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Highway Design



Syllabus 01



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Syllabus

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Syllabus presents results, experiences, research made inside formative courses at different levels: bachelor, master, doctorate. The goal is to offer these products, provisional and incomplete as they can be, to the scientific community, enhancing dialogues and exchanges.

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Index

010 Research

Alessandro Rocca

The Highway of the Spectacle

Gian Luca Brunetti

Confessions of a Technical Design

Reviewer

Jacopo Leveratto

Another Roadside Attraction

Monica Manfredi

The Dimension of Time

Luca Negrini

An Architectural Future for the

Highways

Francesca Zanotto

Gates to the Territory. Beyond a

Linear Experience of the Highway

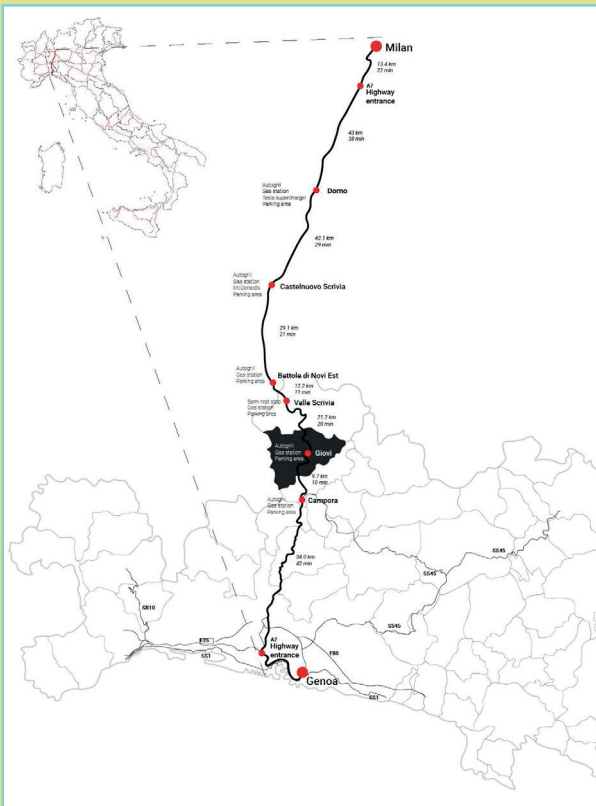
139 Projects

221 Reprint

Stan Allen

Infrastructural Urbanism

247 Repertoire



16/ADS, Highway A7 track.

Projects List

Architectural Design Studio (ADS), a. y. 2020-21
 Professors: Alessandro Rocca, Gian Luca Brunetti
 Tutors: Monica Manfredi, Luca Negrini, Francesca Zanotto

01/ADS: Armen Alexanian, Fitore Gashi, Angela Lekovska
 02/ADS: Pietro Dallera, Andrea Frontani, Alessandro Ricci

03/ADS: Zhang Siman, Zhang Xinyuan

04/ADS: Zhang Yue, Sun Jiayue, Li Zhihao

05/ADS: Evandro Barros, Benu Karamustafa, Leila Mansouri

06/ADS: Michela Barazzetti, Laura Codilupi, Benedetta Moreschi

07/ADS: Emanuel Jicmon, Marcos Armenta Sierra, Zhouyi Tu

08/ADS: Xu Fei, Tang Yinwo, Zeng Kuo

09/ADS: Michele Archetti, Yasaman Taghipour

10/ADS: Sara Agour, Martina Chiappe, Caterina Santini

11/ADS: Mahnam Abbasi, Sana Khanmohammadi, Neda Saadat

12/ADS: Chen Bowen, Li Linmei, Yu Miao

13/ADS: Jiayi Yan, Wenkai Wang, Chenyu Hu

14/ADS: Mohammadreza Hashemipour, Ransom Priynka, Jodhiga Reddy

15/ADS: Ziqi Cui, Shuqing Chen, Suofeiya Nanxi

16/ADS: Giovanni Brunetti, Evrim Ecem Saçmalı, Simin Wu

Thesis Projects (TP), a. y. 2019-20

Supervisor: Alessandro Rocca

01/TP: Manuel Benedettini

02/TP: Du Jian

03/TP: Beatrice Garampelli, Elizabeth Heidenreich

04/TP: Nicolò Mariani, Christian Spolti, Lorenzo Turnaturi

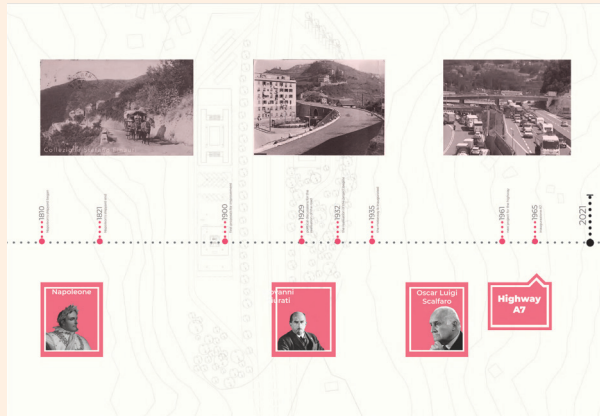
Research

We chose highways as a field of research, starting from the architecture of the service stations. These places are often anonymous, related to out-of-fashion design, nostalgic memories of a past era. Traveling by car was a social achievement and a futuristic adventure. Service areas are old witnesses of an idea of a future that got old, and now they need a deep regeneration process, updating services and environments, finding a new design for the relationship with the highway, the territory, and the users.

Alessandro Rocca

The Highway of the Spectacle

Alessandro Rocca is a professor of Architectural and Urban Design at the Department of Architecture and Urban Studies, Politecnico di Milano



09/ADS - Scrvia Service Area.
Timeline.

The Studio intends to elaborate projects to transform the service areas along a specific part of an Italian highway. The sites are located in the so-called internal territories, the Apennines Italian region, which, because of the decline of the sylvan-agricultural and industrial activities, suffer abandonment and depopulation phenomena.

Implementation and transformation of the service areas should be integrated into a process of redemption of those territories, as part of a larger movement that tends to implement new relations between the metropolitan and the countryside. The goal is to envision a development capable of mixing elements of newness, technology, connectivity, business and the like, and factors related with the local cultures, establishing a dialogue with the small scale of the landscapes, the many villages, and towns which, in a not too far past, were the nervous system of the nation. Starting from these premises, the Studio engages in similar topics, which have the same relevance. The first topic is "implementation": to give the drivers a new perception of the service area and a new environment, freer from the functionalist aspects, more

integrated with the landscape, and more generous, in terms of public spaces, facilities, interactions.

A second topic is "open and integrate": a goal of producing, through the development of new attractions and facilities, a substantial direct benefit for the surrounding villages, which live separated from the flow of people and money, which runs the highway, and remain isolated from the metropolitan system.

A third topic is "energy": if we guess that, in a few years, all vehicles will be equipped with electrically powered engines, the standard gasoline service will disappear, changed with a new system of energy supply with totally different characters. For example, vehicles will be fed while they just stand in their lots, reducing the need for space for this function; but, on the other side, the entire process will be consistently longer, taking more than the few minutes necessary for the gas supply. This entails that we can imagine longer stops, and different use of time, at the service area, waiting to complete the electrical charge.

In this sense, service areas and the highway itself may act - and be designed - as the nodes and the backbone of territorial systems enabling the circulation of

resources, waste processing, and ecological network enhancement.

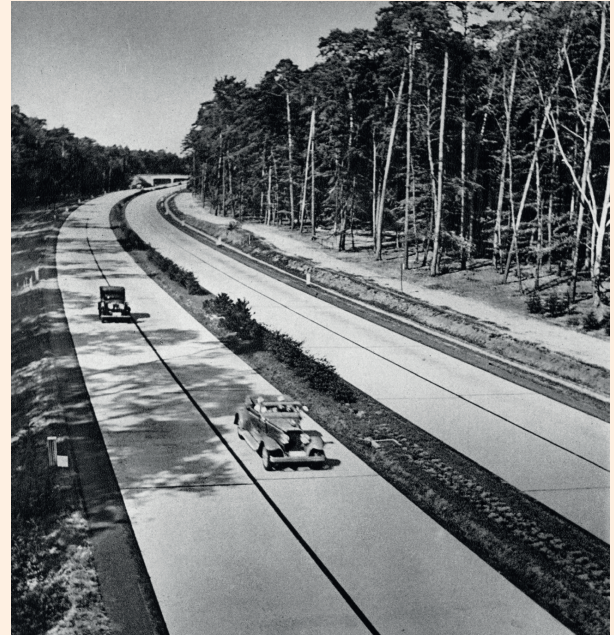
A fourth topic is "Fragility": in the last years, the infrastructural system shows serious endurance and safety problems. Collapses of viaducts, bridges, tunnels, clear that the entire system, often more than 50 years old, is aging, asking for regular maintenance and, in some instances, of radical interventions with the substitution of entire parts of the infrastructures, as recently happened for the Morandi viaduct in Genoa. This topic overpasses the boundaries of our Studio. Still, it is an element of knowledge that pushes for a different approach to designing the infrastructure and its facilities. It is necessary to adopt a less rigid approach, looking for infrastructures adaptable to other uses and more open to possible compresence of various users, vehicles, activities.

Highway as a nation

The highway represents an anomalous work ground for architecture. Its infrastructural nature escapes the control of architecture and instead calls for the collaboration of landscape architects. In Italy, Pietro



"One of the most hotly debated questions regarding the design of the autobahn was whether it should be built with long straightaways or in sinuous, sweeping curves. While the propaganda claimed that the roads were integrated into the landscape following the latter pattern, most of the early autobahn stretches resembled this picture: Long straight sections were connected with short curves. The aerial view shows the autobahn from Frankfurt/Main to Darmstadt. Otto Reismann, *Deutschlands Autobahnen—Adolf Hitlers Straßen* (Bayreuth: Gauverlag Bayerische Ostmark, 1937), 144". (Zeller 2007, p. 130).



"Often, the autobahn traversed forests, which created particular design challenges for landscape architects and civil engineers. Some preferred a road that was as close to the trees as possible. Fritz Todt, however, the chief autobahn engineer, recommended more clearcutting in order to give drivers a feeling of open space on a fast journey. Otto Reismann, *Deutschlands Autobahnen—Adolf Hitlers Straßen* (Bayreuth: Gauverlag Bayerische Ostmark, 1937), 194". (Zeller 2007, p. 158).

Porcinai's work on the Brenner motorway remains exceptional, and unfortunately, a unique experience whose infrastructure and the landscape integrate into a single design. The Brenner experience, carried out starting in 1964, is an epigone of the remarkable story of the highways of the Third Reich, conceived and built under the Hitler regime in a systematic way as a landscape action. It must be taken into account that Porcinai had his training as a landscape architect abroad and especially in Germany, the scene of the largest motorway construction operation in the first half of the twentieth century.

From 1935 to 1940, the total length of German motorway sections grew from 108 to 3736 kilometers. At the head of this vast national enterprise is Fritz Todt, engineer, road inspector general, who in 1939 creates and directs the Todt Organization, responsible for military construction, starting from the Siegfried line. From 1940 to 42, Todt was minister of armaments and ammunition, a position in which he was replaced by another protagonist of Hitler's architecture, Albert Speer, after his death in a plane crash. "In order to create fitting roads for the Reich, he (Todt) assembled

a team of landscape designers and forestry experts as well as architects; in particular, the architect who would be responsible for many of the autobahn bridges, Paul Bonatz, and landscape architect Alwin Seifert. Todt's role was to bring together all the necessary people: architects, structural engineers, landscape and forestry specialists, to ensure that each section of autobahn was thoroughly and realistically planned before work commenced." (Taylor, 47).

Alongside Todt, there is a figure of great interest, Alwin Seifert, ecological landscape architect and supporter of biodynamic agriculture, whom Porcinai personally knew, appreciated and used as an example. "Porcinai met Alwin Seifert in Paris in 1937. at the Congrès International des Architectes Paysagistes. On several occasions Porcinai help to spread his ideas di lui - Seifert was a theorist and consultant for the Reich on landscape issues - hoping to stimulate a similar policy in Italy for the protection of the national landscape. See, for example. Porcinai's passionate book review of *Im Zeitalter des Lebendigen. Natur-Heimat-Technik* (Mullersche, Planneg, 1943), in which he enthusiastically praised design criteria respectful of the

landscape in the new motorway system, published in *Architettura* (December 1941, p. 475). He used a similar tone in “The whole nation must be a garden. The streets are lined with trees, creating true elements of the landscape”, in *Domus* 115, 1937, pp. 38-42 (Treib, Latini, p. 183).

Highway as a society

The pedagogical goals of this Studio are multiple because we consider the highway, with its nature and environment, a crossroad of many different trajectories, stories, and perspective.

On one hand, the highway is a modernist artifact par excellence, a symbol of the myth of speed and performance that characterized the XIX century and which found it's complete accomplishment in the last century.

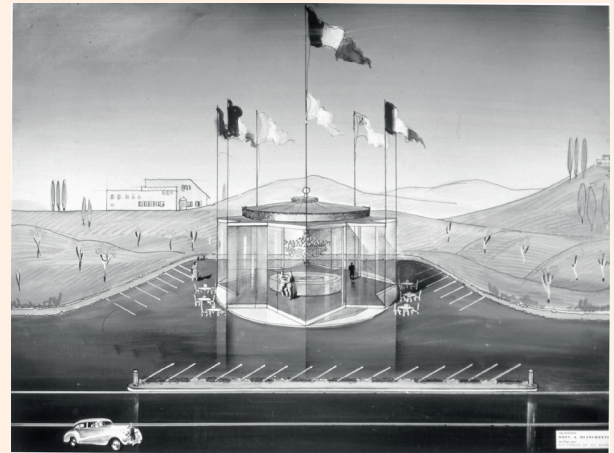
In modernist mythology, the highway is the final detachment of the metropolitan man from the slow pace and old values of the countryside, and from the tiring proximity of the urban crowd, the noise and pollution of the city with its excess of stress and messages.



Angelo Bianchetti, Study for an Autogrill, 1950 ca.



Angelo Bianchetti, Study for an Autogrill, 1950 ca.



Angelo Bianchetti, Study for an Autogrill, 1950 ca.



Angelo Bianchetti, Autogrill Giovi, Highway A7, 1958.

The man running on the highway, the worker, the driver, the family on holidays, is absorbed into the golden sphere of consumerism, immersed in the frigid sociality of the Autogrill, pushed by the implicit competition prepared by a road that is exactly like an autodrome.

The symbols, along the highway, stay calm and regular, obeying a homogenous code, unified by the same colors, fonts, and positions.

The traffic is strictly disciplined; it can be slow for its density, for car crashes, for manutention works and other contingencies, but it is never chaotic and unpredictable like in the streets of the city. Every vehicle follows the same directions, there are neither traffic lights nor pedestrians. The lanes stay closed between continuous barriers, being them guard-rails, concrete walls, or pseudo natural embankments. The road has doors, in Italy, where you must be checked and pay a toll, benefitting of something that is not for all.

The highway is like a universe of law and order, a wonderland that can easily produces dystopian conditions. The apex, of the dystopia, is the car crash,



Angelo Bianchetti, Autogrill, Fiorenzuola d'Arda, 1958.

the event that translate power and speed in its opposite, in a sudden state of quietness, dominated by fear and pain.

When travelers leave the vehicles, there is always a motion of relief. The truck driver takes his lunch, the travelers are glad to leave the bus and suspend, for fifteen minutes, the forced cohabitation. Everyone takes some breaths, eats, drinks, pisses, walks, gives a look at the landscape. Especially, drivers finally have access to their devices, intensely, along the working days, and lazily in the weekend and holidays.

In the ecology of the highways (Banham, 1971) the service stations are oasis, spaces for a possible social contact, for resting and meeting, for fueling and shopping. In the service station, the parking lots are a well-ordered complement of the building and the gas station, and these three elements combine a region with its specific rules and habits. The gas stations generally come from a prefab system that make them all very similar. Their recurrency is a marketing strategy, making the brand recognizable through the colors and the form of the structure. The gas station is an extension of a product, gas, which is always the same,

and then the structure follows the same principle, testifying with its sameness the sameness of the service. It is the same principle that inspires all the franchising shops, from the cheapest fast food to the most expensive fashion showroom.

For the main building, that normally hosts shops and restaurant, rules can change. We find chains of repeated architectural models and exceptional buildings. Also, we find the two opposite options merged, with the repetition of exceptional buildings.

This is the case of the revolutionary buildings invented by Angelo Bianchetti (1911-94) for the Italian highways, in the Fifties and the Sixties of the last century.

After a prestigious internship in the office of Ludwig Mies van der Rohe, in Berlin, and after the making of important projects in Italy before and after IIWW, in 1958 Bianchetti conceived a sort of triumphal triple arch for a new kind of building in the service station, the Pavese, from the name of the pastry industry which financed it. The building, beautiful and fully successful, was located North of Milan, along the highway leading to Switzerland, and replied only two times, North and East of Genoa, on the A7 and A10 highways.

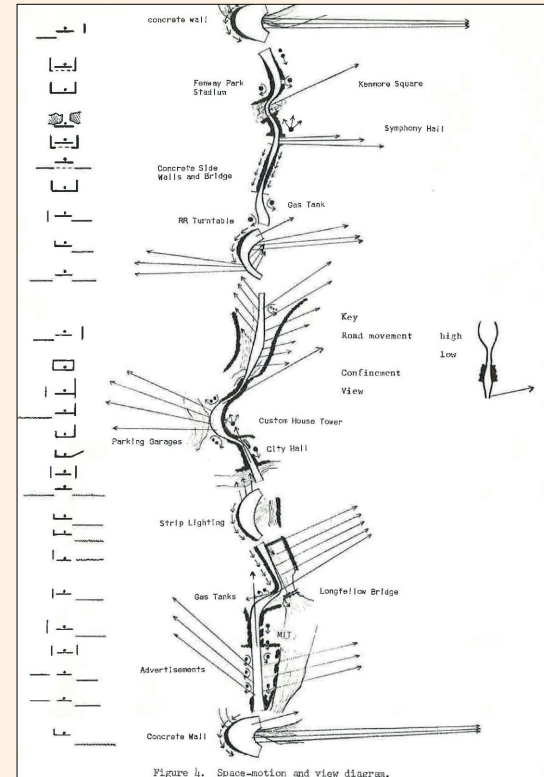
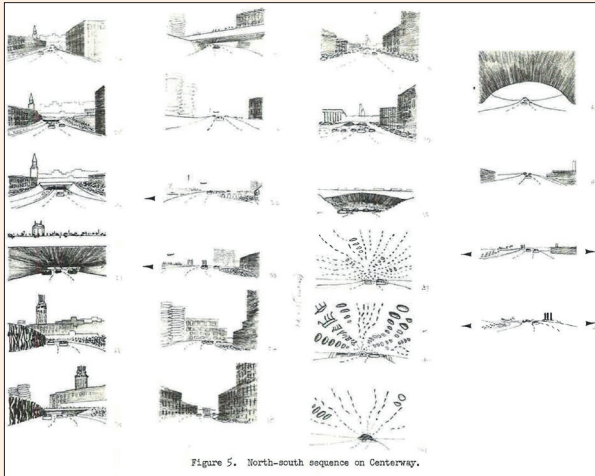


Figure 4. Space-motion and view diagram.

From D. Appleyard, K. Lynch, J. R. Myer, *The View from the Road*, The MIT Press, 1965.



With the inventions of Angelo Bianchetti, architecture becomes a spectacle, enhancing the structural aspects, with arches and bridges and assuming intense colors, large windows, super graphic billboard legible from a distance.

In the highway's spectacle, travelers observe from above, behind the soundproofed windows of the restaurant, the cars passing. It is a euphoric but also an efficient representation of the new economic boom. The motorway has now lost that happy adherence to the spirit of the time. The asphalt, the concrete of the viaducts and tunnels, the steel of the guardrails have become symbols of man's abuse of nature and landscape. However, there is nothing more scenic than a highway that cuts through valleys and plains, accompanying its wide curves the land's orography, the bends of rivers, and the mountains' ridges. The technological and futuristic architectures of the Sixties interpreted the dream of a happy and innocent dominion. Today, the new highway architecture, having lost the innocence of the 20th-century machinery, must address the theme of a hybrid environment, where heavy traffic coexists with the rural dimension.

The sociologist Marc Augé, in a lucky book, indicated the highway as a typical non-place, where local authenticity is reproduced, with grotesque and guilty simulacra, in the symbols and minimal information shown on the tourist signs. Nevertheless, it is also true that the motorway remains a privileged observation point both on the landscape and on the habits of the traveling population, the nomadism of truck drivers, commuters, and vacationers. We can imagine the motorway as a society, therefore, and parking areas as the places where cars stop and travelers return to being people in the flesh, consumers of the products of the motorway shop and restaurant but also users of anomalous environments, possible windows open to a future yet to be invented.

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