A story of three geometric bodies

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A story of three geometric bodies *Despoina Pippa*

In 1794
Étienne-Louis Boullée writes
his treatise on architecture: ‹Essai sur l'art›.
In France this period corresponds to the years of the
revolution of 1789 but also to the years after the Enlighten-
ment. Architecture implies mastery of space. After many years the
platonic tradition influenced again the notion of space, as the dream of the
Enlightenment commanded. Reason and science would solve the problems of
humankind. Philosophy was no longer to be separated from science, history and poli-
tics; it was rather to be the atmosphere in which they could exist and be effective. Different
kinds of spaces emerged (Locke's pure space, Newton's absolute space, the Leibnizian relative
space or the symbolic space of Voltaire), all playing their role as masters of choruses, only visitors
on stage, that is set to describe the notion of public space. The radical change in the way of thinking
that the Enlightenment brought is probably not by chance followed by a profound transformation in
the political scene of France, spreading into the whole of Europe. In the given stage setup of the time,
Boullée finds himself in a chorus led by the different masters who are representing the common sense. He
takes his place on this stage as a priest of the key ideas of that time, expressing a strong admiration towards
Newton and borrowing terms of physics and cosmology for his architecture. He endorses Montesquieu's ex-
planation of ‹symmetry› whilst he is deeply influenced by the ideals of the French revolution. In his architecture
Boullée empowers the figure of the new citizen with a strong spatial correspondence. The spaces of Boullée are
no longer addressed to the subject governed by monarchy but to the citizen governed by a republican state after
the French revolution. The body of the newly defined human being is the starting point for the creation of spaces of
true presence.

In Boullée's essay there is a chapter dedicated to the essential quality of volumes, on their properties and their
analogy with the human organism, titled ‹De l'essence des corps›. In that part Étienne-Louis Boullée extensive-
ly explains the importance of the ‹corps› in the architectural composition. The word ‹corp› comes from the latin
‹corporeus› , whose root ‹kwrep› means ‹to appear›. Generally the word ‹body› can have many meanings. Two of
them are crucial for this case. In the physical world, ‹body› refers to the material body in contrast to the soul, and
in architecture it has to do with the geometric solid which is a three-dimensional body.[1] Another meaning that
is interesting for the word's (corps) history appears in French in 1704 and refers to a group of people, at the
beginning of a military group and later it also encloses the meaning of a group sharing a common activi-
ty. The enrichment of the word's meanings depicts the transformation of the political stage during the
Enlightenment and later, as well as the need to express the idea of the many into one strong monad. It
now becomes crucial to trace the meaning of the word monad with the mathematicians of the time—
Newton and Leibniz. Gottfried Leibniz's work ‹Monadology› perceives the ‹monad› as a part of the
infinite world, an ultimate unit of being. The word itself derives from Greek ‹monas› and was
first used in Pythagorean (and adopted by Platonic) philosophy referring to an indivisible
origin. Isaac Newton's approach towards the world came closer to the Greek philosophy,
thus attributing to the term the finitude of the multitude, the vastness in the limits,
or the undivided whole—as Plato would put it. As Boullée admires the Newto-
nian philosophy the bodies he uses are emerging from the philosophy of
Plato. For him it is clear that the word body can only be mapped to
the meaning of geometric solid, and he is possibly follow-
ing the platonic tradition, guided by regularity
and selecting natural forms.

In the physical world, bodies can be found in different states. If the word's root means ‹to appear› then the body's states would be something so integral to it as its appearances. The body of a chameleon, for example, is frequently encountered in different states. That only leaves space for wondering. Are the geometric bodies also found in different states in their world as the bodies are found in life? If so, there must be processes of transformation that the geometric bodies undergo, keeping in mind that processes always imply verbs instead of nouns.

For Boullée architecture is «the art of creating perspectives through the arrangement of bodies and knowledge how to combine all the scattered beauties of nature to make them effective [...][2]. If I was to incorporate in my Architecture all the poetry of which it was capable, then I should study the theory of bodies and analyse them, at the same time seeking to understand their properties, the power they have on our senses, their analogy to the human organism»[3].

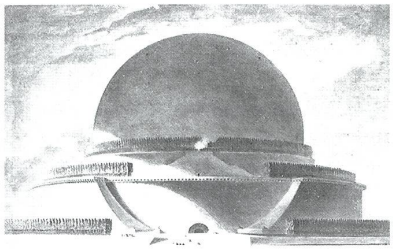
In his essay, Boullée builds his own story, loaded with philosophical terms representative of the Enlightenment and the revolution. The bodies then are captured trying to fit the necessities of the abstract terms used. In Boullée's architecture the bodies are arranged in such a way that the composition contributes to the ‹character›[4] of space. They have to consist of ‹regular›[5] shapes, since regularity is considered a virtue for a shape, along with symmetry and variety. In the interior of the bodies, a space is created. This is where the act develops and thus the stage is defined. To accentuate the ‹grandeur›[6] of these bodies and create the feeling of ‹immensity›[7] while in the space, Boullée draws them in excessive size; in this way turning the building into monument that serves to welcome the newly formed body of ‹citizens›[8]. The spaces of Boullée are now addressed to the citizen as part of the republican body that the French revolution brought. Monumentally vast interior public spaces like these guide the citizens to a determined intuition of the immensity of space. After all, these spaces constitute a grand stage for the citizens, where they would feel united under one body.

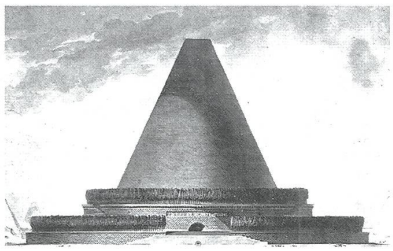
There are three bodies, among others, in Boullée's drawings: the ‹sphere›, the ‹colonnade› and the ‹cone›. Each one is found in different building types that were never realised. The ‹sphere›, for instance, is found in Newton's cenotaph, the ‹colonnade› in projects such as these for the basilica or the museum, and the ‹cone› also in cenotaphs. These bodies are regular, standing autonomously within the composition and are highlighted through their excessive scale. They take

their place as heroes in the stories that Boullée is building in his spaces. As bodies, what are the recognisable states in which they are found in Boullée's architecture? It should be clear what kind of geometric space corresponds to every state. Since the architecture of Boullée was never realised, we cannot talk about the geometry of construction and the transfer of his drawings to buildings, but we can talk about the geometry of discourse and the geometry of the representation of bodies; considering these bodies in different states. The states of geometrical bodies in architecture, generally and not only in Boullée's case, can differ and they are affected by natural (physiological, physical) and historical (societal, technological, and aesthetic) factors of each period of time. They are presented as final states, in other words, specific appearances. But usually states are linked by processes that lie in between and can also be described as flowing acts, or fluctuations between two states where doubt takes place.[9] In order not to get lost in doubt it is important that the states are discrete and recognisable and along with them the processes in between should be recoverable. This leads to the development of a theory behind the architectural bodies and the geometries that they are into, which involves the bodies' comprehensibility, their appearances and flowing acts. However, as the comprehensive force field that links the human sensorium to the world is advancing while affecting the natural and historical factors, a point is reached where the processes cannot be controlled, and the next state is not always expected. The architectural result seems less and less static but it always draws its origin from a collection (0 to ∞) of bodies of some state and at the same time it comprises an input for new transformations. The observer wants to know the state but there is no ultimate change and a certain determination of the state is always elusive.

Back in Boullée's case, his struggle during the process involves two steps of transformations: extracting the forms of his bodies out of nature and cosmology (Enlightenment) and then integrating these monumental bodies into the city (French revolution). Specifically, the example of the ‹sphere› is a story about the perfect body, as Boullée describes it. It looks like a planet fallen from a geometry of discourse into the geometry of representation, only to honour the sublime mind of Newton. Regarding its place in the city, the Cenotaph is the principal monument, hence it «stands alone in the centre of the precincts»[10]. The cone is the way that the architect gives the pyramid the proportions of an equilateral triangle, since according to him: «[I]t is perfect regularity that gives a body its beauty.»[11] The general plan of the Cenotaphs is a surrounding wall with the main monument in the centre—that of Newton. The rest have vaulting forms as crowns but designed with ‹low, sunken lines›.[12]
The colonnade could be extracted as an element from a Greek ancient myth, an «agreeable technique»[13] used as a muse in Boullée's architecture. The colonnade as a body comes from the ancient Greek temples to serve Boullée as a technique for his basilica. He uses it to distract the eye of the observer from the massive volumes and to diffuse the light in the building. Meanwhile he takes an important stance about the place that a basilica should hold, and that is a hill in the city, like that of Montmartre. The colonnade is the only one of Boullée's bodies that is comprised of distinguishable parts and diverges from giving the impression of an undivided whole that would match Plato's descriptions.
The three monumental bodies mentioned enclose Boullée's interior spaces, and public characteristics are applied to them. Boullée is always considering the placement of the bodies in the city and as a complex based on their use which, in turn, is always a result of philosophical reflection and abstraction. This is the way the geometric bodies of Boullée transform in order to integrate in the public space, they turn into new kinds of bodies in order to receive the citizens. Usually a public building is characterised by the external features of its constituent bodies. Boullée follows the opposite route. His bodies are turned inside out, the interior shapes their public character, and this finally adds up to a part of the city.

In Boullée's representational drawings the subsequent state has a high level of recoverability, monitored by the architect, keeping track of every body's origins. The origin, however, lies in bodies that in Boullée's eyes are perceived as Newtonian monads, and they remain the same, heroically in their limited existence. After all, Boullée chose the unifying interpretation of the word ‹body›, forgetting about its potential comprising parts. Yet other theories of bodies and geometries exist that are better in line with today's comprehensive force field. They give importance to the collection of appearances that comprise the ultimate body (in appearances as a whole). In these cases one departs from a hypothetical ultimate state taking for granted that complexity in a body





1 In this context, the word body serves better than the word volume that is used in the translation of the edition by Helen Roseau in 1953. According to the etymology dictionary, the word volume has to do with the size and its root comes from the verb ‹volvere› which means to ‹turn around›. http://www.etymonline.com/index.php?term=volume&allowed_in_frame=0 . Retrieved: 14.12.2015.
2 Etienne-Louis Boullée, ‹Architecture Essay on Art›, London 1974, p. 88.
3 Ibid, p. 82.
4 Ibid, p. 89, «To give a building character is to make judicial use of every means of producing no other sensations than those related to the subject. In order to understand what I mean by the character or expected effect of different objects, let us take a look at some of the beauties of nature and we shall see that we are forced to express ourselves in accordance with the effect they have on our senses.»
5 Ibid, p. 86, «How is it that we can recognise the shape of a regular volume at a glance? It is because it is simple in form, its planes are regular and it repeats itself.»
6 Ibid, p. 87, «Grandeur, too, always pleases us whatever form it takes for we are ever eager to increase our pleasure and would like to embrace the Universe.»
7 Ibid, p. 91, «A poetic impression of grandeur has sometimes led us to confuse grandeur and immensity. If man is depicted at sea with only sky and water around him, this spectacle is for man one of true immensity. In such a situation, everything is beyond our understanding. We have no means of making comparisons.»
8 Ibid, p. 99, «It is in such a place that the citizens give voice to their complaints and where they attend the most important debates.» (talking about the municipal palace).
9 http://www.etymonline.com/index.php?term=dubious&allowed_in_frame=0. Retrieved: 10.11.2015. Doubt: 1 dubious: vacillating, moving two ways, fluctuating. 2 duo ‹two›, with the sense of ‹two minds, undecided›.
10 Etienne-Louis Boullée, ‹Architecture Essay on Art›, London 1974, p. 106.
11 Ibid, p. 91.
12 Ibid, p. 106.
13 Ibid, p. 91.

fig. a. Etienne-Louis Boullée, Cenotaph for Newton, drawing representing day, 1784.

fig. b. Etienne-Louis Boullée, Project for Cenotaphs.

fig. c. Etienne-Louis Boullée, Project for the Museum, 1785.

is totally accounted for and the processes are completely understandable. When one is comfortable enough with the doubt of the processes and the non-linearity of the results, then the recoverability of the body is maximised.

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