On the side of fire

Rites, approaches and cultivation practices in landscapes

edited by
Luigi Latini and
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Fondazione Benetton Studi Ricerche
Antiga

Treviso 2024

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published by
Fondazione Benetton Studi Ricerche
with Antiga
first published Treviso 2024
 ISBN 978-88-8435-472-3

Editorial coordination:
Patrizia Boschiero.
Editing and layout:
Nicoletta Tesser.
Translations from Italian into English
and linguistic revision of English texts:
John Millerchip.
Index of names and places:
il Palindromo-servizi editoriali.
The transcription, completion and revision
of the contribution by Carlos Casas,
(pp. 125-129), on the basis of his presentation
at the 2023 International Study Days,
was carried out with the help of Giulia Marino.

The volume is also published in Italian
under the title
Dalla parte del fuoco.
Riti, visioni, pratiche di coltivazione
nel paesaggio
(ISBN 978-88-8435-471-6).

Fondazione Benetton Studi Ricerche
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31100 Treviso
tel. +39.0422.5121
fax +39.0422.579483
pubblicazioni@fbsr.it
www.fbsr.it

Distribution
Antiga Edizioni
Via delle Industrie 1
31035 Crocetta del Montello (Treviso)
editoria@graficheantiga.it
www.antigaedizioni.it

Contents

Juan Manuel Palerm

Eruptions and new landscapes. Planning exercises on the lava from the Tajogaite volcano on La Palma

The effects of the recent volcanic eruptions on the island of La Palma in the Canary Island archipelago include the creation of a new landscape that has disrupted the habits and customs of the people, the plants and the animals that live there together, provoking a space-time rupture that requires the planning of new ways of living. To see, perceive, depict, imagine and plan, starting with the study and analysis of the lava flows from the volcano Tajogaite, also known as Cumbre Vieja – the eruption started at 14:10 UTC on 19th September 2021 and lasted eighty-five days – presupposes the pin-pointing of specific sites on the basis of precise graphic documentation that conveys a clear idea of how the place looks now. The project needed must therefore combine cartographic representation, the place as remembered by its inhabitants and the site as it is now, after the eruptions, as the basis of proposals for a new living space in terms of its capacity and potential for transformation, indicating actions and interventions that will in turn give rise to a new landscape.

The text and the context of this contribution are intended jointly to form a workshop of ideas in order to devise a planning process for the new spatial environment occupied by the lava flows generated by the Tajogaite volcano. The proposal centres above all on the search for an idea as a process, which is of interest not only in study of the evolution of the Strombolian volcano and its lava flows, but especially in the search for an idea as to what could or should be done, which includes aspirations and experimental hypotheses.

The current complex reality of this lava-flow-affected territory in the south-west of the island of La Palma continues to experience problems of co-existence between high-quality agricultural land and the phenomenon of creeping urbanisation which suffers from technical and planning shortcomings, environmental deterioration, inadequate and inefficient traffic and transport systems and poorly planned housing afflicted by sub-standard sustainability, all of which has resulted in a state of landscape ambiguity that will inevitably have to confront the impacts of renewed volcanic eruptions.

The transmission of experiences that can contribute to the debate about 'what to do in this specific landscape,' with ideas from different approaches and innovative methodologies, requires resolve, commitment and rigour in order to obtain creative responses that are able to understand the destructive force of lava flows, starting with their huge potential appeal in terms of practice and experimentation in the island landscape of La Palma.

Experimentation from a local to a global scale must also be applied to the way these territories are represented, taking account of the complexity of the problems faced and devising a new, innovative cartography that is capable of presenting the idea proposed.

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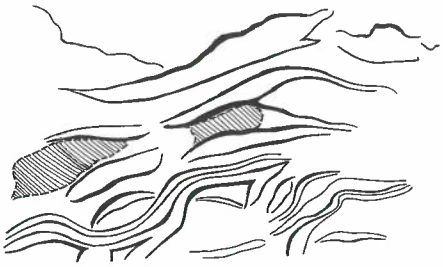

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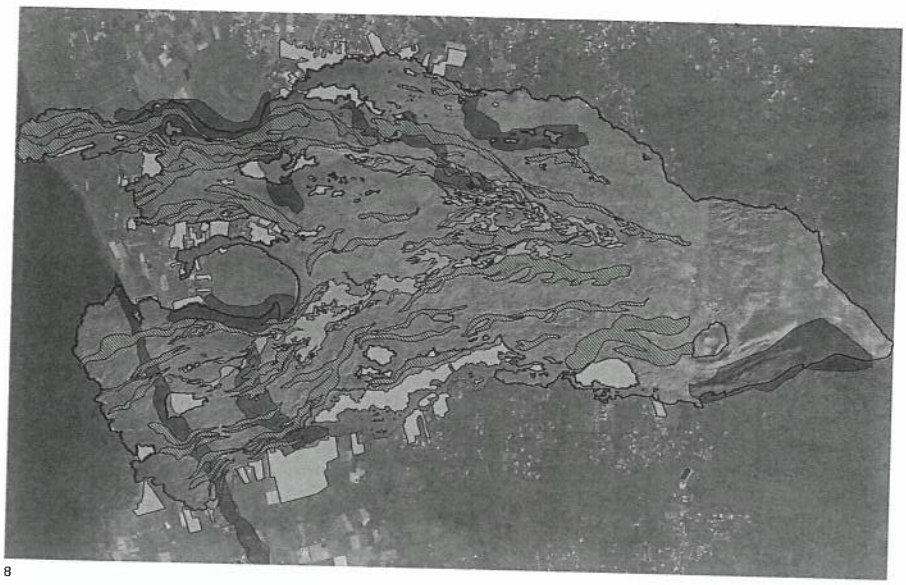
2-7. Photographs of the lava flows from Tajogaite and drawn illustrations of them in movement.

The first action we perform when observing a territory is to make a map of it, identifying whatever is characteristic of the place. The act of depicting reality means starting to transform it. Every project is a map of the place, just as every building and work of engineering involves discovering the territory involved, highlighting qualities, problems, contradictions and potential. From this standpoint, we are faced with a particular planning situation, having to deal with a transformed territory, in part natural and in part artificial, consequently with the difficulties of how to depict it. Comparison of the topography (previous and modified) with the architecture and the landscape provides us with an initial field of discussion for planning ideas for its conversion or its transformation. Ideas are more interesting than concrete models and even more interesting are the actions that give rise to unexpected relationships and interpretations, planning the landscape to ensure that something happens.

To explain these ideas and theoretical principles and the representations that derive from them, we pass now to illustrations of the planning exercises carried out in the framework of the *Special Topics in the Landscape Architecture* workshop, led by the present writer and Antonia Maria di Lauro, together with Arxhenda Lipovica and Sara Gharibi in the case of *Planning exercise* 1, with Chiara Impembo and Lorenzo Prestini for *Planning exercise* 2, with Ding Xin and Xiong Dongmei for *Planning exercise* 3, and with Seyederfan Masoumzadeh and Elisabeth Unger for *Planning exercise* 3b.

Planning exercise 1: *Following the flow*

The plans and drawings produced for *Planning exercise* 1 offer the possibility of a virtual flight over the most recent lava formation on the island of La Palma revealing the distinctive features of its formation by rendering them recognisable and clearly marked, displaying their more significant characteristics and peculiarities.



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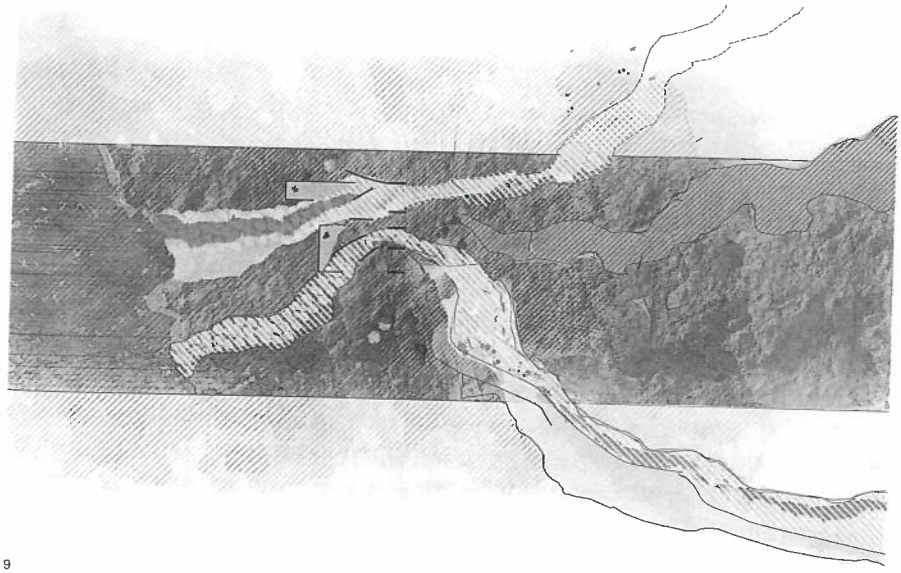

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8-9. Planning exercise 1: *Following the flow*. Illustration of the forms and types of lava flow (8); location of the project (9).

Starting with an analysis of how the lava covered the previous land conformation, the project drawings show where the lava flowed, the new islands and slivers of land it left uncovered, the depressions, the cavities, the protuberances, the mounds, and so on, all linked by a parallel grid of lava and fire.

The texture conveyed by this cartographic representation is a heterogeneous surface, a conspicuous element that is repeated and connected in turn with the rest of the island.

The variety of materials that lava flows contain at various depths form grouping and conformation models that indicate the specific formal and structural characteristics of that particular lava, its resistance, its colour and its consistency.

As the lava descended gradually along the surface, tongues of successive layers were created, one on top of the other, creating moving ripples, like waves facing the sea and the land: liquid fire that solidified as basalt rock.

These wave-shaped lines indicate the path of the lava flow and how it markedly altered the previous and present landscape and left a strongly expressive imprint in its final configuration. The former condition of the landscape can be recognised by signs marked along the lava path. The slopes and depressions, which once were simply part of the landscape, have now become important points of visual reference. The combination of all these elements enables us to understand the system as a heterogeneous whole. It shows us how the lava is reacting to the site and indicates the key areas where we should concentrate our work and develop our strategy.

Starting from these data, we selected the main elements to constitute the strategic reference point for the development of our project. The idea includes the points of connection between the exterior and interior of the lava, so the deformity of the material becomes a sort of snake, with a head and a 'rattling' tail, which crowns the proposal, all of which is brought together thanks to a new site inspection along the topographic markers left by the lava flows.

The starting point of the project, the 'head,' which is characterised by the fact that it emerges above ground level, visibly and strategically with respect to the surroundings, aims to conquer the horizon and presses towards the sea.

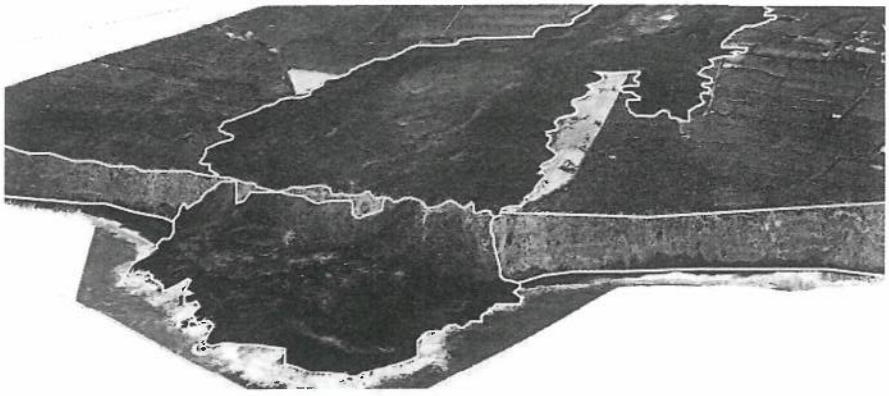
The geometrical structure of the project retrieves what was there before, imitates and merges with the nature that the lava has absorbed, but at the same time re-establishes the whole in a new space.

The material differences are evident with close observation of the proposal offered by this project, and the point at which perception of the place and perception of the landscape become one constitutes a space from which can experiment in ludic fashion with the vision and nature. All the elements of the site can be perceived within this space-landscape construct. As the lava approaches the sea, the space recognizes its passage and crosses it in turn, opens its view to and its fusion with the horizon.

Emerging from the lava, the building approaches the unknown, like a thrust towards the horizon. And this horizon emerges in turn with the site, with the lava, in its vocation to show the whole. As we recover a spiritual relationship with nature and with what it has to offer us, this structure creates a connection. It functions as a linking element: if within one can live, take inspiration and thrive with it, outside, everything is diluted and discovers its vocation in a new nature that time will delineate. The structural elements imitate nature in that they work together, connected, to be able to perceive and participate. And when looked at from this different perspective, the shape appears to be part of the natural structure. The building evolves with nature.

Planning exercise 2: *Contrasting border*

When struck by volcanic flow, the morphology of the land affected changes, as does perception of the ground. Lava flows alter the topography, create new



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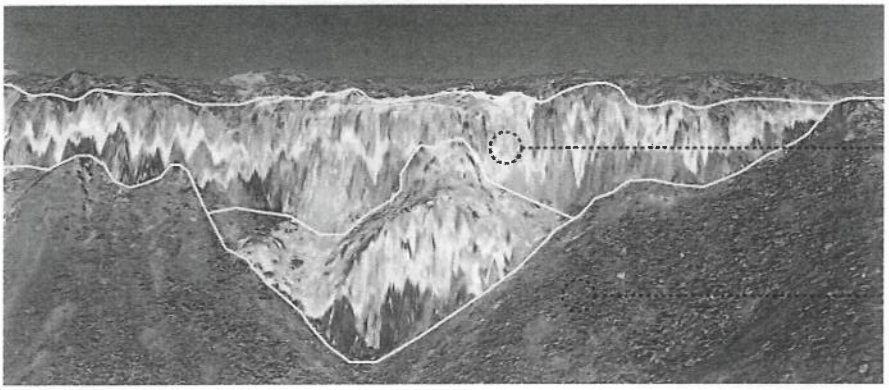

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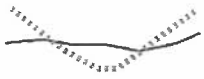
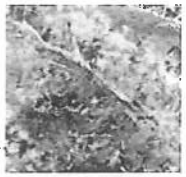


working with the contrasts

working with the borders

rock



different materials

lava

10-11. Planning exercise 2: *Contrasting border*. Principal characteristics and elements of the site.

layers and transform the terrain into stable or unstable but in any case uneven border-land. These facts led to the idea of creating a project that would follow its traces and its margin and boundary, at the point where the lava flows follow the change in gradient of the slope and the sea accordingly becomes a presence.

We worked in depth on the subject of the frontier, where there is not only a change of material but also of perception, because it allows for a new approach which is open and different. The site chosen lies in a position of contrast, where the lava flow meets the rock of the coastline; at this particular point, the ground is 52 metres above sea level, while the land around is an average of 55 metres above sea level.

Following the line of movement of the flow and the boundary-line, we designed a platform on the edge, inserting it into the lava so that it seems to float as it covers the artificial structures and moved to the border, suspended, it offers itself there in reverse form. This platform projects about 30 metres out over open space, with just partial supports. The structure is made mainly of steel: all its structural elements, beams and pillars have a circular section and the tie-rods are also made of steel. In contrast to the supporting structure, corten steel was used for the stairs and the handrail.

The platform is structured at two different levels: the first is the more 'public' space, which is open and gives a wide panoramic view over the surrounding land, while the second level, considered more 'private,' is a closed

space with a framed window that looks towards the sea. The structure is anchored to the ground by means of 10-metre-long horizontal beams and two other diagonal elements fixed to the overhanging rocks of the coast. There are two routes to reach the platform, by way of paths that are always at the same altitude as the platform (52 metres), but with a variable cross-section and while at certain points they lie on the lava surface, at others they pass through a shallow cutting excavated in the lava. So as already mentioned, this project in general proposes to keep to the existing imprint, but also to create new features at various levels, starting with a completely new space that takes account of the specific situation created by the lava flows.

Planning exercise 3: ***Eco-existence***

How can the internal 'islands' of terrain affected but not encroached on by the lava flows be used to create dynamic new spaces suited to people, animals and plants? How can a connection be established between the lava surface and the original soil? How best to ensure transition from a lava-covered area to one without, and how can living beings be enabled to interact and coexist harmoniously with nature? These are the questions to be tackled by this planning exercise.

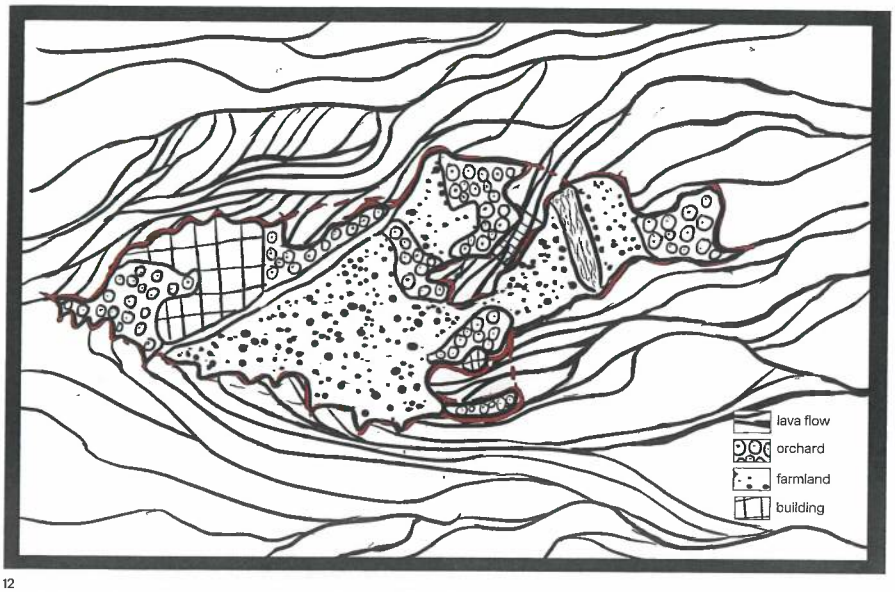
The area we chose features a pre-existing road covered by lava on terrain completely surrounded by lava flows. This is the starting-point for development of the so-called island, to include greenhouses, cultivated land and houses along the road where people can see both the beauty of the constructed landscape and the brutal aggressiveness of the lava flows, and at the same time be aware of the impact of the lava on the internal ground. The lava passed over this area, causing destruction in existing buildings such as the green house, which was divided in two when the lava flow reached the internal courtyard. This is precisely why we propose that this house be the entrance to the 'island,' thus creating a link between the lava and the original road.

As a new built space, this new entrance not only solves the problem of the different heights of the surrounding terrain and the consequent variations in gradient, it also satisfies the conditions of a space for living, looking and resting, as well as guaranteeing transitions and connections.

This building is a combination of the virtual and the real, a semi-open space blurring through its relationship with the cultivable land. This point marks the beginning of a passageway along the lava flows to guide people towards a new garden that connects the greenhouses and the damaged buildings, with a view to creating new contexts in which living and working are accompanied by recognition of the volcan's contribution.

Planning exercise 3b: ***Between one flow and another***

The volcanic eruption caused the destruction of villages and of important transport connections, but also the formation of several 'islands' that escaped the lava. The old boundaries set by man were obliterated with the passage of the lava and new confines became natural borderlines.



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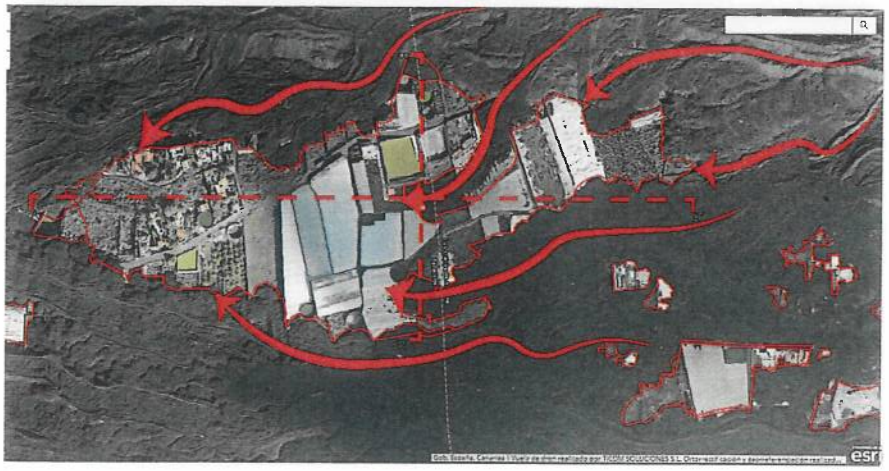
13 BEFORE



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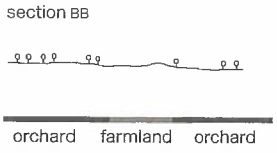
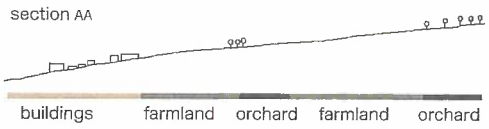
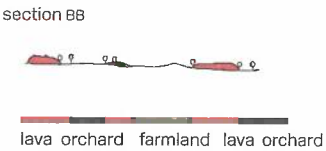
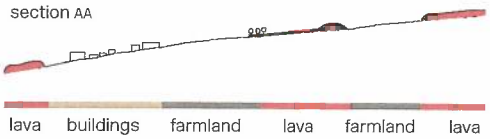
12-14. Planning exercise 3: *Eco-existence*. The current situation on the island (12); sections before and after the lava flows, implementation diagram (13 and 14).









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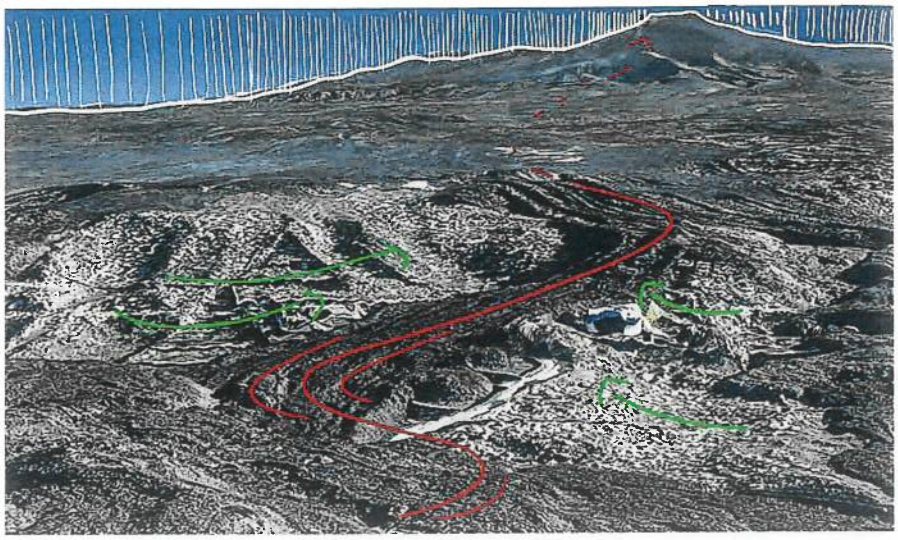
15-18. Planning exercise 3b: Between one flow and another. Intervention area (15). The choice of these two strips of land arose from the fact that the lava flow separated a single section of terrain into two parts. This gave us the idea of connecting them.



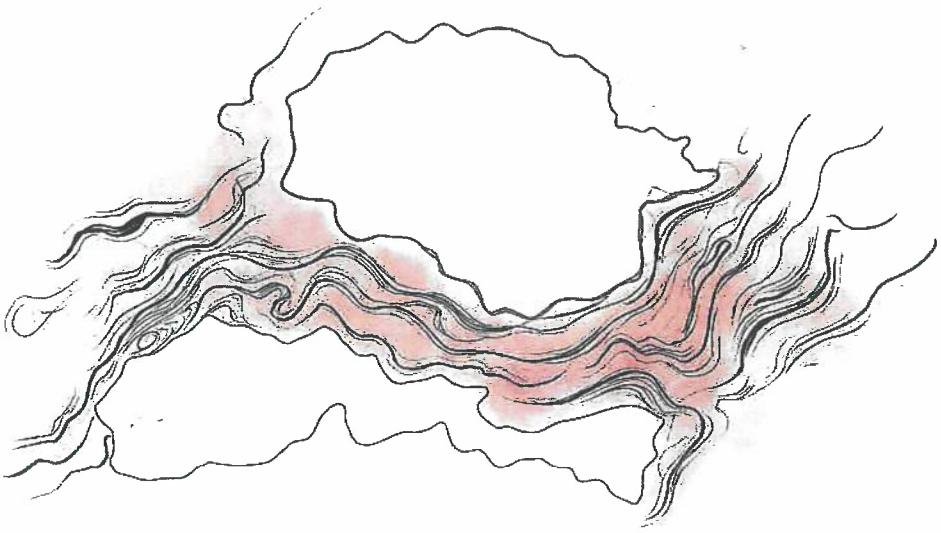
16

Taking account of the topography, structure, materials and colour of our elements, we chose an area that was not covered by the lava but located in the middle of a flow where the lava stream passed around a small, isolated plot of land near the coast, thus creating a protected area with a natural border between the lava and the land it had missed.

Working with a natural landscape means creating a space where men, plants and animals can co-exist. So the aim of this planning exercise consisted in inventing a simple but adaptable semi-permanent structure that met the requirements of a habitable space. The core idea was to combine artificial materials with the natural elements of lava and vegetation. Interrupting the natural borderline, the aim was to extend the lines of the lava flow and to introduce a new landscape and living space using vertical and horizontal structures throughout the project area. The area was divided into three parts, starting with an element on a platform located on a natural high-point of the terrain. The element is made of volcanic stone and so fashioned as to give the idea that it is floating above the ground. Its point is to provide a panoramic view not only of the inhabited space but also of the lava and the new vegetable garden surrounding it. The platform functions as an entrance to the central space of the building and it is connected by an external staircase to the other spaces. At the top of the stairs is the living room, which is built into the volcanic rock, creating an interesting blend of lava and steel.

Thin vertical sheets of steel shaped as if to continue the lava flow are used to create a variety of spaces. Corten steel was chosen as the construction material for its qualities of sustainability and strength, lightness and flexibility. The height of the steel panels varies between 2.5 and 1.5 metres, creating a diversified space, also in perceptive terms.

Finally there is a 'vegetable garden'. Aiming to recall the vegetation-filled spaces before the eruption, the proposed garden has a variety of plants. The surrounding lava landscape is represented by the colour of volcanic rock in



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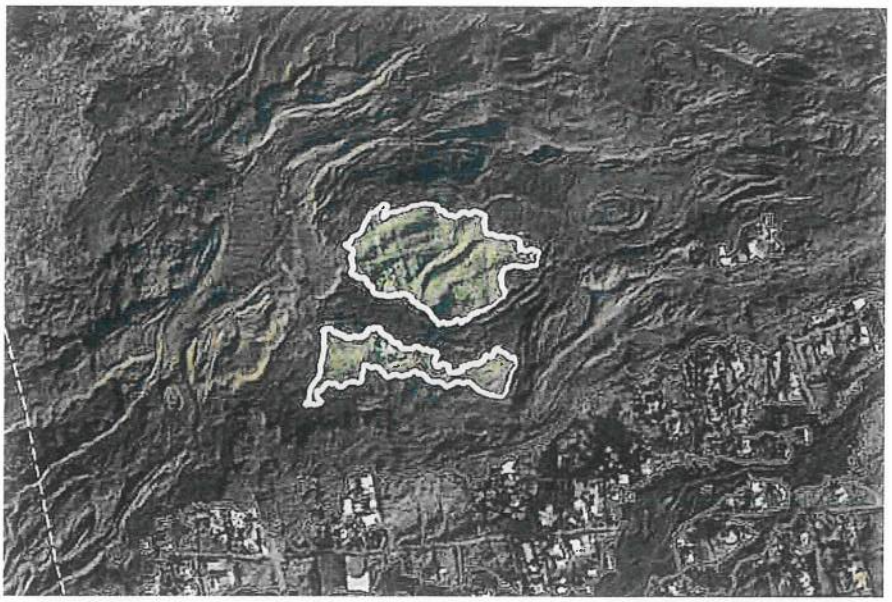

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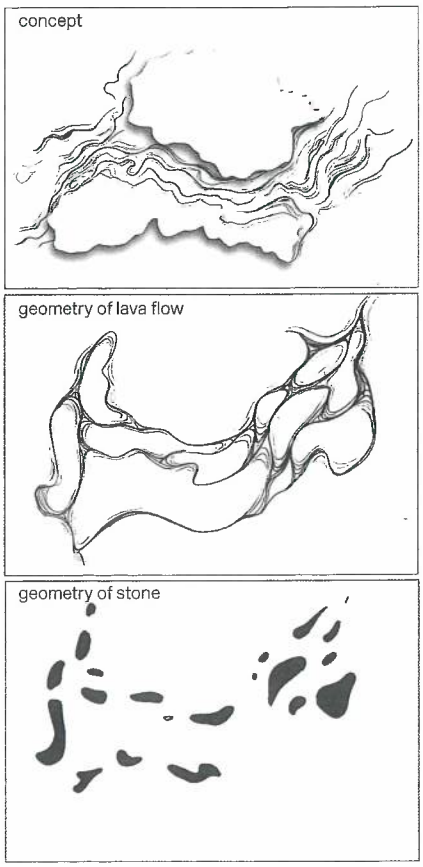
the sand used as bedding material for the plants and the lava flow is also reflected in the walkways that criss-cross the garden.

Conclusion

The experimental projects presented here, examples of the research conducted at the Milan Polytechnic and the Universidad de Las Palmas de Gran Canaria, deal with a modified landscape, a new topographical space, a new reality that needs innovative instruments for action to be taken.

Current planning instruments are not up to the task because they are based on a presumed homogeneity of physical space rather than on the need to identify and study forms and materials in the places in question. Lava



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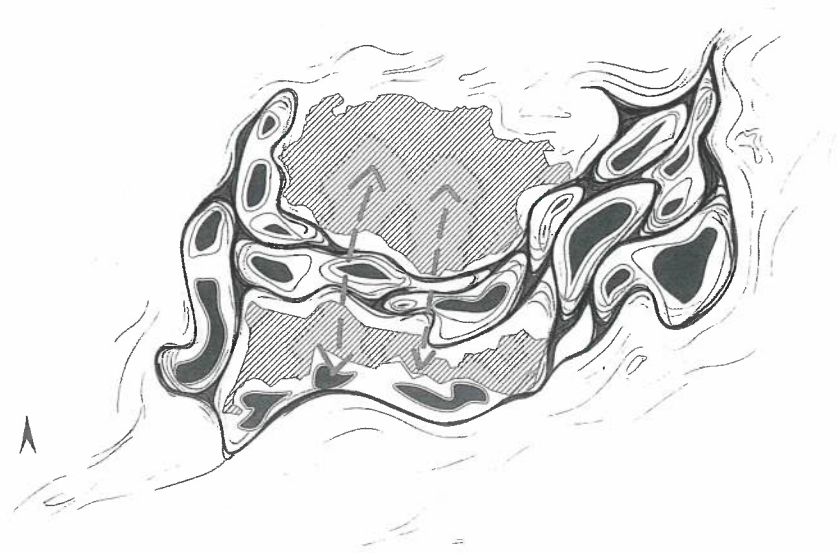
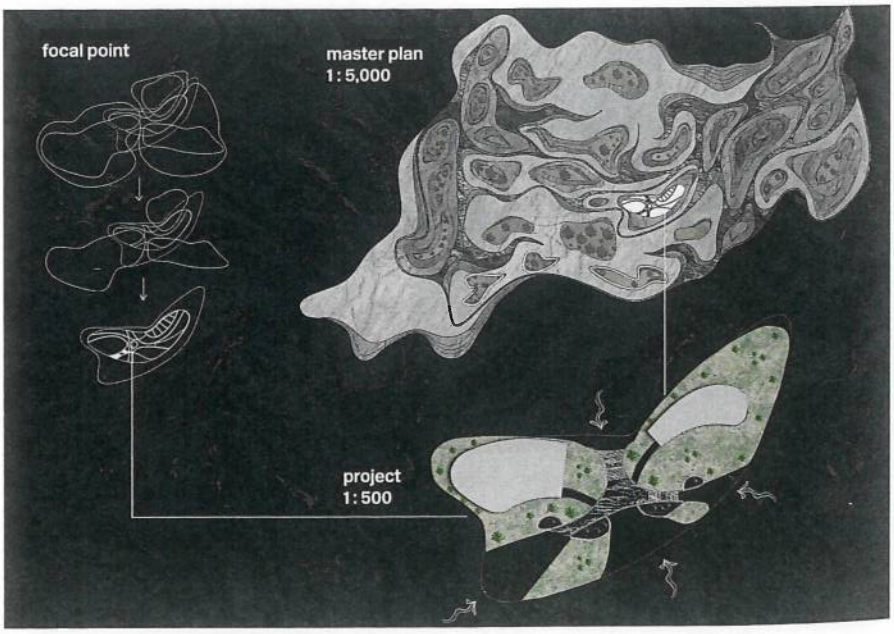
19-20. Planning exercise 3b: *Between one flow and another.* Diagrams of the shapes of the 'internal islands' between the lava flows (19); operation in a lava flow: criteria and illustration (20).

project strategy linking the geometry of the stone with the lava flow



improving plan



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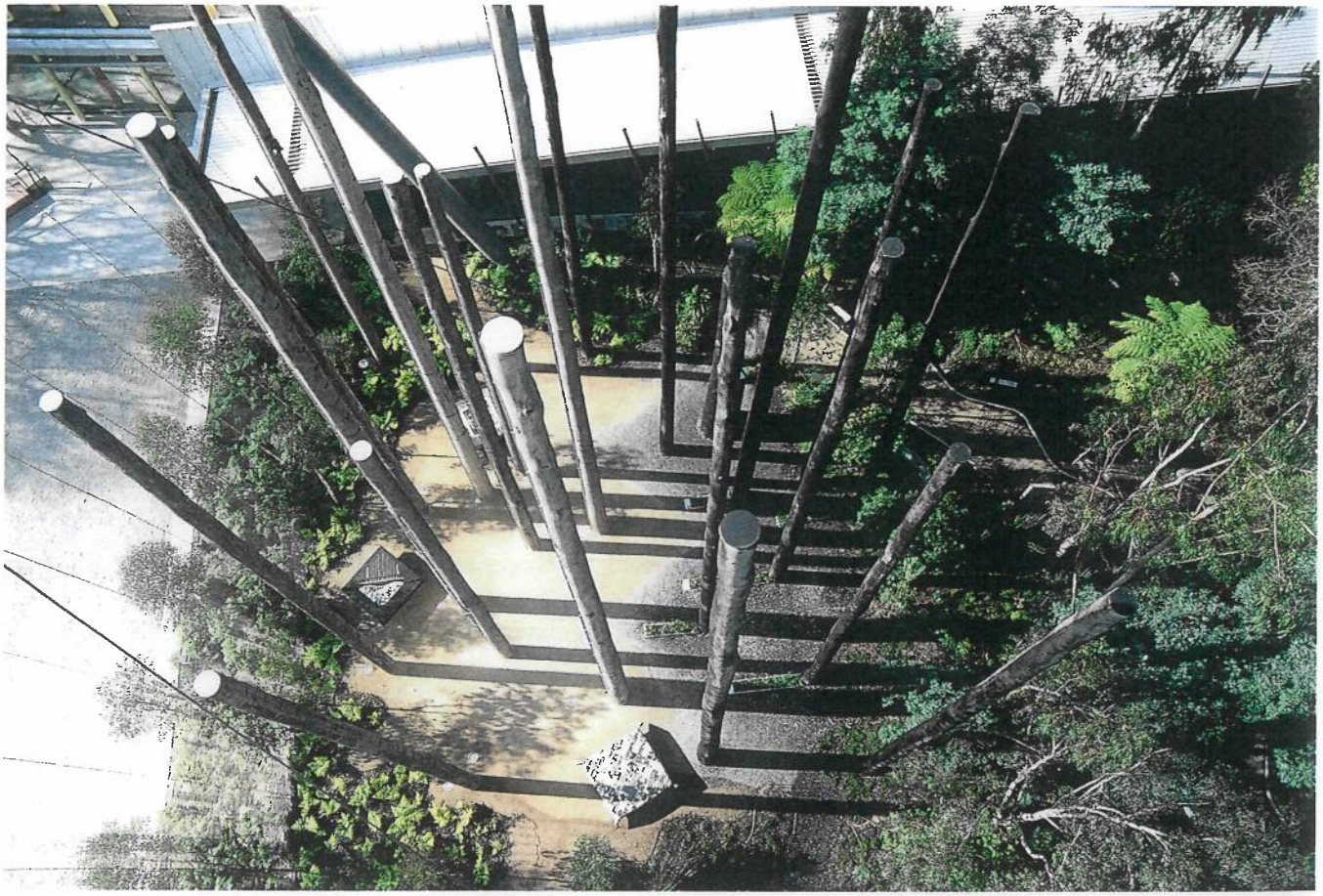
flows, as shown by these examples, feature specific characteristics and peculiarities that take shape in ongoing fashion as they solidify in different ways and degrees, so for action to be taken in their case requires a project that brings their most significant features to light.

The intention is not to provide an exclusive solution but to understand and to choose very specific sites, like those in the proposed projects, in order to offer experimental proposals for spaces of coexistence with the lava flows and their materials, for cohabitation in these highly unusual spaces that man is gradually learning to occupy.

The logic of this action lies in the scientific and artistic approach underlying the construction and the project that defines it. As geologists and volcanologists do with their instruments and procedures, so the architect must specify with scientific reasoning where he is going to operate and establish the relational logic in inhabiting a site or a place, starting from a project based on a 'planning principal'. And it is only on the basis of a properly reasoned planning principle that one can proceed to develop projects for construction operations on lava flows or make proposals for living on the surface of stone and fire that characterises the *malpaís*. It is only by means of this experimental planning that we will find the legal and regulatory instruments capable of offering a new dimension for landscape design.



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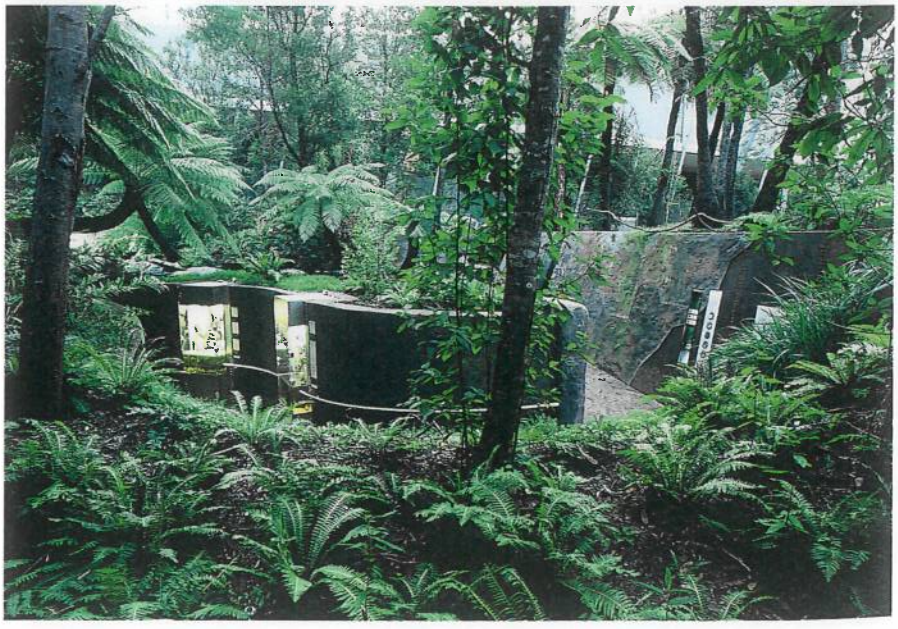

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1-4. *Forest Gallery, Melbourne, Victoria*: a living exhibition which opened in 2000 in the new Melbourne Museum. It is located in a spacious, enclosed courtyard which is open to the natural elements; plants and animals, as well as sculptures and sophisticated technologies, are combined to represent a towering forest of eucalypts (*Eucalyptus regnans*) to the east of Melbourne.
Designed by the TCL Studio, Australia.
Photographs by Ben Wrigley.