

## **Tales from Fragile Grounds: The Project of Vulnerable *Inter-Spaces* in Stratified Landscapes**

*By Marilena Bosone\**

*The strength of fragile grounds lies in their unfinished features, their ‘ruined’ patina and thus in their being weak, porous and in continuous deformation; but they are also open and complex landscapes, available to change repeatedly. The physical and cultural vulnerability of fragile grounds makes it difficult for society to imagine a coexistence with it. However, the accidental component, meant as an occasional but at the same time creative relationship with the landscape, is both the intrinsic dynamism of fragile grounds and the different possibilities of using the ordinary space of everyday life. This contribution investigates the issue from a qualitative and no longer just quantitative point of view, through the discipline of architecture. Referring to the methodological aspect, new variables are identified, as well as some interpretative and operative devices, which flow into the project in specific actions for the valorization and enhancement of fragile grounds in stratified contexts of historical-archaeological and landscape relevance. This approach makes it possible to deepen the concept of inter-spaces, which, starting from an intrinsic condition of vulnerability of a ‘middle ground’, creates the conditions for a project of interrelation and contributes to the development of a significant role of architecture in contexts exposed to risks.*

### **Introduction**

#### **From Fragile Grounds to Stratified Landscapes**

“In the ground [...], going down into stratified contexts, it is the fragile, latent, incoherent and heterogeneous evidence that shows to be surprising and more difficult to integrate into our habitual knowledge. [...] It is a matter of transforming the ground into a book.”<sup>1</sup>

Even though there is a great and unacknowledged similarity between nature and man in spontaneously shaping contexts, it is becoming increasingly difficult for the community to find ways to live with the ground’s condition of physical and cultural vulnerabilities. This attitude concerns complex contexts characterized by a condition of risk and derives from a lack of knowledge of the real nature of the landscapes we live in. In fact, this deficit has been followed over time by the practice of destruction due to man’s abandonment of the ground.<sup>2</sup> So, more and more frequently, the evidence of a natural or cultural risk is approached with extreme technicalities, which seem

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1. A. Carandini, *Storie dalla terra*. (Turin: Einaudi, 2010).

2. A. Carandini, *La forza del contesto*. (Bari: Laterza, 2017).

to have the objective of eliminating this condition, giving an apparently certain solution to a problem with an uncertain nature. From risk also derives the idea of ‘absolute security’, which is “an illusion and not the opposite of risk, but rather its dangerous removal.”<sup>3</sup>

Fragile grounds are a topic of interest mainly in the fields of specialized disciplines and engineering techniques, but it has a particular affinity with the disciplines of architecture and landscape, which allow other relevant contemporary issues to be addressed. In general, since the architect always operates because of a necessity, it is even more evident how a project depends more on ‘vulnerability’ than on ‘continuity.’<sup>4</sup> For example, the different dimensions of a city in which memory and changing ways of life coexist always result in a dynamic relationship in the territory. The architectural design also allows us to draw on interpretative and experimental tools that build a qualitative and no longer just a quantitative point of view on the project of coexistence with the fragile characters of the landscape.

However, even in the context of contemporary architectural design some conditions of difficulty emerge related to this subject, which have much deeper roots. In 2010, Vittorio Gregotti identified some problematic assumptions in the way of making architecture that would have caused certain dangers, such as “the renunciation of the modification of the present as a project of critical confrontation with the context, [...] the renunciation of the relationship with the ground as anthropogeography and as a history of settlement systems.”<sup>5</sup> In this regard, the geographer Franco Farinelli insists on the fact that the anthropogeographical landscape is what “promotes the unexpected”<sup>6</sup> and, perhaps, it will allow us to regain a new familiarity with the collective memory of a place called ‘ground’.

More recently, Luigi Franciosini has denounced also an absence of the ‘form of the ground,’<sup>7</sup> of topography and geology in the concept process of cities and architecture, which produces real over-structures and dulls the direct relationship of the human being with nature.

Coming back to the ‘things of the ground’ and to the context, literally understood as the matrix of a “connection of different kind of weaves”, invites on thinking about what the fragility of the ground really is: “Territories are never fragile; fragility always lies in the relationship between what we demand and what we want to leave to the landscape”. The idea of fragility, then, is an idea closely linked to man and to the tension that is generated among different energies, sometimes concentrated, sometimes so diffuse as not to be perceptible.

If the level of fragility depends on man relating to a specific context, the theme of a ‘space of mediation’, relationship and coexistence among all the variables of

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3. O. Carpenzano, *Le strategie del progetto urbano per ricostruire e proteggere*. In L. Caravaggi, O. Carpenzano, A. Fioritto, C. Imbroglini and L. Sorrentino (eds.), *Ricostruzione e governo del rischio*. (Macerata: Quodlibet, 2013).

4. G. Byrne, *Lectio Magistralis. Costruire nel costruito*. In G. B. Battista and A. Dessì (eds.), *Territori dell'architettura. Continuità e fragilità nel progetto contemporaneo*. (Macerata: Quodlibet, 2022).

5. V. Gregotti, *Tre forme di architettura mancata*. (Turin: Einaudi, 2010).

6. F. Farinelli, *Crisi della ragione cartografica*. (Turin: Einaudi, 2019); Farinelli, F. *Geografia. Un'introduzione ai modelli del mondo*. (Turin: Einaudi, 2003).

7. L. Franciosini, *Topografia e forma urbana*. In *U+D Urban and design*, no. 15 (2021).

this complex system becomes central in architectural design. This investigation intends to develop the concept of an *inter-space*<sup>8</sup> as an architectural space inherent to the instability of a 'middle ground', which allows us to think about a project of interrelation among each side involved, acting in a preventive way, from a time point of view.

The architectural project is intended as a tool with which one discovers unexpected opportunities for dialogue between visible and invisible, variable and non-variable elements, in a continuous and discontinuous system of relationships to be explored, in which man, according to the evolution of the most recent debates, is no longer the sole subject but a "human being who is part of nature and acts in a continuous and dialectical relationship of adaptation with the surrounding environment."<sup>9</sup>

The condition of uncertainty, which has always connoted the settlement dynamics of urban history, leads to investigating a complex system of natural and anthropic variables. It is helpful to understand the processes of contemporary urban settlements, but also to identify a possible coexistence with the fragile components of territories, extending, for example, the protection and enhancement of the historical heritage also to the fragile grounds that characterize it. First, it is investigated 'how' these pre-existences have evolved into a landscape with specific fragile characteristics. Thinking about the 'how' opens a common field of research in design culture and provides useful insights into the evolution of contemporary urban contexts, which still today suffer from a lack of dialogue with the fragile character of the places in which they are situated.

Man-made structures are always the result of a relationship with an ever-changing environment; for example, the imposing 'natural monuments' of craters built by thousands of years of volcanism that structure a systemic urban matrix articulated in clearly recognizable parts. Awareness of this relationship allows for a better understanding of human settlements in fragile lands, but also of the natural forces that influence them and may have shaped their original conception,<sup>10</sup> just as they may influence contemporary architectural design.

According to this interpretation, the 'anthropogeographical landscape', mentioned above, is for all intents and purposes a 'stratified landscape' by the discontinuous and changing action of man and nature. It is the result of erosion, destruction, movements, deposits and accumulations; thus, it is the result of natural and anthropic forces combined or separated from each other.<sup>11</sup> In the presence of large natural phenomena, archaeological traces end up appearing as subsets of the natural stratigraphic sequence.

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8. João Nunes, in the context of the PhD Seminar *Nature built* at the University of Naples 'Federico II' on 28 April 2022, talked about *inter-spaces* as forgotten places of separation and sacrifice, but also active spaces of sharing, generators of a «'second structure' of nature that becomes even more interesting than the spaces that define it».

9. See Luigi Franciosini's lectio magistralis entitled *Form of the soil and form of architecture. A small anthology* at the University of Bari on 16 June 2022, [https://www.youtube.com/watch?v=coMsS5IIah4&ab\\_channel=PolitecnicoBari](https://www.youtube.com/watch?v=coMsS5IIah4&ab_channel=PolitecnicoBari).

10. See Erieta Attali's article entitled *Landscapes of Archaeology* on ArchDaily website, [https://www.archdaily.com/999739/landscapes-of-archaeology?ad\\_source=search&ad\\_medium=projectstab&ad\\_source=search&ad\\_medium=search\\_result\\_all](https://www.archdaily.com/999739/landscapes-of-archaeology?ad_source=search&ad_medium=projectstab&ad_source=search&ad_medium=search_result_all).

11. A. Carandini, *Storie dalla terra*. (Turin: Einaudi, 2010).

Therefore, it emerges the necessity to redefine the concept of the historical heritage associated with the stratified landscape in the context of fragile grounds. It is a cultural heritage in continuous evolution,<sup>12</sup> where natural events act in a structuring way. This concept overturns the idea of a linear time to which we are accustomed and opens to a ‘time in movement’, which is no longer thought “as the sequence past/present/future, but a continuous possible becoming, as temporality within temporality, as modification in continuation.”<sup>13</sup>



**Figure 1.** *Natural Formations and Remains of Human Activities in One of the Harshest Landscapes on Earth (Paracas National Reserve, Peru).*

Source: Photo taken by Erieta Attali and published in ArchDaily in the article *Landscapes of Archaeology* (2023).

In a geo-archaeological vision of fragile grounds, stratified landscapes are an inexhaustible source of inspiration for architectural design, because they tell of the phenomena that have affected it over time, shaping the territory and determining its evolution and its effect on communities (see Figure 1). Stratified landscapes suggest a transversal reading of the events which have produced that set of ‘overlapping architectures,’<sup>14</sup> of different languages and construction techniques, of new materials alternating with reused ones, which have been left with the role of saving and reaffirming the necessary material continuity of man’s work overtime.

Memory, through this reading, turns out to be a paradox, since to survive it must change and evolve but at the same time it must also preserve itself in order not to lose its ontological character, or rather not to disperse that idea of ‘immanence’<sup>15</sup> that we attribute them to.

The idea of stratified landscapes as inter-relational and dynamic systems in evolution makes it possible to go beyond the isolated objective of returning only an aesthetic experience of the project and to contemplate, instead, a possible scenario

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12. I. Carnicero and C. Quintáns, *Unfinished. Ideas, Images, and Projects from the Spanish Pavilion at the 15th Venice Architecture Biennale*. (Barcelona: Actar, 2021).

13. F. Jullien, *Le trasformazioni silenziose*. (Milan: Raffaello Cortina Editore, 2010).

14. L. Spinelli (ed.) *Layers of Contemporary Architecture*. (Milan: FrancoAngeli, 2021).

15. S. Settis, *Se Venezia muore*. (Turin: Einaudi, 2014).

of “intersections, inserts and hybridizations,”<sup>16</sup> starting from the material consistency of its fragile section, that is a physical reality continuously operable over time, where its use becomes an indispensable value to reveal an unfinished and often invisible identity.

## Literature Review

### Risk, Fragility, Vulnerability, *Inter-spatiality*

The most popular term used by scientific communities to indicate the fragile condition of stratified landscapes is ‘risk’. Contrary to its literal meaning, however, the word ‘risk’ has increasingly lost its meaning of uncertainty related to the ‘probability of an event happening’ and, on the contrary, has been associated with the reductionist and self-referential approach of technology. This cultural drift has created a gap in the design field while, on the contrary, the transversal point of view of the architectural discipline opens a wide scenario of possible opportunities, converting the concept of ‘risk’, related to ‘fragility’, into ‘vulnerability’, first, and ‘inter-spatiality’, then.

Risk and its understanding in terms of social perception and prevention are to be placed within a global social context, where society itself is defined by the German sociologist Ulrich Beck as a “risk society [...] a constellation in which the idea that drives modernity has become problematic, i.e. the idea of the controllability of side effects and dangers produced by decisions.”<sup>17</sup> Beck makes a fundamental reading of the risk, a point of view that makes it possible to free this concept from the complex world of science and broaden it towards the wide sphere of everyday life: “With the uncertainty of risk there is no alternative to existential experimentalism; the discovery, the undergoing, the anticipation of the unpredictable, the fear, the pleasure, the surprise, the measured anticipation of death, which introduces risk into everyday life, all culminates in the statement: I risk, ergo sum. I suffer, therefore I am.”<sup>18</sup>

Below, the transition from the concept of risk, meant as a limiting condition, to that of ‘vulnerability’, meant as a predisposition to a ‘creative modification’. From an extended perspective of investigation, the word ‘risk’, because of that cultural heritage of which Beck speaks, generates an unconscious association with a restricted category of landscapes, where technical intervention seems to be the only solution to the urgent status of emergency.

According to this new point of view, the fragility component becomes a structuring condition of stratified landscapes that are all characterized by an intrinsic vulnerability and instability. To support this thesis, the Anthropologist Anna Lowenhaupt Tsing says that the time that will follow the Anthropocene will be a time of precariousness and fragility will be a material and immaterial condition to

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16. H. Bava, *Multiple Horizons*. In L. Diedrich (ed.), *Territories. From Landscape to city*. (Basel: Birkhauser, 2009).

17. U. Beck, *Conditio humana. Il rischio nell'età globale*. (Rome: Laterza, 2011).

18. U. Beck, *Conditio humana. Il rischio nell'età globale*. (Rome: Laterza, 2011).

be acquired in space and time.<sup>19</sup> In 2019, Maria Guazon, curator of the Philippine Pavilion at the Venice Biennale, talked about the concept of her own exhibition titled *Shared vulnerabilities*: “We are kept afloat by the apparent dissolution of borders, the unprecedented speed of time, and a spatial mobility never experienced. Yet we face relentless threats of uprooting, discrimination and disaster. Nature is our great level”; and, again, in referring to an increasingly interconnected world today, Guazon reflected on the words of Denis Cosgrove, when he speaks of “a shared interrelation and vulnerability.”<sup>20</sup>

Talking about risk, in any case, is a fundamental premise as it makes it possible to define a precise spatial-temporal position of the scenario under investigation. This is not only a change of perspective, which allows the uncertainty component of the landscape to be read as an opportunity for design, but also to emphasize that risk is no longer synonymous of catastrophe or destruction but a precise stage “intermediate between safety and destruction, where even the mere perception of risks determines thoughts and actions.”<sup>21</sup> This approach thus makes it possible not to work necessarily in the space-time of emergency or in the disordered and blurred scenario of post-event but to read the generating substance of a given territory as a ‘multiple’ architectural space.

The word ‘fragile’, on the other hand, refers to a condition of fragmentation, interruption, discontinuity; whereas the term ‘vulnerable’ (from the Latin *vulnerabilis*, i.e., “what can be wounded”), stands with ‘the fragile’ in a close, non-conflicting relationship and indicates the possibility of being damaged, struck and violated. Vulnerability, therefore, refers to the plastic condition of the landscape. Marco Navarra explains the concept of ‘plasticity’, defining it as a “force capable of transforming and incorporating past and extraneous things, of healing wounds, of replacing lost parts, of sparing broken forms in itself,”<sup>22</sup> a power that opens to the formless and indeterminate. The same author, more recently, tries to make an initial attempt to transpose the concept of plasticity into the discipline of architecture, speaking of a ‘geological architecture’ that interrogates the folds of the Earth and deploys a practice of the ‘never finished’ as a link among different times and ways: “Putting the tension between things into shape constitutes the task of a Ground Architecture to imagine new alliances capable of generating futures.”<sup>23</sup> At the same time, Pierluigi Nicolin in his writings brings out the original meaning of the term ‘resilience’; etymologically, in fact, the word ‘resilience’ derives from the Latin word *resalio*, iterative of *salio*, which indicated the action of getting back on the boat capsized by the waves of the sea. This term, therefore, refers to an elastic consistency of things and to a very precise temporal condition, i.e., when it is already affected by a serious imbalance. The plastic capacities of a system, on the other

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19. A. Lowenhaupt Tsing, *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*. (Princeton: Princeton University Press, 2015).

20. D. Cosgrove, *Geography and Vision: Seeing, Imagining and Representing the World*. (London: Tauris Academic Studies, 2012).

21. U. Beck, *Società del rischio. Verso una seconda modernità*. (Rome: Carocci editore, 2000).

22. M. Navarra, *Dell'informe 2. Assemblaggi. Piccola filosofia pratica per l'architettura*. (Syracuse: LetteraVentidue, 2022).

23. M. Navarra, “Architettura geologica. Traiettorie circolari nell’antropocene.” | *TECHNE*, no. 22 (2021).

hand, do not aim to return to the initial state, nor even to create definitive solutions, but rather to find open solutions by planning unfinished narrative worlds.<sup>24</sup>

Based on these premises, the theme of ‘inter-spatiality’ is introduced in problematic terms, meant as a new condition of architectural design for fragile grounds in stratified contexts, characterized by plasticity and mutability.

In the expression inter-spatiality, the word ‘spatiality’ literally means “the fact, the characteristic of being placed, located in space”, but the real terminological discriminator is the prefix *-inter*, which instead refers to an exploded condition of space, opened to the instability of multiple relationships that space potentially generates among different variables.

This reflection, therefore, is complementary to the one Marco Navarra makes on the concept of ‘*in-stability*’. It is also composed of two dimensions: the word ‘stability’ refers to a condition of equilibrium while the prefix *-in* to a “changeable stability, composed of dynamic balances poised for change, enabling dialogue through learning - original knowledge, the project - that intertwines past and future, times and worlds within the fabric of collective historical time.”<sup>25</sup>

## Methodology and Tools

### Variables for Defining Vulnerable *Inter-spaces*

The condition of vulnerability of fragile grounds makes it possible, on the one hand, to interpret stratified landscapes through some variables and, on the other, to outline an operative dimension that follows the “active and intrinsically transformative dimension of nature.”<sup>26</sup>

The variables that make it possible to think in design terms about inter-space are the *metamorphic being*, the *space event*, the *time duration* and the *ground palimpsest*, which conform to a complex, processual and spatial system, in reference to which it is possible to develop transversal multi-scalar and multi-disciplinary interpretations. These four main variables allow a possible legibility of the stratified landscapes, starting from those characters that may seem marginal or anomalous and identifying certain elements operating in the transformative action of the project itself.

### *The Metamorphic Being*

“Being in the world means, for each species, living in space designed and constructed by others. Living therefore means occupying, invading a foreign space and negotiating a possible shared space.”<sup>27</sup>

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24. P. Nicolin, “Le proprietà della resilienza.” *Lotus International Editoriale*, no. 155 (2014).

25. M. Navarra, *Terre Fragili*. (Syracuse: LetteraVentidue Edizioni, 2019).

26. I. Cortesi, *Natura Operante*. In A. Criconia, I. Cortesi and A. Giovannelli (eds.), *40 parole per la cura della città. Lessico dei paesaggi della salute*. (Macerata: Quodlibet, 2021).

27. E. Coccia, *Metamorfosi. Siamo un'unica, sola vita*. (Turin: Einaudi, 2022).

It is useful to make a point about the potential ‘users’ of the inter-spaces investigated, that also become one of the transformative variables. As mentioned earlier, man is no longer the absolute center in the processes of transformation and perception of landscapes, but one of many active parts of the architectural inter-space, becoming a paradigm of interspecific relations. From this definition, it derives the concept of ‘metamorphic beings’, which, in fact, emphasizes not so much the specific identity of the ‘inhabitants’ of inter-spaces but their natural predisposition to mutability, since, to live, they must adapt to ever-changing spaces and conditions. The vulnerability of inter-space supports this condition, which is indispensable for the coexistence of fragmented and deeply different entities.

This interpenetration among species and territories can be translated into the action of ‘assimilation’ and it always produces new combinations in the changing scenario of inter-spaces. Consequently, the experience of the territory is in constant evolution, to such an extent that architecture and landscape can be read transversally through the lenses of kinematics and topology that escape from a static perspective and open universes to be experienced in movement and within time. This observation focuses attention not so much on the time of departure or arrival as on the intermediate space of movement, where, since the nomadic era of the Paleolithic, the rite of eternal wandering is celebrated daily. This space is associated with a constantly changing geography,<sup>28</sup> which is deformed over time according to the observer’s motion and the perpetual territory’s transformation. Inter-space, in this case, can be compared to “a map that seems to reflect a liquid space in which the full fragments of the space of being float in the emptiness of going remain marked, until they are erased by the wind. Nomadic space is furrowed by vectors and by unstable arrows that constitute temporary connections rather than paths.”<sup>29</sup>

In 2005, the periodical *Casabella* n.739/740 dedicated two editions to the ‘Forms of Movement’, in which Rem Koolhaas’s project for Les Halles<sup>30</sup> in Paris, France (2003), entitled *Full and empty spaces between the ground and the subsoil*, is shown. The former market area Les Halles is declined as a new opportunity for permeability between the center and the periphery of the city, standing at the crossroads of multiple flows among visitors and different cultures, the neighborhood and the metropolis. Inter-space understood as a ‘nomadic map’, i.e., as a set of voids where paths connect different elements, takes on a stronger specification in this case. The overlapping of various levels transforms the two-dimensional map into a three-dimensional inter-space:

- the underground level as a ‘large exchange gallery’, which integrates the Halls Forum and the surrounding city.
- the garden level that restores the relationships between the surface and the lower levels, conceiving the city as a renewable topography, responsive to various mutations and periodically reactivated.

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28. F. Ait-Touati, A. Arenes, A. Gregoire, B. Latour, A. DeMarco, *Terra Forma: A Book of Speculative Maps*. (Cambridge: The MIT Press, 2022).

29. F. Careri, *Walkscapes. Camminare come pratica estetica*. (Turin: Einaudi, 2006).

30. See OMA’s project published on <https://www.oma.com/projects/les-halles>.

- the emergent level of the activities through the organization of volumes into ‘superstructures’.

### ***The Space Event***

“Architecture is not simply space and form but also events, action and what happens in space.”<sup>31</sup>

This space investigated, starting from the literal meaning of the word ‘event’, is not the expression of an exceptional fact but a trigger factor, always in the making, of a past deserving to be remembered.<sup>32</sup> The inter-space, in fact, is understood as a forgotten thickness, composed of the vertical geological section of the subsoil and the horizontal geographical section of the ground, where different times scales and relationships coexistence. Inter-space no longer frees itself from the geological consistency of space but becomes a tale of the erosion process of territory, to the point of an intimate connection with geography, understood as the deep and mutable level of history.<sup>33</sup> It opens a confrontation with the movement of the ground, the place and the traces, until no perceiving exactly where one begins and where the other ends.

Once again, a changing depth, open to the ‘space of the event’, which does not emphasize the pre-event safety measures nor, even less, post-event reconstruction, but rather a condition that is relative to an event, chance, fact that has happened or that may happen.<sup>34</sup>

Paola Gregory defines this space of the event, attempting to describe its most hidden characteristics, as a “place generated by flows and movements; a place of mutations and the breaking down of boundaries; a place of the subversion of values, of the event, and of shock, that is a space of disorientation and oscillation, of play and ambiguity.”<sup>35</sup>

Francesco Venezia’s project for the Danube Bridge in Regensburg,<sup>36</sup> Germany (1987) is explicative of this concept, as he places the suggestion of a recurring event, characterizing the site of the intervention, at the basis of the design choices. On the banks of the Danube, the architect designs a base on which to build the *Stadhalle*, which mixes the spatiality of the Domus Aurea, the Farnese Theatre of the Pilotta in Parma, the Palazzo della Ragione in Padua and that of the nearby stone bridge, all characterized by a succession of parallel walls connected by arches. The hall is completely independent of the great base. Under the mighty arches, the weekly market would take place and during the periodic flooding of the Danube the same

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31. B. Tschumi, *The Manhattan transcripts*. (London: Academy Editions, 1981).

32. A. Corboz, *Il territorio come palinsesto*. In Viganò, P. (ed.), *Ordine sparso. Saggi sull’arte il metodo la città e il territorio*. (Milan: Franco Angeli, 1998).

33. V. Gregotti, *Tre forme di architettura mancata*. (Turin: Einaudi, 2010).

34. Definition of the word ‘event’ taken from the Treccani Vocabulary.

35. P. Gregory, *Territori della complessità. New Scapes*. (Venice: Marsilio Editori, 2023).

36. See Venezia’s project published on [https://www.unirc.it/documentazione/materiale\\_didattico/597\\_2009\\_223\\_6942.pdf](https://www.unirc.it/documentazione/materiale_didattico/597_2009_223_6942.pdf);

A. Condello, *Pb 03 Building Around Architecture | Francesco Venezia Outside the Mainstream*. (Matosinhos: AMAG Publisher, 2022).

arches would reflect in the overflowing water, revealing the image of a vast pool, a clear reminder of Roman origins.

### ***The Time Duration***

“Time can only be understood in relation to a process or phenomenon. The duration of human beings alive in ‘time’ and ‘space’ is a relational notion. The time of one’s being is provisional [...] Space (and architecture) transcends the provisional.”<sup>37</sup>

Given the fragile nature of stratified landscapes and the intention to translate the fragility component into vulnerability, as a creative propensity to change, time also becomes a “perspective of spatial mutation”<sup>38</sup> and an open scenario. Associating time with space allows space to be interpreted as ‘duration’, “as something that has not yet happened and meets the past.”<sup>39</sup>

Thus, in the broad spectrum of theoretical conflicts about absolute or relational interpretations of ‘space-time’, that time can only be understood in relation to a process or phenomenon. The space investigated is, in fact, the ‘accidental space’ of fragile grounds, where architecture stands as a continuous assembly of fragments in always new segments. A space in which a collective historical time composed of intertwining lines and an unpredictable instantaneous time coexist, breaking established balances and implying a habitability of the moment. A practice of architecture understood in this way takes complexity as its fundament, as an indissoluble link between space and time, geography and history, requiring a strategic attitude to move forward in what is uncertain.

Time as duration is the main project theme for Álvaro Siza Vieira in the Nadir Afonso Contemporary Art Museum<sup>40</sup> in Chaves, Portugal (2015). The project, in fact, developing in the vicinity of the Tâmega River, must embrace the different changing conditions linked to periodical flooding. Siza contemplates them all, starting with the intention of obtaining a fluid relationship between nature and architecture, raising the entire building on thin baffles that point at various angles, in the direction of the river. At the same time, he provides a system of ramps, stairs and lifts to connect the floodable level with the rest of the city and the levels of the project, to make habitable even that spatial interval that is apparently inhospitable but profoundly explicative of the places’ nature and history.

### ***The Ground Palimpsest***

The well-known interpretation of the ‘territory as a palimpsest,’<sup>41</sup> a solid stratification of traces that have been overwritten several times, is combined with

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37. S. Holl, *Parallax. Architettura e percezione*. (Milan: Postmedia Books, 2004).

38. S. Marini, *Nuove terre. Architetture e paesaggi dello scarto*. (Macerata: Quodlibet, 2010).

39. S. Holl, *Parallax. Architettura e percezione*. (Milan: Postmedia Books, 2004).

40. See Siza’s project published on <https://www.archdaily.com/791546/nadir-afonso-contemporary-art-museum-alvaro-siza-vieira>; AA. VV., “ALVARO SIZA. 2015-2022”. In *El Croquis*. n. 215-216 (2022).

41. A. Corboz, *Il territorio come palinsesto*. In Viganò, P. (ed.), *Ordine sparso. Saggi sull’arte il metodo la città e il territorio*. (Milan: Franco Angeli, 1998).

that of the ‘accidental palimpsest,’<sup>42</sup> understood as a set of latent, heterogeneous, evolving traces, with a certain propensity to accommodate the project and combine it with the ordinary space of everyday life, as it is linked to the inherent dynamism of the territory but also to the multiple uses of space.

Referring to the concept of everyday life space, for example, friction points emerge in the clash-meetings of time and space. They bring into play not only variable of the place but also some variable linked to the way people experience space; anomalies emerge in a system that is managed without contemplating exceptions, without the ability to adapt to singularities. Two ways of action of an antithetical nature emerge: on the one hand, the use of space with its accidentalities and, on the other, the strict control of the rule. The accidentality component can be interpreted “as an occasional but at the same time creative relationship with the territory.”<sup>43</sup>

It is considered, then, an inter-space between the ‘written world’ of the historical palimpsest and the ‘unwritten world’<sup>44</sup> of the accidental, unpredictable and potentially unlimited palimpsest, which always ends up surprising, frightening and disorienting. Despite this apparent dichotomy, the boundary between the two worlds is difficult to identify: not only can the ‘written world’ not avoid the ‘unwritten world’ to exist, but also the ‘unwritten world’ cannot fully express itself without passing through the practicality of an architectural design.

In this regard, Luigi Franciosini's project for the Archaeological Park of Verucchio<sup>45</sup> in Italy (2011) is explicative. Here, the ‘unwritten world’ is represented by the traces of the ancient landscape, furrowed, on the one hand, by a dense network of surface water drainage and, on the other, by compact, stable limestone formations that have shaped steep-sided cliffs and rise majestically in the middle of the clays. Parallel to the design of the park, where the forest and the clearing show the interventions of man through agriculture, animal husbandry and the practice of burial, the architectural elements are placed in points with the most marked grades of slope and are structured to accommodate the visitor route of the diffuse museum. Inside, the space stretches along gentle ramps in continuity with the open-air paths.

### Tools for Interpreting and Experiencing Vulnerable Inter-spaces

“How do you go from one stratum to another? How do we work with the interfaces that define that thin transition surface among different materials where movements, slippages and folds take place?”<sup>46</sup>

Gregotti, talking about the essential project materials, says: “What is important is what concerns the relationship with the specific place and its settlement principle;”<sup>47</sup> this means a connection with the ground both of a geo-archaeological

42. S. Marini, *Nuove terre. Architetture e paesaggi dello scarto*. (Macerata: Quodlibet, 2010).

43. M. De Certau, *L'invenzione del quotidiano*. (Rome: Lavoro, 2001).

44. I. Calvino, *Mondo scritto e mondo non scritto*. (Turin: Einaudi, 1983).

45. See Franciosini's project published on <https://divisare.com/projects/183189-luigi-franciosini-stefano-villani-cristina-casadei-parco-archeologico-di-verucchio>.

46. M. Navarra, “Architettura geologica. Traiettorie circolari nell'antropocene.” | *TECHNE*, no. 22 (2021).

47. V. Gregotti, *Tre forme di architettura mancata*. (Turin: Einaudi, 2010).

and geo-graphic nature, that means a morphological connection with history. Through the project, however, these materials are no longer merely descriptive but become interpretative and experimental tools for fragile grounds, thus formal and operable matter in architecture and in the changing system of stratified landscapes.

In this sense, based on the first design references described in the preceding paragraphs, the ‘shape of the ground’<sup>48</sup> is identified as an interpretative tool and the ‘oblique section’ as an operative tool. This allows an initial theoretical and conceptual approach to be flanked by one of applications, placing these tools as mediators between interpretation and design experimentation of fragile stratified landscapes.

In detail, the interpretative tool is the ‘shape of the ground’ that explains the relationship among soil, air, water through the sedimentation and erosion processes that take root and erode the ground’s crust.<sup>49</sup> This tool, in fact, reveals the traces that furrow the land in an infinite tectonic accident.

The operative tool of architectural projects is the ‘oblique section’ which allows the corrosive motion of the shape of the ground and its rooting motion to be systematized, transforming the vulnerable inter-space into a relational space. “It will be one thing to represent strata composed of networks: roads, houses, public spaces, waters, morphology, etc., another the reality of territorial spaces, in which the same networks and the same spaces add up, one upon the other in an endless depth/thickness/catastrophe and without certain rules: it is the double status that we can recognize to the territory, which on the one hand can be described as the overlapping of planes, one separable from the other, and, on the other hand, it can be defined by the metaphor of felt, of non-woven fabric, made of unexpectedly linked fragments.”<sup>50</sup> The ‘section’ becomes an anatomical cut of the existing, where strata and textures have accumulated, a place where over time the ground connection of the urban building has taken shape through different methods. So, geology deposits spaces and architectures within the continuously folded material of the city.

Architecture for fragile grounds, in this sense, does not have the role of reconfiguring a situation of apparent initial equilibrium, but rather that of reconstructing a dialogue between the dispersed fragments, preserving, at the same time, the perception of a tensive distance given by their condition of constant mutation.

## Results

### Actions and Risk’s Degrees of Freedom

The morphological connection with history in fragile lands, which emerges through the methodology described above, allows design actions aimed at enhancing

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48. P. A. Trevelo, A. V. Kohler, A. Bullier, D. Enon, D. Malaud, M. Mercuriali and O. Ragoucy, *La Terre est une architecture*. (Lipsia: Spector Book, 2021).

49. P. Geddes, *En amont de tout ville*. In M. Schaffner, M. Rollot and F. Guerroué (eds.) *Les veines de la Terre: Une anthologie des bassins-versants*. (Parigi: Wildproject, 2021).

50. C. Parent, P. Virilio and M. Mostafavi, *The Function of the Oblique: The Architecture of Claude Parent and Paul Virilio 1963-1969*. (London: Architectural Association, 2004).

and strengthening both the historical heritage and the fragile section of its landscape. Through the operative tool of the ‘oblique section’, to make the vulnerable inter-spaces of the stratified landscapes habitable,<sup>51</sup> two possible actions are identified in relation to the different possible responses of the project to the degrees of freedom that risk condition imposes on stratified landscapes.

The ‘resistance’ action of interspace is matched with a low-risk degree of freedom. In this sense, architecture and landscape design, in the process of strengthening the geoarchaeological and geographical elements of the ground, also collaborates in reducing the natural risk of the territory.

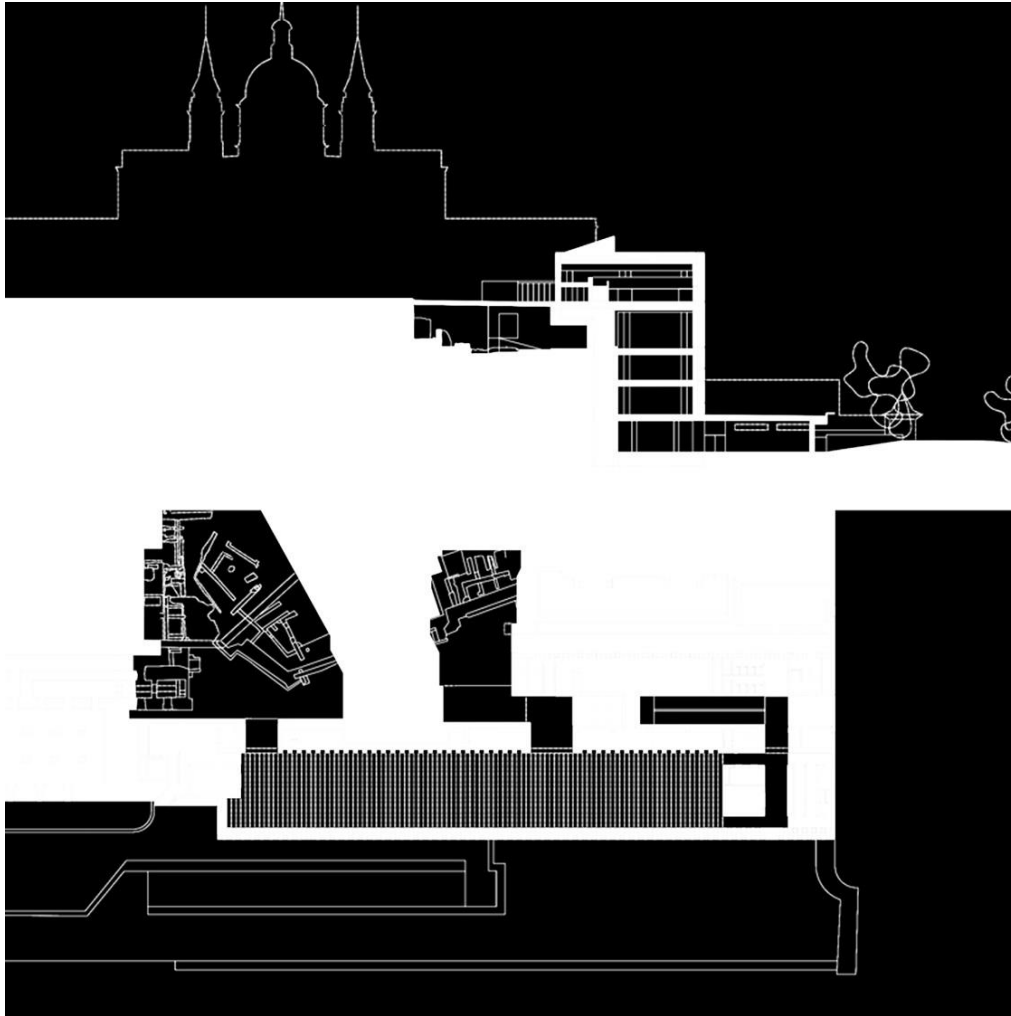
The project of the Royal Collections Museum on the Cornisa in Madrid by Luis Mansilla and Emilio Tuñón is an example of this type of action, which made visible an urban palimpsest characterized by the overlapping of multiple texts, sedimented and eroded by time,<sup>52</sup> explicative of the historical but also morphological articulation of Madrid landscape (see Figure 2).

The Cornisa of Madrid is an interactive edge of the city, the last offshoot between the urban fabric and the artificial nature of the territories adjacent to the Manzanares River. The project resumes, in fact, the formal and constructive character of the inhabited retaining wall of this urban section, carved on the existing as an extension of the morphological base of the Royal Palace. Like an oblique section inflicted on the hill, the visit route moves on three stratifications of exhibition rooms that hold the different collections, following a descending order, while the archaeological ruins are integrated into the complex through the unveiling of a large urn that contains and preserves a fragment of the Hispano-Muslim walls.

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51. L. M. Correia and C. Coelho, “Architectural Constants from Toni Gironès. Habitability and Poetic Reverberations”. In *Joelho*, n. 11-12 (2021).

52. E. Tuñón, “Il tempo come materiale da costruzione. Il museo delle collezioni reali sulla Cornisa di Madrid”. In *FAmagazine*, n. 35 (2016).



**Figure 2.** *Architecture of Resistance of a New Retaining Wall for the Royal Collections Museum as Enhancement of the Archaeological Excavations and the Hillside*

Source: Designed by Mansilla + Tuñón Arquitectos and published on *ArchDaily* in the article *Royal Collections Museum / Mansilla + Tuñón Arquitectos* (2016).

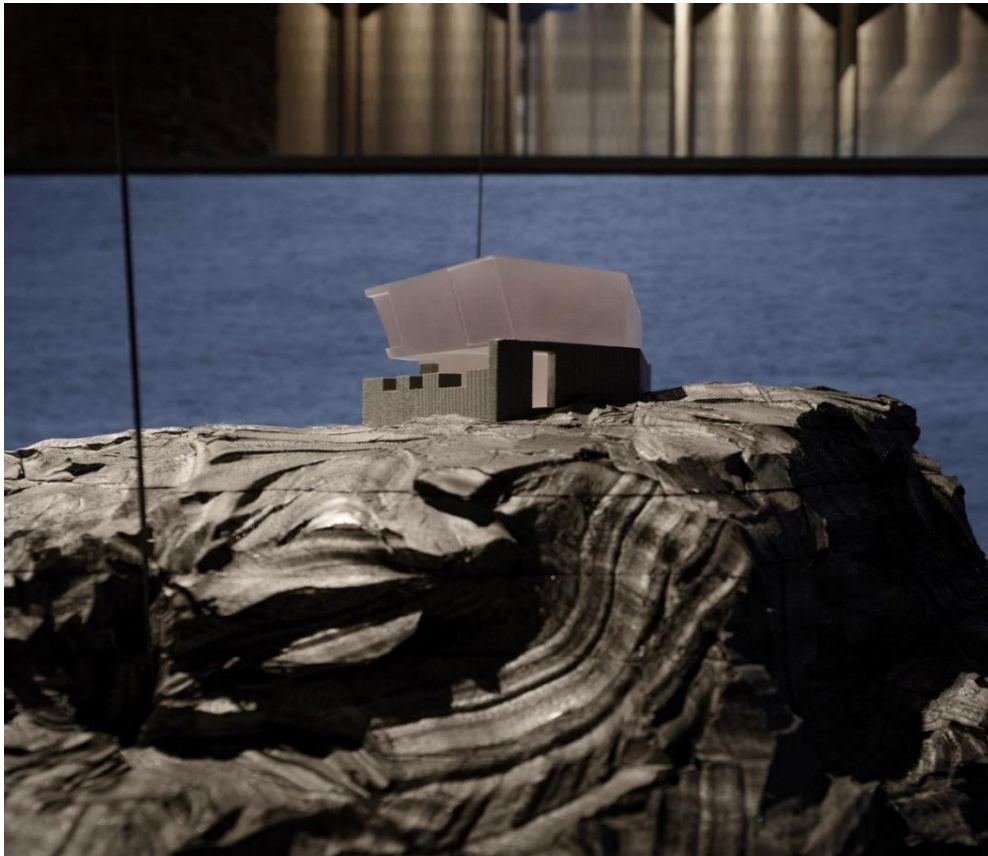
The ‘proximity’ action of inter-space conversely is matched with a high-risk degree of freedom. In this case, the architectural insert leaves the relationship with the ground unchanged, supporting the natural evolution of the elements responsible for a given condition of fragility. The action of proximity returns, however, to a usable and safe space, as it is placed at a different level from the one incessantly shaped by the action of natural elements that, thus, can freely manifest themselves.

In this regard, Paulo David’s project for the Pico do Areiro Observation Refuge, on the island of Madeira (2016), is explicative of this kind of action. It is a small refuge designed from a pre-existing building in a state of ruin on the east coast of Madeira.

The peculiarity of the project is its settlement in a condition of limit, on an integument of lava flow cooled once it encountered the sea. The island has historically been subject to numerous attacks by corsairs and pirates that justify the presence along the coast of small buildings intended for defense. By now the pirate

attacks are no longer there and this small fort has lost its original function but, in the meantime, has begun to suffer another type of attack due to the widespread extension of tourist settlements, causing over time the loss of the relationship among the refuge, the sea and the rock landscape.

The principal objective of the project was to highlight and reinforce the rocky nature of the ruin and the place.<sup>53</sup> The solution turned out to accept the presence of stone elements organized by man and place oneself above them, without changing the rocky characteristic of the original building (see Figure 3).



**Figure 3.** *Architecture of Proximity of the Pico do Areiro Observation Refuge over the Existing Ruin and the Volcanic Landscape*

Source: Paulo David's contribution to the main exhibition, *Reporting from the Front* for the 15 Venice Biennale (2016).

The project, in fact, presents a double nature: a higher-level projection over the existing ruin that opens to the view of the horizon, and a level that instead accepts the rocky condition of the nature of the place, creating a relationship with the matter of the volcanic ash that surrounds it.

Finally, the building opens towards the landscape of the Ocean and closes, instead, towards the landscape behind, not allowing the view of the hotel interventions that have arisen recently.

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53. P. David, In B. Bogoni and A. Leal (ed.), *PB 05 PAULO DAVID The Lesson of the continuity*. (Alessandria: Amag Publisher, 2023).

### The Case Study of Vulnerable *Inter-spaces* in the Stratified Landscape of the Astroni Crater (Campi Flegrei)

The extraordinary geography of the Archiflegreo, on the western edge of the city of Naples, the great volcano with a diameter of twenty kilometers that delimits the Campi Flegrei and contains all the minor volcanoes, represents an element of a deep morphological identification of a crater landscape. It is, in fact, a clear case of interweaving between nature and settlements, continually varied over time. In particular, archaeological remains represent a powerful resource for understanding the Campi Flegrei landscape, where the “geographical components merge with those of the settled sites (see Figure 4), demonstrating how archaeologies, more or less extensive and significant, can hold together various fundamental aspects of the Campi Flegrei territory: not only the volcanic exceptionalities, but also the network of ancient and contemporary settlements, the system of accessibility to the entire area, and even something more imponderable such as myth. On the other hand, the unity of the Campi Flegrei has been evident since antiquity.”<sup>54</sup>



**Figure 4.** *Geo-archaeological Similarities Between the Crater of Lake Avernus (Campi Flegrei) and the Temple of Apollo*

Source: Photo taken by the author (2007).

Among the numerous craters of the caldera, the Astroni crater represents one of the largest. Its documented history begins with the thermal baths along the shores of Lago Grande, fed by a superficial hydrothermal spring, where the wealthier Roman classes met. The transformation into a royal reserve by Alfonso I of Aragona changed the site’s destiny and during the Middle Ages the brilliant humanist had the crater’s rim enclosed with an embankment to prevent imported animals from escaping, subsequently reinforced with the walls of the Real Bosco of Astroni.<sup>55</sup>

54. P. Miano, *L’archeologia come infrastruttura del paesaggio dei Campi Flegrei*. In P. Miano, F. Izzo and L. Pagano. (eds.) *I Campi Flegrei. L’architettura per i paesaggi archeologici*. (Macerata: Quodlibet Studio Città e Paesaggio, 2016).

55. F. Nicolini, *Gli Astroni nella storia e nella realtà*. (Naples: Grimaldi & Cicerano, 1985).

The forest is also the last testimony of an ancient tree covering that, despite having been altered by man over the centuries, constitutes a site of great naturalistic importance.

The preliminary methodological phase of geo-archaeological and geographical interpretation of the Astroni crater reveals the complex condition of a *palimpsest ground* in evolution, between strata in sedimentation and eroding plots. The project uses the interpretative tool of the shape of the ground to identify the eroding plots of a landscape corroded by the natural elements, the cause of the friability of the crater slopes and the constant rise in the water level of Lago Grande, periodically resulting in the flooding of the ancient hunting path. In the same way, the thermal baths at the bottom of the caldera are translated into sedimentary strata, as far as the ancient Borbone's tanks and the Nocera and Lupara towers, soaring along the crater top and communicating with the cities of Pianura and Pozzuoli. This changing scenery defines the *event space* of the project and shows unique opportunities for intersection between the different *times in evolution* and the *metamorphic beings* that contribute to the fragility of the ground's common space (see Figure 5).



**Figure 5.** *Variables of the Astroni Crater's Inter-space*

Source: Collage designed by the author (2023).

The strength of the architectural design of the vulnerable inter-spaces in the stratified landscape of the Astroni is to hold together all the peculiarities of the place just described. Through the operative device of the 'oblique function', coexistence with the fragile section of the landscape is facilitated, making recognizable and livable a reality that would be weakened by mere technical operations of mitigation and safety.

'Actions of proximity' on the fragile landscape make it possible to use the Borbone's towers as unprecedented views of the Campi Flegrei landscape; while 'actions of reaction' along the top of the crater define a new active edge between the bordering cities of Pozzuoli and Pianura, as an opportunity to regenerate problematic urban areas or new paths to the changing wetlands at the bottom of the crater, where water marks the signs of time.

### Conclusions

Placing the theme of architectural space alongside that of the fragility of stratified landscapes, understood as inter-relational and dynamic systems in perpetual evolution, means restoring a material consistency of hidden features of places. This point of view invites us to develop a cross-view capable of holding together the 'contemporary ground' and the founding objects, the incomprehensible forms of the fragments and the empty space of the event that holds them together, starting precisely from the material consistency of its fragile section.

The theme of inter-spatiality, understood as a new condition of architectural design for fragile grounds in stratified contexts, is characterized by a propensity for plasticity and mutability and suggests the identification of certain interactive variables in the phase of reading the morphological connection of the land with its history (*metamorphic being, event space, time duration, palimpsest ground*).

Having determined the nature of the vulnerable interspaces through this variable, the project is constructed from a preliminary interpretative phase followed by an operative phase, both supported by some tools (the *shape of the ground* and the *oblique function*). As part of the operative phase, the architectural project can be converted into concrete actions of enhancing and strengthening fragile lands in stratified landscapes. The application of this project methodology, through reaction and proximity actions, allows the project itself to coexist with the multiple conditions of risk, acting on its effective reduction or safely supporting its changing nature.

The validity of this design interpretation was verified through its simulated application in the reality of Campi Flegrei in the west of Naples, as an emblematic example of fragile ground in a stratified landscape. In this case, the design method explored allowed for a new reading of the changing interconnection between the historical-archaeological section and the geo-morphological form of the land. Based on this reading, the actions identified provided effective responses to the coexistence of contemporary architectural design with the multiple conditions of risk, enhancing the cultural characteristics linked to the actions of man and nature.

In conclusion, architecture has been given a central role in the project for fragile lands, capable of making known resources of stratified landscapes that have long

been ignored and enhancing them, drawing on a new ‘relational creativity’ between natural and anthropic elements, only apparently separated from each other.

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