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Ernst & Sohn

‘Mobile Forces’

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The strong sense of duality suggested by the concept 'mobile forces' can be rendered at two levels, one political, the other physiological. To begin with the latter: what Bataille called the 'sacrosanct', the realm of art and eroticism, is also the realm of mobile forces. It is an area hermetically sealed, undisturbed by day-to-day considerations, architectural motives or any other interest beyond itself. All 'mobile forces' signifies in this context is a catchword for a physical game that verges on an obsession. In it, architecture is reduced to a pure, unadulterated relation with physical moments within their own conditions for existence. A one-day project like the wooden page for the congress 'Stedebouw in Beweging' (Urban design in motion) in Rotterdam, demonstrates most effectively how this architectural activity works in practice. The more the number of factors able to play a disruptive role in the physical game is reduced, the greater the concentration of the action. The project is distilled to a sheet, transformed, folded and curling up under the pressure of specific factors. It is no more than a reconstructed incident, a fleeting moment materialized in wood; a major side effect being the exploitable spaces that spring up between the structural members.

How absorbing it may be, this game is essentially ambivalent; the forces involved are not the fixed, stable laws of nature set down in the 18th century, on which the circumspect science of the engineer is based. The illusion that the laws of wind and gravity are immutable has long been cast aside. So the game consists of a manipulative investigation into the breaking points of those laws, a penetrating of their contrived boundaries, a ritualistic tracing of the places where the fabric yields, bends, gives way entirely, opens up. Like Bataille's erotic analogy, this too is an intoxicating act, turned intensely inward, and never finding a ration al point of application in the day-to-day world.

This obsessive approach seems to us the only possible conclusion of the present phenomenon of a significant, clearly identifiable wish to break down once again the resistance to the physical side of architecture. In the fascination with emptiness, absence, lightness and speed architecture has long been in a condition best described as heading 'towards architectural nihilism'. The architect adopted an ambivalent stance which left him in a perpetual state of denial. A tense situation was the outcome: the sundered dialogue and the constant challenges led to great excitement and expectations of explosive change. Questions of programmacity were central to the architectural discourse; architecture was entirely caught up in the need to signify. But after more than ten years of this, the architectural gaze has gradually been averted from critical self-examination back to the object of architecture. The desire to disrupt the hegemony of the architectural discourse over the domain of architectural practice signifies a new, relatively unexpected turning point for architecture.

This renewed quest for an architecture 'which is read by means of the diverse aspects of its figure, that is, in the terms in which it is expressed [1] is a recurrent theme in our work. The Erasmus Bridge, while deriving from a commission too complex to view entirely in this light, is generated by an intricate system of references to and deviations from typologies from the surroundings – a system which calls in mind Derrida's term differance. While dockside cranes may be recognized in the main shape of the pylon, such meanings are simultaneously subject to undermining by transformations and deviations. The Erasmus Bridge, however, is also a project permeated with the political aspects of the mobile forces. Even more important in this context than the insidious power of its geographical surroundings is the project's large-scale double identity with all its interlocking public and engineering implications. Though most observers choose to reconstruct the bridge as an intuitive gesture stemming directly from the personality of the architect, it would be disingenuous to verify this myopic vision. The mobile forces guiding this project were many and varied; the political aspects involved pertained to those forces most subject to mutability.

It says much about the public significance attached to the bridge, long a controversial issue in the city, that when it was the subject of a prize last year, this was awarded to the Rotterdam councillors who had voted in favour of the bridge. The public dimensions of a project with such consequences for a city cannot be denied; yet they go beyond the tactical manoeuvres of the moment. The primary issue is the deeper, almost hidden political significance of the bridge in the context of the self-image of the city, its history and projected future. It is the energy of the docks, the abrupt 20th century modernity of architecture and infrastructure, the pragmatism and the not oversensitive drive that forms the principal constituents of what Rotterdam classifies as its authentic self. These qualities differentiate it from Amsterdam (17th century classical/atmospheric) and

The Hague (administrative/19th century respectable). And the expectation was that the bridge - the last connection between north and south before the North Sea, and the object of speculation as the presumed attractor of new developments in the Kop van Zuid area - would comply with these images of authenticity.

When these public expectations are related to the not especially open or accessible discourse of civil engineering, the contours present themselves of a bridge which, as a synopsis of the desires of the city, distributes its forces resolutely, rationally and in hierarchic poise over the river. That the Erasmus Bridge, on the contrary, displays an asymmetrical balance more fragile than robust, can be ascribed to a rereading of the city in all its undiagnosed complexity, together with an interest in the anti-tradition of civil engineering. Informing the process of making the Erasmus Bridge is a constantly modulating conflict between the two traditions of bridgebuilding; the rational and the experimental. The existence of these two traditions in civil engineering has been suppressed by the moral rhetoric of the rationalists. They persistently deny there being any other interests than structural and economic ones, whereby Early Modern design principles are still accorded unconditional validity. It is becoming increasingly clear, however, that in practice the two contrasting traditions modify each other and that the rationalist discourse bases its legitimacy on an impossible condition of immutability.

Architecture's contribution consists of blurring further the distinction between the two engineering traditions; for large-scale civil engineering projects, particularly those in urban contexts, are not impervious to architecture. That this civil engineering dispute has 'political' implications which influence the course of the project is a consequence as inexplicit and unacknowledged as it is inevitable.

Studying the history of the project clearly shows that one manifestation of this conflict emerged in the preliminary design phase and concerned the placement of the back stays. These were present in the first sketches, but set fairly low; they subsequently disappeared and became the issue at stake in a public sparring match. After further structural studies they returned, though now placed high and close to the pylon so that they rose steeply, while the pylon itself became shorter and more slender. Only one element remained the same through all these changes, and though visible all the while, was hardly remarked upon: this was the horizontal foot of the pylon hugging the slender road deck. The fact that the back stays also connect to this horizontal component meant that the support structure now took the form of a bracket. The high placement of the back stays resulted in a bending moment in the diagonal pylon; this moment was exploited so that the bend could be permanently fixed, which in fact precipitated a new bridge type. Ensueing from this, the construction of the pylon was worked out in greater detail; the ratio between the height of the pylon and the width of the span across the river was reduced from 1:1.5 to 1:2; the width of the pylon was reduced to a mere 3 metres at its narrowest point. These continual permutations are themselves an important component of the potential countermovement of the bridge. For if we analyse the shifting areas of tension, interplay of forces and events leading up to the Erasmus bridge project, public response mechanisms and civil engineering defiance are almost impossible to tell apart.

Although it is impossible to isolate one factor that has guided these processes, the surprising importance of the computer drawing in these subordinative activities needs to be acknowledged. The computer offers the architect so much insight into a field once largely beyond his grasp, that he now has a much greater say in engineering projects. At the same time this argument cannot be seen distinct from other interests; the shared, public space of the computer simulates that of the city, supplementing it with a new calculated image of urban phenomena. For instance, it provides intensity graphs in which the bridge emerges as an urban artefact in a way quite separate from every traditional planning discourse. What these and other studies demonstrate is a sharpening of the double life of each extensive urban and infrastructural object; despite its ineluctable solitary permanence, in the individual, subjective experience it is shortlived, intensive and multitudinous. The two realities exist concurrently, the bridge being there as a fixed point in the city and also as a fragmented series of images of stays, lights, traffic lanes. Its multiple identity is insurmountable at every level. However one approaches the project, ambiguities, transformations and combinations of forces keep clamouring to the fore. The combining of forces at this scale is continued down to the level of detail by the bridge's involvement in infrastructural and urbanist considerations. To attribute such manifest asymmetry to an urban project is probably the bridge's most provocative aspect. It is impossible to simply reduce the

urban effect of the bridge to that of landmark; for it stems from an extensive programme at various scales of planning to which no single architectural gesture is applicable. The quality of mobility expresses itself as a form of transgression, occurring where different fields of forces impinge upon another and interpretations of what these forces constitute change abruptly. Just as in the blink of an eye the point of focus changes and alters perception, bringing some objects nearer while rendering others vague, the public and physiological forces of architecture are always in motion; they are never distinct, severable, static.

For this reason, the games we have come across in the fields of the laws of nature, urban expectations and engineering, which are the different levels of reality with which the architect engages himself, do not resemble dialectics, even if there are dualities to be differentiated. On each level everything quivers; therefore the architect has to be neither manipulator, nor victim, but simply someone who has just enough imagination to find and stretch endlessly the gulfs in between those fields of force. Which in another definition are not just tensile holes, but cohesive points of contact.

## Notes

1 Luigi Moretti, 'Structures and sequences of spaces', translated by Thomas Stevens, originally published in *Spazio* 7, December 1952 - April 1953