Transforming Ideas into Pictures: Model Photography and Modern Architecture

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INTRODUCTION

The photograph of an architectural model is an intriguing yet somewhat intractable type of image which has thus far eluded close analysis. Born out of the encounter between two distinct media, this hybrid imagery combines the evidentiary force of photography with the fantasy world of models, thus achieving the paradoxical realistic representation of a virtual environment. The most obvious implication of this process of intermediality is that a solid object is reduced to the flat surface of a picture. Once the model is framed by the camera, it enters a different field of perception, where its original properties of form, texture and scale are reconfigured. As Mark Morris has pointed out, ‘Photographs collapse the three-dimensional model back into pictorial and perspectival space, back to the two dimensions from which it strives to emancipate itself.’ There are potential gains as well as losses involved in this dimensional shift. In subjecting the haptic nature of the model to its own optical laws, photography opens up a visual space that amplifies the viewer’s imaginative faculties. Hence, by virtue of its transformative ability, the camera can draw out the model’s photogenic aspects while also freeing our perception from scalar constraints. In this respect, Anthony Vidler has observed that, ‘while the architectural model is to scale, a miniature of the real, the photograph occludes this scale, allowing potential users and clients a vision from their “point of view” of what the building will look like when built.’ This specific capacity goes some way to explaining the great popularity of an imagery which is still widespread to this day.

And yet, in spite of its wide import, this imagery has long remained at the margins of historical research. It is conspicuously absent from the canon of architectural photography, which is primarily concerned with the finished building as the main product and raison d’être of architecture, and only to a lesser extent with other ways in which the camera mediates the
design process. Critical insights can be found in the literature on architectural models which has received new impetus over the past decade. However, these studies inevitably treat photography as an ancillary aspect of modelling, leaving open questions about the agency of the camera in this intermedial relationship.

The practice of model photography originated in the nineteenth century but became fully-fledged only after the First World War, primarily through the combination of two circumstances: firstly, the design model was reinstated as a preeminent tool of representation after a long period of decline; and secondly, modern architecture became increasingly enmeshed with the culture of mass media. And yet while the conditions of reproducibility allowed architects to disseminate models of all shapes, sizes and materials via printed images, this technical possibility alone does not fully account for the extent to which model photographs flourished, to the point of becoming an integral component of the Modernist repertoire. In order to unpack this historical process, it will be useful to consider the various cultural, technical and economic factors involved in it.

NEW OBJECTIVITY

The historical convergence of photography and model-making was not fortuitous. The long-lasting alliance between these two media was originally sealed within the military domain, where the quest for objectivity responded to instrumental rather than aesthetic requirements. Both of them received a substantive boost during the First World War, when photographs were systematically produced and reproduced for the purpose of reconnaissance. At the same time, scale models were built and photographed to study the configuration of battlefields and to project the effects of camouflage. After the War, the architectural community was quick to adapt these technical developments to creative uses.

The so-called ‘model boom’ of the 1920s reversed a trend that had seen the practice of model making, well-established since the Renaissance, lose ground to drawing during the nineteenth century. The shift away from models had coincided with a sea change in the cultures of representation: the rise of the picturesque aesthetic, the development of projective geometry, the advent of new reproduction techniques such as the blueprint and, above all, the emphasis on drawing and painting in the Beaux-Arts school system, had contributed to fostering the use of graphic over plastic media as the chief instruments of architectural design. The model’s comeback in the early twentieth century is usually interpreted as a direct consequence of the Modernist turn towards a new objectivity. This argument was notably put forward by Arthur Drexler in the catalogue for the exhibition on the architecture of the Ecole des Beaux-Arts that was held at New York’s Museum of Modern Art in 1975. Drexler lamented that the ‘engineering style’ had replaced the art of drawing with a design tool which was supposed to embody an architectural idea, as it were, in the round. By virtue of its objecthood, the model was aligned with the realm of facts and, consequently, was invested with a higher truth value.

According to Drexler, this pretence of objectivity ran counter to the subjective form of expression that was epitomized by rendered drawing. In contrast to the ‘scenographic’ attitude of the Beaux-Arts tradition, the model encapsulated the ‘technical’ approach to representation adopted by Modernists, which was also linked with the revival of axonometry. This attack on the ‘hegemony of the model’ exposed a fundamental split between the means of visualizing a design proposal and the instruments employed to present it to clients and public:
while adopting the model as the main tool in the design process, architects had outsourced the practice of ‘exquisite drawing’ to professional renderers, who in turn based their views primarily on models. For Drexler, the model was foremost among the ‘surrogates of built form’ which had taken over architecture in the course of the twentieth century. Another powerful ‘surrogate’ was, of course, photography. Not only were buildings primarily known through pictures (mostly taken with the one-point perspective in vogue at the time), but models too were ‘sometimes made expressly to be photographed or drawn from a single viewpoint.’

Although Drexler referred directly to specific examples of model photographs, he fell short of recognizing their pervasive role in the development of Modernism. Indeed, the dissemination of this imagery suggests that the revival of the model itself was bound up with the rapid ascent of photography, and cannot be ascribed exclusively to the rise of a new architectural style. The camera played into the hands of architects and critics who regarded design as a conceptual activity and the model as the materialization of an abstract idea. As Karen Moon has remarked, ‘Abstraction freed the model to engage directly in the imaginative process, enabling the architect to isolate theoretical ideas, as well as unformulated fragments of vision and imagery, from other aspects of the intended reality.’ If the model could embody a design idea, photography endowed it with an objective status whilst also making it manifest at a glance. This phenomenon crystallized at a historical turning point when the architectural profession was radically reorganized at all levels, from the educational system to the modes and circuits of communication.

**MODEL EDUCATIONS**

One of the first applications of model photography was in architectural education. Thanks in no small part to the availability of inexpensive materials, such as cardboard, the study model came to be regarded as a more effective and, at the same time, more economic means for prefiguring buildings than perspective drawing. In the early 1920s, it was adopted as a tool of spatial thinking at both the Moscow-based Vkhutemas (Higher State Artistic Technical Studios) and the Bauhaus in Weimar – the most influential schools of art and design to be established in Europe after the First World War. The Vkhutemas became the main laboratory of avant-garde architecture in Soviet Russia, and it was there that Nikolai Ladovsky developed an innovative method of teaching based on the analysis of the psychological and physiological effects produced by the organization of space – the ‘economy of psychic energy’ involved in the act of perception. This ‘psycho-analytic’ method was introduced in 1923 within the Basic Course where students learned to develop their spatial imagination by means of model-making. Study models were meticulously recorded on camera and pictures were pinned up in the studios for public scrutiny.

In some cases, student work reached out of the studio as well. It is significant that one of the most acclaimed projects that emerged from the Russian avant-garde of the 1920s was made by a Vkhutemas graduate and became widely known through model photographs. Several pictures of Ivan Leonidov’s diploma project for a Lenin Institute and Library were shown at the Exhibition of Contemporary Architecture which took place in Moscow in 1927 and appeared in the journal *Sovremennaiia Arkhitektura*, the organ of the Union of Contemporary Architects (OSA Group) led by Moisei Ginzburg and Alexander Vesnin (Figure 11.1). The multiple views of the model seen from different angles and the dynamic layout of the magazine reflected the aesthetic of the
11.1 Photograph of the model of Lenin Institute and Library, diploma project by Ivan Leonidov. Full page from Sovremennaiia Arkhitektura, no. 4–5, 1927, p119
constructivist movement, which had its roots in the Vkhutemas. Numerous other examples demonstrate that model photographs had become a favourite form of illustration among architects, curators and editors in the early 1920s, both in Russia and internationally.

The developments that took place in Russia had a striking parallel in Germany, where architectural publications flourished alongside the era’s most innovative and influential school of design, the Bauhaus. Analogies have been drawn between the Basic Course at Vkhutemas and the foundation course (Vorkurs) that was taught at the Bauhaus by Johannes Itten, who adopted the study model as a creative medium half-way between sculpture and architecture. When László Moholy-Nagy took over from Itten in 1923, he adopted a constructivist approach that emphasized the importance of materiality in the design process. Experiments in model-making were tied in with a new awareness of the possibilities offered to designers by the photographic medium, which Moholy-Nagy considered to be instrumental in the pursuit of a modern and universal visual language. After the Bauhaus moved to Dessau in the mid-1920s it became customary to document models on camera. Around the same time, model photographs became an integral component of the vigorous policy of publication launched by Gropius in his final years as the school’s director. This strategy relied heavily on images, and study models featured on the pages of the Bauhaus magazine as well as in the influential series of Bauhausbücher (Figure 11.2).
was Moholy-Nagy’s 1929 book *Von Material zu Architektur*, which described the methodology and aims of the Vorkurs. In their first exercises, students approached the study of materials by exploring tactile sensations such as texture, vibration and temperature. And yet, the illustrations of these exploratory models invariably emphasized their visual and sculptural aspects, leaving other sensory properties to the reader’s imagination. Moholy-Nagy was particularly interested in the boundaries between volume and space, which he associated respectively with the realms of sculpture and architecture. This relationship was fraught with the relativity of scalar perception:

> Although architecture and sculpture are two quite separate domains, treatment of space may at times be confused with treatment of volume. In other words: to the untrained eye the sculpture of a given period may appear as miniature architecture, and its works of architecture as enlarged sculptural works.19

This perceptual ambivalence was also mirrored by the book’s illustrations, where architectural models and sculptural works appeared at the same size as full-scale buildings. Once the camera had liberated the model from the occlusion of scale, its bi-dimensional image began to inhabit a new field of perception on the space of the printed page. Hence, through the mechanisms of visual reproduction and dissemination, the model entered into a new life cycle as *image*.

**MODERNISM AND MAGAZINES**

The illustrated magazine was the principal medium by which the model photograph established its place within the Modernist repertoire. As Beatriz Colomina has cogently argued, photography displaced the locus of architectural production from the building site to various spaces of representation such as exhibitions and publications, so much so that modern architecture itself ‘only becomes modern with its engagement with the media’.20 While the proliferation of magazines is often associated with the circulation of photographs of finished buildings, even a cursory look at interwar publications shows that models featured just as prominently among their subjects.21 Their significance is attested by the number of projects known either solely or primarily through model photographs which have been inscribed in what Catherine Cooke suggestively called ‘the mental image-bank of the design community’.22 From Mies van der Rohe’s glass skyscraper for Berlin to Le Corbusier’s Voisin Plan for Paris, some of the most renowned projects of the Modern Movement gained fame as model photographs and through publications. Even when projects were built, the photographs of the model sometimes gained an iconic status that surpassed that of the finished building – a case in point being the famous pictures of Le Corbusier’s Maison Citrohan maquette, which has been hailed as ‘the paradigm for the elevation of the model to the realm of idea’.23

An example of the widespread circulation of model photographs is offered by *L’Architecture Vivante*, the French periodical that acted as a showcase of ‘new architecture’ in the interwar period.24 Selected projects were illustrated on loose plates which harked back to the tradition of architectural folios. Model photographs were a recurrent source of illustration in *L’Architecture Vivante*, and often provided the only type of three-dimensional view accompanying plans and elevations. But even in the presence of three-dimensional drawings, photographs served to flesh out a design concept by showing the model from different angles – as with the house...
for an artist designed by van Doesburg, van Eesteren and Rietveld in 1922 (Figure 11.3). While the scale model allowed architects to mould complex forms and volumes in space, its unique photogenic character was only revealed by the camera through suitable lighting and framing.

As we have seen, photography was considered to be able to draw out the essential properties of a model through the careful choice of viewing angles. This method can be observed, for instance, in Le Corbusier and Jeanneret’s project for the Centrosoyuz building in Moscow, which featured in many architectural magazines of the late 1920s and early 1930s (Figure 11.4). L’Architecture Vivante published two pictures in which the bright miniature stands out against a dark background like an alien body floating in outer space. These images epitomize Le Corbusier’s quest for architecture as an ideal object. Moreover, the contrast between figure and ground reminds us that these photographs, like most of those published in the interwar period, are in black and white and therefore bring about a further abstraction of their subject.

As the philosopher Vilém Flusser observes, monochrome pictures have a peculiar ability to transfigure their subjects; yet, in connecting such pictures to the original reality that they depict, we sometimes tend to forget their fundamentally conceptual nature: “They transcode the theoretical concepts of “black” and “white” into situations. … This is, actually, the specific beauty of such photographs: it is a beauty proper to the universe of concepts.” This notion applies particularly well to photographs of models, and above all to Modernist projects bearing a high degree of formal abstraction such as the Centrosoyuz scheme.

The Centrosoyuz model photos published in L’Architecture Vivante are also interesting for the choice of ‘aerial’ vantage points that frame the model from vertical and oblique angles. In his MoMA catalogue, Drexler remarked apropos of these images that “The unity of the composition can be grasped only from above.” Indeed model photographs were often taken with a camera positioned above the subject and, as a result, they could be paired up with actual aerial views to simulate the impact of a building on its intended site. In their Oeuvre Complexe, for example, Le Corbusier and Jeanneret exploited this ambiguity of scale by juxtaposing aeroplane images of Algiers with photographs of their model ‘Plan A’ for the city taken from overhead. In describing the latter as ‘bird’s eye views’ (vue à vol d’oiseau), the architects-cum-editors sealed a move which equated the miniature to the gigantic by showing the model and the urban area at the same apparent size. This manipulation of scale shows that the camera turned the model into a highly malleable tool as photographs of it lent themselves to multiple uses – either in isolation or in conjunction with other visual images.

Furthermore, while the innovative experiments carried out by the architectural avant-garde were lavishly illustrated in the press, scores of less celebrated practitioners utilized this medium to present and promote their work around the world. This imagery became all the more pervasive in the 1930s, when it was promptly adopted by newly-established magazines in various countries.

**COMPOSITE ILLUSIONS**

A pragmatic approach to model photography emerged in the United States after the First World War, as architects became increasingly aware of its potential as a marketing tool as well as an aid to design. Similarly to Europe, schools of architecture fostered the practice of making and picturing models, while professional magazines contributed to disseminate their images to the public. The cultural context in which this happened, however, was somewhat different.
11.3 Model photographs and plans of house for an artist, by Theo van Doesburg, Cornelis van Eesteren, Gerrit Rietveld. Plate from *L'Architecture Vivante*, no. 9, Fall 1925. Plate 2 in the original

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11.4 Views of the model of the Centrossoyuz building in Moscow (Central Office of the Union of Cooperatives of the USSR), by Le Corbusier and Pierre Jeanneret. Plate from L'Architecture Vivante, no. 27, Spring 1930. Plate 2 in the original
Quite apart from the Modernist theorizing that held sway across the Atlantic, American practitioners were drawn primarily to the commercial applications of the model, which was hailed as an effective means for communicating with clients. Indeed, a whole discourse emerged in the professional press of the 1920s to promote the advantages of models and the most expedient ways of visualizing them with various optical instruments. Along with the growing popularity of models came the awareness that their effects could be usefully controlled and manipulated to various ends through the camera. If carefully handled, the fusion of these media produced a spectacular imagery that could assist architects in tackling the so-called ‘problem of salesmanship.’

The School of Architecture at Columbia University was the centre where such practice and discourse were first developed. In the early 1920s, its director William Alciphron Boring theorized the fundamental role of model-making in the study of architecture and was instrumental in adopting it in the school’s curriculum. In an overt critique of the Beaux-Arts pictorial approach, Boring asserted the importance of visualizing architectural form in terms of ‘solid geometry’. To this effect, he emphasized the need to view models in a proper manner, so that ‘the simulation of the completed building in the natural size is convincing and a correct method of criticizing and judging the design.’

It was Harvey Wiley Corbett, a studio critic at Columbia at that time, who explored the applications of photography to this process. He discussed the subject at length in a series of articles published in the magazine _Pencil Points_ in 1922, where he praised the virtues of the cardboard model as ‘a strikingly effective means of presentation.’ Corbett argued that the most compelling results were obtained with the technique of composite photography, whereby the picture of a model was inserted into a view of the site and then re-photographed to obtain a seamless montage. This method, also called ‘double photography’, allowed the architect to construct an illusory space that was supposed to enhance the attractiveness of a building by focusing attention on its outer appearance. Corbett perfected this technique into a subtle art of persuasion and, by so doing, pioneered what might be called the hyper-realist approach to model photography. If the documentary record of models was aimed at showing the miniature object in isolation within a scale-less universe of its own, composite photography made it possible to conjure up the illusion of an architectural project as it would appear in context if built.

Corbett took a common-sense approach to the subject and stressed that the best way to observe a model – for architects and clients alike – was to simulate a view from the street. To achieve a convincing illusion it was imperative not only to produce an accurate miniature, but also to follow a correct photographic approach by carefully selecting the apparatus and framing the subject from the most convenient vantage point. Corbett recommended the use of a pin-hole camera for close-range shots, since ‘the pin-hole picture gives an impression of the mass of the building rising before one and above one while the other photographs lack this impressiveness and realism and make the building look rather like a toy.’ Yet the theory could always be bent to practical needs, and Corbett used composite aerial views, for instance, to picture his large project for Bush House in London. Two images of the model were grafted onto aerial photographs of the area between Aldwich and the Strand to show the building from opposite angles. In order to realize an accurate relation with the context it was necessary to work out the position and height of the aeroplane from which the photos had been taken. The resulting compositions were not flawless but, on the whole, provided a plausible simulacrum of Bush House in its location. One of these photomontages was chosen to illustrate the project in _The Architectural Review_: placed immediately above the plans of the building, it served in lieu of any perspective drawings to foresee the effects of mass and volume on the actual site (Figure 11.5).

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INTERNATIONAL APPEAL

The above examples suggest that the revival of the architectural model was closely associated with its ability to operate as an image. Through both straightforward representations and composite techniques, model photography exerted a wide-ranging appeal that transcended the nature of its subject. This is well exemplified by Corbett’s eclectic work, which he publicized largely through model photographs, regardless of the size or style of the design – from the neoclassic Bush House in London to his Modernist Sun House project for the Forward House show in New York, an exhibition organized by the Macy & Co. store in cooperation with The Architectural Forum in 1932 (Corbett was one of eight ‘great architects’ who were each invited to design a ‘small house’ for the show). Corbett was also a member of the team, led by Raymond Hood, which designed the high-rise Rockefeller Center complex in New York throughout the 1930s. The scale model for this massive urban project was the protagonist of the review published in 1932 by The Architectural Forum, which figured model-makers at work as well as several pictures of their final creation (Figure 11.6). The latter were all taken from above in order to give an overall view of the imposing complex. Most eloquent of all was perhaps the photograph showing the architects surrounding a smaller version of the model, with Corbett and the project manager John R. Todd gesturing over it as if engaged in a game of chess. As Adnan Morshed has pointed out, this image speaks to the rise of the Modernist planner as a heroic figure in 1930s America – a kind of superhero on a mission to reshape the metropolis.

Model photographs became a regular means of illustration in American magazines such as The Architectural Forum, which played a key role in chronicling the development of modern architecture. Most interestingly perhaps, in 1930 The Architectural Forum illustrated a review of the Chrysler Building in New York with pictures of the massing model and the actual building facing each other – an example of the scalar ambivalence discussed by Moholy-Nagy. Model imagery was found suitable not only for depicting the monumental architecture of designers such as Corbett, but also the technologically innovative work of Buckminster Fuller, whose Dymaxion

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House project was reviewed in the same magazine shortly after the Rockefeller Center. The description of Fuller’s design was accompanied by a quasi-cinematic sequence of images showing the model in successive phases of construction in order to offer a step-by-step demonstration of how the ‘house for the machine age’ was assembled (Figures 11.7 and 11.8).

From the synoptic view to the sequential montage, these examples testify to the remarkable versatility of the model photograph, which by the 1930s had taken over the main sites of architectural discourse in America as well as Europe. This was of course a period of intense transatlantic exchanges, as the new mass media communicated imagery of contemporary architecture faster than ever across the Atlantic. Against this background, a pivotal event such as the International Exhibition of Modern Architecture, held at MoMA in 1932, sanctioned the entry of models and photographs into the Modernist mainstream. The camera was instrumental in promoting an architecture that privileged ‘the effect of volume’ over ‘the effect of mass’ – as Hitchcock and Johnson famously put it – by transfiguring the plasticity of the model onto a planar surface. A decade after model-making and model photography were developed concomitantly in Europe and America, they became inextricably linked with the emergence of the International Style.

Meanwhile, after the 1929 slump the problem of salesmanship became increasingly acute, especially for designers working in the private sector. Under the shadow of the modern masters, scores of architects either side of the Atlantic discovered the practical advantages of both model-making and photography, which developed into increasingly specialized professions. An advertisement for the French model-making company Perfecta, published in L’architecture d’aujourd’hui in the early 1930s, encapsulated this trend with the slogan: ‘A practitioner is content to design through a plan... The client who finances needs to see.’ If seeing was believing, photography could help clients to see better. A few years later, another Perfecta advert marketed a professional service of model photography (photomaquettes de précision) which purportedly allowed the architect to scrutinize a building ‘as if on the ground’, while also enabling the client to gain ‘the perfect understanding of a design’ and to adopt it ‘with full knowledge of the facts’. The publicity vignette shows architect and client talking over the photo of a maquette which a team of model makers is completing in the background (Figure 11.9). As in the previous advertisement, the capitalized word ‘VOIR...’ (‘to see’) was still the central message, but the focus of attention had clearly shifted from the model itself to its photographic image.
CLIMAX AND DECLINE

The art of persuasion came of age after the Second World War, when the role of model photography in architectural culture was fully consolidated. The pin-hole technique was gradually superseded by optical instruments such as the *modelscope*, a magnifying tool based on the medical endoscope, while a tiny apparatus called the ‘Snorkel camera’ made it possible to take moving pictures inside miniatures. Meanwhile, the practice of composite photography was taken forward in particular by leading US-based practices such as Skidmore, Owings and Merrill and, most famously perhaps, Mies van der Rohe who embraced it wholeheartedly to visualize the sleek buildings of his American period. The hyper-realist montage became a trademark of Mies’ post-war design, reaching its pinnacle in such famous projects of the late-1950s as the Seagram building in New York and the Commonwealth Promenade Apartments in Chicago (Figure 11.10). These images were produced by the leading architectural photography firm Hedrich-Blessing, which had set up a successful business in Chicago before the war and expanded their activity in the field of model photography during the so-called ‘model revolution’ of the post-war period. The firm went on to specialize in the composite genre at a time when mechanized techniques and new materials such as acrylic plastics sparked off a demand for ever-more accurate miniatures.43 Hedrich-Blessing’s crisp and seamless compositions did much to brand Mies’ architecture over the 1950s and 60s, marking a radical shift from his earlier uses of model photographs influenced by the German avant-garde aesthetic.

At the same time, the shortage of construction in post-war America brought about the so-called ‘magazine era’, which allowed ever-more sophisticated design models to circulate in print form. In an article published in *The Architectural Forum* in 1958, Jane Jacobs observed:

> Editors of popular magazines … decided to fill the gap by publishing models – but models so realistic that the photographs would look like full-scale buildings. The captivating results, and the opportunities for studying design effects with immense precision, were not lost on architects.44

As a comment on the level of simulation reached by such images, Jacobs’ piece was illustrated with a pair of photographs showing, side by side, the night view of a newly-completed bank in New York (designed by S.O.M.) and a lifelike view of its model under the caption – ‘Which one is the model?’45 The uncanny illusion of veracity produced by such images illustrated the unique power of the model photograph, which would be later summed-up by the architect Eugene Kupper as follows: ‘A photograph of a model can create a more convincing illusion than the model itself – the model exists as a separate world.’46

By the 1960s photography had taken a firm grip on architectural culture. As model-making reached its apogee, its alliance with photography was definitively normalized. An eloquent sign of this can be found in Rolf Janke’s book *Das moderne Architektur-Modell*, a manual for architects and students that became an international classic through subsequent English editions. The author cited the artist Andreas Feininger’s statement that ‘The photograph of an architectural model entails to a special degree the “transformation of ideas into pictures”’.47 This passage appeared in the final section of the book, which offered advice on how to make ‘effective and objective’ pictures of models: ‘It is not a matter of simply photographing a model’, wrote Janke, ‘one must make a documentary

1. The central mast anchored to the ground, with three of the floor beams of each deck suspended by thin steel wires from the top of the anchored mast.

2. The frame of the house anchored to the ground by wire gussets, and made rigid by steel wires fastened diagonally from the corners of the frame to the ground.

3. The triangular steel floor plates partly raised into position. The plates are attached to the central mast and to the frame by wire in tension.

4. All the floor decks in position after the tension wires had been tightened by turnbuckles. Despite its light weight, the framework is absolutely immobile and rigid.

5. The pneumatic floor laid on the lower deck. It is so constructed that it will offer the deflection of the suspended plates, and form a level surface.
11.8 Views of the model of the Dymaxion House, by Richard Buckminster Fuller.
Full page from The Architectural Forum, vol. 56, March 1932, p288

6. Service units set in place. These include the bathrooms, closets of revolving shelves and hangers, laundry, cooking grills, and closets. Each of them is prefabricated as a structural element of the house itself.

7. The natural divisions formed by the service units completed by the installation of sound-proof partitions. The ceiling units, which form the upper part of the wall structure, are in place. Their polished sliding surfaces serve as light reflectors, and also as a ventilating duct.

8. Flooring of the roof installed, the parapet erected, and the transparent vacuum wall panels set up.

9. The house completed with the suspension of the protective hood from the mast by independent wires.

10. Another view of the completed Dymaxion House.
picture of its qualities from the correct aspects."\textsuperscript{48} Identifying the photogenic qualities of each model was said to be the key to obtaining a convincing result: ‘Many variations of perspectives and lighting are possible from any desired angle, but for each there is never more than one ideal photograph to give an objective impression of the design – one and no more.’\textsuperscript{49} These assertions signalled an absolute faith in the photographic medium and its ability to endow even the most abstract concept with a documentary status. And yet, behind its matter-of-factness, Janke’s argument obscured the fundamental ambivalence of the model photograph as a hybrid visual artefact. The belief that the camera could reveal the fundamental idea embodied by the model suggested that the latter had come to be conceived primarily as a photographic subject. If ideas could ever be pictured, the model photograph seemed to offer a perfect means to do so. Moreover, the emphasis on taking a single, \textit{ideal} picture eliminated any residue of autonomy that was left to the architectural model, a design tool which had originally been rekindled so that a proposal could be apprehended from a variety of different angles.

While the camera and the model were inextricably bound together, however, the status of the latter began to change irrevocably in the late 1960s. The obsession with realism led to a growing sense of mistrust in the model, and its deceptive power was increasingly shunned by architects. Such a ‘distaste for realism,’ to cite Karen Moon, was rife in the 1970s, by which time architects began to appreciate that the model ‘can become an end unto itself.’\textsuperscript{50} The defining moment of this shift was the ‘Idea as Model’ exhibition held at New York’s Institute for Architecture and Urban Studies in 1976, in response to Drexler’s MoMA show of the previous year. This event was prompted by Peter Eisenman’s intuition that ‘models, like architectural drawings, could well have an artistic or conceptual existence of their own, one which was relatively independent of the project that they represented.’\textsuperscript{51} Eisenman himself contributed to this conceptualist exhibition with an axonometric model of his House X, in an attempt to show that not only could a model embody an idea in itself, but it could also work as the representation of a three-dimensional drawing. Interestingly, it was the photograph of the model that made him doubt the point of his whole exercise:

\textit{Usually a photograph of a building is a narrative record of a fact – a representation of reality. Here the photograph is the reality of the model because it is the view which reveals its conceptual essence as an axonometric drawing. But while the conceptual essence of the model is a drawing, that of the photograph is not. For it is not the photograph of a drawing but of a model.}\textsuperscript{52} © Ashgate Publishing Ltd
As the realism of the model came under question, the camera’s ability to capture the idea behind it was also undermined. The status of the model photograph was further challenged by the advent of computer modelling and digital design, which made the process of intermediality technically obsolete. And yet, this imagery has never ceased to feature in the architectural press nor to be used by practitioners and students alike. Amidst the ongoing hybridization of modelling and drawing techniques, the persistence of the model photograph proves the enduring power of an imagery which has left an indelible stamp on the trajectory of architectural Modernism.

CONCLUSION

The short history charted in this essay suggests that the model revival of the twentieth century ought to be reconsidered in light of the impact of photography and mass media upon it. Paraphrasing Walter Benjamin, we could say that to an ever greater degree the architectural model reproduced became the architectural model designed for reproducibility.
Indeed, the historical encounter between photography and the model did not leave the latter unchanged. Its objecthood was constantly mediated and transformed within the symbolic economy of representation inaugurated by the mass media, and in particular the illustrated magazine. While photography helped to revive the role of the model, at the same time it destroyed its aura as a unique, original object and paved the way for its progressive de-materialization. No sooner was the model back in vogue than it was reduced to a bi-dimensional picture which could be manipulated and harnessed to endless visual effects. By subverting the physical order of the model, photography endowed it with what Gilles Deleuze called ‘the power of the simulacrum’—a mobile and versatile image that broke away from the dualism original/copy and established its own productive force. So pervasive was this force that it was the photograph that took on the status of model, while architecture shifted ever more deeply into the realm of spectacle.

NOTES

8 Ibid., p18.
9 Ibid., p18.
11 Ibid., p70.
13 A copious body of photographs of models made by Vkhutemas students is held in the collections of the Canadian Centre for Architecture.
15 It was a former student specialized in carpentry, Erich Consemüller, who undertook the record of students’ work along with the school’s interiors (see Figure 11.2).
Numerous pictures of models appeared in the Bauhaus books which contributed most to the international reputation of the Modern Movement, such as Walter Gropius’s *Internationale Architektur* (Munich: Langen, 1925) and Ludwig Hilberseimer’s *Internationale Neue Baukunst* (Stuttgart: Hoffmann, 1927).


After embracing the radical movement of the avant-garde, in the second half of the 1920s *L’architecture vivante* moved towards a more ‘moderate’ modernism. Hélène Jannière, *Politiques éditoriales et architecture ‘moderne’*, op. cit.


Interestingly, an elevated shot of the model also opened the review of the Centrosoyuz published two years later in *Sovremennaia Arkhitektura* (no. 4, 1929): while the article was illustrated with several detailed drawings, a model photograph was chosen to introduce the feature.


A case in point is the Turkish periodical *Arkitekt*, which played a key role in disseminating European modernism during the 1930s, and regularly carried model photographs in lieu of three-dimensional drawings to illustrate building designs.


After studying engineering at Berkeley, the Californian architect had trained at the *Ecole des Beaux-Arts* in Paris in the late 1890s.


The virtues of this technique were also extolled in a standard manual of model-making published in Britain: *William Harvey, Models of Buildings: How to Make and Use Them* (London: The Architectural Press, 1927).

A group of unemployed architects was commissioned to turn their drawings into small-scale models, whose photographs were used to introduce each project in the catalogue.

The largest private development of the interwar period, The Rockefeller Center was developed between 1930 and 1939 on a site in Manhattan leased from Columbia University.


Hedrich-Blessing had a large office designed by Abel Faidy in Chicago in 1936, where the model photography studio took the largest room. See *The Architectural Review*, vol. 80, October 1936, pp175–8.


The model was made by Theodor Conrad, who ran one of the largest and most successful model-making shops in Jersey City. Prior to setting up his own business, Conrad had worked for many years in Corbett’s office where he specialized in cardboard models. His activity was the main focus of Jacobs’ 1958 article.


Ibid., p119.

Ibid., p120.


