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Erosion and Temporalities

Topography matters

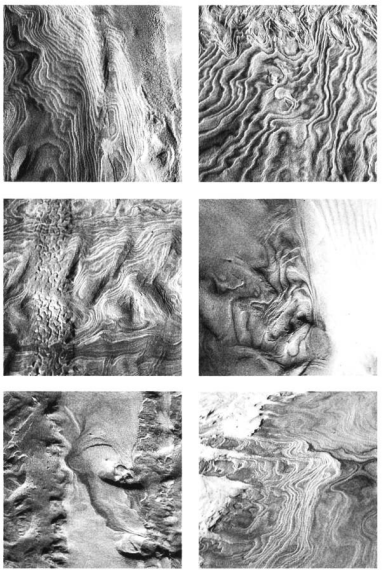


Fig. 1, sandscape created by successive actions of winds, salt, tides, and evaporation, New Jersey, 1999, photos by Philippe Coignet.

The following article focuses on the erosion process as an agent in the construction of a garden.[1] It explores some of the mechanisms of production that define a garden in terms of its temporal transformations, seeking to uncover the dynamic forces contained within this process as raw material for design.

Ground Notions

Erosion is the process by which part of the topsoil are taken and moved from one location and redeposited in another. In this process, coarser soil particles are ground into finer elements. This mechanism of oscillation between stable and unstable conditions is caused by natural factors like water and gravity and varies according to the quality of the soil. This permanent transformation can be viewed as a palimpsest, unceasingly redefining the topographical configuration of the ground (Fig. 1).

The following explores the notion of the garden in relation to topography and its role in the 'writing of a place'. Topography is more than a ground surface and is best understood when viewed through those elements by which it is continually transformed. It is a surface which undergoes a continual process 'equipped with a tectonic power'.[2] These elements can runoff or underground water, wind turbulence, the chemical composition of the soil or the steepness of the slope and its potential for landslide. Considered together in their prospective capacities, these erosion-related aspects offer a wide range of design possibilities if they are considered together in their prospective capacities. Frederic Nantois speaks about the difference in going from "a territorial geography to a geography of flow, of a stable object to an unstable process".[3] The goal is to provoke a merging of these dynamics that remain unproductive for the grounding of a garden.

The idea of placing the construction of a place before its design forces the clarification between the identity and the specificity of a place. In his book *Earth Moves*, the architect Bernard Cache argues: "In the exercise of their profession, architects can choose to ground their practice in the concept of site. The work of architecture then becomes the expression of the specificity of the site that is to be built upon. [...] but this position runs the danger of falling into a mistaken notion of site, equating all too easily the notion of specificity

1 In writing this article, Philippe Coignet was assisted by Professors David Leatherbarrow and Jeremy Foster, University of Pennsylvania, 2000.

2 Elissa Rosenberg, "L'imagination topographique", in: *Les Carnets du Paysage* (2002), No. 8, p. 7.

3 Frédéric Nantois, *Pour en finir avec le jardin?* in: *Inter Paysage* (1998), No. 69, p. 8–11.

4 Bernard Cache, *Earth Moves. The Furnishing of Territories*, Cambridge: MIT Press 1995, p. 14–15.

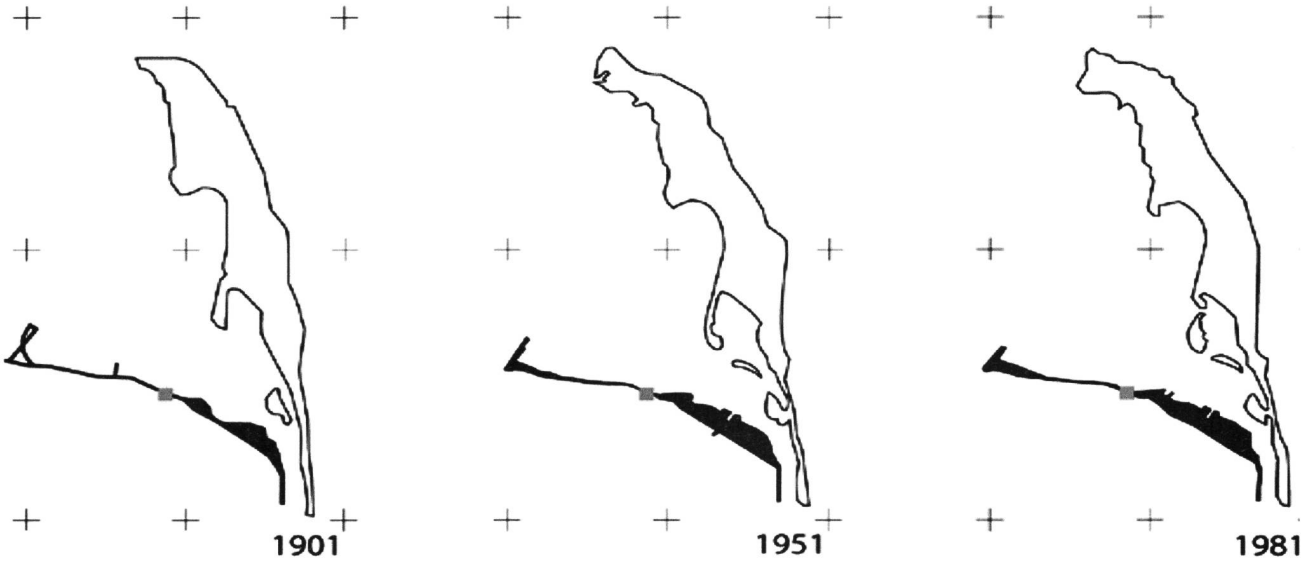


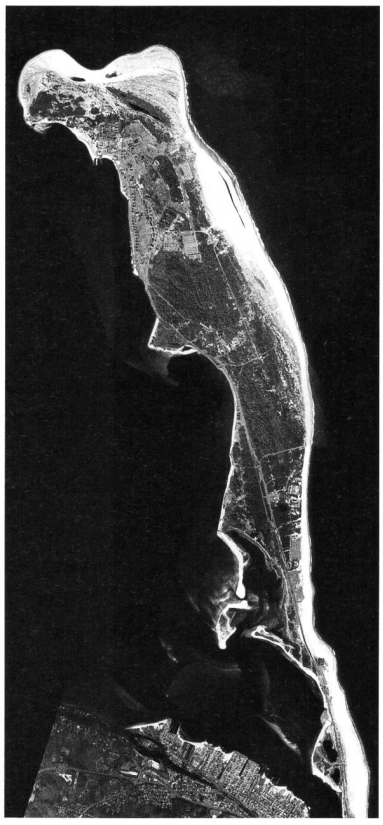
Fig. 2, Philippe Coignet, *morphological transformation of Sandy Hook peninsula from 1901 to 1981*, New Jersey, ground plan.

with that of identity [...]. The identity of a place is not a natural data and if the expression 'genius loci' has a meaning, it lies in the capacity of this 'genius' to be smart enough to allow for the transformation or transit from one identity to another. But in no case does the identity of a site preexist, for it is always the outcome of a construction. Generally, today, it no longer seems possible to thinks in terms of identity. Whether it refers to the identity of place or of a self, a substantialist way of thinking seems to lead to a dead end. For as soon as one attributes a particular identity to a particular place, the only possible modes of intervention then become imitation, dissimulation, or minimalism. A false notion of the past prevents the present from happening. A difficult position must be maintained: On one hand, the desire to make use of the specificity of the place, and on the other, the danger of 'identifying' local differences. Opting for difference only becomes tenable when one learns how to distinguish specificity and identity."[4]

Geography of the Garden

The following example of a house and garden project designed by the author illustrates the idea of grounding the design in three factors: time, process, and form. The site of this study is on the Atlantic coast of New Jersey/USA on a slope facing the Bay of Sandy Hook and New York City. Various sea and air flows cross this territorial landscape, slowly transforming the peninsula's morphology over time. The shape of the peninsula is the result of the wave forces digging into the western coast and the accumulation of sand on its eastern side (Fig. 2 + 3).

Fig. 3, *Sandy Hook peninsula*, New Jersey, aerial view, in: Google Earth, 2006.



On site, the steepness and weak cohesion of ground materials result in a slightly wooded slope and continuous erosion. This had led over time to the destruction of several dwellings.

The first part of the design concerns that portions of the slope where the erosion process represents a danger to housing situated below. The overall strategy attempts to slow down, stop or deviate the flows of erosion by means of capture and divergence. This is achieved through the insertion of a series of devices into the ground (Fig. 4a–c).

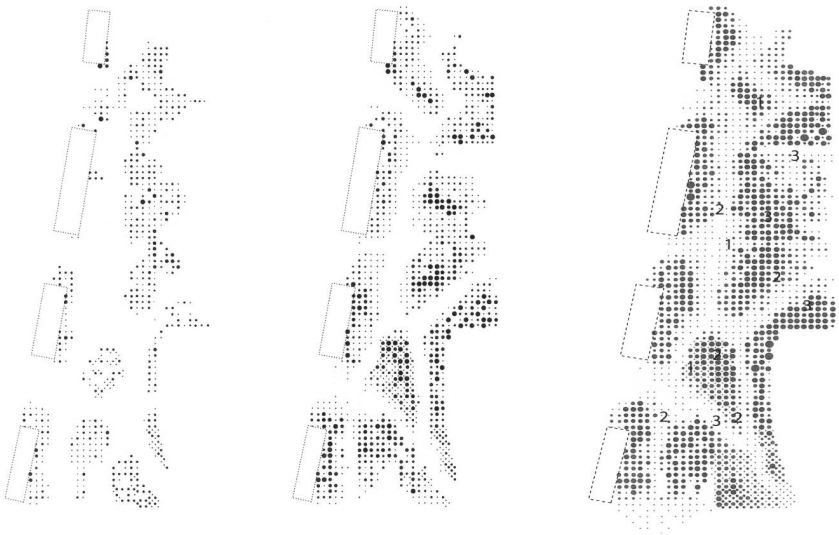


Fig 6, Philippe Coignet, *Sandy Hook House*, ground plan showing the growing process in the garden, 2000.

Diagram 5a, *planting strategy.*
1 Ferns and mosses
2 meadow type
3 birch trees

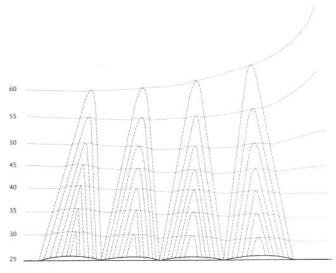


Fig. 4a, *existing erosion process.*
The eroded sections of the ground accumulate at the bottom of the slope, creating earth mounds. The dashed lines simulate erosion flows in relationship to topography.

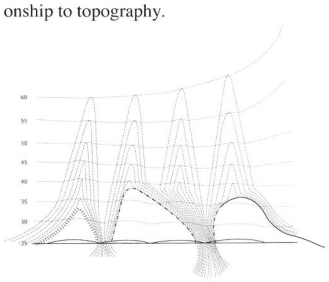


Fig. 4b, *diverging flows.*
The goal of the project is to stabilize the slope in sending part of the eroded materials towards the space of the garden.

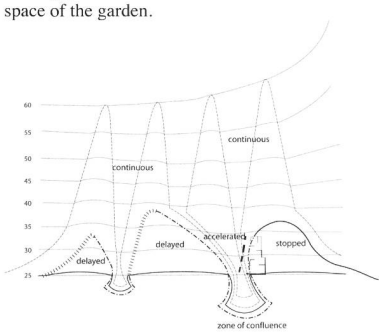


Fig. 4c, *temporalities.*
The idea is to divide the time of erosion in four different temporalities: delayed, accelerated, stopped, and continuous. Once the new house is built, the garden is located between the areas where the erosion process is the most controlled and active.

The second part of the design brings some of the eroded elements upstream towards the garden, which is situated on a flatbed surface close to a newly designed house. In this process, fine materials get deposited in the area, modulating a specific topography for the garden.

The proposed system is set up via a double strategy of small retaining walls and plantations. The retaining walls stabilize those sections of the earth where there is greater instability due to the steepness of the slope and active erosion.

The planting strategy is based on two parameters:

- The stabilized zone is created by each retaining wall behind which plant materials can ground.

- The root system of each planting type.

The goal is to have various plant densities that stabilize the soil by means of their rooting systems. For example, the black pines are located behind a series of retaining walls where erosion must be very carefully controlled.

Once the slope is brought under partial control, some eroded materials can be diverted into the garden in between the existing slope (active erosion) and the designed house situated on a more stable ground. As a result the garden can emerge and reveal the dynamic flows that surround it.

Erosion accumulates on a perforated steel plate laid out at ground level, thereby defining a new topography. It acts as a filtering system between the ground and the air. The distribution and density of perforations are defined according to the private or public rooms of the house as well as the visual links to established with the peninsula of Sandy Hook or New York City (Fig. 5a-c).

The eroded materials settle according to the numbers of perforations, enabling the plants to root and gradually overtake the garden. (Fig. 6) Consequently, each room of the house has a specific relation to the garden according to the varying densities, height and type of plant materials.

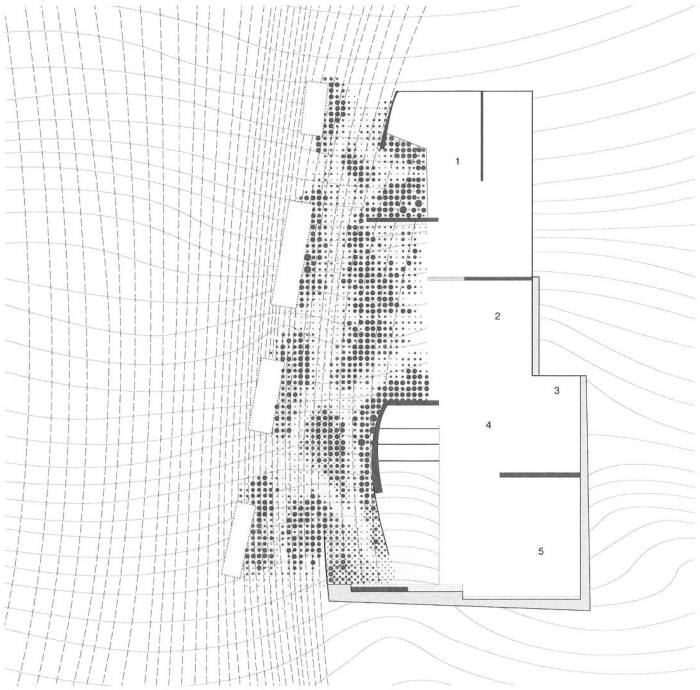


Fig. 5a, Philippe Coignet, *Sandy Hook House*, ground plan, 2000.
Coignet derived the design of the project from a house in New York City (architect unknown). He redesigned parts of it in relation to the proposed site and garden.
1 private/bedrooms
2 semi public/kitchen
3 public/entrance
4 public/living room
5 semi private/library

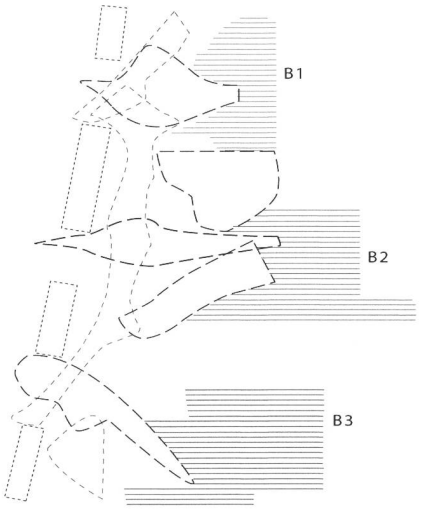


Fig. 5b, Diagram, *visual relationships*.
B1 bedrooms
B2 kitchen
B3 living room

Operational Process

If the phenomenon of erosion is a process method of rebalancing materials between the higher and lower parts of the slope, the garden is a visible reflection of this oscillation. It adapts and 'reacts' to this dynamic within a certain degree of latency. The transformation from a partial and temporary destabilization to one of recombination allows for the progressive adaptation of the garden. Rather than establishing a homogeneous state where each element of the garden would have a defined place in time and space, the garden acts like an active matrix, responding to an already existing process of a landscape in transition. It is the place of an experiment into the 'writing of a ground'.

The topography of the garden engages physical properties of the soil and flows crossing through it. It mediates relations between the house and the landscape and negotiates between the unstable slope and the stable dwelling. The garden is no longer the result of a preexisting composition but an operational field of cultural production.

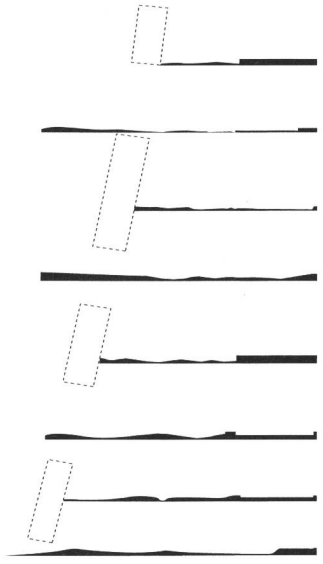


Fig. 5c, Diagram, *topography*.
The topography of the garden varies according to the successive accumulation of the eroded materials.

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