



The Historical Transition of Human Body in Architecture

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Abstract

This article focuses on the subject of drawing the human figure within architectural drawings. In most architectural drawings, human figures help to provide simple and clear indications of scale or an adequate sense of depth.

These scaled figures, however, need not be metric and are used to help project some of the incommensurable qualities of architecture. Silhouettes in architectural drawings can help show how designed buildings might be perceived and inhabited. They can also be used to understand how architecture can be modeled to welcome human experiences and actions.

This research is developed by comparing drawings by different architects, where differences in the form and activity of the body can be highlighted. Architects and designers represent human figures to emphasize space, to describe the spatial properties of a drawing, and to convey their ideologies as a reference for understanding the human physical condition.

Keywords

Silhouettes, Body Image, Human Image, Drawing, Transition



Introduction

Paul Klee in his *Pedagogical Sketchbook*, published in 1925 wrote that drawing corresponds to 'taking a line for a walk'. This phrase proves to be as true as ever when it comes to human figure drawing. The reading of the human figure drawing refers to the constructs of body schema and body image, the body schema is relatively standardized and biologically determined, the body image is a partially unconscious organization of one's fantasies and personal memories related to body shapes, the result of the process of individual history [Falcón Meraz 2015, pp. 36-37]. Even in architectural drawings, the drawing of human figures and silhouettes becomes a real way of being and reflection that one's work will represent. In design, creativity is the child of the complex and profound need to give answers about the context, the set of history, potential and social repercussions of the project [Park et al. 2019, pp.5-29]. And it is exactly in the phase devoted to representation that designers must make the most of their imagination, operating experiments in which every detail can make a difference, including a detail that can never be missing in drawings: the human figure [Hong et al. 2014, pp. 93-100]. Different shapes, positions, levels of detail, silhouettes drawn by architects are present to highlight dimensions and proportions of buildings and structures, as well as to point out the object of so much creative and technical work, contextualizing its purpose. Silhouettes contribute to providing simple and clear scale indications in orthographic scale drawings, in perspective drawings human figures contribute to the representation of a correct sense of depth [Frascari 1987, pp. 123-142]. These are the most elementary purposes of scale figures in architectural drawing, but their scope extend beyond these limited functions. Silhouettes illustrate qualities of scale that would otherwise be difficult to represent [Anderson 2002, pp. 238-246]. Although representational scales, numerical or graphical, accurately indicate the expected dimensions of a building, human figures seem to promote an intuitive understanding of scale [Russell et al. 1898].

The study of human proportions in drawing

The oldest documented study of human body proportions in the field of art history is the Egyptian canon. Through the study of ancient papyri it has been possible to understand how the Egyptian artist began his work by working out a preliminary grid, a kind of grid square on the basis of which to find the exact measurements of the human body. The earliest canon used by artists for about two millennia was based on the Egyptian unit of measurement known as the 'small cubit', corresponding to the distance from the elbow to the tip of the thumb and involving a division of the figure into 18 equal parts, from the base of the feet to the top of the forehead. Later, the canon used around 600 B.C. was based on the 'royal cubit' that is, the measurement from the elbow to the tip of the middle finger and featured a proportional grid divided into 21 parts, starting from the base of the foot to the height of the eye (fig. 1-a). Next fundamental contribution is that found in Greek art, namely, the canon developed by Polyclitus, a Greek sculptor of the 5th century B.C.; the canon included the proportion of 1/8 between head and body, 3/8 for the torso and 4/8 for the legs (fig. 1-b). Another canon is the one dating back to 1 B.C. set forth by Vitruvius in *De Architectura*, a text particularly important in Western culture because of the meticulous philological recovery carried out by Renaissance theorists and artists in their efforts to reconnect with ancient times [Kim 2016, pp. 1-12]. This text turns out to be so important because it inspired the drawing made sixteen centuries later by Leonardo da Vinci, who produced a drawing made in pen and ink showing a nude adult man standing inscribed within a square and a circle. Leonardo chooses to represent the man with four legs and four arms, allowing him to show sixteen different poses and thus creating the Vitruvian man. Leonardo made a significant contribution to the study of the proportions of the human figure although his research did not result in a definitive proportional system. His annotations, comments, drawings, direct observations and notes on various proportional systems are numerous, but a precise proportional theory worked out systematically is absent (fig. 2-a). Another figure

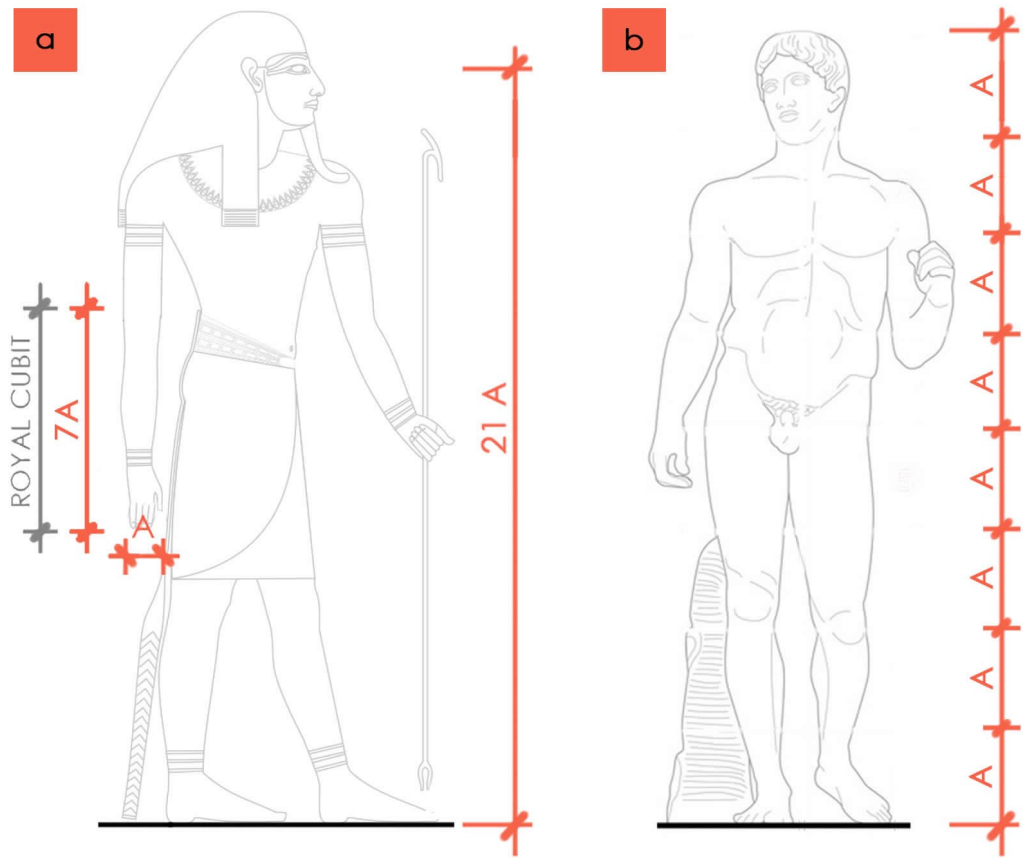


Fig. 1. Late antique canon of Egyptian art (scheme a), Greek canon (scheme b).

of particular importance in the theory of human proportions in the Renaissance is Leon Battista Alberti. Not only because he dealt extensively with the proportional problem, but especially because, compared to other artists, he presented a completely original and unusual proportional canon, presented in *De statua* written probably between 1443 and 1452. Leon Battista Alberti proposes to the draftsman-sculptor a proportional and measuring system for the human body. He suggests constructing an instrument, a kind of 'ruler' (*regula*) divided into six parts that he calls 'modine of the foot' (*exempeda*) that must be the same length as the figure to be measured. The modine is divided exactly into 6 parts called 'feet'; each foot is then divided into 10 'ounces' (or 'degrees') and each ounce in turn is divided

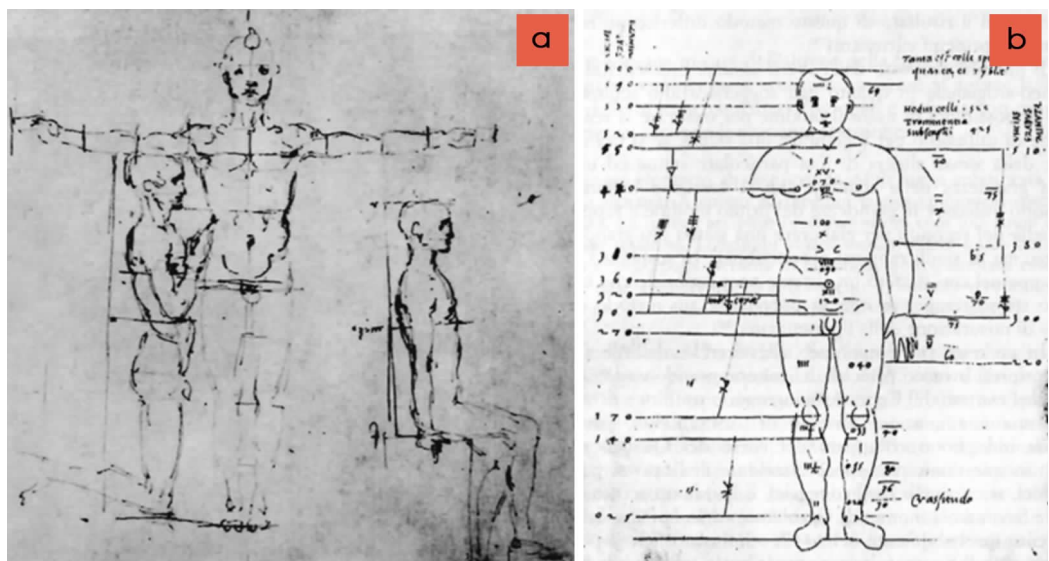


Fig. 2. Proportional studies by L. Da Vinci (image a); human figure with proportional indications by L. B. Alberti (image b).

into 10 'minutes'. The modine will be six feet, and these feet will be 600 minutes, and each foot alone will be 100 minutes. With this gradual system, the architect-designer has the tools to design the ideal man to which Renaissance culture aspired. His modine, used as a tool for taking measurements, allows him to measure the height, width, and depth of the human body, as seen in a drawing from a late 15th-century manuscript that shows Alberti's text (fig. 2-b). Different use of the image of the human body was made by Gian Lorenzo Bernini, who in his sketch of the design of St. Peter's Square in 1656 showed a man, probably St. Peter, superimposed on the square with his arms towering over the two semi-circular colonnades. This drawing would show, according to most art historians, that Bernini with his design depicted on a human figure wanted to symbolize the maternal open arms of the Church.

Subsequently, starting in the seventeenth century there is a gradual abandonment of the study of the human body aimed at obtaining a greater level of control in the area of 'objective' reproduction of the human figure. The proportional system and metric rules of representation are no longer an aspect to be investigated and understood in all its technical and practical possibilities: the problem of proportionally correct representation of the human body is now outdated. The proportional researches of artists from this time are developed for the exclusive purpose of scientific knowledge of the structure of the human body, the philosophical-artistic 'anthropometry' is replaced by a scientific anthropometry, which in the case of architecture becomes a proportional tool in the human-context relationship. We have an example of this with *Le Modulor* by Le Corbusier, which seeks to reconstruct and refound from the architectural point of view a modern anthropometry. The following figure shows a collection of the evolution of the representation of the human figure by architects, proposing an excursus from the 1400s to the present day (the year indicated below each figure is the designer's year of birth, not the year in which the drawing was produced) (figs. 3, 5).

The selection of these human figures in the field of architecture concerns drawings made mainly freehand, the use of different techniques and different styles of representation is evident [Imrie 2003, pp.47-65]. In fact, it is possible to identify drawings made through realistic and precise silhouettes, as in the case of the drawing of Leon Battista Alberti or Leonardo Da Vinci; drawings with human silhouettes with small, floating heads, often characterized by stylized legs and arms or completely absent, as in the case of Glenn Murcutt or Kazuyo Sejima; human silhouettes realized through abstract scribbles, blotches or confusing lines representing spiral or blob-like human silhouettes, as in the case of Renzo Piano, Tadao Ando or Frenk Gehry; black or white silhouettes with silhouettes defined by a single wire outline, as in the case of Walter Gropius or Alvar Aalto; human figures drawn with hatched or cross-hatched backgrounds in different directions useful for highlighting different anatomical parts, as in the case of Andrew Michael Geller, Norman Foster or Santiago Calatrava [Meredith et al. 2019]. It thus becomes clear how the sketches of human silhouettes, useful for understanding urban spaces and dimensions, are made in accordance with the taste and intentions of the graphic designer/architect, who defines, through the drawing, his own personality and state of mind, translating the drawing of human figures into a true architectural signature [Colonnese 2017, pp. 90-129].

In general, it is possible to observe that among the various illustrations the standing man prevails, this is because the man is drawn more in the sketches to give the immediate perception of spatial relationships, especially in the elevations and sections of buildings. Human representation can be used to achieve an artistic dimension and to provide a relationship with the object. For this reason, unlike other objects, it can also be realized with the use of very few lines.

In contrast, the latest digital techniques, both 2D as well as 3D, involve the trend of contemporary architects to represent, not only silhouettes but also figures represented photorealistically.

The relationship between architecture and the human body has always been a topic of great interest. In particular, when considering the architecture-human body relationship, it is necessary to go beyond the research of the dimensions and correct placements of the human figure within the architectural space. It is necessary to reflect on the experiential qualities that are released when architecture and the human figure come together; especially

TIME LINE OF HUMAN FIGURES IN ARCHITECTURAL DRAWINGS

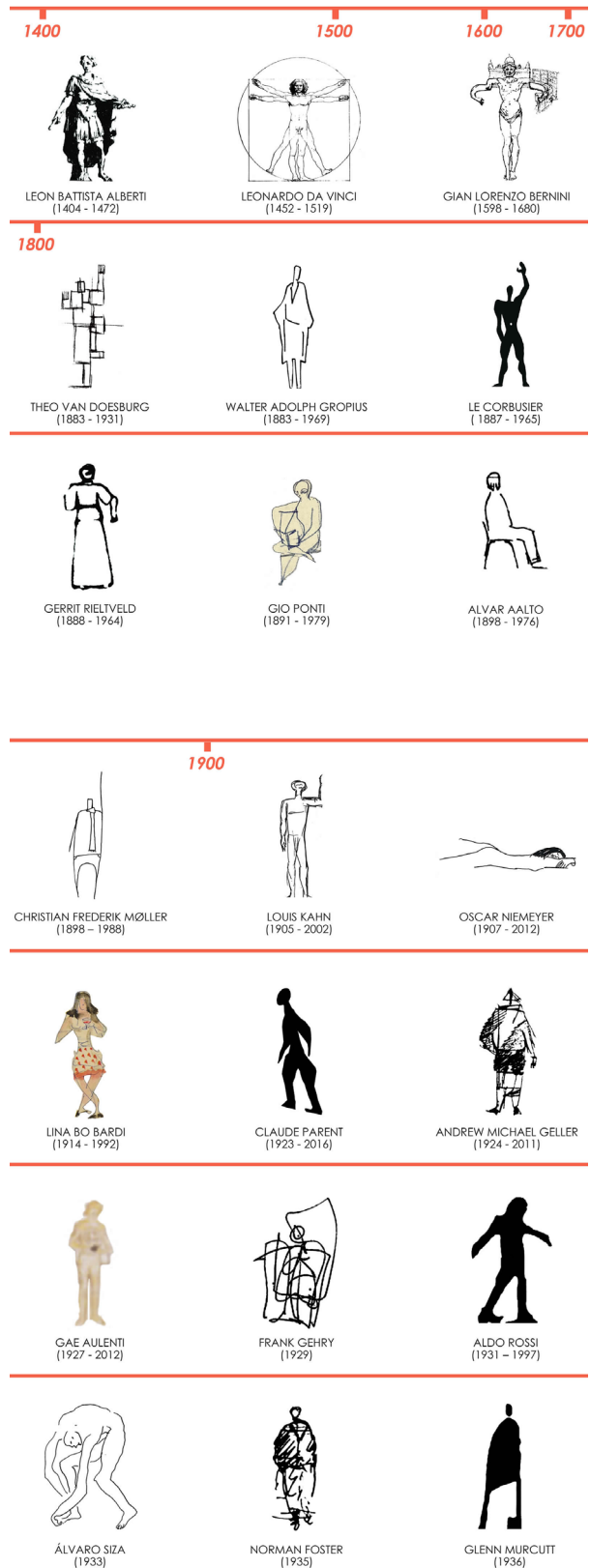


Fig. 3. Catalogue of human figures in architectural drawings - 1.

Fig. 4. Catalogue of human figures in architectural drawings - 2.

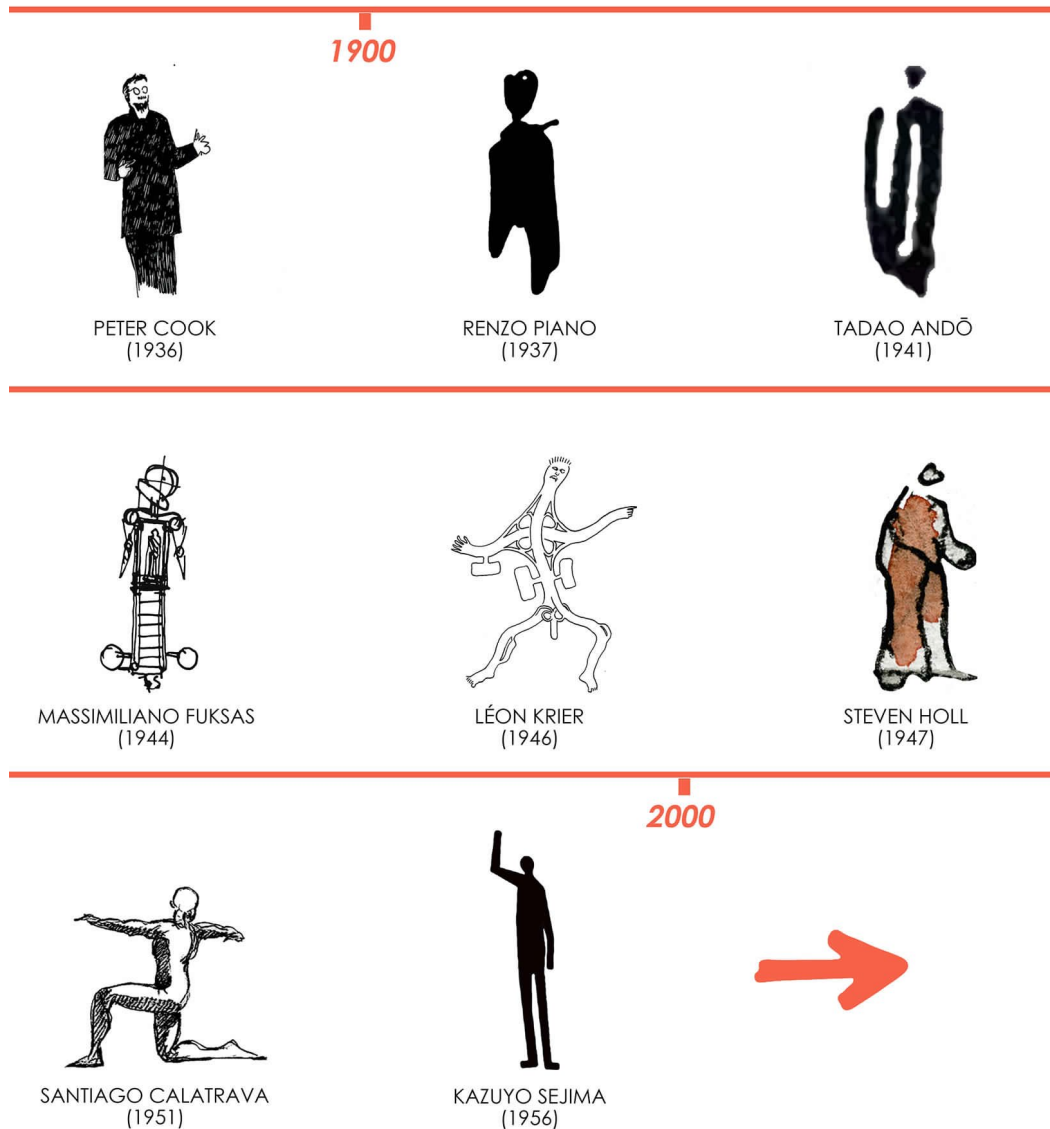


Fig. 5. Catalogue of human figures in architectural drawings - 3.

on the physiological, intellectual and emotional levels. The architect's role is to find balance between space and human, adapting one to the presences of the other. The human body is aimed at appears as a standard measurement, useful in defining scale and proportion. Architecture, on the other hand, appears as an extension of the body because it enlarges our ability to operate in the space.

Throughout history, the relationship between the body and architecture has changed its characteristics and certainly still presents new opportunities for development, especially in relation to the interaction between psychology and the environment.

Conclusion

This research presents the first step toward cataloging and analyzing the human figures and silhouettes in architectural drawings. It is impossible to represent architecture without representing the human form. This contribution collects some of the most representative figures presenting them in a completely unexpected way: removed from their architectural context, as if they live a life of their own. Some figures are casually scribbled others carefully considered, the techniques used are different and mixed, the drawings are handmade and represented in pen, pencil, charcoal or watercolor [Rubins 1975]. In most contemporary

architectural drawings, human figures help to provide simple and clear indications of scale or a correct sense of depth moving from the 'philosophical-artistic anthropometry of the past to a scientific anthropometry useful in providing metric information but also useful in helping to project some of the immeasurable qualities of architecture. Human figures in architectural drawings help to show how designed buildings could be perceived and inhabited to accommodate human experiences and actions. This study is the starting point for a deeper analysis of the representation of the human figure in architecture.

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