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Lázló Moholy-Nagy at the London Zoo:

Animal Enclosures and the Unleashed Camera

In February 1937, an exhibition called *Modern Architecture in England* opened at the Museum of Modern Art (MoMA) in New York, proclaiming what it saw as an exciting new wave of modernist building in England. The show consisted of enlarged black-and-white exterior photographs and accompanying floor-plans of recent housing blocks, department stores and private homes. It also included a maquette of the nursery school at London's new Kensal House flats, plus a set of panels demanding the replacement of more of the city's slums with modern hygienic housing. Upstairs and in contrast to what its curator Ernestine Fantl would later describe as an "endless sea of white stucco" (Carter, 1974: 51), visitors could watch a silent film about the seven modernist structures recently erected by the Zoological Society of London (ZSL) at its two sites at Regent's Park in central London and at Whipsnade in rural Bedfordshire.¹

¹ The seven buildings built by Tecton for the ZSL were: a Gorilla House (1933), a Penguin Pond (1934), and a Refreshment Bar and Kiosk (1937) at Regent's Park; and a Kiosk, a Giraffe House (both 1934), an Elephant House, and a Restaurant (both 1935) at Whipsnade. Tecton would also design a

The New Architecture and the London Zoo lasted sixteen minutes and was made by the Hungarian artist László Moholy-Nagy (more commonly known as Moholy), who had taught at the Bauhaus in Germany from 1923 to 1928. Claimed by Fantl to be “the first architectural film to be shown with an architectural exhibition” (Carter, 1974: 51), its inclusion reflected the great importance that the curators ascribed to the work of Tecton, the new London firm recently created by Berthold Lubetkin. In his essay for the catalogue, architectural historian Henry-Russell Hitchcock Jnr named Tecton’s Penguin Pond as the watershed construction that had alerted the world to the sudden spate of modernist buildings then springing up in England. For Hitchcock, the expressive discipline of its concrete curves revealed a defiantly English temperament - paradoxically more accessible to Lubetkin as a recent Russian émigré - which had already taken modern architecture beyond the boxy functionalism of the International Style. Certainly in the United States, he complained, “we have no single architect of the present active generation as distinguished as Lubetkin” (Hitchcock, 1937: 39; see also Powers, 2013).

According to Fantl, the film was commissioned whilst she was on a research trip to England in September 1936. As she stood at the Penguin Pond with Moholy and the young Canadian architect Hazen Sise, the trio swiftly realised “that no still photograph could do justice to the pool or its denizens” (Carter, 1974: 49). Plans for the film were immediately hatched and after Fantl had secured funding, mainly from MoMA and Harvard University’s Department of Architecture, Moholy shot and edited it over the winter, assisted by Sise and cameraman Cyril Jenkins.

Studio of Animal Art at Regent’s Park (1937; demolished in the early 1960s), plus two unbuilt pavilions: a Gibbon House for Whipsnade (designed 1936) and a new Elephant House for Regent’s Park (designed 1937). Just as the ZSL commissions dried up, Tecton was asked to design the entirety of Dudley Zoo in the Midlands. This opened in May 1937, a few months after the MoMA exhibition had closed.

The New Architecture and the London Zoo marks a rare intersection between the work of two of Europe's leading modernists. Although they worked in distinct cultural fields, Lubetkin and Moholy shared a similar socio-political outlook. Formatively indebted to Russian Constructivism, they both eschewed conventional bourgeois aesthetics to fearlessly explore the potentials offered by new industrial materials and processes. They were also committed to radically reforming the everyday urban environment, seeking to articulate within their work a utopian socialist future that might reconcile humanity at its most technologically advanced with the primordial natural order.

Yet *The New Architecture and the London Zoo* has never been judged as anything like a success. Surveys of Moholy's work tend to gloss over it in a couple of sentences (if they bother to mention it at all), and in a recent review of the artist's film output, Oliver Botar declared it to be "cinematically among his least interesting" works:²

Despite the experimental nature of the buildings, the film is rather anaemic. It seems that despite his admiration for modernist architecture, Moholy-Nagy had more to say about architecture as lived in real cities than he did about realized modernist projects (2008: 462).

My proposal in this chapter is that if *The New Architecture and the London Zoo* is an underwhelming film and hard to celebrate as a modernist classic, then this might be the source of its value, for its awkward sense of compromise reveals a key tension - if not a structural incompatibility - between the seemingly allied practices of modernist architecture and modernist film-making.

² *The New Architecture and the London Zoo* was released on DVD by the Moholy-Nagy Foundation in 2008, along with the rest of Moholy's films. Its unavailability before this has surely contributed to the lack of attention it has received from Moholy scholars.

In addition, Moholy's film reveals much about the complex place of animals within the larger modernist project. Significantly both Lubetkin's and Moholy's engagements with London Zoo were pragmatically motivated. Lubetkin had trained in Moscow and worked in Paris before settling in London in 1931, but had not found the municipal clients able to invest in large-scale social projects. He thus approached his zoo work as a means to gain favourable publicity in the hope of attracting more significant commissions (Allan, 2012). Similarly, Moholy had spent most of his eighteen months in England doing commercial design work for forward-thinking clients like Simpsons and Imperial Airways. By late 1936, according to Terence Senter (2006), his ambitions were focussed on securing a teaching post in the United States. MoMA's request to produce a film thus presented a timely opportunity to exhibit his work to an influential American audience. Both men's interest in the animals at London Zoo, therefore, remained subordinate to their larger humanist project, even as the success or otherwise of that work would form a key part of that project's legitimisation.

The first half of this chapter builds on existing critical scholarship to consider how Lubetkin's zoo buildings promoted a particular brand of architectural modernism. Importantly, Tecton's pavilions deployed strategies of animal presentation that were derived from the theatre, but they also showed a keen awareness of how such live spectacle had now become remediated by the cinema. Lubetkin's tenants were turned into beastly performers, whilst humans were addressed via filmic understandings of how such theatrics should look. The second half of this chapter then explores the specific problems that these architectural layouts presented for Moholy as a filmmaker. Whilst *The New Architecture and the London Zoo* employs a modernist vocabulary of startling camera angles and abrupt, violent

edits, it struggles to evade the spectatorial conventions inscribed into Lubetkin's structures. Furthermore, in trying to establish its own stylistic autonomy from these buildings, the film reveals additional tensions within Moholy's treatment of the animal body as it runs through his wider work. The film sets out to create semantic instability for its human viewers; yet, in so doing, it destabilises the hierarchy of species difference that Tecton's architecture sought to enforce, whilst calling into question the humanist assumptions at the heart of Moholy's own discourse.

Revolving walls and joy planks: the new architecture at the London Zoo

That the ZSL should have initially commissioned Tecton testifies to a deep ideological confluence between the 'new biology' that dominated the Society in the 1920s and '30s and emerging doctrines of architectural modernism. Indeed, under the stewardship of Sir Peter Chalmers Mitchell, its Secretary from 1903 to 1935, the ZSL had become increasingly invested in the environmental credentials of its animals' homes. In 1913, for instance, the Society had utilised the new 'naturalistic' approach pioneered at the Tierpark Hagenbeck in Hamburg to create its Mappin Terraces, a panoramic simulation of a mountainous terrain. Rejecting the caged enclosures that had dominated the zoo throughout the nineteenth century, judiciously placed ditches allowed its visitors to safely observe bears and goats in a visual approximation of their indigenous habitat. After the Great War, this interest in producing illusionistic effects was replaced by a more sophisticated concern to address the creatures' physiological needs. Thus the new Monkey House of 1927 used innovative underfloor heating to control the temperature in both its outdoor and indoor living compartments, whilst quartz incandescent lamps produced strong artificial light to compensate for the

weaker English sun (Brightwell, 1936). All this was celebrated as tangible evidence of the zoo's progressive scientific credentials, as environmental fidelity was recast from a matter of visual resemblance to one of climatic engineering (Burt, 2002).

The ZSL moved further in this direction when it took charge of Mok and Moina, two Congolese juvenile gorillas, in August 1932. Solly Zuckerman, the Society's leading primatologist, persuaded Mitchell to commission from Tecton a suitable new home (Gruffudd, 2000; Anker, 2005). Lubetkin's Gorilla House (Figure 1) was inhabited the following April and ostentatiously rejected any lingering visual naturalism for formal geometry and austere, white concrete walls. It was, in essence, a bisected circular drum. Mok and Moina made their home in the northern half and in cold weather, visitors occupied the southern section from where they viewed the animals through hygienic glass screens. In the summer, a sophisticated electrical mechanism allowed zookeepers to completely remove the southern outer wall by revolving it around the building's circumference. Now with the glass screens also removed, the gorillas had free run of the whole circular chamber that was open to the elements in its southern half, while visitors watched from beyond the cage's perimeter. In addition, a row of south-facing clerestory windows above the bisecting screens gave Mok and Moina natural warmth and sunlight throughout the year. In winter, an up-to-date ventilation system heated, moistened and filtered their air to produce what *The Times* praised as "a stimulating circulation without draught" (1932: 5).

All of Tecton's zoo pavilions repeated this combination of geometrical abstraction and responsive engineering, and distanced themselves from any visual resemblance to their inhabitants' natural homelands. Also at Regent's Park, the elliptical Penguin Pond - or 'Pool' as it was mistakenly referred to, almost from its

opening in May 1934 - sought to supply its resident colony with the optimal conditions for swimming, nesting and perambulating, right down to its mixed use of concrete, rubber and slate flooring to ensure stimulation of their feet. The architectural press approvingly reported on how the penguins took more exercise and spent more time in the water than at their previous home on the Mappin Terraces (*Architect and Building News*, 1934; *Architectural Review*, 1934). This, in itself, appeared as tangible evidence of the Pond's great functional success.

These same principles were soon deployed at Whipsnade, the expansive second site that the ZSL opened in 1931 for more hardy creatures less suited to the crowded confines of central London. Tecton's Giraffe House (1934) contained roof ventilators that changed the air completely every hour, plus window panels built into the façade that could be rearranged as its tenants modified their habits. A new Elephant House, opened the following year, supplied each of its four inhabitants with their own rotunda-like stall, free from any dirt-retaining corners and warmed by an electric heater in the roof. In front of their stalls, a stretch of deep water allowed the elephants to bathe and kept visitors at a safe distance, whilst still letting the animals solicit buns with their trunks.

Crucially, the technological sophistication at the heart of these pavilions was already invested with didactic intent. For Lubetkin, whose ideas had been formed by Classical discipline as much as by radical Constructivism, architecture had a moral imperative to articulate a progressive social vision, towards which its own manifest existence appeared as a concrete first step. Buildings had a duty, he famously claimed, "to make the necessary appear desirable" (cited in Allan, 2012: 129). Tecton's zoo pavilions should thus be understood as ideological propositions that fused the concerns of architectural modernism with the reformism latent within the new

biology. Mitchell and Zuckerman (and their later colleague Julian Huxley, who succeeded Mitchell as Secretary from 1935 to 1942) embodied a shift in the zoological agenda, away from taxonomic categories or anatomical descriptions and towards the focussed study of environmental adaptation (Cain, 2010). Investigating instances of animal behaviour or physiognomic change would shed light, they believed, on evolutionary processes at work across the animal world. Since all living creatures underwent similar adaptations to their ordinary living conditions, this approach asserted a fundamental continuity between human beings and all other species. The crucial difference was that rational humankind had developed the capacity to be conscious of this fact, and could therefore take steps to reform its environment via policy, design or architectural engineering.

With these communalities in mind, Lubetkin and his clients intended the new zoo buildings to publically demonstrate the progressive potential of scientific architecture. In both sympathetic journals and in Huxley's own writings, the visible well-being of these newly-housed animals was explicitly referenced to the on-going housing needs of London's impoverished slum-dwellers (Gruffudd, 2000; Huxley, 1934). The environmental dislocation underpinning the zoo creature's condition - physically displaced from the climate and terrain to which its species body had adapted over eons - was turned into a metaphor for the damage done to human health and happiness by decades of unplanned industrialisation and substandard housing. Modern scientific architecture was here presented as the effective panacea for both.

Such messages, of course, were more readily communicable to readers of progressive architectural journals than to casual visitors to the zoo. But an important effect was already created by the visual contrast between Tecton's geometric constructions and their pastoral or picturesque surroundings. When designing the

Penguin Pond, for instance, Lubetkin had insisted that a single over-hanging ailanthus tree should be left in place as an irregular foil for his structure's abstract form (Allan, 2012: 212). At Whipsnade too, the elephants' white row of circular dens was designed to astonish against its backdrop of dark green foliage. As John Allan (2012: 142) has noted, the circular form on which Lubetkin based so many of these buildings made them inherently disdainful of their disordered surroundings. Set against the messy contingencies of the natural landscape, these structures proclaimed their self-sufficiency as discrete, holistic utopias.

Yet like the exotic creatures that they housed and put on show, Tecton's pavilions also came embedded within a scripted narrative of dislocation and re-assimilation. When first glimpsed along the winding paths of Regent's Park or amidst Whipsnade's rural parkland, the buildings appeared alien and intrusive. But when visitors engaged with them more intimately, they found themselves already located within comfortingly familiar structures of spectatorship. Tecton's enclosures were as consciously attuned to the visitors' entertainment requirements as to the physiological needs of their tenants. In 1938, Lubetkin described his buildings as "architectural settings" designed to present the animals "dramatically to the public, in an atmosphere comparable to that of a circus" (cited in Allan, 2012: 199). Although he referenced live theatrical entertainment here, his architectural designs owed a further debt to popular cinema as the medium through which live animal spectacle was increasingly now being experienced.

On one level, this accorded with the ZSL's own ambition to attract the attention of a cinema-going public, for since 1914 the Society had been experimenting with the potential benefits of putting its animals on screen (Burt, 2002). The filmmaker Mary Field, for instance, had produced a series of short gazettes at Regent's

Park throughout the 1920s with titles such as ‘Dinner-time at the Zoo’ (1923), ‘Zoo Babies’ (1923), and ‘Bathtime at the Zoo’ (1930). But upon becoming Secretary in 1935, Huxley sought to make cinema fundamental to the Society’s operations (Brightwell, 1936; Huxley, 1936). More zoo-sponsored films, he asserted, would increase the public’s understanding of biological processes, especially amongst those unable to visit the sites in person. He also asked Tecton to design a permanent cinema at Regent’s Park, so that visitors could watch explanatory films or see animal behaviours that were presently out of season. Working alongside the popular press and radio, the ZSL became adept at promoting its ‘Zoo Stars’, including Percy, the penguin, Dixie, the elephant, and (naturally) Mok and Moina. In the monthly magazine *Zoo*, launched by the Society in 1936, readers were promised “the inside story of their favourite animal”, constructing a notion of beastly private life already familiar from weekly film-fan magazines.

Both John Berger ([1977]/2009) and Jonathan Burt (2002) have analysed the problems created for zoos by the cinematic presentation of animals. In comparison to the carefully edited and narrativised action on screen, caged beasts invariably appear dull, lethargic and lacking in plot. For Tecton and the ZSL, such an underwhelming live spectacle risked marking these buildings as evidential failures, unable to provide the optimal conditions that their occupants needed to thrive. Lubetkin’s enclosures therefore set out to stage-manage their animals towards a type of playful exuberance that, for an audience schooled in popular cinema, might appear as successful adaptation. If modernist architecture was to be promoted as an endemic social good for both humans and beasts alike, then the animals it exhibited needed to be directed in an on-going theatrical performance.

This was most explicit at the Penguin Pond, an ovoid circus in which the birds' clumsy waddle up its stepped or inclined ramps served as an effective counterpoint to their sleek darts across its central pool or dives into its glass-sided tank. Journalists readily acknowledged that the enclosure was a stage set. The *Illustrated London News* (1934), for instance, praised the "decorative effect" produced by the monochrome penguins against "the clear white concrete...and the blue of the pool". Whilst the birds' shuffle up the central cantilevered walkways reminded the *Daily Mirror* (1934) of so many "self-conscious chorus girls on a 'joy plank'". This reference to the novelty gangplanks that once extended out over the stalls of select Edwardian theatres was more likely to recall, for the *Mirror's* cinema-going readership, the modernistic designs and geometric choreographies of Busby Berkeley's recent waterfall fantasia in *Footlight Parade* (Lloyd Bacon, 1933).

Similar dramatics were in evidence at the Gorilla House, particularly in cold weather when the outer cage was fully enclosed. Since the clerestory windows provided the only natural light source, the gorillas' section became an illuminated stage viewed by a human audience kept in appreciative darkness (*The Times*, 1932). Indeed, David Ashford (2011) has already drawn an intriguing parallel between the mechanical slide of the building's outer wall as it opened for the summer and the curtains drawn back to reveal King Kong to an awe-struck Broadway audience. (The Gorilla House and the film *King Kong* [Merian C. Cooper and Ernest B. Schoedsack, 1933] opened in London during the same fortnight). Both presentations understood the potency of a suddenly proximate ape and choreographed an unsettling face-to-face encounter between human beings and gorillas.

The incorporation of these spectatorial structures helped visitors become adapted to the startling modernism of Lubetkin's architecture. The crowd at the

Penguin Pond, for instance, readily aligned itself along the structure's outer parapets, to gaze not only at the antics of the penguins, but also across at the visitors opposite who mirrored back their own amusement. Observers at the Pond's eastern end were even framed by elongated rectangles cut into the concrete wall that were themselves reminiscent of cinema screens (Steiner, 2003). Birds and humans thus played their respective parts within a heavily scripted visual ecology, enacting and exhibiting a common adaptation to this optimum functional structure.

In addition, gorillas and penguins already came endowed with long traditions of anthropomorphic representation (Ashford, 2011; Gott and Weir, 2013; Martin, 2009), which made it easier for both visitors and the media to connect these visibly healthy animals to their potential human counterparts. When the Gorilla House opened, newspapers enthusiastically described Mok and Moina 'moving in' to their new apartment like a lucky pair of newly-weds. As one journalist wrote in the *Morning Post*:

Mok soon realised that they had a sunshine roof and a constant stream of purified air. He beat his chest, and tore round the cage. Madame Moina, as the housewife, was more interested in the revolving walls and the dust-proof screens, and shot up to the ceiling on a length of rope, the better to examine them (cited in Gruffudd, 2000: 228).

As Ashford (2011) has argued, the troubling implication within this anthropomorphic discourse – that caged gorillas and encaging humans might not be so different, after all – was kept at bay by the building's technicity, as incontrovertible evidence of the intellectual chasm between expert designer and imbecilic tenants. Reporters dwelt on the self-service water fountain that Lubetkin had placed at the centre of the cage - or, more specifically, on Mok and Moina's failed attempts to work

out what it was (*The Times*, 1933; *The Daily Telegraph*, 1933). This common motif paradoxically suggested both that this scientific environment might accelerate the gorillas' evolutionary development and that the animals would never overcome their basic species limitations.

This foundational distinction between ape and human was also reinforced by the theatrical structures embedded within the building. When British Movietone (1933) celebrated the opening of the Gorilla House, its newsreel began with a typical account of how Mok and Moina's "luxurious new apartment" was filled with modern conveniences, including "sun-glass panels so that they can retain their healthy jungle tan". But soon starved of stimulating action, the film settled down into conventional footage of the gorillas chasing one other around their cage. Following the experiential narrative of an ordinary zoo visit, curiosity in this extraordinary modern building was soon supplanted by a greater interest in the animal antics it was designed to facilitate – reaffirming, in the process, the reassuring binary between human spectator and beastly entertainer.

Over at the Penguin Pond, the lack of any direct evolutionary link between avian inmates and human visitors made such anthropomorphism much less fraught. As naturally flightless bipeds, the penguins' waddle up Lubetkin's steps and walkways provoked a whole range of comedic human analogies, including soldiers on parade (*Daily Mail*, 1935) and "Dominicans in feathers" (*Illustrated London News*, 1934). As with the *Mirror*'s turn to "self-conscious chorus girls", such comparisons conjured images of an ordered, collective human movement that these ungainly birds could only ever hope to parody. Indeed, a common practice at the Pond was for a zookeeper to take in one lucky child to walk hand-in-flipper around the pool's perimeter with one of the compliant king penguins (*Daily Mail*, 1936). This spectacle,

which translated effortlessly into newsreel entertainment (British Pathé, 1935), mooted an equivalence between human child and clumsy penguin, only to then mock it as self-evidently absurd.

The political dynamics of this parodic anthropomorphism were clearly expressed within a publicity image staged to promote the Penguin Pond by the architectural photographer John Havinden (Figure 2). A large king penguin peers down at a maquette, apparently scrutinising its bespoke new home, whilst a smaller bird flaps its wings excitedly nearby. By figuring these two penguins as discerning human clients, Havinden tacitly linked Lubetkin's structure to London's housing question and the wider social discourse of architectural modernism. Yet the photograph's humour concealed a deeper ideology. The implicit joke, of course, is that these simple penguins could never understand the technical specificities of the enclosure in which they now would live. Such comprehension was solely the privilege of intelligent human beings, a distinction that the image made clear. But caught within this pedagogical scenario, these two penguins also prefigured the human visitors who would soon adopt similar stances once Lubetkin's enclosure had been built. Likewise invited to wonder at its marvels, this mode of architectural exhibition inherently valorised the scientific authority of the team of experts who had commissioned and designed it. The witty parody on which this photograph relied thus operated in two directions. If London's zoo creatures had become a vehicle for figuring the plight of the city's ill-housed citizens, then the same motif ensured that the latter were always understood as passified and dumb.

Penguin's-eye view?: the new vision at the London Zoo

Three years later, Havinden's photographs of Tecton's zoo pavilions received pride of place on the gallery walls at MoMA. Following the conventions of architectural exhibitions, these mainly exterior shots offered up the buildings for aesthetic contemplation and marginalised the presence of the animals inside. In a room nearby, however, *The New Architecture and the London Zoo* presented visitors with a more complex sequence of moving images, which unsettled the rationalist orientation to the structures and their inhabitants that dominated the rest of the displays.

The underlying tension within Moholy's film of Lubetkin's buildings derived from the variant media through which they pursued their respective modernist endeavours. If, as a trained architect, Lubetkin was primarily concerned with solid forms and arrangements of interior space, then Moholy's aesthetic output prioritised light as the fundamental engine of visual perception and thus the primary mechanism through which humans understood their material environment. Since the early 1920s, Moholy's critical practice had centred on photography as the most accurate means of exploring light's dynamic properties. In particular, he had developed the technique of placing objects directly onto photosensitive paper and exposing the results. These camera-less photograms, he argued, declared photography's revolutionary ability to provide new and objective accounts of the world, which finally freed the visual image from the shackles of painterly pictorialism (Moholy-Nagy, 1923; Moholy-Nagy, [1934]/2011: 32).

For Moholy, the modern camera marked nothing less than the technological evolution of human vision. In 1932, influenced by developments within photomicrography, telescoping and radiography, he proposed eight distinct ways in which photography had now extended the naked human eye: abstract seeing (via

photograms); exact seeing (via reportage); rapid seeing (via snapshots); slow seeing (via prolonged exposures); intensified seeing (via microphotography and filter-photography); penetrative seeing (via x-rays); simultaneous seeing (via superimposition); and distorted seeing (via trick lenses and manipulations). Taken together, these optical advances amounted to a “psychological transformation of our eyesight” ([1932]/2011: 35) that had radically heightened humankind’s visual appreciation of the objective properties of time and space. At its most successful, Moholy claimed, photography had created “the purely optical image”, a making-strange of some familiar object that extricated it from habitual ways of seeing and thus its accreted cultural associations ([1927]/1969: 28). As viewers came to understand these avant-garde photographs, their spatial, temporal or material truths would open up a more profound visual reality and pave the way for revolutionary social practices (Moholy-Nagy, [1922]/1970).

As part of this narrative of perceptual development, Moholy was equally concerned with processes of psychological synthesis, since viewers would need to assemble this vast array of fragmented images into some form of workable Gestalt ([1927]/1969: 43). In practice, this meant fostering the discriminatory skills needed to differentiate good photographs from bad, as well as the ability to switch between different aesthetic registers and not be overwhelmed by the “deluge of optical messages and visual entertainments” that now assailed the modern urban citizen (Moholy-Nagy, 1936b: 259). Moholy’s first book, *Painting, Photography, Film* (1925), was conceived in just this spirit, and centred on around seventy photographs taken from mostly published sources. Collated together with only minimal captions, the reader was invited to leaf through this imagery (which included advertisements, trick photographs, photograms, extreme close-ups, etc.) and posit whatever

connective meanings they could find. The sheer number of images propelled the viewer through this succession of optical encounters, whilst discouraging the sustained contemplation of any particular one. *Painting, Photography, Film*, then, was intended as a training manual to ready its reader for the dawning age of mediated vision (Nelson, 2006; Stetler, 2008). By actively engaging with the book, Moholy hoped, his readers might learn to “seize instantly upon new moments of vital insight” as they occurred without warning in the everyday urban landscape ([1927]/1969: 24). Throughout the next decade, this basic interest in both the uses and the experiential challenges of photographic montage would lead Moholy to experiment with film, most notably via his two short city symphonies: *Marseille Vieux Port* (1929) and *Berlin Still-life* (1930-1).

Within the context of this larger corpus, *The New Architecture and the London Zoo* deploys many of Moholy’s trusted devices for unsettling the viewer’s engrained perceptual habits. This, however, bought the film into immediate conflict with Tecton’s own pedagogical strategies, as well as those of the MoMA exhibition for which it had been commissioned. As Lubetkin recalled in 1971:

[Moholy] wanted simply to record, and maintained that the world was full of new shapes, textures and movements. Along with rotating turbine blades and propellers, there were also my buildings; it was unnecessary to comment on them, sufficient to confront them as they stood, and open the onlooker’s eyes. I protested against such a naturalistic approach, which concentrates on appearances, rather than attempting a systematic account of the underlying reality. I doubted the value of a merely descriptive account of what happened, rather than

why it happened, or what had to happen, given my attentions and assumptions (cited in Senter, 1975: 103).

At root, Lubetkin's complaint arose from a basic disagreement about where the "underlying reality" of his buildings should be found. From the architect's perspective, it lay in their technical engineering of a stable environment and their careful staging of a meaningful encounter between human spectators and animals. By this logic, the purpose of the MoMA exhibition - and therefore also of Moholy's film - was to explain those systems explicitly to gallery-goers in a way not communicable to ordinary zoo visitors. Yet for Moholy, this kind of discursive account diminished the buildings' revolutionary potential, which lay instead in the complex interplay of light and space that their structures set into motion. Thus *The New Architecture and the London Zoo* is much more interested in the way shadows fall across Lubetkin's expanses of white concrete, and the reflections or refractions produced by his use of glass or water or a grid-like wooden fence. In moving towards such abstraction, Moholy's film sought to disengage Tecton's pavilions from the associative meanings conventionally produced by isometric exterior photographs and architectural floorplans. Rather, its primary aim was to explore the expansive possibilities inherent within the live architectural encounter.

The New Architecture and the London Zoo was thus much more than a "merely descriptive account of what happened." Indeed, given his commitment to the movie camera as an agent of biological advancement, simply replicating the zoo visitor's experience would have been, for Moholy, a regressive manoeuvre. With its unexpected viewpoints and disorienting edits, the film foregrounds its own technical apparatus and actively tries to distance itself from any bogus claims to transparency. Yet at the same time, Moholy's zoo film is far less radical than the juxtapositions of

shapes, textures and movements that had made up his earlier city symphonies; hence, perhaps, the sense of compromise that critics like Botar have found within the film. There remains a clear narrative in how Moholy's camera approaches, inspects and then leaves Lubetkin's buildings, each preceded by an intertitle to explain the design that is usually accompanied by an animated diagram. These introductions break the flow of Moholy's images and frames them via an ill-fitting didacticism that the footage does not quite endorse. More than anything, they reveal the foundational mismatch between Moholy's radical aesthetic and the conservative conventions of architectural exhibitions, a tension they try in vain to reconcile.

A similar conflict underlies the film's engagement with London's zoo animals. On the one hand, to celebrate Tecton's buildings as unambiguous triumphs required the on-screen portrayal of healthy, active and well-adjusted creatures. Yet simply to rehearse the theatrical viewing structures that Lubetkin had appropriated would have undermined Moholy's social project and made his film dangerously resemble popular cinema and newsreels. In a sense, then, *The New Architecture and the London Zoo* was caught within a second double-bind: how to meet gallery-goers' expectations of what zoo animals should look like, whilst also disrupting those same expectations.

Before exploring this contradiction in more detail, it is useful to review the wider place of animals within Moholy's aesthetic philosophy. Scholars have already traced his debt to Raoul Heinrich Francé's *biotechnik* (biotechnic or bionic) theory of nature (Anker, 2005; Botar, 2004). In Francé's work of the 1920s, he noted the recurrence of certain physical forms throughout the natural world at different scales and across divergent levels of biological complexity. These, he proposed, were the optimal 'designs' by which nature had solved its technical problems, as complex sets of dynamic forces materialised within certain stable equilibria (Pichler, 2005).

Following his lead, Moholy argued that humanity's progress would manifest itself in a return to these primordial forms, as tangible evidence of the regained harmony between industrial technology and nature (1947: 29).

Yet whilst this stressed humanity's integral role within as part of the natural order, Moholy remained clear about the absolute distinction between humans and other animals. If, following Francé and the new biology, all living organisms were responsively formed by the conditions of their everyday environment, only human beings had the inherent drive to actively advance the terms of their habitation – hence, for instance, the invention of photography. As he declared in 1922: “it is a *specifically human* characteristic that man's functional apparatuses can never be saturated; they crave ever new impressions following each new reception” (cited in Borchardt-Hume, 2006: 72; my emphasis).

Furthermore, since only humans used cameras or understood their output, photography in itself was an inherent guarantee of this unbridgeable ontological gap. Tellingly, eleven of the images within *Painting, Photography, Film* had focussed on the animal body, including a photomicrograph of a head-lice, a snapshot of a flock of flying cranes and an x-ray photograph of a dead frog. Often these images were juxtaposed on the page with photographs of man-made inventions, to demonstrate the biotechnic affinity between technological designs and primordial natural forms (Botar, 2004). But in doing so, they also asserted a basic dichotomy between the human species that wielded the camera and the animal kingdom that had now become its object.

Yet this affirmation of species hierarchy risked becoming destabilised by other elements within Moholy's modernist programme. Since his pursuit of a new human vision was defined in opposition to ordinary modes of seeing, it initially lacked an

agreed vocabulary through which it might be discussed. Time and again, Moholy's discourse made recourse to zoological metaphors as he tried to describe his new biotechnical optics. In 1926, for instance, he illustrated an article on the expansion of vision using a photograph of a pigeon with a camera strapped to its neck, plus five aerial photographs - two of which had seemingly been 'taken' by the pigeon and three from an aeroplane in flight (see Hight, 1995: 121). Here the technologically-evolved human eye uncannily returned towards that of the primitive animal, as the two points of view became ambiguously realigned. Indeed, Moholy frequently used the terms 'bird's-eye' and 'worm's-eye' view to denote the photographic foreshortening of an object from above and below, respectively. In 1936, he expressed a fear that these radical devices risked being turned into mere stylistic motifs (1936a: 18). But only a year later, he re-energised his drive towards perceptual evolution through a brand new beastly metaphor: that of the 'unleashed camera' (Moholy-Nagy, 1937).

Within most of Moholy's work, these zoological figurations hardly trouble his foundational opposition between humankind and animals. Yet precisely because of its subject matter, *The New Architecture and the London Zoo* brought these tensions suddenly into focus. The central predicament of the MoMA commission - how to show energetic, healthy animals on screen, whilst simultaneously challenging the conventions of doing so - created an on-going ontological uncertainty about the exact status of the camera eye. Moholy's linear narrative, by which photographic technology was evolving human vision into something far greater, was disrupted by the presence of a way of seeing - that of the captive zoo animal. Throughout the film, Moholy's beastly metaphors threaten to become literal in a way that jeopardises his humanist assumptions. They also destabilise the spectacular frameworks by which Lubetkin's enclosures sought to manage the semantic potential of their animals. In

short, the indeterminacy of Moholy's camera disrupts the zoo's parodic anthropomorphism by introducing a shadowy form of technological zoomorphism.

This ambivalence occurs at the very start of the film, immediately after the opening titles, when Moholy introduces the Shelter and Cloakroom, both built for humans at Whipsnade. After two brief shots from normal head height, taken from beneath the shelter's canapé, the film cuts to a mid-distance shot looking back at the building's exterior. The camera then pans left along the length of the structure, over the path on which the cameraman is standing, to finally rest on the newly-erected Elephant House on the opposite side. At this point the camera pauses, before beginning a smooth, lengthy tracking shot along the path, still keeping the Elephant House in frame. This transition has a deeply uncanny effect; the jerky pan of the human-operated camera unexpectedly mutates into a clearly non-human, mechanical glide. (According to Sise, the effect was achieved by mounting the camera on the back of a motor-car [Powers, 2013]). Right at the beginning of the film, then, the viewer is made uncertain about exactly whose eyes the camera represents, as a technologically-enhanced humanist viewpoint disarmingly evolves into something more alien.

This instability becomes particularly acute during later sequences that include animals on screen. Moholy introduces the Penguin Pond, for instance, via a shot of its exterior path, his camera initially skewed at a disorienting 45-degree angle. The camera then pans up in a graceful arc across the structure's outer wall, straightening itself to return the viewer to a comfortably humanist perspective. But confusion soon returns in a close-up of the central cantilevered walkways. Here the camera rises slowly from the ground until a large king penguin, standing on one of the ramps above, comes to fill the frame. Suddenly shrunken to what is clearly penguin-height

(and now apparently standing on the ramp ourselves), we briefly exchange glances with the massive bird on screen. Next, however, we are back outside the enclosure, safely observing the central double-helix from the stage-managed position of an ordinary human visitor. But seconds later we are inside again, looking up from below at a row of spectators crowding over the parapet. As the camera pans right, a young boy's face stares wilfully into the camera, fixing us via our returned gaze once more in the role of a penguin.

Throughout this sequence, the viewer is abruptly transported between architecturally-prescribed humanist viewpoints, sudden and surprising zoomorphic perspectives, and non-naturalistic avant-garde angles that foreground the camera's own technicity. None of these positions is securely defined or stable for more than a few seconds. Thus one typical 'bird's-eye view', looking sharply down from the shelter's roof at a cluster of human spectators, is humorously literalised by a quick counter-shot looking back at a Humboldt penguin high up on the canapé. Yet before the viewer has processed this exchange, the camera pans down to reveal this bird to be actually standing on one of the central walkways. What seemed like a conventional shot/counter-shot relay turns out, confusingly, to be nothing of the sort.

Throughout *The New Architecture and the London Zoo*, Moholy's unleashed camera goes some way to sabotaging the in-built structures of animal spectatorship, troubling the basic species hierarchy that Lubetkin's pavilions worked hard to secure. If the film often rehearses the visitor's choreographed gaze, then it repeatedly confounds this with that of the creatures on show, calling into question the relationship between them in a way not normally permitted by Tecton's designs. This is experienced most strongly, perhaps, during the lengthy sequence at the Gorilla House. Here, after some swift shots of the building's exterior, Moholy's camera goes

inside to explore the mechanisms that govern the ventilation system and which rotate the southern wall. A close-up of a noticeboard bearing the legend “‘Mok’ & ‘Moina’” introduces the pair like a vaudeville act, before slowly dissolving into a head-and-shoulders close-up of either Moina or Mok sat on the ground at the front of their cage. The gorilla looks through the bars into the camera for a few seconds, before quickly becoming distracted by some stimulus off-screen (Figure 3). For Ashford, this shot is deeply troubling. In contrast to the spatial freedoms enjoyed by the film’s penguins and giraffes, these gorillas only “cling and stare as the building moves around them” (2011: 220); passive spectators, rendered dumb by the technical structure within which they are imprisoned. Moholy’s portrayal, he argues, only reinforces the species hierarchy already programmed into Lubetkin’s architecture. Within this shot, we see “the culmination of the Enlightenment reduction of ‘the Animal’: the subject is held in a fearsome geometry, a lyrical celebration of human reason” (Ashford, 2011: 203).

Yet within the context of Moholy’s larger project, this short sequence can equally be read in the opposite direction. The animal’s distracted passivity within its technological dwelling might have offered human viewers within MoMA’s screening room a temporary point of identification, as they too struggled to adapt themselves to a disorienting visual onslaught. Notably, this gorilla is introduced via a slow dissolve, one of the film’s few soft or sympathetic edits. Rather than assert an ontological gulf between rational human and bamboozled animal, both become momentarily aligned in their attempts to adjust to their technological future. Of course, these briefly exchanged glances contained no real reciprocity; the gorilla remains fixed by the cinematic apparatus, the docile object of the human viewer’s gaze. But coming late within Moholy’s film, at a point when that gaze had already become uncertain, it suggests a more complex exploration of what interspecies encounters might mean.

Tellingly, Moholy's film ends with a sequence of the Penguin Pond at night. Under the glare of electric floodlights and with its picturesque surroundings now shrouded in darkness, Lubetkin's construction looks thoroughly urban. In the final shot, the central walkways fill up the screen, their flat surfaces dappled by spray from the central sprinkler that glimmers under the lights. A lone Humboldt penguin appears almost to be standing on a deserted city sidewalk, the rain beating down under the sodium streetlamps (Figure 4). Within this cleverly engineered environment, this bird's life is clearly less precarious than it would be back in its indigenously habitat. But the anthropomorphism proposed within this shot is far more ambivalent than that typically constructed by comedic newsreels. Moholy's film never dethrones the progressive modernist narrative by which human experts wield benevolent rationality over instinctive, inarticulate animals. But for a New York audience about to leave the warmth of MoMA for the wintry streets of Manhattan, this final image of a solitary penguin might have held a progressive kind of resonant empathy.

Conclusion

Thirty-five years after the film was screened, Lubetkin looked back on *The New Architecture and the London Zoo* as a proven failure:

Some time after, I saw the film, but must admit that I found it disappointing, and so did the people at the Museum of Modern Art. As I had been afraid, it was an aggregate of disconnected sense-data, and had very little to say about the buildings or about the world for which they were intended (cited in Senter, 1975: 104).

Lubetkin's disappointment only confirms the fundamental tension between his own form of modernism and that of Moholy's film-making. To soberly explicate either the buildings' technical features or their social vision would have denied the film own materiality and foreclosed its potential as an engine of biotechnical progress. On its own terms, therefore, the success of Moholy's film could only be equated with how much it failed to adhere to the exhibition's pedagogical project; *The New Architecture and the London Zoo* remains an important compromise.

Within the setting of *Modern Architecture in England*, Moholy's film seems to have remained tied to the dominant modes of theatrical spectatorship inscribed within Lubetkin's buildings. In Lewis Mumford's review for the *New Yorker*, he wrote with enthusiasm of "the big penguins walking gravely like so many Archbishops of Canterbury and York, and the little penguins taking the steps at a jump, like altar boys playing behind the Archbishops' backs" (1937: 59). The return of such parodic anthropomorphism suggests that, for all Moholy's attempts to challenge such ways of looking, his film remained trapped within them. Even Fantl would fondly recall "the humorously sympathetic portraits... [of] the pompous penguins, the foolish giraffes, the ponderous elephants" with which Moholy had "counterpointed Tecton's imaginative Zoo architecture" (cited in Senter, 1975: 103)

Indeed, as the exhibition continued its run, MoMA's publicity increasingly came to privilege Moholy's film as popular cinematic entertainment:

As part of the Exhibition of Modern English Architecture [*sic*], the Museum is showing a twenty-five [*sic*] minute motion picture, *New Architecture for the London Zoo* [*sic*]. The film is shown continuously from 11 in the morning until 5:30 p.m. The showings are of course free to the public. The picture was made by L. Moholy-Nagy and shows

gorillas, giraffes, elephants and penguins in modern architectural settings (MoMA, 1937).

Framed as an effective substitute for visiting the zoo in person, Moholy's film vanishes here as an exhibited art object in its own right. Even Lubetkin's buildings, the film's avowed subject, become little more than (literal) film-sets for the animals they put on display. This was, of course, one of Tecton's criteria for its own success; but it also reveals how the pedagogical drive behind both Lubetkin's and Moholy's respective modernisms were ultimately impeded by the logics of commercial animal spectacle, whether at MoMA or at the London Zoo.

Figure 1: The new Gorilla House at London Zoo. Photograph by Dell & Wainwright, 1933. (www.ribapix.com; RIBA5235).

Figure 2: Two penguins ‘inspect’ an architectural maquette of the new Penguin Pond, London Zoo. Photograph by John Havinden, 1934. (www.ribapix.com; RIBA2844-23).



Figures 3: *The New Architecture and the London Zoo* (1936).

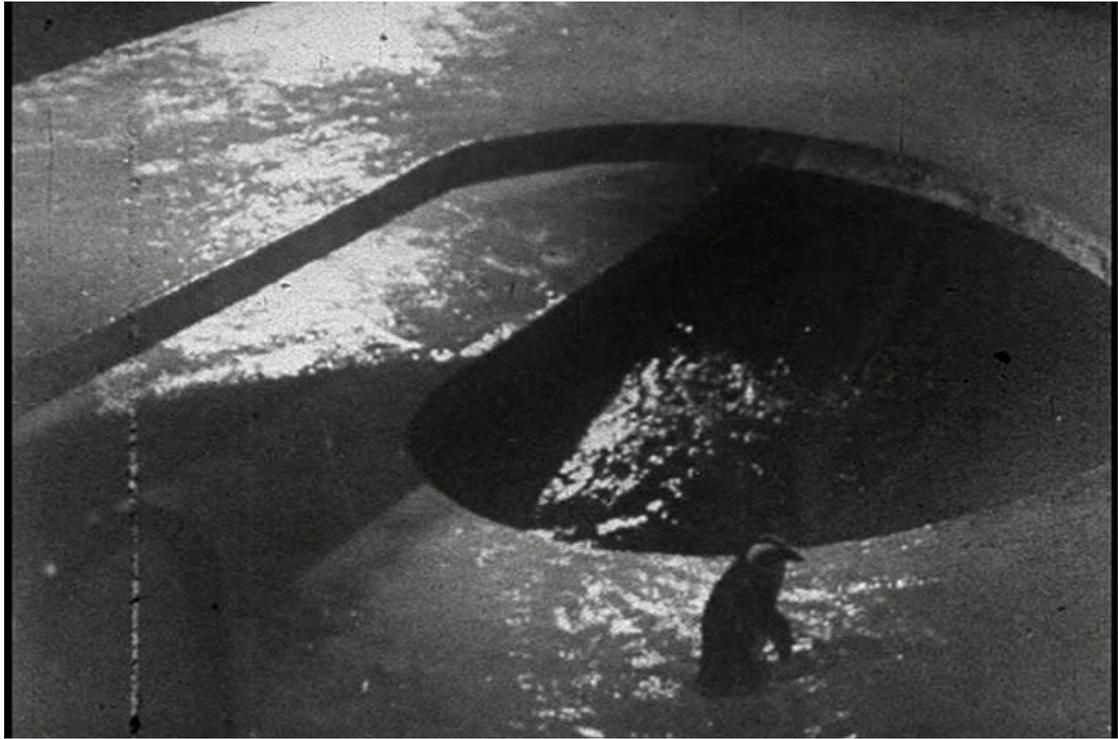


Figure 4: *The New Architecture and the London Zoo* (1936).

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