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Twentieth Century Modern Architecture and the Countryside: Ludwig Mies van der Rohe's design for a country golf clubhouse for the Krefeld Golf Club Association

by

VICTORIA WATSON

This paper investigates relationships between modernity and monumentality in the architecture of Ludwig Mies van der Rohe. In his Modern Architecture, the critic and historian Kenneth Frampton separated Mies' work into two historical periods, 1921-1933 and 1933-1967; the first he entitled 'Mies van der Rohe and the significance of fact', the second 'Mies van der Rohe and the monumentalisation of technique'. The two historical periods correspond to two different geopolitical phases of Mies' career, the first in Weimar Germany, the second in the United States. By looking at a number of designs and texts made by Mies in the 1930s and 1940s, this essay questions the validity of separating Mies' architecture into such clear-cut categories, where each one can enjoy a seeming independence from the other. The fulcrum for the discussion is Mies' unbuilt design of 1930 for a country golf clubhouse for the industrial town of Krefeld in north-western Germany. Our attention to the golf clubhouse design was prompted by the recent installation (2013), in which a 1-1 model of the design, made primarily from plywood, was erected in a field close to the site of Mies' original proposal.

PRETEXT

In the summer of 2013 an unusual 'pop-up' structure appeared in a field in north-western Germany. It was described by its creators as a 1 to 1 model of a design for a country golf clubhouse, by the modernist architect Ludwig Mies van der Rohe. The model was made primarily of plywood and built very close to the site of Mies' original proposition. The organisation responsible for the pop-up's appearance was, and still is, called the *Mies van der Rohe in Krefeld association* (MIK); to this day the MIK continues to promote the pop-up event, even though the structure has now been removed (Fig. 1).¹

Mies projected his design for a country golf clubhouse in 1930, for a site

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Fig. 1

Mies van der Rohe 1:1 Golfclub project: a walkable architectural model exhibition, Krefeld 26 May - 27 October 2013, two views of the model.

Project MIK e.V., Christiane Lange, Robbrecht en Daem architects & DGM Architects

on the periphery of the industrial town of Krefeld (Fig. 2). The proposal was commissioned by the then president of the Krefeld Golf Club association, a wealthy and politically influential industrialist named Hermann Lange; neither the golf course nor Mies' design for a clubhouse was ever built. There is an interesting connection between Hermann Lange and the MIK group, because one of the group's leading members, Christiane Lange, is Hermann's granddaughter. In a lecture given at the Architectural Association in February 2014, which can be viewed online, Lange explained that it was she who commissioned the 1 to 1 model and worked closely with the architects Robbrecht en Daem to design and build it.²



Fig. 2

Location of Mies van der Rohe's design of a country golf clubhouse for the Krefeld Golf Club Association.

Google Earth, satellite view, with 'dropped-pin' indicating the location. Accessed 7 August 2015.

The event of the model raises many interesting questions; the one that this paper pursues is related to matters of history and to the problematic relationship between the role played by architecture in the contemporary culture industry and the strident modernity of architecture's not too recent past. Impressed and at the same time troubled by the MIK's achievement, this paper sets out to investigate Mies' design in a different way. The ambition here is to understand the relationship between Mies' modernist architectural proposal of 1930 and the Krefeld countryside in which it would have been located. The paper will examine Mies' original proposal by two means: first, in relation to the drawings he made of the clubhouse design, which are unusual for Mies because they include depictions of motorcars; second, the paper will look at an article Mies wrote for a motorway building consortium of private and public agencies, HAFRABA. His article was published in HAFRABA's newsletter, *Die Autobahn*, in 1932, just two years after he had produced the golf clubhouse design and just one year before the National Socialists came to power and adopted motorway building as a visionary programme for the Third Reich.

THE LITERARY STRUCTURE

Before turning to the puzzle of modernity and the countryside that is implicated in Mies' original proposition, the paper will look at another structure of relationships concerning architecture and the countryside, one that is often associated with Mies. For argument's sake this other structure will be termed 'literary'. The detour is necessary because the literary structure can sometimes occlude readings of modernist architecture, not only the work of Mies. To expose the problem the paper turns to an event of the 1980s when Mies' design for the Krefeld golf clubhouse complex featured as part of a much broader campaign to re-invent his legacy. One important contribution to this effort of cultural re-tuning was an exhibition and a book by a young architectural historian, Wolf Tegethoff, both entitled *Mies van der Rohe: The Villas and Country Houses*. Tegethoff's exhibition and book impressively were sponsored not only by the Krefeld Art Museum but also by the Museum of Modern Art in New York, which had been responsible for promoting Mies' modernist reputation in the United States and, after the Second World War, in international architectural culture more generally. It is far beyond the competence and scope of this short essay to explore fully the cultural re-tuning of Mies that took place in the 1980s. This paper will pick up on one aspect of that endeavour only, which is the claim that Miesian architecture belongs in the tradition of the country house of antiquity. The tradition in question refers back to the letters of Pliny the Younger and to the accounts which he gave of his villas in the Roman countryside and the times he spent there. Pliny described his villas in elegant literary compositions, in letters sent to his friends, with descriptions of the villas structured as leisurely walks through them. Even today, his carefully constructed accounts encourage readers to feel as if they too are experiencing the sensuous and contemplative delights of time spent in the country house of antiquity.

At about the same time as Tegethoff and his supporters were aligning Mies with the literary structure, the American art historian James Ackerman was preparing a book that explored that very same structure. Ackerman first publicised his thinking in a series of Mellon Lectures given in 1985 which were later expanded and then published in *The Villa: Form and Ideology of Country Houses*. This is organised as an historical survey, cutting across the entire history of western architecture. In the section on twentieth-century modern architecture he barely mentions Mies, but instead takes Le Corbusier and Frank Lloyd Wright as exemplary of the literary structure's continuation into that historical period. What is important about Ackerman's account is the way he expresses the literary structure as a binary form, in which the rural ideal of the villa is inconceivable without the urban ideal of the city:

'The villa cannot be understood apart from the city; it exists not to fulfil autonomous functions but to provide a counterbalance to urban values and accommodations, and its economic situation is that of a satellite...The villa can be built and supported either by monetary surpluses generated by urban commerce and industry or, when it is sustained by agriculture, by the need of urban centres for the surplus it produces beyond its own requirements. Consequently the fate of the villa has been intimately tied to that of the city: villa culture has thrived in the periods of metropolitan growth...and has declined with urban decline.'³

It is important to bear this dual relationship of countryside and city in mind, because it is the key to understanding how the literary structure can get in the way of grasping other modes of accounting for architecture in relation to the countryside, specifically the structure of relations implicated in Miesian architecture.

Returning to Tegethoff, *Mies van der Rohe: The Villas and Country Houses* is organised on a project-by-project basis, in chronological order. Most of the selected projects are designs - mainly unbuilt - for houses or villas in countryside locations. There are four exceptions, three of which are exhibition buildings, the fourth is the design for a golf clubhouse complex for the Krefeld Golf Club Association.

To put Mies' golf clubhouse design in its proper historical context it is worth saying a little more about the man who commissioned it, Hermann Lange, an important contact for Mies in Weimar Germany. Having assumed control of his father's company after the First World War in 1919, Lange proceeded to run a very successful business throughout the difficult economic period between the two world wars. One feature of Lange's success was his initiative in forming 'a consortium of well-established Krefeld textile factories called the Vereinigte Seidenwebereien A. G. (United Silk Weaving Mills, Ltd.), or Verseidag'.⁴ Right from the start, Lange was the chairman of the board of the Verseidag and he had the opportunity - and sense - to match that position to a role within the governmental apparatus of the German Reich. As is often the case with powerful industrialists and political players, Lange liked to collect modern art - it was through the Berlin art-dealer Hans Nierendorf that he first made contact with Mies.⁵ Lange had already worked with Mies prior to the Krefeld golf clubhouse project, having engaged the architect to design for himself and his colleague Josef Esters a pair of villas, side by side, in the bucolic setting of a greenbelt garden suburb in the northeastern sector of Krefeld.⁶ Among other purposes, Lange intended to use his new villa as a space to display his impressive collection of modern sculptures and paintings.⁷ Both the Lange and the Esters villas are included in Tegethoff's book.

In terms of the dual relationship of city and villa that is explored in *The Villa: Form and Ideology of Country Houses*, the Lange villa could be read as conforming to the principle of counterbalance. It is possible to imagine that Lange, rather like Pliny, might have complemented a day of hard work - wrestling with governmental and industrial issues - with retiring to the rural ideal of his garden villa. Once there, he could enjoy the sensuous and contemplative pleasures of air, light, sun, meadow, landscape, sculpture and painting. But what about the golf clubhouse complex, how is it possible to read that proposition as conforming to the ideology of villa and country house architecture?

Insofar as it was destined to function as an out of town retreat, where members of the Krefeld Golf Club Association could go to play golf and more generally socialise, Mies' design for the clubhouse complex could be understood as conforming to the ideals of villa and country house architecture. However, Tegethoff did not use arguments based on the villa and country house ideal to justify the inclusion of the clubhouse complex in his exhibition and book. Of course, the fact of the proposed building being formally located in a landscape setting was important to Tegethoff, but the way he used the setting did not support his broader arguments about Mies and the literary structure. Rather he used the clubhouse complex to rebut the idea of 'autonomy' that is so often raised by

critics of twentieth-century modern architecture. Tegethoff derived the parameters for his concept of architectural autonomy from the conservative historian Hans Sedlmayr, so it seems reasonable to suppose that it was a perceived conservative hostility to Miesian architecture that he was intending to refute, when he argued that the golf clubhouse design made no sense as an autonomous architectural statement.

For Sedlmayr, an architectural form exhibits autonomy insofar as it demonstrates a complete disregard for its enviroing context. Included in the concept of environment, as it is used here, is the possibility that the built form will be perceived as meaningful for those persons who engage with it. In the case of Miesian architecture, a disregard for the enviroing context might be evidenced in the deployment of glass walls. According to Sedlmayr, glass walls have the effect of polarising the building's relationship with its immediate surroundings, throwing the perception of its form into an extreme bifurcation. On the one hand the glass-walled building will seem as if it is closed inwards, sealing itself off from the surrounding environment; on the other hand it can appear to be generously open to the outside. What is important for Sedlmayr in his account of autonomy is the co-existence of both extremes, of closing inwards and opening out:

‘The building closes itself against its surroundings as never before; on the other hand it opens itself as never before; these extremes come together, paradoxically, thanks to the discovery of the glass wall.’⁸

As a consequence of the interior/exterior bifurcation, Sedlmayr suggests glass-walled architectures manifest a kind of boundary condition that troubles the human sensibility to form and space:

‘Since the barrier against the outside is a transparent skin of glass, the boundaries that separate the building from the universe have been done away with. Architecture itself becomes part of the universe: interior space is merely a selected portion of the infinite space outside.’⁹

Tegethoff's counter argument to the autonomist critique of Mies' golf clubhouse was to point out that the deployment of transparent glass walls could be read equally as a means of calibrating the relationship between interior space and the surrounding environment or as a means of sending them into an antagonistic relation. In support of his claim, Tegethoff noted features of Mies' design that seemed to respond to specific features of the location in which the clubhouse was to be sited. The important thing to note in Tegethoff's argument with Sedlmayr is that although both of them understand autonomy in the same way, they disagree as to whether Miesian architecture does, or does not, exhibit autonomy. Because the critique of autonomy can so easily be appropriated to support liberal, conservative or indeed socialist positions, it is of little use in exploring the complex of spatial, temporal, psychological and social relationships that are implicated in Mies' golf clubhouse proposal.

CARS AND MOTORWAYS

We turn now to the drawings that Mies made of the clubhouse complex for the Krefeld Golf Club Association. To begin with, a sketch perspective entitled *view from beneath the canopy* shows the front wing of the proposed building. This is designated to function as

changing rooms; its appearance in the sketch makes it look as if a volume of space has been enclosed in a screen of opaque, white glass (Fig. 3). The white-glassy look of the screen is partly due to the way it is rendered in the drawing, but white-glassiness is also connoted through what is known about the other designs that Mies was working on at the time (the Barcelona Pavilion of 1929 and the Tugendhat House of 1930 are both known to feature opaque, white glass screens). One prominent feature of Mies' sketch is the car parked in front of the screen.

In perusing other drawings which Mies made of the clubhouse complex, it becomes apparent how important the idea of the motorcar was for this particular proposition. For example, in a sketch plan showing the approach and turning circle, the movement of the cars is drawn as a discrete form, like an actual building element such as a roof or a floor. It seems that Mies was imagining the movement of the cars as emphatically playing a part in the composition of the total building complex.¹⁰ In another sketch, an aerial perspective, not only is the compositional importance of the car indicated, but so too is that of another kind of vehicle - a small airplane is sketched in - it seems to have just left the ground, its flight path indicated in soft pencil lines as it swoops over the clubhouse and heads-off out of the picture plane; perhaps we should imagine Hermann Lange flying-off to a meeting in Berlin.¹¹

It is quite unusual to find cars featured in Mies' drawings. Even in his design for the enormous traffic roundabout for the Alexanderplatz site in Berlin, which he had been working on in 1928, there are no cars shown in the drawings. Living as we do today, in environments that are shot through with the consequences of motorisation, it is hard to imagine what it was like to live in one that was as yet unmotorised.

The canonic history of modern architecture pays little attention to the number of automobiles on the roads in Germany in the late 1920s and early 1930s, but it does indirectly inform us of one motorcar presence. In 1930, Philip Johnson, the director of

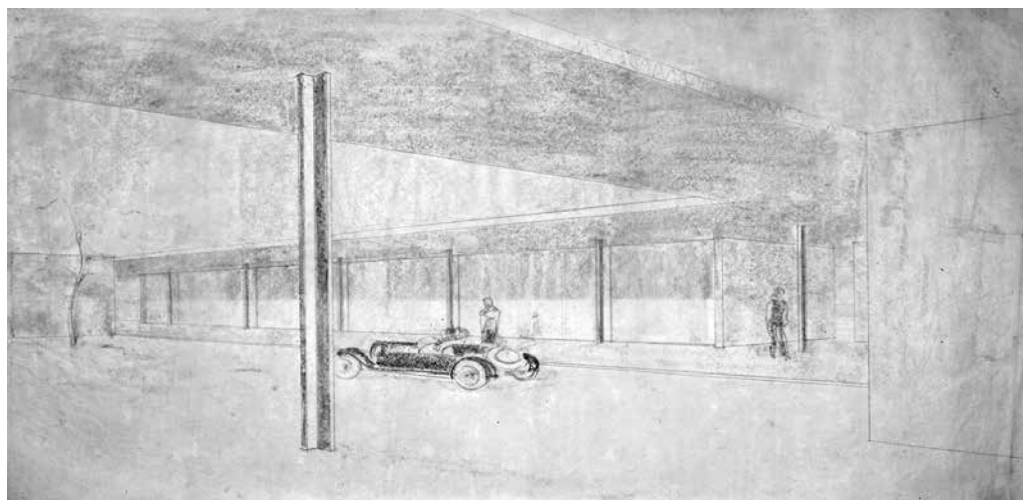


Fig. 3

Mies van der Rohe, Ludwig (1886-1969) Golf Club Project, Krefeld, Germany, Perspective view from beneath the canopy, 1930. New York, Museum of Modern Art (MoMA). Pastel and pencil on tracing paper, 21 1/2" x 42 1/4" (54.6 x 107.3 cm). Mies van der Rohe Archive, gift of the architect.

Acc.n.:MR19.54.© 2015.

Digital image, cp (2015) The Museum of Modern Art, New York/Scala Florence.

the architecture department of the Museum of Modern Art, New York, was in Germany collecting information for what was to become an exhibition and a book on *The International Style: Architecture since 1922*. One purpose of his visit was to get to know Mies. In an interview with Mies' biographer, Franz Schulze, Johnson explains how Mies 'loved to drive in the country' and so one way he, Johnson, could get to know him, was by offering to take him out for a drive. Schulze states that Johnson drove a Cord. The first American front wheel drive car to become available to the public was a Cord, in 1929. The model was named after that year and one can imagine that it was a Cord L-29 in which Johnson took Mies on country rides.¹² It is hard to be certain, but the car that features in Mies' drawings of the clubhouse might be a Cord L-29 - or was it a Mercedes? (Fig. 4)



Fig. 4

Two types of car from the late 1920s and early 1930s: Cord L-29 below, Mercedes above.

For motorists in Germany in 1930 there were no motorways but the idea of building carriageways exclusively for motorised vehicles was a subject of considerable speculation. In particular, the idea of constructing a roadway between Germany and Italy, designated for automotive vehicles only, had been around since the early 1920s. The German-Italian motorway-building project was inspired by the achievements of an Italian entrepreneur, Piero Puricelli, who since 1921 had been constructing privately operated motorways throughout northern Italy. Puricelli seems to have been highly active in persuading parties in Germany to follow his initiative and to embark on a similar programme of mixed entrepreneur/public agency motorway building. Following Puricelli's example and encouragement, in 1926 the organisation HAFRABA was founded - Puricelli was on the board of directors - pushing ahead plans to construct a north-south motorway across Germany. The HAFRABA motorway was to run from the port of Hamburg, in the north, via the important commercial city of Frankfurt in the west, to the borders of Switzerland (Basel, in the south), and then extending across Switzerland down to the Italian port of Genoa (Fig. 5).

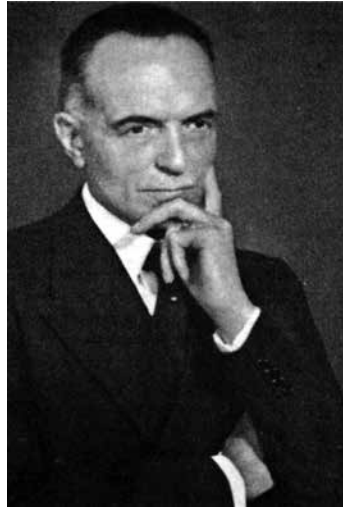


Fig. 5

Man and Motorway, composite image: Puricelli on the left, the route of the HAFRABA motorway on the right.

The name HAFRABA was derived from the first letters of the names of the key cities to be connected (Ha - Hamburg, Fra - Frankfurt, Ba - Basel). The constituency of the HAFRABA organisation was a mixture of entrepreneurs from the construction and transport industries and public representatives and administrators of federal states and cities that would have been directly affected by the motorway route. From 1928, HAFRABA regularly produced a newsletter, originally entitled *HAFRABA - Mitteilungsblatt des Hafraaba e.V.*, running to twelve issues a year. In 1932 the name of the newsletter was changed to *Die Autobahn*. The following year, in 1933, *Die Autobahn* and the HAFRABA initiative were taken over by the Nazis and, in August of the same year the HAFRABA association was compulsorily dissolved and the motorway project incorporated into GEZUVOR (Gesellschaft zur Vorbeitung des Reichsautobahnbaus - Company for the Preparation of Autobahn Construction).¹³

In 1932, just one year before the National Socialists' came to power, Mies had contributed an article to *Die Autobahn*, 'Expressways as an Artistic Problem'.¹⁴ One of the chief concerns of the HAFRABA association was the question of motorway design and

how the new form should relate visually to the environment. There was a great deal of speculation about the matter, which is no doubt why the subject was of interest to Mies and, reciprocally, why Mies' views were of interest to HAFRABA. But another reason why HAFRABA might have been pleased to be associated with Mies was because of his reputation as a champion of progressive modern architecture and design. In those days Mies was vice-chairman of the German Werkbund, he was director of the Bauhaus and he and his partner Lily Reich had successfully completed several important international projects representing the Weimar Republic, including the Barcelona Pavilion and the Weissenhof exhibition in Stuttgart.

It seems surprising, but the records indicate that motorway-building was not especially popular with industrialists in Germany in the late 1920s and 1930s. Most significantly, the German automobile industry was not behind the motorway idea because the kind of cars the industry was geared-up to produce could not endure the kinds of long distance driving deemed necessary to justify the economics of motorway construction. For HAFRABA, the name of Mies, with its connotations of radical, new modern architecture and design, must have been valuable promotional material and having Mies' name associated with the enterprise was probably far more useful to the organisation than the details of what he actually said.

Even if the contents of Mies' article might have been of marginal importance in the cultural context of its publication, the content is interesting in the continuing climate



Fig. 6

Composite image showing photographs of early German motorways: above, stretch of motorway with no vehicles in sight; below, stretch of motorway with one vehicle.

of confusion surrounding our understanding of 20th-century architecture. The article says a great deal about Mies' thinking on the implications of modernisation for the relationship between the town and the countryside. What seems to have been of particular importance to him were the new kinds of perceptive opportunities made possible by travelling through the countryside at high speed. To illuminate his ideas, Mies expressed some doubts about those of a regional planning officer named Becker who apparently had suggested that the edge of the motorway carriageway should be lined with vertical features, placed at regular intervals, as Mies put it, in an 'obelisk-like treatment of the border plantings'.¹⁵ In his *Autobahn* article Mies complained about the effects of such a design on the perceptions of the occupants of vehicles travelling at speed. As he explained, one consequence of an obelisk-like-treatment would have given rise to the disagreeable effect of 'chopping up'¹⁶ the landscape, leading to 'an emphasis of the road within the landscape, instead of a fitting in.'¹⁷ Mies wanted the aesthetic

experience of driving along the motorway to be that of ‘fusion’¹⁸ with the landscape and not that of separation and detachment from it.

Another suggestion by Becker that was criticised by Mies was that motorway features, such as junctions, bends and overpasses, should be signalled ‘by means of individual trees or groups of trees’.¹⁹ Mies pointed out that the problem with this idea was the implication that, in order for signalling trees to stand out in the motorway environment, ‘all terrain adjoining the route would have to be kept free of trees’.²⁰ But Mies did not just raise doubts about Becker’s suggested use of tree-planting as a means of signalling motorway features, he offered an alternative idea: instead of planting trees, he suggested, why not plant clusters of advertisements at key points along the motorway?

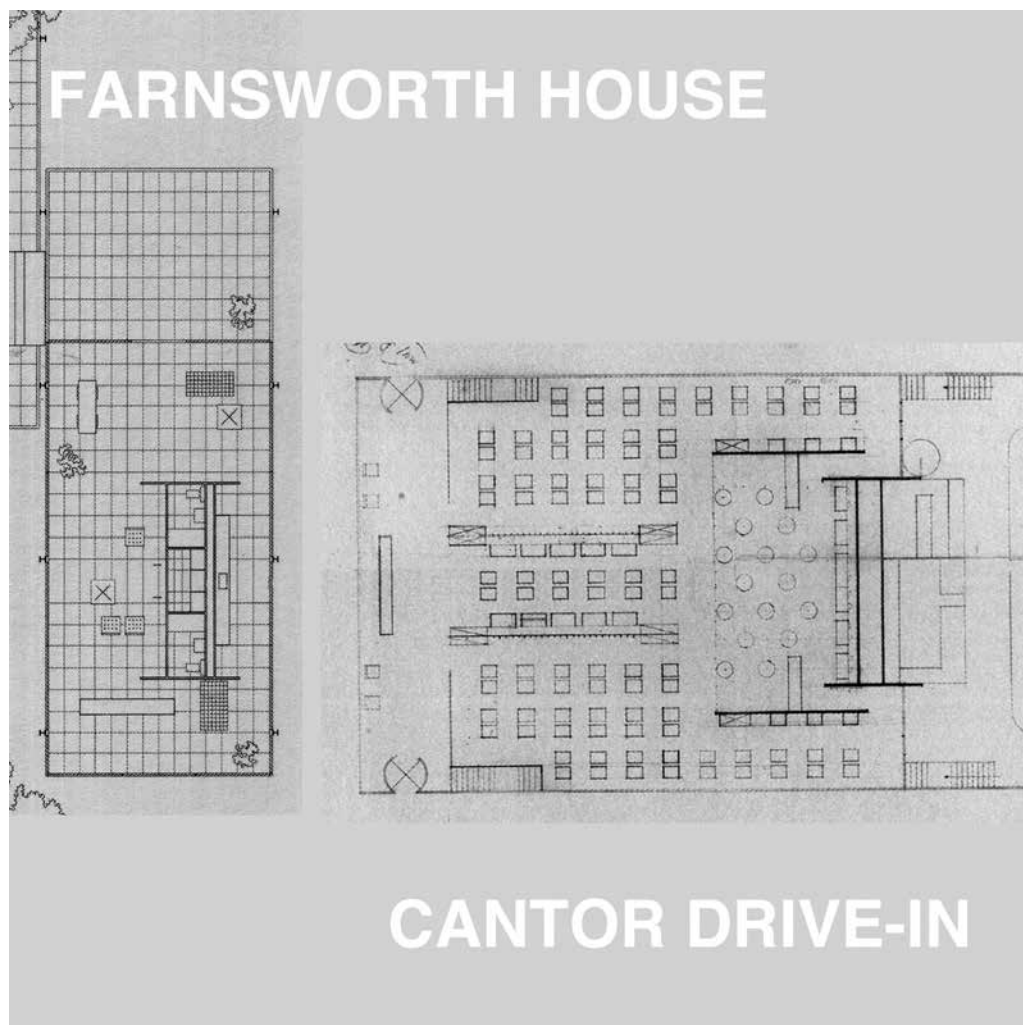


Fig. 7

Comparative plan - diagram of the Farnsworth House and the Cantor Drive-in Restaurant showing the central feature of the free-standing service-core.

Drawn by the author.

The underlying aesthetics of Mies' approach to motorway design were not entirely out of tune with the ideals of motorway construction that were to inform the monumental building programme of the National Socialist dictatorship, ideologically termed 'Adolf Hitler's Roadways.' The idea of forging an organic bond between the motorway and the landscape was, famously, a key feature of the National Socialist motorway-building programme.²¹ Where Mies' system departed from that of the National Socialists was in his suggested incorporation of commercial business interests into the fused perception of motorway and landscape. Such fusion was to be achieved through the installation of advertisements at crucial points along the motorway network. For the National Socialists, the idea that the fused organism of state motorway and mother landscape should incorporate symbols of private enterprise would have been anathema (Fig. 6).

Mies' advocacy of motorway advertising would seem to suggest, if not prove, that he was interested in the possibilities of bringing modernity and the design of the countryside together, in new spatial formations promising new perceptual experiences for the people who used them. In order to support this claim it is worth turning to two of the projects Mies worked on fairly soon after his emigration to the United States in 1938. At the time he had little choice but to emigrate since the possibilities for his continuing to practice architecture were severely limited under the National Socialist regime. The two early American projects to be taken into consideration here fall into the second of Frampton's categories for containing Mies' architectural efforts: '1933-1967, The Monumentalisation of technique.' The projects in question are Mies' design for the Cantor drive-in restaurant of 1945-48,²² and his design for the Farnsworth House of 1945-50. Mies was working on both at the same time and, as is evident from a comparison of their respective plan-diagrams, the drive-in and the house have a great deal in common: in both cases the key principle of organisation consists in a single room with a free-standing service-core at its centre (Fig. 7).

Mies proposed to have large letters mounted on the body of the drive-in that would have announced to drivers passing by the building's primary function, which was to convert drivers into diners. Because the drive-in combines ideas about dining and driving with ideas about motorway advertising in obvious ways it is relatively easy to marry the design of the Cantor drive-in restaurant to Mies' written speculations on the form of motorways. In the case of the Farnsworth House, which is a residence for a private individual, the marriage is less obvious. The Farnsworth House is secreted by a river in a densely wooded meadow. In all of the canonic pictures it appears to have no apparent means of vehicular approach and so the connection to motorways is not so clear. Indeed, the connection is so understated that the temptation to read the Farnsworth House as belonging to the literary structure of villas and country houses proves hard to resist, but resistance is important. To secure a resistant approach it is necessary only to look at the house from the satellite perspective of Google Earth, where it is immediately apparent that the house is indeed bonded into a set of spatial and temporal relationships facilitated by cars, driving and roads (Fig. 8).

As every student of architecture knows, the Farnsworth House is a single room interior, enclosed by glass screens on all four sides and a flat ceiling and floor plate above and below. A large, yellow, box-like entity sits in the middle of the enclosed space, often

referred to as the core. One of the functions of the core is to ‘sculpt’ the interior of the house, dividing it up into discrete areas: behind the core is a kitchen, to the left of the core a reception and dining area, to the right of the core a bedroom and in front of it a living room area (Fig. 9). But the core plays more than merely a space-dividing role in the composition of the house, it also plays a space-enclosing role and it has all kinds of useful things inside, including a number of items that, just like the residents and visitors to the house, have been brought from far away.

Aside from the residents and visitors, who drive to the house in cars, along roads, probably passing motorway advertisements and drive-in restaurants along the way, the other items that are brought to the house from faraway have alternative means of travel. Included among these are flows of materials, such as gas, electricity and water, but there are also messages brought to the house, coded as electronic signals and sent along wires, such as telephone and television. Presumably today, messages are even beamed into the house via satellite. All these flows of matter and information, including the residents and visitors, are brought to the house by means of specialised distributive systems that work at scales beyond that of the individual building. The word that is often used to refer to the kinds of territorial systems that underpin the functioning of the Farnsworth House is ‘network.’

The processes that are characteristic of making networks are: distribution, installation, service and exchange. I would suggest it is no coincidence that these very same processes were features of those newly emerging spatial structures that so interested Mies in his late Weimar days, that is, the design of motorways. I would



Fig. 8

Location of the Farnsworth House, its car park, the entrance to the private driveway and the nearby roads and river.

Google Earth, satellite view, with ‘dropped-pins’ indicating the locations. Accessed 30 Oct 2015.

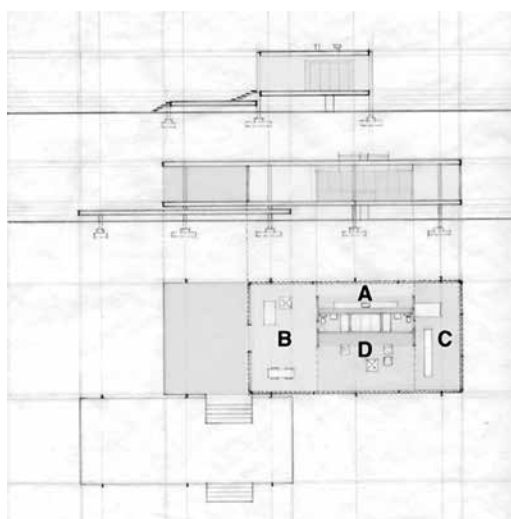


Fig. 9

Farnsworth House: diagrammatic plan and section showing the functional zoning - A, kitchen area; B, reception & dining area; C bedroom area; D, living room area.

Drawn by the author.

also suggest it is the characteristics of networks, and not universal space, nor villa and country house ideology, nor autonomous form, which underpinned Mies' thinking about the relationship between modernity and the countryside, as he tried to express it in his proposal for the country golf clubhouse for the Krefeld Golf Club association.

NOTES

1. To see more images of the model visit the MIK website at http://www.projektmik.com/press_en.php?SID=bn24Qlc0ajik&cid=93.
2. C. Lange, J. Heynan and P. Robrecht, 'Mies 1-1 The Golf Club Project', AA School of Architecture, Lecture Online, <http://www.aaschool.ac.uk/VIDEO/lecture.php?ID=2382> accessed 11 July 2014.
3. J. Ackerman, *The Villa: Form and Ideology of Country Houses* (London, 1990), 9.
4. K. Kleinman and L. Van Duzer, *Mies van der Rohe, The Krefeld Villas* (New York, 2005), 18.
5. Nierendorf had been left to manage J.B. Neumann's Graphisches Kabinett, in Berlin, when the latter went to New York to set up a gallery. See V. Endicott Barnett, 'The Architect as Collector,' in P. Lambert (ed), *Mies in America*, Canadian Centre for Architecture, Montréal and Whitney Museum of American Art, New York, (2001), 90-131.
6. Today the pair of houses belongs to the city of Krefeld. They are known as the Haus Lange and Haus Esters Museum and are used as contemporary art spaces. To find out more about their history and contemporary use visit <http://www.kunstmuseenkrefeld.de/e/kunstmuseen/hauslangehausesters/index.html>.
7. Kleinman and Van Duzer *op.cit.*, 18-22.
8. F. Tegethoff, quoting H. Sedlmayr in *Mies van der Rohe, The Villas and Country Houses*, (London and Cambridge, Mass.1985), 108.
9. *ibid.*
10. This image can be viewed online at the MoMA Mies van der Rohe archive, where it is classified as Object number MR19.53, as accessed on 10 October 2015 at <http://www.moma.org/collection/works/87592?locale=en>.
11. This image can be viewed online at the MoMA Mies van der Rohe archive, where it is classified as Object number MR19.41, as accessed on 10 October 2015 at <http://www.moma.org/collection/works/87589?locale=en>.
12. See F. Schulze, 'Depression, Collectivisation, and the Crisis of Art, 1929-36' in *Mies van der Rohe, A Critical Biography* (Chicago and London, 1985), 132-174.
13. All information on HAFRABA is from R. Vahrenkamp, *The German Autobahn, 1920-1945: Hafraaba Visions and Mega Projects* (Köln, 2010), 31-54; and 'Roads without Cars, The HAFRABA Association and the Autobahn Project 1933-1934 in Germany', Working Papers in the History of Mobility, No. 1/2002, www.vahrenkamp.org/WP1_Autobahn_1933_1943engl3.pdf.
14. The article is reproduced in F. Neumeyer, *The Artless Word, Mies van der Rohe and the Building Art* (London and Cambridge, Mass., 1991), 313.
15. *ibid.*
16. *ibid.*
17. *ibid.*
18. *ibid.*
19. *ibid.*
20. *ibid.*
21. See T. Zeller, *Driving Germany: The Landscape of the German Autobahn, 1930-1970* (New York and Oxford, 2007) and T. M. Lekan, *Imagining the Nation in Nature: Landscape Preservation and German Identity, 1885 - 1945* (Cambridge, 2004).
22. A sketch by Mies of the drive-in project can be viewed online at the MoMA Mies van der Rohe archive, where it is classified as Object number MR4511.85, as accessed on 10 October 2015 at <http://www.moma.org/collection/works/87358?locale=en>.