

Biophilia and the City: Towards an Urban Walk

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# ENVIRONMENTS BY DESIGN

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# BIOPHILIA AND THE CITY: TOWARDS AN URBAN WALK

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## INTRODUCTION

Biophilia<sup>1</sup> today offers regenerative potential to address the mental and physical problems that have emerged during the global health emergency. The new post-pandemic world can restart from the extent to which the manipulation of the built environment restores the link with Nature.

Biophilia is a response to the pandemic that generates the image with which it is possible to reformulate anthropic models that effectively restore man's relationship with the Earth's living species. This gaze, which opens up a reflection on the relationship between the pairs of terms man-nature and health-territory, must start from biophilia, from the indissoluble deep relationship over thousands of years that man has tightened with life, satisfying physical, psychological and emotional needs in it.

## RESTARTING FROM ETHICS

Overcoming the pandemic means, first of all, laying the foundations for a revolution of universal ethical principles. This overcoming requires the construction, over time, of an image so powerful as to orient the whole of humanity away from the egoistic reasoning of which it is the victim; by reworking the first law of human altruism expressed by Garret Hardin in *The Limits of Altruism: an Ecologist's View of Survival*<sup>2</sup> which identifies the root of a selfish logic into the ethical process of conservation.

Edward O. Wilson analysing a famous sentence by Garrett "Never ask a person to act against his own self-interest"<sup>3</sup> observes that the way to safeguard the earth and the species that belong to it is when a mechanism is inserted that leads to individual interest, therefore of a selfish nature. Unveiling an egoistic principle a priori within a conservationist ethic would ensure that an ethical model is set up that is oriented towards the protection of a more important collective good – the preservation of Nature and the earth – by exploiting the perception of individual advantage.<sup>4</sup>

Therefore, "ethical values are constructs that evolve in the human mind through natural selection"<sup>5</sup> and consequently education to reflect on how to incorporate biophilia into the post-pandemic architecture is about making a connection between species that takes into account that "ethical constructs are learning rules that have evolved genetically because they enhance the survival and reproduction of human beings..."<sup>6</sup> and it is essential to introduce biophilia into the anthropogenic factor because "it informs us that the balance and mental health of human creatures depends on the existence and health of non-human creatures and wild Nature."<sup>7</sup>

## NATURE AS A SHELTER FOR THE SOUL

Covid-19 has caused an increase in mental illness,<sup>8</sup> contributed to the rise of violence<sup>9</sup>, collapsed the global health system<sup>10</sup> and undermined social relations.<sup>11</sup> Is it still conceivable to find a corner of paradise in this world?

In Giuseppe Barbiero's words in *Ecologia affettiva*<sup>12</sup> (Affective Ecology), this is still possible because "in nature, cooperation arises from a truce in competition. If it does not degenerate into the destruction of one of the two contenders, the conflict can evolve into cooperation through certain key steps, consistent with the principles of natural selection that favours the fitness<sup>13</sup> of the individual."<sup>14</sup>

In the book *Introduzione alla biofilia. La relazione con la Natura tra genetica e psicologia*<sup>15</sup> (Introduction to Biophilia. The relationship with Nature between genetics and psychology) the authors Barbiero and Berto, identify that: "biophilia, can be defined as the phylogenetically determined predisposition to human compassion for non-human creatures. Through cognitive mediation, biophilia can evolve into asymmetric empathy for different life forms."<sup>16</sup>

This mediation can be found in the prefigured relationship between the human body and the idea of shelter that Joseph Rykwert refers to in the text *On Adam's House in Paradise*<sup>17</sup> since it is configured through a search for psycho-physical well-being that operates in continuity with the man-nature syntax necessary to identify the possible origin of the form of biophilia. Rykwert formalises through the description of the text the necessary condition to imagine what the house for the soul was, the space and the place that, besides being a building in itself, assumes in its formativity, a theorisable model that connects with the internal world – the psyche – and with that of the origins – the corporeality and the earth – starting from the relationship with nature and that, syntactically continues with what is the meaning of biophilia highlighted by Barbiero and Berto determines the archetypal nature of the relationship with things.

The shelter, as described by Rykwert, – physical and psychological – is constructed by means of an ideal order. Rykwert, when re-describing the place of the soul, refers to a precise physical space: "the floor was made of earth, its pillars were living beings, its woven ceiling was like a small sky of flower leaves..."<sup>18</sup> nature is in fact an integral part of the image that serves to define what is "the mediation between the intimate sensations"<sup>19</sup> of the body and the infinite potential of the unknown nature that surrounds man.

## NATURE AS A CURE FOR MAN

At this point it becomes legitimate to ask whether architecture can lead us back to our deepest origins and preserve the image projected by Rykwert, offering protection and comfort in a way of inhabiting the earth that operates in continuity with Nature?

Where and when does the possibility of glimpsing the transferability passage that projects an archetypal figure of biophilia from the forms of the earth into architecture begin? Barbiero and Berto explain that "biophilia is fundamentally the expression of psychological phenomena that have their roots in the deepest human history, when interaction with the natural environment found its own balance that is now inscribed in our genes."<sup>20</sup>

The effect of the generalised lockdown replaced the figure of the active man and protagonist of the city with that of a passive subject and observer, while Nature rapidly regained vital space between the anthropic structures. As evolutionary biologist Menno Schilthuizen explains, Nature has a very rapid ability to adapt to the absence of man, and as botanist Peter Del Tredici points out, occupying empty spaces is an innate opportunistic factor in nature.<sup>21</sup> Man, who has changed some of the characteristics of his behaviour during confinement, now has the opportunity to reverse the polarised image of an anthropocentric world into a biocentric one, capable of re-establishing a connection between nature and the human being.

The purpose of this inversion should be to put the relationship with the territory back at the centre of man's interests and behavioural habits, projecting and introducing into everyday life new scenarios for a psycho-physical balance between the species and the geographies they inhabit.

The possibility of approaching a different way of thinking, designing and living spaces would initiate a process of restoration of the ecological image of our planet by replacing the model of consumption with a sustainable logic of being in the world, consistent with human history, tradition and the culture of places.

The idea of a plausible image that we can look for in that gaze that does not flee from its origins but seeks continuity in them, which comes through time and things and which re-emerges and is reborn from the forms of the past, is thus unfolding and clarified.

This process should be the result of a thought that is formalised in a coordinated design of preventive and operational actions aimed at restoring the geographical features of the territory in a city whose aim should be to re-establish the biophilic relationship with the original identity of the places.

## THE CANNIBALIZATION OF THE EARTH'S CRUST

However, the primordial image of Man, the archetype of a figure related to the origins, in harmony with nature, the sky, the earth, the animals and the rhythm of the biosphere, is thrown into crisis as it becomes fundamental to recognise how the betrayal of the original principles of instancing oneself on earth have been replaced by an idea of inhabiting nature that derives from the speculative logic of profit and power and that, from time to time, has redefined the compromises exercised on the earth's crust.

Barbiero's words are crucial to understanding the scenario towards which Man is projected, because, the biologist continues, "the disappearance of Nature is a question of the ethics of mankind's survival."<sup>22</sup> Barbiero continues by asking "How will we replace the services provided by ecosystems? What happens to the human psyche when such a fundamental part of the human evolutionary experience is disappears?"<sup>23</sup>

In the essay *Civiltà e territorio*<sup>24</sup> (Civility and territory) Saverio Muratori offers an overview of a man who, from the decadence in which he is immersed, perpetually struggles between "the destructive power of self-consciousness..." and "the natural conservative force in the spontaneous consciousness of the species."<sup>25</sup>

These two antagonistic forces reach equilibrium at the moment when man's conservative nature becomes aware of the impact of the destructive force of human activity on the planet by becoming aware of the uncontrollable loss of natural reality; this force is such that it destroys man himself.<sup>26</sup>

This irreversible bulimic process of cannibalisation of the ground that *Homo Sapiens*, as an ecological agent, has imposed on the planet, is formalised in terms of recognisability when the action carried out by man on the earth's crust is so extensive and irreversible that it becomes fundamental to find a term to define the era of the anthropic factor. Man proclaims himself as the undisputed and unconditional ruler of the laws of nature, defining his era as the era of man: the Anthropocene<sup>27</sup>.

## WALKING IN THE DARK

The anthropocene places the figure of man at the top of the so-called food chain, figuratively corresponding to the "beast" of the past – as Giorgio Agamben observes – who omnipotently scrutinises reality and who, looking back at the past, perceives the vertigo with which man is unable to give way to consciousness in order to listen to nature.<sup>28</sup>

The current vertigo caused by the pandemic, corresponds to the sense of bewilderment, the search for the dark described by Agamben,<sup>29</sup> the estrangement from security which, plunging into the new millennium, initiates a retrospective analysis of the substance of the years gone by and which requires

a revolution for the new coming – the ethical revolution. The new century or millennium, demands in its acerbic ascent to maturity, a condition of distancing themselves from the past, from the roots<sup>30</sup> of its own time in order to reaffirm a new identity that, as Agamben describes, corresponds to the fracture that is generated between one century and another, to the lost identity of a time – pre-Covid-19 – that must walk in the darkness of its own time to get used to the absence of light.<sup>31</sup>

If we think about what we have connected in the discourse so far – biophilia, origins, man, nature, ethics, pandemic... – we can immediately realise that projecting ourselves in search of a way of thinking about reality unquestionably starts from a study of the forms of the past and that in the attempt to move away from them, we rediscover during the effort of the ascent – see the myth of Sisyphus by Camus – a plausible origin that brings us closer to the figure of the archè, allowing us to prefigure the shift of the egocentric model that man has introduced as a scenario in the construction of his own daily life towards a biophilic model that brings man on the same level as other life forms.

### **TOWARDS A BIOPHILIC IMAGE**

At the origin of these reflections, there is the idea of understanding how we can today measure up to the thought that produced some of the theories considered innovative at the beginning of the last century and that, believing in distancing itself from tradition and its roots, as well as measuring itself with the architectural and urban space, projected onto it scenarios and figures that transformed the image of the city.

According to Agamben, “the contemporary is the one who receives in full face the beam of darkness that comes from his time.”<sup>32</sup> This assumption leads us to ask in what form does the contemporaneity of a theory reside, and how can architectural design become a biophilic mechanism?

I would start by questioning whether the image of a new biocentric city can take shape from the thinking of the theories developed by the Modern Movement, whose prefigurations projected an anthropomechanical model onto the city, thus participating in the definition of the process of acceleration and alienation<sup>33</sup> of late modernity.

Secondly, I would like to understand whether biophilia, understood in its relationship to life between man and Nature, can help to re-formulate a theory for design.

### **A new point of view for the Modern Movement**

The scientific discoveries of the new century, the new materials, the experiments related to industrial production and the arrival of new means of transport literally made cities explode under the weight of innovation and the desire for change.

In all this, the Modern Movement set itself a horizon to be reached which, in architectural and urban planning terms, aimed to respond to the new post-war housing needs in a universal manner, offering standard solutions valid everywhere.

If the first attempt is on the one hand to find generalisable solutions, on the other hand we know that generalisability operates the elimination of difference and that in this case it represents the factor of biodiversity, effectively removing the value of the geomorphological characters necessary to postulate a theory of design that links with Nature.

However, many projects on the urban and architectural scale offer a reason to reflect on the extent to which the rural conditions surrounding the newly emerging metropolises introduced the theme of biophilia into ideas and projects for housing and the city in fragments.

The projects of the architects of the Modern Movement bring back, in their material and immaterial representation, a content with a nostalgic aesthetic factor: the search for nature, whose intent is to reproduce in the new the element that has generated in the individual experience the factor of psycho-physical well-being that is part of the innate memory in the man's nature.



Despite the fact that the green could somehow appear as a decorative device, the figure of the green is in fact the tangible connection between the architectural project and Gaia, becoming the element of reconciliation with the hypothesis that “each generation corresponds to a specific way of stimulating biophilia.”<sup>34</sup>

Architects such as Wright, Gropius, Mies, Le Corbusier and Aalto experimented not only with architectural features expressing functionality, rationality and aesthetics, but also with research that went beyond the architectural object, contributing to the fact that man's home is to be found in the relationship with nature, and that nature is a verbal instrument of design, because as Calvino intuits “... the eye does not see things but figures of things that see other things...”<sup>35</sup>

### **A house is a biophilic device**

Le Corbusier's famous phrase: “Une maison est une machine à habiter”<sup>36</sup> which has crystallised over time the image of the house-machine, needs to be totally overturned because the house is not a machine but an indissoluble device reflecting man's need to have a relationship with Nature – with the fragments of it. The house and, the sum of houses that become cities, are for man the connection and the relationship with the biosphere, since *Une maison est un dispositif à biophilie*.

### **TOWARDS A BIOPHILIAC WALK**

Aalto's Paimio Sanatorium is a medical device that, together with the MIT Baker House Dormitory (Figure 1) transforms what Barbiero calls “the know-how linked to the relationship with Nature”<sup>37</sup> into an architectural instrument which stimulates biophilia. Gropius, when he built his private home in Cabot Cove (Figure 2), demanded that it be immersed in Nature; the rationality of the gesture lies in formalising the way in which it is possible to bring fragments of the outside world into the *Dispositif à Biophilie* to heal the soul and the body.

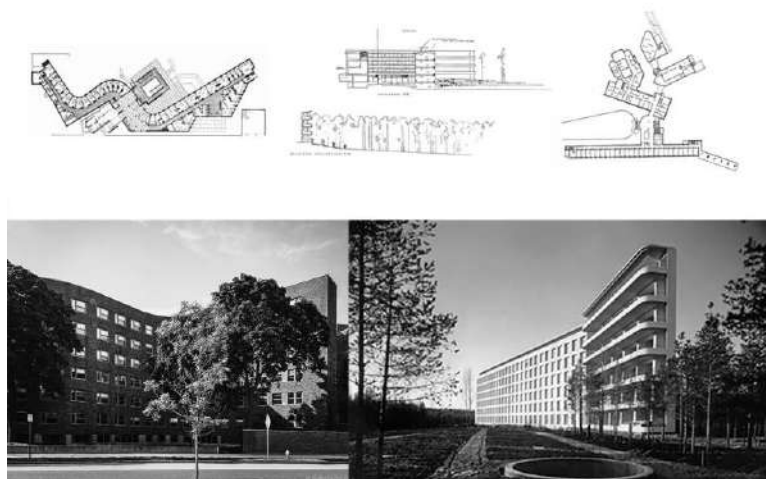


Figure 1. Sketches and drawings by Alvar Aalto

Wright's organic machines build spaces for a cultural transmission of biophilia.

If we look at the designs of the Darwin D. Martin House or the Robie House (Figure 3) we can glimpse that the surrounding environmental conditions transform the natural environment into a pedagogical act: biophilia pervades the architecture offering the user the regenerative capacity to condition the emotions, physical development, reasoning, mental and social health of man.



*Figure 2. Pictures of the Gropius House by Thomas Pepino*



*Figure 3. Drawings by Frank L. Wright and photo by Thomas Pepino*

Le Corbusier, whose image as an innovator is encapsulated in the astuteness with which he was able to steal references from the characters and figures of reality and reintroduce them into the world around him,<sup>38</sup> never abandoned his intention to build a house for the soul. It is obvious, in my opinion, that he would not have been able to promote himself if he had said: “Mes projets sont des projets pour la nature! Ces projets ne sont pas destinés à l’homme nouveau qui désire la voiture.”

If we want to glimpse an eco-logist imprint in the idea that moved a whole generation of architects focused on rebuilding the dwellings of entire parts of the city following the bombings of the First World War, the “invention” of affordable housing, the “Dom-ino” (Domicile and Innovation)<sup>39</sup> reminiscent of the game of dominoes, offers a theoretical approach to imagining the new biophilic city. Architecture is partly reduced to assemblage, it becomes possible to play with certain types of forms and, thanks to the possibility of re-populating the land after the disaster of the world war, it helps to theorise a set of factors that lead to the idea of a “cité jardin horizontale” in Pessac (Figure 4). The plausible formalisation of a theory actually begins with the need to construct a condition of well-being through architectural design.

In most of Le Corbusier’s projects, we notice how the construction of the scenic apparatus – see Villa Savoye – brings the figure of Nature back to the centre (Figures 5 and 6).



Figure 4. Le Corbusier (Jeanneret, Charles-Edouard 1887-1965), Quartier Modernes Frugès, Pessac, 1924. Encre de Chine sur calque cuir, 100 x 170 cm. © 2022. Adagp Images, Paris, / SCALA, Firenze



Figure 5. Pictures of Maison La Roche by Thomas Pepino

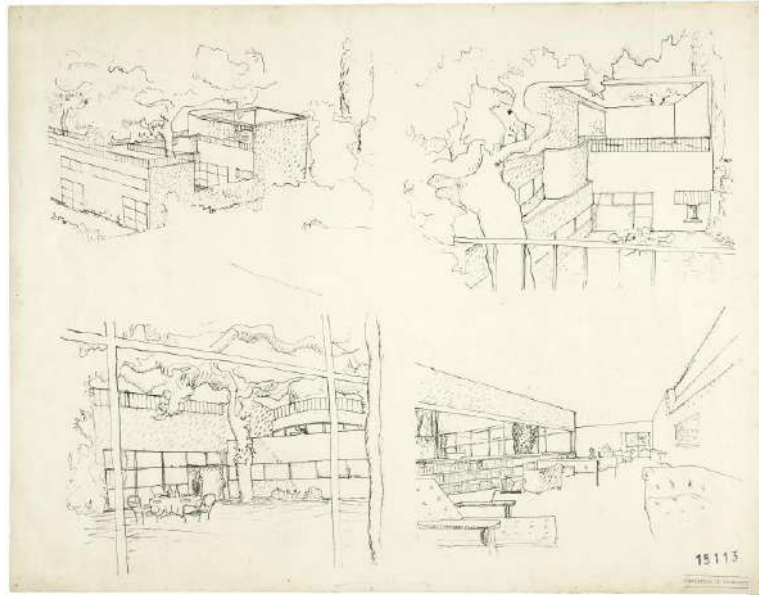


Figure 6. Le Corbusier (Jeanneret, Charles-Edouard 1887-1965), *Maisons La Roche-Jeanneret*, Paris, 1923. Tirage gélatine sur papier Canson, 49 x 62 cm. © 2022. Adagp Images, Paris, / SCALA, Firenze

One aspect not to be underestimated at this point is, in my opinion, how a Peircian object fits perfectly with the idea that Le Corbusier is a biophilic. If Peircian theory maintains that the flow of ideas is produced through mental associations of the logical statements that precede it, the construction of a plausible space for man to project himself into the architectural project constantly runs through the experience of the forms of the project. The experience at the Charterhouse of Ema, as Le Corbusier himself says, is among other things, a founding moment to grasp the relationship that architecture establishes between built and natural elements for psychological and physical regeneration.

The Villa Saoye deserves to be decoded on the basis of biophilia, the relationship between nature, man and architecture.

## CONCLUSION

This essay crosses the relationship between man and Nature in an interdisciplinary way, searching for a philological connection that builds a plausible archetypal image of biophilia as it evolves over human time. The disciplinary encroachment, although operating within a preordained structure of thought, serves to define the edges of research and reasoning on things.

In the global framework, cities are the breath of evolutionary events and consequently citizens passively undergo behavioural transformations following ecological ones.

The intention of this text is not to find a finished conclusion, but rather to identify within the Modern Movement a possible reasoning on the theme of biophilia, opening a critical reading of the figures and forms that are responsible for codifying in the built environment the relationship between Nature and man, imagining possible scenarios for the debate on biophilia.

## NOTES

<sup>1</sup> The term biophilia is first used in a definition by the psychoanalyst Erich Fromm, which defines biophilia as: “the passionate love of life and of all that is alive.” See: Erich Fromm, *The Anatomy of Human Destructiveness*, (New York: Holt, Rinehart and Winston, 1973), 365. In 1979, the same term was used by biologist Edward O. Wilson. See: Edward O. Wilson, *New York Times Saturday Review of Books and Art*, vol. 84, 32.

<sup>2</sup> In my opinion, notwithstanding the fact that 50 years have passed since the reasoning on common goods and the carrying capacity of the planet, Garrett's social philosophy is still coherent with the current state of our society. Man's inability to manage long-term crises – in this case the pandemic – is an obvious ethical inadequacy of making man subordinate to the needs of the planet. Garrett Hardin, *The Limits of Altruism: an Ecologist's View of Survival*, (Bloomington: Indiana University Press, 1977).

<sup>3</sup> Garrett J. Hardin, *The Limits of Altruism*, 27.

<sup>4</sup> Cf. Edward O. Wilson, *Biofilia*, trans. Carla Sborgi, (Prato: Piano B, 2021), 178.

<sup>5</sup> Giuseppe Barbiero, and Rita Berto, *Introduzione alla biofilia. La relazione con la Natura tra genetica e psicologia* [Introduction to Biophilia. The relationship with Nature between genetics and psychology], (Roma: Carocci, 2016), 30.

<sup>6</sup> Barbiero, and Berto, *Introduzione alla biofilia*, 30.

<sup>7</sup> Barbiero, and Berto, 30-31.

<sup>8</sup> See: Rodolfo Rossi et al. “COVID-19 Pandemic and Lockdown Measures Impact on Mental Health Among the General Population in Italy,” *Frontiers in Psychiatry* 11, no. 790 (2020): 2, accessed January 20, 2022, doi.org/10.3389/fpsy.2020.00790, and Cao Wenjun et al. “The psychological impact of the COVID-19 epidemic on college students in China,” *Psychiatry Research* 287, no. 112934 (2020), 8-10, accessed January 20, 2022, doi.org/10.1016/j.psychres.2020.112934.

<sup>9</sup> See: Shelby Bourgault, Amber Peterman and Megan O'Donnell, “Violence Against Women and Children During COVID-19—One Year On and 100 Papers In: A Fourth Research Round Up,” *Center For Global Development*, <https://www.cgdev.org/publication/violence-against-women-and-children-during-covid-19-one-year-and-100-papers-fourth>, accessed January 20, 2022.

<sup>10</sup> See: Mara Tognetti, “Come ripensare il sistema sanitario dopo questa pandemia,” *Quotidiano Sanità*, January 20, 2022, accessed January 20, 2022, [http://www.quotidianosanita.it/studi-e-analisi/articolo.php?articolo\\_id=84802&utm\\_source=dlvr.it&utm\\_medium=gmybusiness](http://www.quotidianosanita.it/studi-e-analisi/articolo.php?articolo_id=84802&utm_source=dlvr.it&utm_medium=gmybusiness), and OECD/European Union, *Health at a Glance: Europe 2020: State of Health in the EU Cycle*, (Paris: OECD Publishing, 2020), 43-53, <https://doi.org/10.1787/82129230-en>.

<sup>11</sup> See: Amanda Mull, “The Pandemic Has Erased Entire Categories of Friendship: There’s a reason you miss the people you didn’t even know that well,” *The Atlantic*, January 27, 2021, <https://www.theatlantic.com/health/archive/2021/01/pandemic-goodbye-casual-friends/617839/>.

<sup>12</sup> Giuseppe Barbiero, *Ecologia affettiva. Come trarre benessere fisico e mentale dal contatto con la Natura* [Affective Ecology. How to get physical and mental well-being from contact with Nature], 7th ed. (Milano: Mondadori, 2021).

<sup>13</sup> The term fitness, as Barbiero himself specifies, means the reproductive success of a given genotype. Specifically, it is understood here as a *conditio sine qua non* post-pandemic, a necessary requirement to rebuild the lost relationship between species, cooperating with the forms of nature.

<sup>14</sup> Barbiero, *Ecologia affettiva*, 82.

<sup>15</sup> Giuseppe Barbiero, and Rita Berto, *Introduzione alla biofilia*. (Roma: Carocci, 2016).

<sup>16</sup> Barbiero and Berto, 54.

<sup>17</sup> Joseph Rykwert, *La casa di Adamo in Paradiso* [On Adam's House in Paradise], trans. Enrico Filippini and Roberto Lucci, 3rd ed. (Milano: Adelphi, 2005).

<sup>18</sup> Rykwert, *La casa di Adamo in Paradiso*, 217.

<sup>19</sup> Rykwert, 217.

<sup>20</sup> Barbiero and Berto, 31.

<sup>21</sup> Cf. Elena Sommariva, “Umani in quarantena, la natura conquista le città: esercizi di coesistenza,” *Domus*, March 27, 2020, <https://www.domusweb.it/it/architettura/gallery/2020/03/27/esercizi-di-coesistenza-umani-in-quarantena-la-natura-conquista-le-citt.html>.

<sup>22</sup> Barbiero and Berto, 30.

<sup>23</sup> Barbiero and Berto, 30.

<sup>24</sup> Saverio Muratori, *Civiltà e territorio* [Civility and territory], (Roma: Centro Studi di Storia Urbanistica, 1967).

<sup>25</sup> Muratori, *Civiltà e territorio*, 272-273.

<sup>26</sup> Cf. Muratori, 272-273.

<sup>27</sup> The term anthropocene was diffused by Paul Crutzen (1933-2021) in 2000 to define, through the use of a neologism coined by Eugene Filmore Stoermer in the '80s, the geological era in which the work of man on the earth's crust has become characteristic for the planet. In the development of this discussion, it represents the outcome of a genealogy of human activity that, starting from the use of the machine as an instrument at its service, identifies the era in which man is *deus ex machina* of the planet. See: *Vocabolario Treccani Online*, s.v. "Antropocene," accessed December 10, 2021, [https://www.treccani.it/enciclopedia/antropocene\\_\(Lessico-del-XXI-Secolo\)/](https://www.treccani.it/enciclopedia/antropocene_(Lessico-del-XXI-Secolo)/).

<sup>28</sup> Cf. Giorgio Agamben, *Che cos'è il contemporaneo?*, (Milano: Nottetempo, 2008), 10-11.

<sup>29</sup> Cf. Agamben, 13.

<sup>30</sup> For more information about the meaning of roots and origins, see Maurizio Bettini, *Contro le radici: Tradizione, identità, memoria* (Bologna: Il Mulino, 2012), 11-20.

<sup>31</sup> Cf. Agamben, 12-13.

<sup>32</sup> Agamben, 15.

<sup>33</sup> For further discussion useful in defining social acceleration and alienation, see Hartmut Rosa, *Accelerazione e alienazione. Per una teoria critica del tempo nella tarda modernità* [Alienation and Acceleration. Towards a Critical Theory of Late-Modern Temporality], trans. Elisa Leonzio (Torino: Einaudi, 2015), 15-21, 108-114.

<sup>34</sup> Barbiero and Berto, 37.

<sup>35</sup> Italo Calvino, *Le città invisibili*, (Torino: Einaudi, 1972), 21.

<sup>36</sup> Le Corbusier, *Vers une architecture*, 1st rev. ed. (Paris: Les Éditions G. Crès et C<sup>ie</sup>, 1924), 73.

<sup>37</sup> Barbiero and Berto, 37

<sup>38</sup> On this subject, see Brian B. Taylor's text that points out the possible connections between the system of structures of the Dom-Ino house and the brochures of the American Portland Cement Association for which Le Corbusier worked. See: Brian B. Taylor, *Le Corbusier at Pessac*, (Cambridge: MA., 1972), 15. Many of Le Corbusier's projects reflect travel experiences and everyday objects, the figures he used also reside outside the discipline of architecture, such as the unrepeatable influence of the time of the Transatlantic liners.

<sup>39</sup> Pier Vittorio Aureli, "The Dom-Ino Problem: Questioning the Architecture of Domestic Space," *Log.* no. 30 (2014), 153–156. <http://www.jstor.org/stable/43631744>.

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