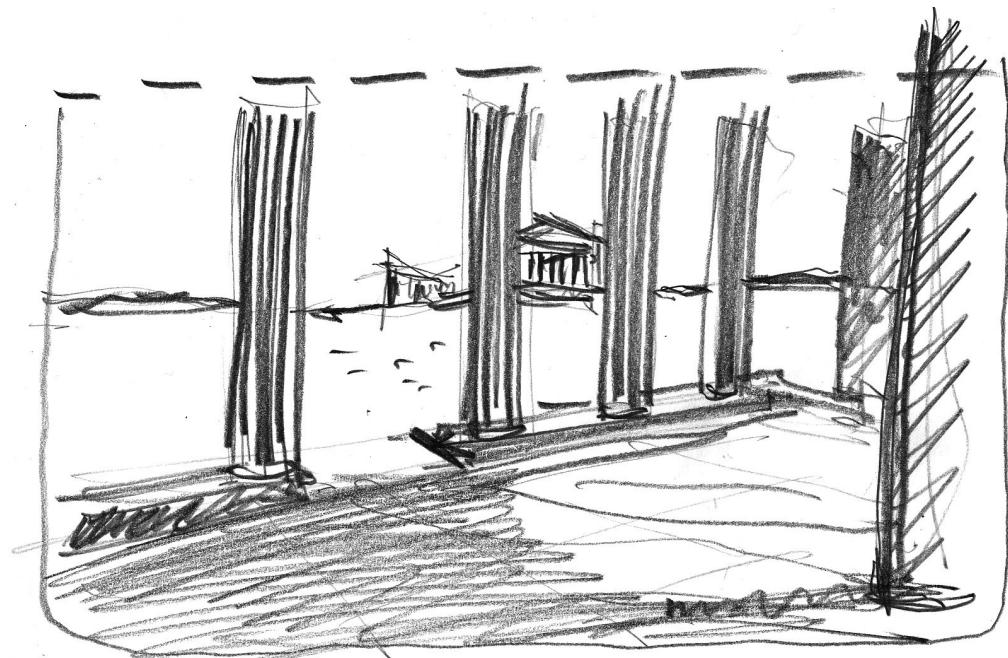


Fig. 103 - *ALTERNATIVE Tonal diagram of Sketch 115 - SH*

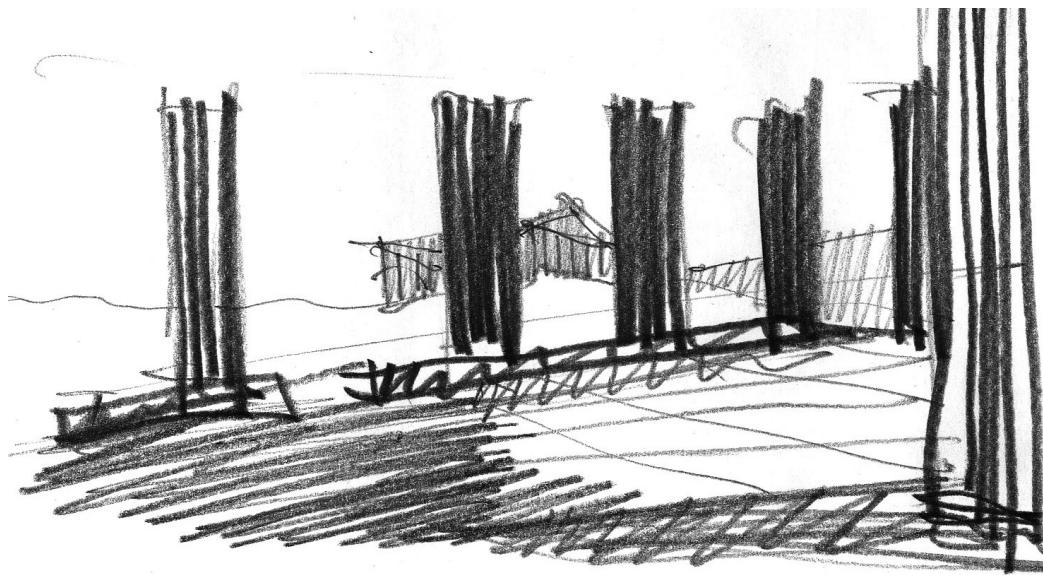


Fig. 104 – ALTERNATIVE Tonal diagram of Sketch 115 - SH

ii - TONE:

As already seen in the previous drawings of the Propylaea, the unnaturalistic portrayal of light and shadow is used again in sketch 115. Here, aerial perspective - the effect where contrast between light and dark decreases into the distance, producing a tonal sense of depth - is deliberately misrepresented. The Parthenon in the background is shaded to a similar tone as the foreground columns despite the fact that the level of contrast of light and shade should reduce the greater the distance away. This prevents the Parthenon from being visually dominated by the foreground columns. The dark shading of the ruins to the right also have the purpose of directing the pathway from the Propylaea up the clear slope round the northern face of the Parthenon rather than directly to the western steps of the temple. (Fig.102-104)



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Fig. 105 – LC - Watercolour sketches of the Parthenon, on separate sheets, Sept 1911



Fig. 106 – LC - Watercolour from inside the Parthenon

iii - COLOUR:

Although he made no pencil sketches of the Parthenon in the carnet, Le Corbusier did make four watercolour sketches on separate sheets. These were kept in a separate album of around 27 x 21cm.⁷⁹ (Fig.105)

These four drawings focus primarily on the light falling across the fluting of the columns and steps, and specifically on the chromatic relationship of the marble with the distant landscape.

In two of the drawings, made close to the columns, the distant landscape appears through the gaps between the columns, similar to the final two sketches of the Propylaea. (Fig.106,107) The final two watercolours are extremely similar, showing the line of external columns (of the northern facade) composed neatly on the left half of the page, leaving the right side empty except for the stylobate steps converging into the distance, and the far hills. (Fig.109)

The viewpoints are consistently low, allowing the temple floor and stylobate to be seen directly against the distant landscape without the showing the middle ground of the Parthenon wall or city below. In the second of the two purple watercolours, the cityscape below is left out focusing attention on the distant hills, which is strengthened by the vanishing point of the steps. The compositions of all four watercolours show the floor of the temple and a number of fluted columns placed on it.

Despite the vertical page orientation of the two purple sketches, the entablatures, pediments and ceiling coffering are excluded from all the watercolours. This stresses Le Corbusier's decision to reduce these representations of the Parthenon to the absolutely essential elements.



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Fig. 107 – LC - Watercolour of the Parthenon

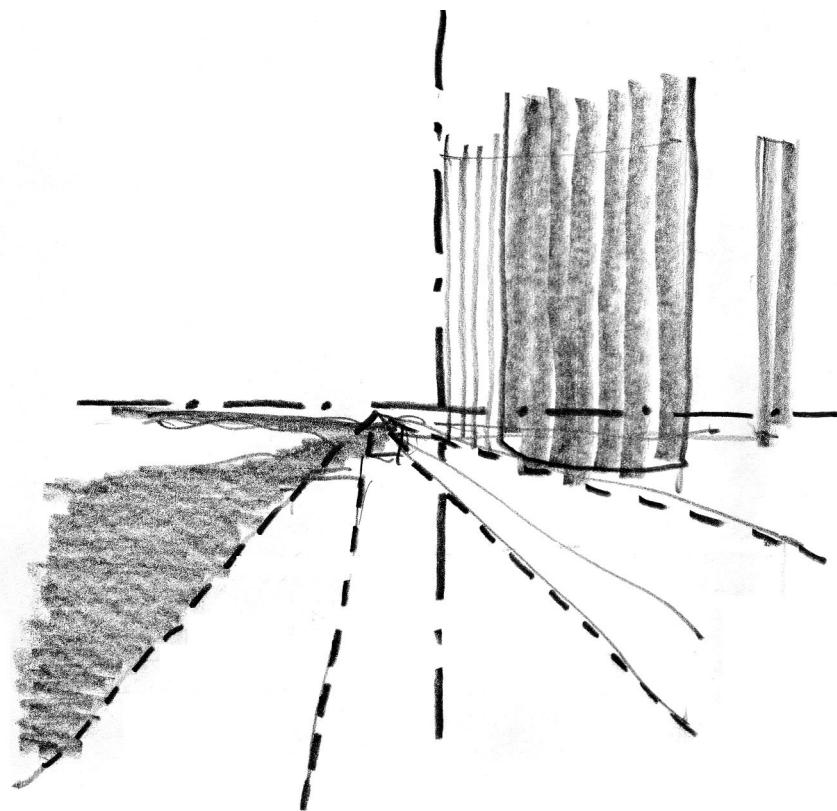


Fig. 108 – Composition diagrams of watercolour sketches - SH



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Fig. 109 – LC - Watercolours of the Parthenon

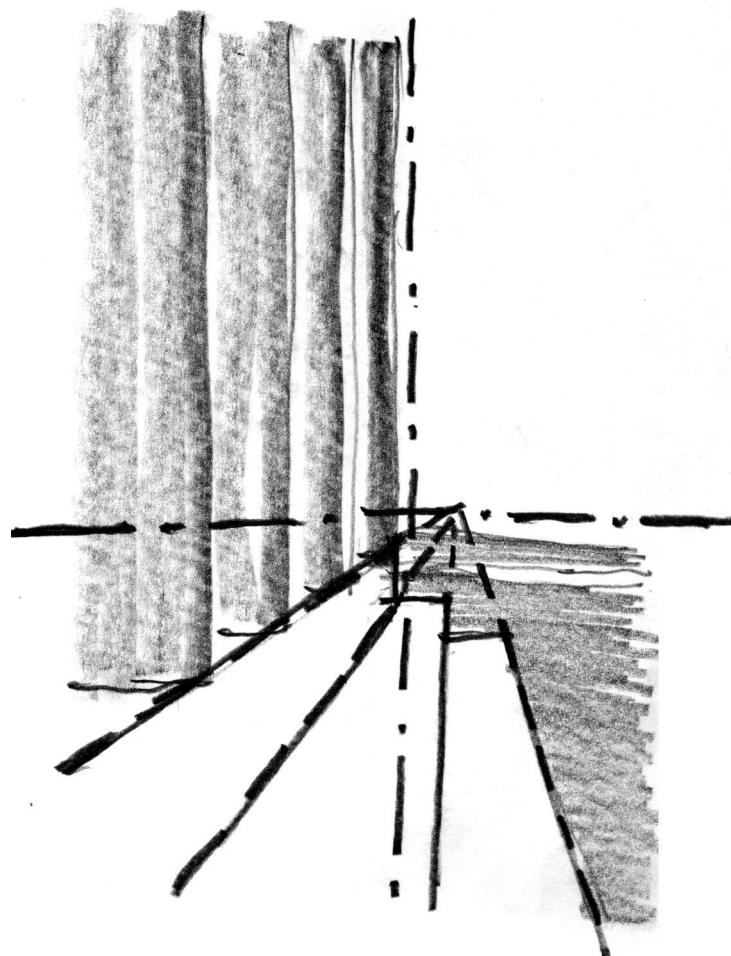
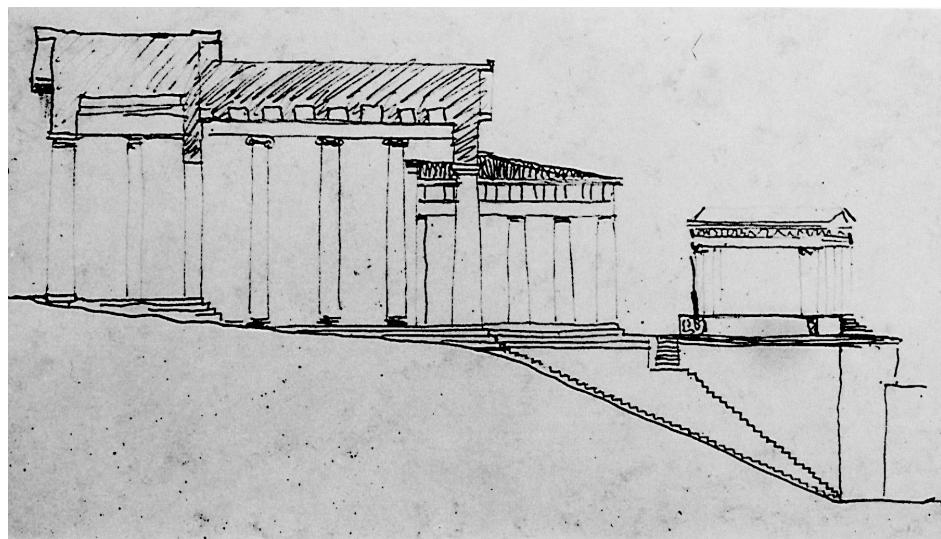


Fig. 110 – Composition diagrams of watercolour sketches - SH



142 Fig. 111 - LC - Propylaea, cross-section. Ink on separate undated sheet. Berlin 1910?

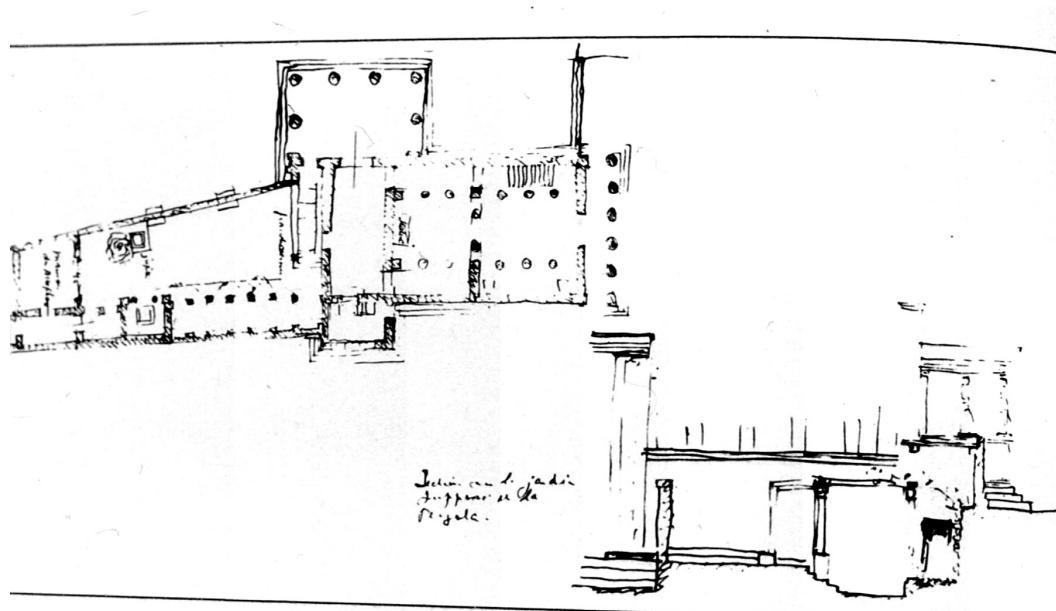


Fig. 112 - LC - Erechtheion, plan and cross-section (with elevation). Ink on separate undated sheet. Berlin 1910?

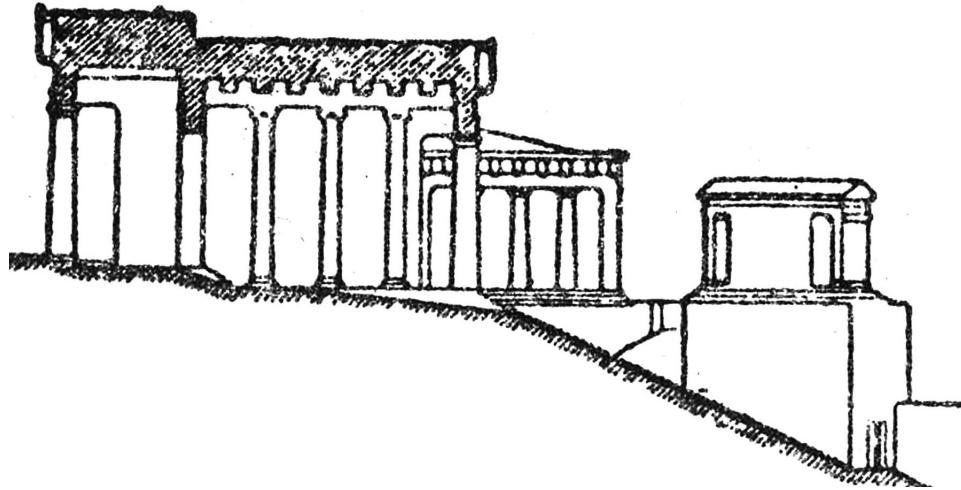


Fig. 113 – Auguste Choisy, *Propylaea*, cross-section, from "History of Architecture", Auguste Choisy 1899

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D - Further thoughts

The three ink drawings are on undated sheets of paper and most likely date from the previous year (1910) when Le Corbusier was studying in Berlin.⁸⁰ (Fig.111,112,114)

These three freehand drawings have been very carefully drawn without mistakes, or blotting out, and appear to follow the proportions and details of earlier published drawings (such as those by Choisy (Fig.113)) very closely. In the section through the Propylaea, the section is almost identical, except for extra steps drawn in beside the entrance ramp, and the secondary staircase leading down from the temple of Athena Nike. This particular mistake contradicts the section drawn by Choisy, and also the sketches made by Le Corbusier on location (eg p.111), which suggests that Le Corbusier drew it before he had visited the site. Furthermore, the interest shown in the positioning of columns, and the care taken to show coffered ceiling panels in section and plan is not repeated in the carnet sketches.

Ricardo Daza also points out the difficulty of drawing the Erechtheion plan in situ, given that the two level temple has been altered so many times (becoming a Christian church and then a Moorish water tank) it is extremely hard to appreciate the original planform from the elements that remain visible.⁸¹

One is unlikely to discover why sketch 127 has been so vigorously scribbled out from other historical evidence, but one may speculate about whether the drawing itself for some reason specifically went against the architectural ideas Le Corbusier had developed in the preceding sketches.

According to a letter Le Corbusier wrote to L'Eplattenier later on his trip when in Rome, he finally became exhausted with the Acropolis. "Estuvo bien, pero vi la Acrópolis durante 3 semanas. ¡Dios santo! Estaba hastiado al final, pues lo muelo a uno y lo reduce a polvo."⁸²

On page 121 of the carnet, Le Corbusier writes about the Parthenon: "Ahí arriba a cada hora, más muerte. El gran golpe ha sido el primero. Admiración, adoración y después anonadamiento. Fue, y ya se me escapa; me deslizo ante las columnas y el entablamento crueles, ya no me gusta ir. Cuando lo veo de lejos es como un cadáver, ya no me gusta ir. Se acabó la ternura. Es un arte fatal del que no escapas. Glacial como una verdad inmensa e inmutable."

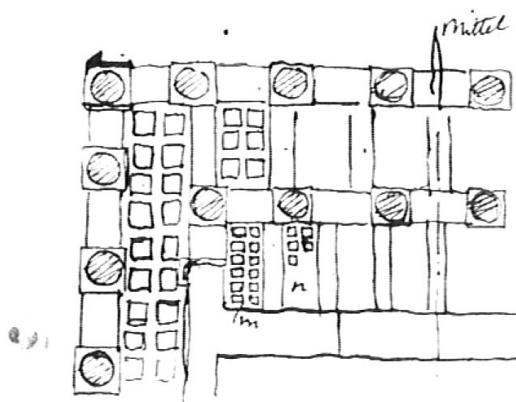
Ricardo Daza suggests this irritation may relate to the subsequent scribbling out of sketch 127. However more precisely, Daza believes the drawing shows the Parthenon. Sketch 127... "corresponde a la esquina noroeste del templo (el Partenón). Jeanneret (Le Corbusier) ha tachado enfáticamente el Partenón probablemente como señal de su desilusión

80 R. Daza, Op.cit p271

81 Ibid., p275

82 Ibid., p287

Parthenon.



non-coincidence des colonnes
d'angle avec celle de la seconde
couronne.
Les plafonnets ne s'occupent
en rien de la distribution des
colonnes - le caissonnage en peu
peut est typique.
partout il y a une asymetrie
bien marquée.

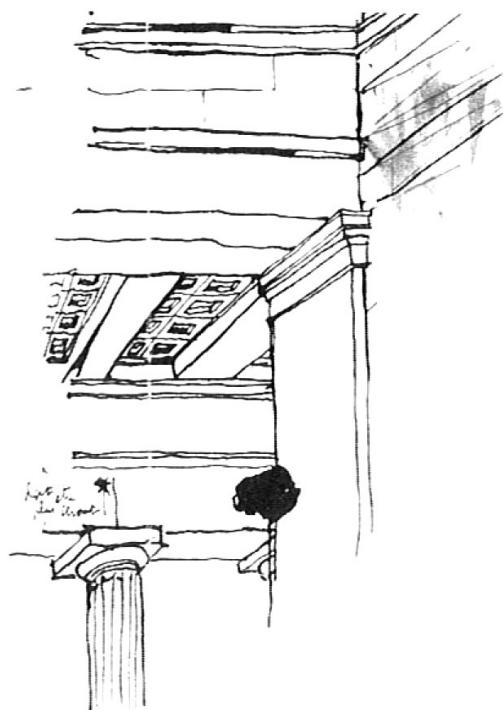


Fig. 114 - LC - Parthenon, partial plan and perspective. Ink on separate undated sheet. Berlin 1910?

ante el templo.”⁸³

As already seen, the subject appears to be the ionic northern portico of the Erechtheion (Fig.116), and as Le Corbusier wrote in his memoirs “A cien pasos de allí (the Partenon), presencia admitida por el indómito titán, sonríe sobre una base de paredes lisas, en flores de mármol, carne viviente, el alegre templo de los cuatro rostros - el de Erectea.”.

This suggests that the overbearing presence he felt in the Parthenon was quite different to the “cheerful four-sided temple” which was the Erechtheion.

Furthermore, the closest chronological note in the carnet appears on the following pages 128-9, in which Le Corbusier makes no mention of the buildings on the Acropolis but explains his other more immediate concerns, claiming to be “drunk as a cow” on ouzo.⁸⁴ His written notes do not necessarily shed a clear light on his architectural thoughts of the time.

83 Ibid., p287

84 “Je suis saoul comme une vache. J’ai bu une telle dose de mastic, que je tout m’échappe.” Le Corbusier, Carnet 3, p128-9

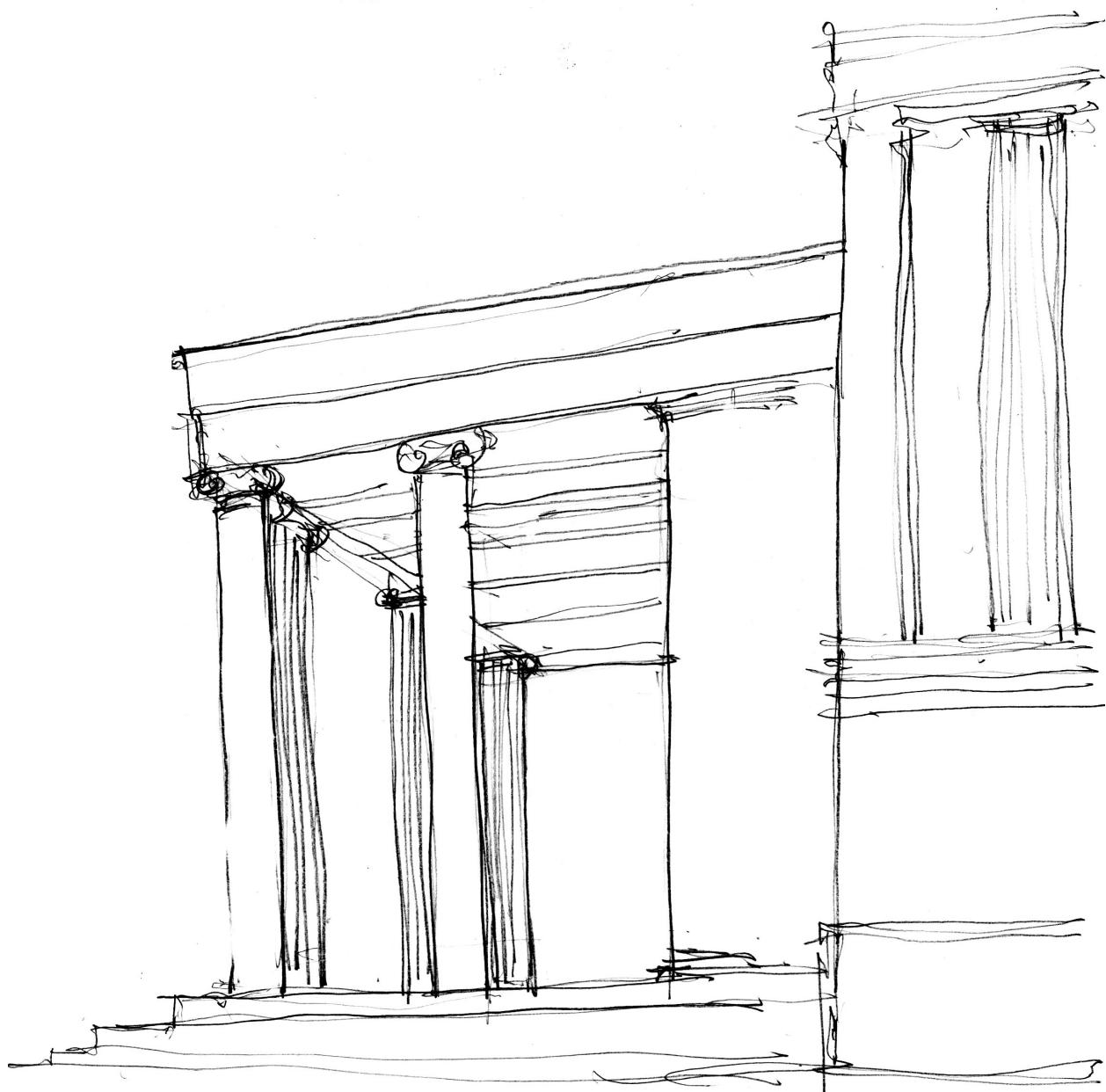


Fig. 115 – Corrected proportion diagram of sketch 127 - SH

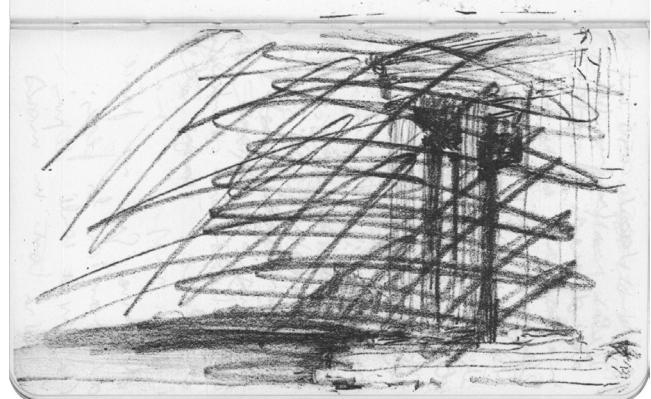


Fig. 118 – West facade of the Erechtheion, Banister Fletcher, 1901



Fig. 116 – LC - Detail of ionic capital, sketch 127

Fig. 117 – LC - sketch 127



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Leaving Le Corbusier's notes and later writings aside, it would seem that something made Le Corbusier take a sudden destructive dislike to his drawing when almost complete. Had Le Corbusier's mood shifted for some external reason it would seem unlikely that he should take it out on his carnet. But if the drawing was at fault, presumably it must have been an insurmountable mistake in his reckoning given that he chose not to correct it or do another improved sketch as on previous occasions.

On comparing the analyzed sketch to Le Corbusier's photograph of the other side of the porch, the distant line of Mount Licabeto seems quite believable, and the shading and composition of the colonnade shows the covered porch space in a similar way to sketch 115 inside the Propylaea. However, on comparison with the Photograph it appears that the columns have been drawn too close together compressing the colonnade against the temple. As the sketch plans on page 106 show, Le Corbusier did not always get proportions right first go. Nevertheless, his ability as a draftsman had led to perfectly satisfactory proportions in all of his other sketches of the Acropolis, some of which were considerably more complicated than this. As seen in sketch 113, the distortion of the composition was deliberate in order to show an important element of the composition at the expense of a relatively insignificant part. (Fig.115)

Like the watercolours of the Parthenon, the composition is balanced between the temple columns on the right half of the page and the landscape to the left. The proportion of the colonnade may well have been distorted in

order to show part of the blank temple wall to the right. The frustration may have come from the fact that the temple had started too far to the right not leaving enough space for what turned out to be Le Corbusier's more important interest. Or it may have been irritation at the apparent heaviness of the pediment which is deliberately avoided in the close-to sketches of the Parthenon and the Propylaea.

Although the drawing may have been partially out of character with the rest of the sketches due to the squashed proportions and position of the temple being pushed too far to the right, the fact that the drawing has been so impulsively scribbled out suggests that in Le Corbusier's mind, these "mistakes" became unacceptable but only once the drawing was substantially finished. This suggests that once again Le Corbusier's initial ideas of composition and architectural concept altered during the course of the sketch, and, despite trying to compensate with distorted proportions, the drawing was incapable of expressing his new intentions.

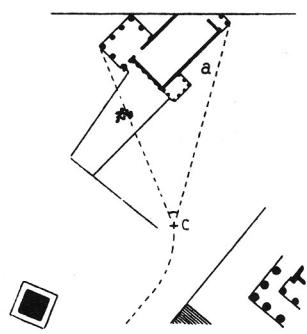
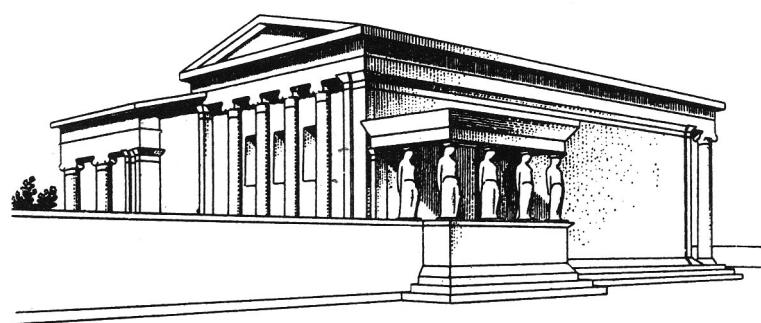


Fig. 119 – Reconstructed West facade of the Erechtheion, Choisy

E - Conclusions:

i - A SUMMARY OF OBSERVATIONS

Sketch 115 is spatially more complex than previous sketches, showing a semi-enclosed space facing across an open plateau to another semi-enclosed colonnade.

The drawing also suggests a route through the Acropolis, literally showing a path but also framing with ruins and further emphasized by the oblique angle of the Parthenon. This suggestion of movement is in stark contrast to the previous static, frontal views of the buildings and walls flanking the approach stairs to the Propylaea.

Le Corbusier's approach to the Acropolis and the landscape has become fully developed with sketch 125. The drawing combines a carefully balanced asymmetrical composition, focusing on the inner facade of the Propylaea and emphasizing its openness by showing the distant horizon through the entrance arcade.

This one-way glass effect, allowing views out to the horizon, but remaining impenetrable from the outside, may reflect a change of ideas when Le Corbusier started on sketch 115, or it may illustrate his idea of the fortified castle gateway, choosing to separate the sketches according to the functional and territorial limit of the Propylaea threshold.

The three ink plans and sections would appear

to have been made earlier, due to great similarities to other published drawings which Le Corbusier was already familiar with, due to certain small inconsistencies with what he found on location in 1911, and due to the fact that they concentrate on factors which the carnet sketches appear to utterly disregard.

Le Corbusier has reserved watercolours for the Parthenon alone, considering it the most important building on the Acropolis. The compositions are reduced to their absolute essence stressing the vertical rhythm of column fluting, the perspectival base of the steps and large parts of the pages showing the distant horizon with no middle ground. The simplicity of these compositions is compensated for in the bright impressionistic colouring of temple and landscape.

It remains unknown why sketch 127 has been crossed out so emphatically. However, judging from the progression of Le Corbusier's ideas about the Acropolis, and the development of the earlier sketches it may be speculated that Le Corbusier changed his mind about the focus of the drawing whilst well into the sketch, and attempting to adjust the composition ended up distorting the sketch beyond what he considered a reasonable limit. He then chose to cross it out so as not to leave an incorrect and conceptually misleading image in his carnet.

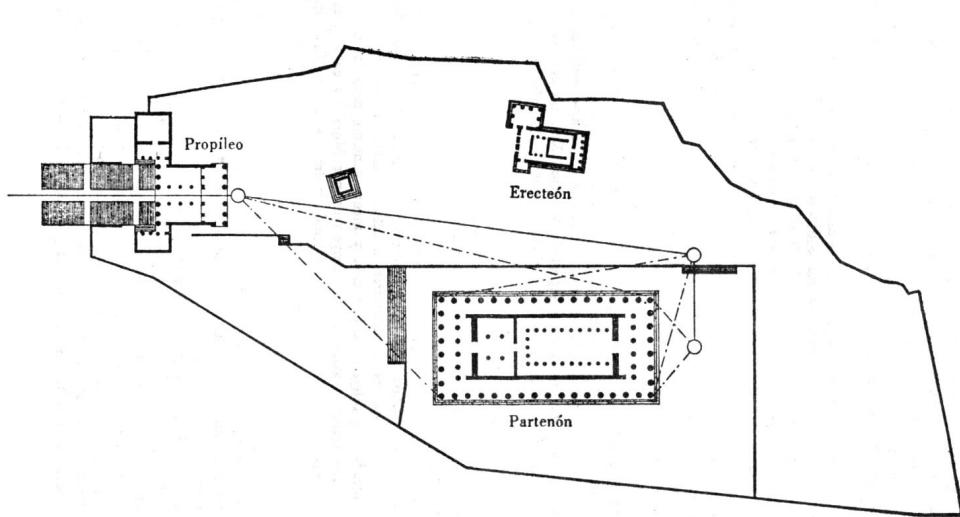


Fig. 120 - Choisy - Plan showing the original approach to the Parthenon (entered from the Eastern facade) showing the principle oblique viewpoints

ii - CONCLUSIONS AS TO THE PURPOSE OF THESE DRAWINGS

If one accepts that the three ink drawings on separate sheets were made from copying other plans and sections, probably before travelling to the Acropolis, then it shows that the ideas which Le Corbusier had previously focused upon were not those which interested him most on location. Therefore the travel sketches drawn on site show a more personal interpretation of the buildings influenced more by the architect's own impressions at that particular moment, rather than by pre-meditated thoughts or the concepts of others.

In this group, Le Corbusier's ideas about the Acropolis and the landscape have become fully formed. As a result, the role of these drawings is to describe a concept rather than to analyze or experiment with new ideas. The purpose of which is above all to record the architectural idea for later use when real exactness will have ceased to be important.

This group does show a fundamental conceptual change from the earlier drawings. The suggestion of movement, which arises in place of static axial views, creates a fundamental difference in the way of perceiving the buildings and the spaces between them. (Fig.120) Reflecting on the previous drawings may have helped Le Corbusier work this out, or this change of approach may have been deliberately intended in order to distinguish the outside of the fortress gate from the hill-top inner plateau.

The pencil sketches in the carnet have allowed Le Corbusier to refine his architectural ideas to their basic essence, which when applied to the Parthenon has become so minimal and abstract that colour is necessary to express the feeling and emotion of the place. Hence these drawings show that once the pencil sketches have resolved the architectural analysis, and provided a compositional discipline, he can relax and allow a freer, more emotional form of expression to enter the drawing, without it distracting from, or contradicting, his architectural understanding of the purity and perfection of the Parthenon.

PART 4

Conclusions

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The following travel sketches are a recent example of an architectural analysis of two buildings by the Catalan Modernista architect, Josep Maria Jujol

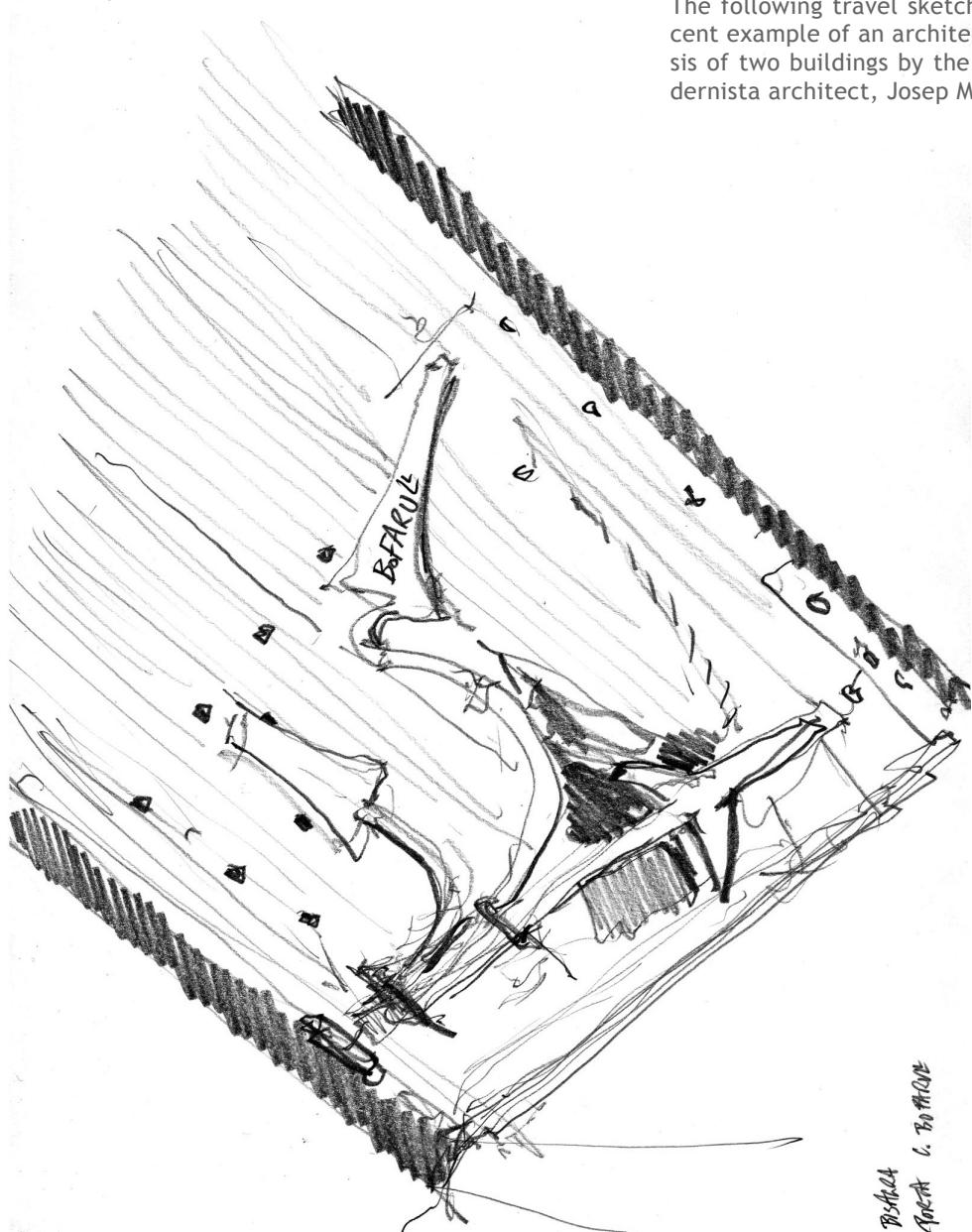


Fig. 122 - SH April 2011- Casa Bofarull, nr Tarragona, Front door. Architect J-M Jujol

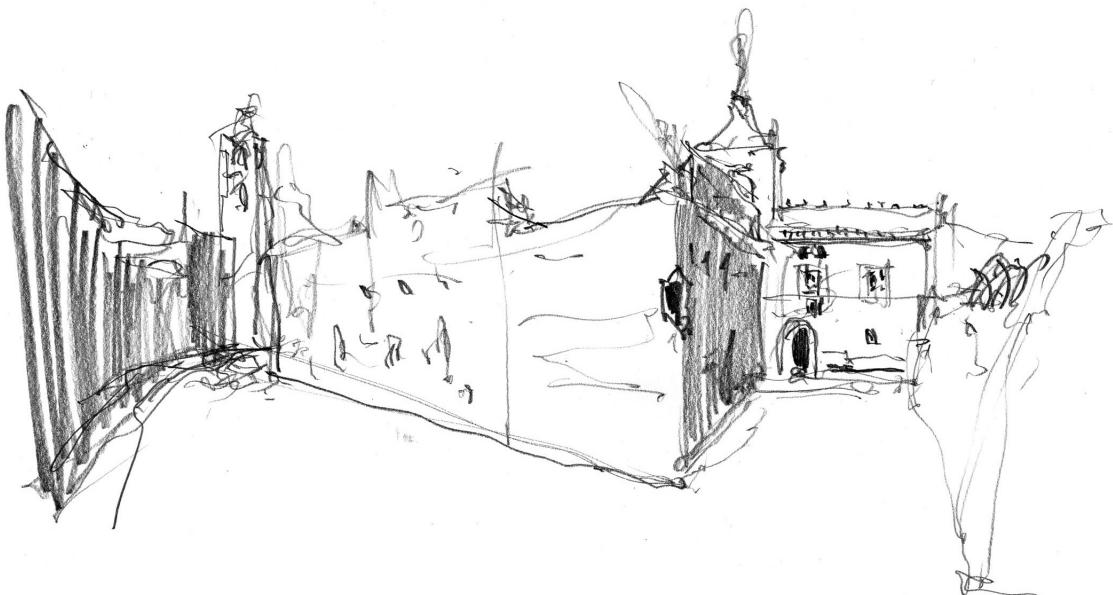


Fig. 121 – SH April 2011- Casa Bofarull, nr Tarragona, approach from the village. Architect J-M Jujol (BCN 1879-1949)

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A - What may be learnt from the principle roles played by Le Corbusier's drawings of the Acropolis?

knowledge from the photographs of Collignon, and drawings of Choisy.

The previous analysis suggests the following conclusions about the role Le Corbusier's drawings had.

Le Corbusier used his drawings as a tool to work out and understand the architectural composition of the Acropolis, focusing on the importance of the horizon, the balanced but asymmetric composition of parts, the oblique viewpoints that the buildings present and the moving view points required to appreciate them.

His drawings served also as a record for later use as well as assisting him to remember the place through the act of observation and drawing on occasions repeating viewpoints with only slight compositional changes.

At times this intention to capture a particular architectural idea out-weighed concerns about a naturalistic portrayal of volume and mass leading to concocted compositions intended to better demonstrate and record his architectural concept of the buildings.

The act of drawing in situ provided a means for Le Corbusier to assimilate his impressions of the place and its architecture with his prior



Fig. 124 - SH April 2011- Casa Bofarull, nr Tarragona, Garden facade. Architect J-M Jujol

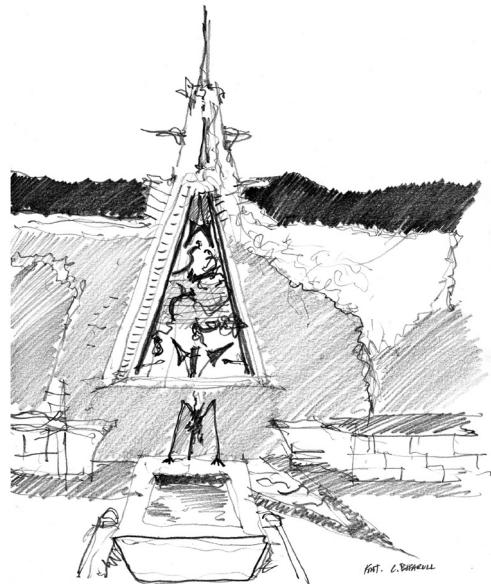


Fig. 123 – SH April 2011- Casa Bofarull, nr Tarragona, Garden font & window onto vineyard. Architect J-M Jujol

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B - In what ways do travel drawing and design sketching relate?

From the theoretical discussion regarding different views of the role of drawing in the development of design work, and the conclusions arrived at from the graphic analysis of Le Corbusier's travel sketches, there appear to be two fundamental points that both types of drawing have in common.

1 - As the architect De la Sota thought, architectural design is the creation of a complete architectural idea. Drawing serves the purpose of making this idea tangible; turning the architectural thought into an architecture proposal. The same may be said of good architectural travel drawing. This requires the architect to have a fully conceived architectural idea of the subject, which is then represented in the drawing. In other words the architectural travel sketch represents the architect's idea of the building, rather than the objective reality of the building itself.

2 - Also, and potentially more usefully, design sketching and travel drawing can both be used to analyze, develop and work out what that architectural actually is.

Sketching plays a fundamental role in both of these fundamental points in the following ways:

1 - Most obviously, the travel sketch or the abstract initial concept sketch can become, in Grave's words, the "metaphorical basis" to be developed into a later design project. This is utterly irrespective of the literal approach of much post-modern design; it may be said equally of the platforms and plateau of Utzon, of ancient monuments on Kahn's later work, as well as the repeated references Le Corbusier made to his early travel sketches.

2 - Perhaps more importantly, the processes involved in both travel drawing and design sketching make them an essential tool to develop architectural thought. These processes include:

- trial and error which occurs almost instantaneously (like the improvising musician who imagines the sound mentally and then listens to it played - the process is almost simultaneous, allowing almost immediate reactions to the music to be made with the next notes);
- reading the drawing, reflecting and redrawing in separate distinct stages allowing the drawing itself to suggest new previously unthought of ideas;
- the incorporation and revision of prior knowledge and pre-meditated ideas; the testing out of theories, concepts and ideas;
- a means of recording and remembering ideas for later;
- as a means of communicating ideas and concepts in an intelligible manner through the representation of tangible forms.



Fig. 125 - SH April 2011- Casa Bofarull, nr Tarragona, Veranda. Architect J-M Jujol

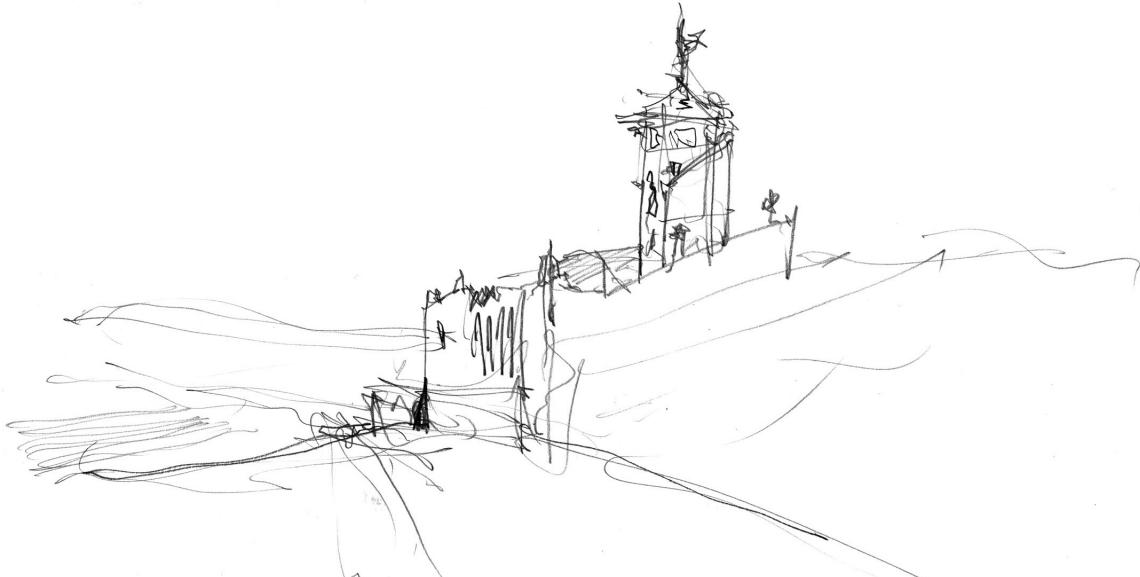


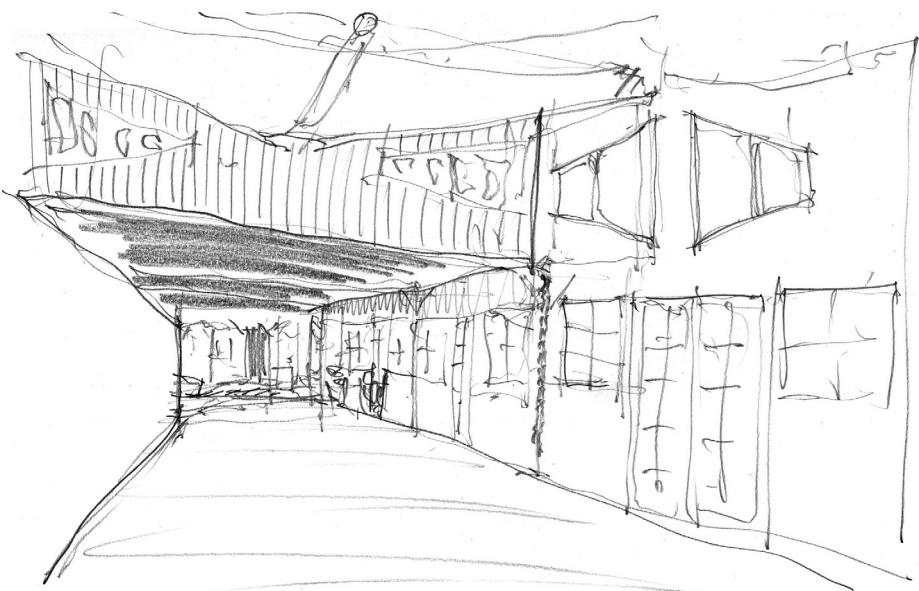
Fig. 126 – SH April 2011- Casa Bofarull, nr Tarragona, landscape setting. Architect J-M Jujol

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How does travel drawing therefore help the design process, and why is it still a relevant design tool?

Travel drawing can be of direct help to the architectural design process in the following reasons:

- as a means of learning from and recording the ideas of others and the thoughts one has of the surrounding world.
- as a way of profoundly and intuitively understanding these architectural ideas and allowing one to relate personally to them, appropriating and making them one's own.
- due to the practical considerations that travel drawing involves, the act of travel drawing itself automatically involves a holistic appreciation of the place being drawn. All one's sense combine at an intuitive level to influence one's understanding and interpretation of the subject. The travel drawing responds to an environment with an outsider's perspective, but one immersed in the specific qualities of the place.



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Fig. 127 - SH April 2011- Teatro Metropol, Tarragona, Entrance gallery. Architect J-M Jujol

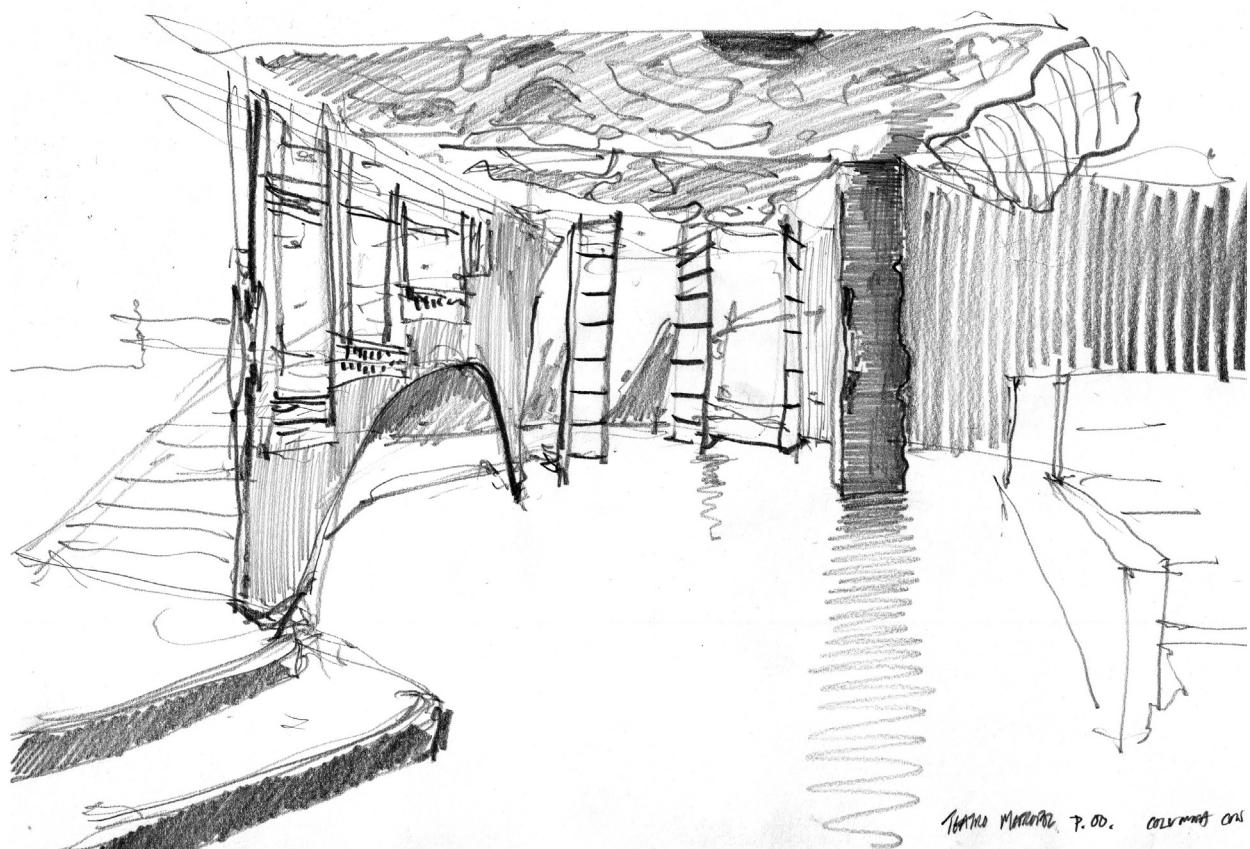


Fig. 128 - SH April 2011- Teatro Metropol, Tarragona, Ground floor lobby. Architect J-M Jujol

C - Personal Conclusions drawn from this dissertation

As an architect with a strong interest in drawing, the development of this dissertation has brought to light a variety of issues regarding the usefulness of sketching, highlighting certain essential considerations as well as suggesting certain areas to be considered in greater depth in the future.

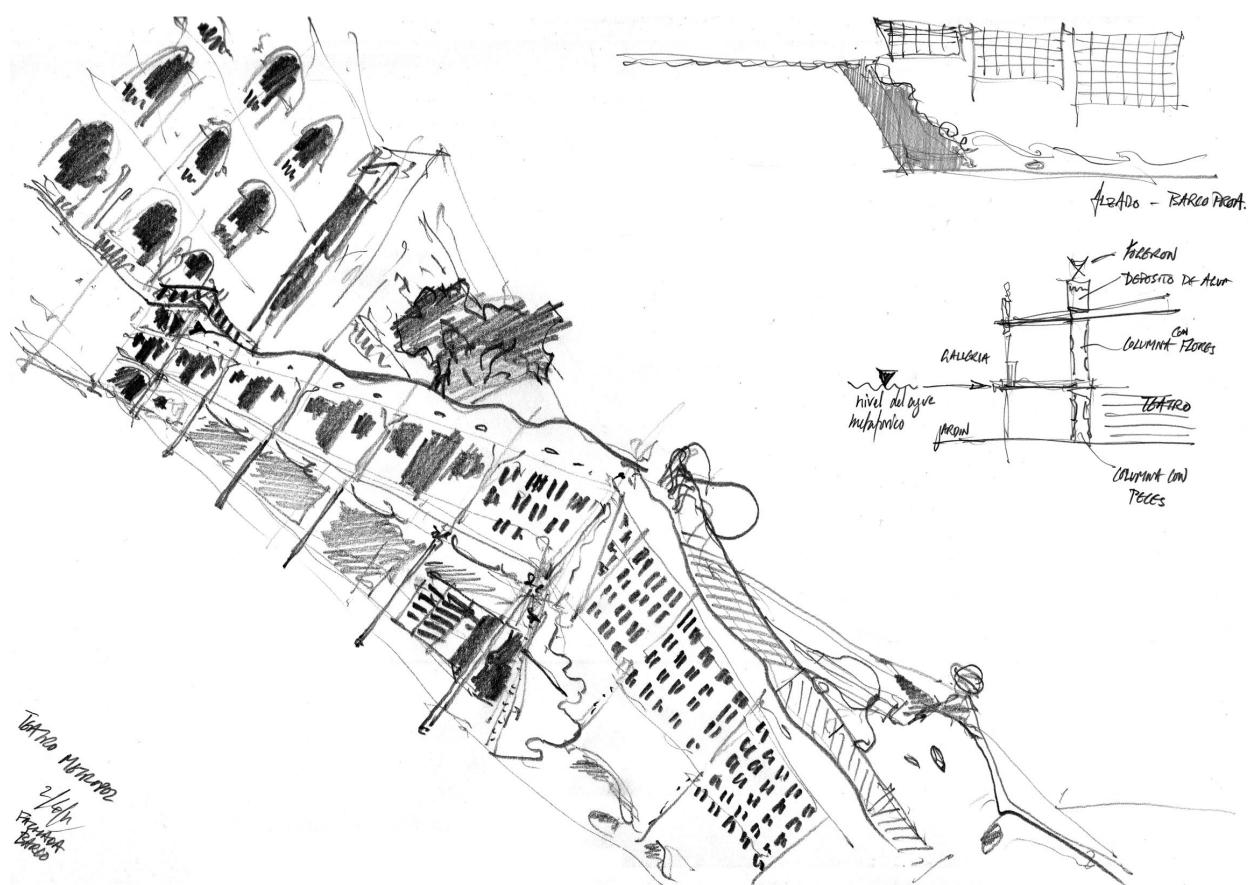
This analysis has highlighted the importance of an awareness of the relationship between conceptual understanding of the architecture, (recalling de la Sota, and Loos saying someone good at drawing will be a bad architect) and the intuitive understanding which the act of drawing creates - making is thinking.

Apart from imposing one's own way of seeing and thinking on a drawing onto a sketch, the drawing itself can suggest its own way of seeing and perceiving. Le Corbusier may at times have decided consciously beforehand what he intended to show in a drawing, but the drawings themselves imposed their own perspective on his architectural understanding for ever more.

Half the point of drawing is only to be appreciated through re-reading one's sketches. The analysis of Le Corbusier's carnet has shown up a rich variety of information - whether about the evolution of his ideas, or the specific viewpoints of particular drawings, the carnet sketches are the only reliable contemporary

in-situ source. Equally, through re-reading one's own sketches one stands to learn a vast amount about subjects of which one was largely unaware whilst drawing. In fact, without re-reading a sketch, the process of experimentation followed by editorial revision and improvement cannot occur, and the evolution of one's intuitive ideas will be lost.

Fig. 129 – SH April 2011- Teatro Metropol, Tarragona, Courtyard facade. Architect J-M Jujol



Whether one draws as impulsively and endlessly as Siza, or with the ascetic restraint of de la Sota, travel drawing is inseparable from design sketching and may be combined to great advantage at all stages in the design of a project.

In this last respect, there is no other comparable analytical design tool for the architect. To mention Kenneth Frampton's comment about Siza's intuitive sketches,⁸⁵ the travel drawing made of a new site can itself become the first design drawing of the project, and allow the conception of the future building to be born out of the architect's innate, in-situ response to the place itself.

- Design sketches seem capable of suggesting unintended architectural ideas, and provide great scope for interpretation on account of their ambiguity.

How one subsequently goes about analysing and interpreting one's sketches is left open for future study. Whether there are ways in which the process may be optimised, or simply methods to avoid, it is clear that sketching whilst designing or traveling is a font of great creative architectural value which the architect must learn to make use of to its greatest effect.

85 Kenneth Frampton, conversation Barcelona
June 2011

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al Escola Tècnica Superior d'arquitectura La Salle d' la Universitat Ramon Llull

l'alumne **Sebastian Harris**

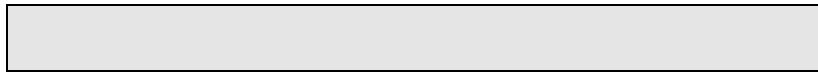
va exposar el seu Treball Final de Màster, el qual té por títol:

Why travel drawing matters:

**CONNECTING ARCHITECTURAL DESIGN SKETCHING AND TRAVEL
DRAWING:**

A CASE STUDY OF LE CORBUSIER'S ACROPOLIS SKETCHES

davant el Tribunal format pels Drs. sota signants, havent obtingut la qualificació:



President/a

Vocal

Vocal

Alumne/a
