Architectural Histories

Ziada, H 2015 To See (Like) a Crowd. *Architectural Histories,* 3(1): 13, pp. 1–18, DOI: http://dx.doi.org/10.5334/ah.co

RESEARCH ARTICLE

To See (Like) a Crowd

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This paper explores the dynamics through which design drawings shape spatial strategies, particularly those with an agenda for socio-political change, while interrogating the impacts of drawing on subjectivity. It dissects an early Soviet architectural drawing addressing the *crowd-design problem* from the 1920s and 1930s: using architectural space to generate a robust intersubjectivity in mass crowds. Revolutionary Soviet artists challenged inherited graphic regimes for viewing crowds from an alienating distance, proposing devices of *immersion* to radically re-visualize mass crowds and re-conceptualize collectivity. Drawing on Suprematist compositions, the avant-garde Soviet Rationalist architects translated immersive principles from contemporary revolutionary art. The paper articulates the Rationalists' alternative graphic framework, which immerses the observer-cum-designer within crowd dynamics in a distinctively architectural way, while identifying its implications on spatial design: a space of undulating grounds, rhythmic choreographies, and 'textured' visual fields. The paper also speculates on its implications for redefining subjectivity; re-introducing emotion among the relations of production challenges canonical Historical Materialism.

Introduction

A second look at the three-dimensional drawing (**Fig. 1a**) by the Union of Architects and Planners (ARU), an avant-garde Soviet group, for their submission to the Phase 1 of the Palace of Soviets Competition in Moscow in 1931, registers anomalies easily missed in a cursory scan. While marching figures and formations clearly foreshorten with illusory distance, building forms do not persuasively diminish as they recede in depth. Furthermore, if one removes the crowd figures, the ensuing effect is that of buildings 'hovering' in drawing space (**Fig. 1b**).

That this oversized drawing (46½ × 46½ inches) on light brown paper barely differentiates sky from ground by line or color further contributes to perceptions of depth ambiguity and weightlessness. What illusory depth the drawing evokes issues primarily from the formation of the crowd and not from its buildings. This contradicts common practice in architectural drawings, where human figures, when included, are introduced to indicate scale and to narrate programmatic activities *after* building surfaces depict desired forms and spaces. Rendering crowd bodies as the primary graphic element, and building forms as secondary, inverts the customs of architectural representation established in the seventeenth century (Evans 1995: 123–78). The first anomaly: buildings are fitted in the illusory space of bodies.

The drawing also emphasizes the crowd's internal movements and organization more than surrounding buildings (**Fig. 1c**). Advancing towards a timidly depicted entrance, the crowd's mass encounter is thoughtfully choreographed and carefully depicted. Representatives from the converging companies (soldiers, sailors, and athletes), their backs to the viewer, proceed together in mixed columns five to seven persons wide towards the mass hall, a large hall for the All-Soviet Assembly of delegates from all professions and regions of the Soviet Union. Surprisingly, this march occurs through a series of seemingly redundant ramps. From ground level, the mixed troupes march

Figure 1a: Three-dimensional drawing. ARU (Union of Architects and Planners), Palace of Soviets Competition Entry, Phase I, 1931. Reprinted from Ziada (2013: 592, Fig. 1a).

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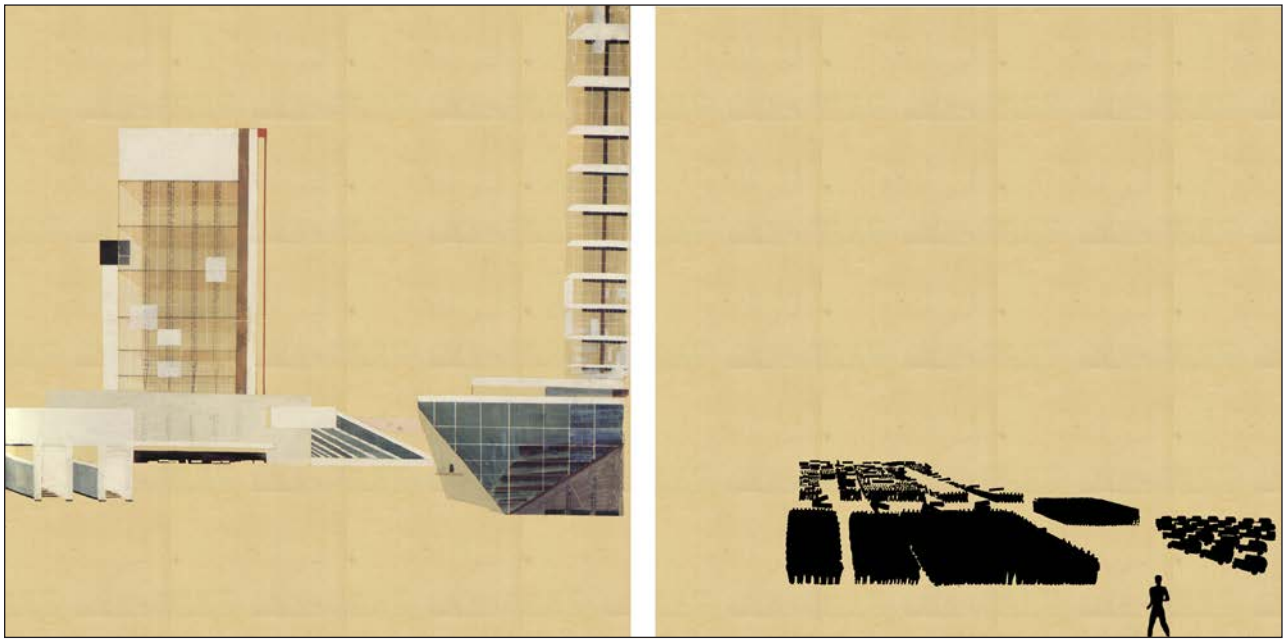

Figure 1b: Studies in illusionary depth in ARU's three-dimensional drawing. Despite its distortions, the crowd furnishes depth, while the near-flat masses hover against the drawing background. Based on an image taken from Ziada (2013: 592, Fig. 1a).

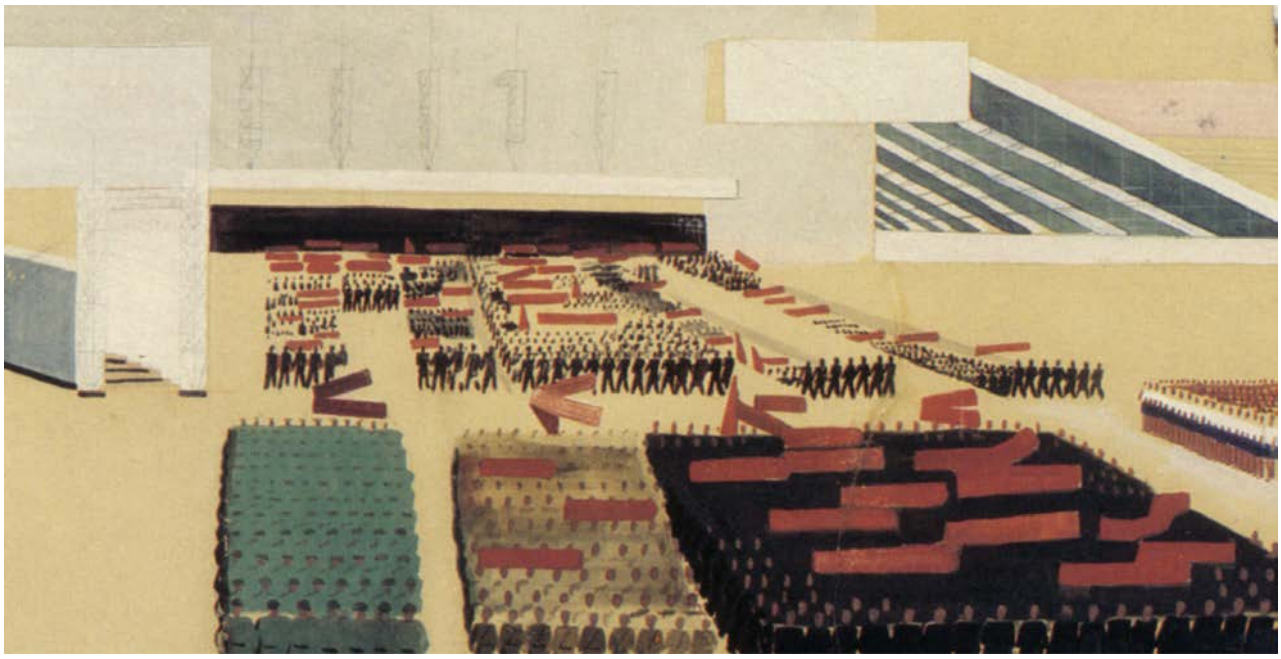

Figure 1c: Detail of ARU's three-dimensional drawing. Based on an image taken from Ziada (2013: 592, Fig. 1a).

down, only to march upwards again to ground level at the opposite end along a symmetrical incline. Nothing but depressions carved into the parade ground surface, the ramps lead downwards to neither programmatic activities nor a special experience. Adding to the intrigue are the ramps' profiles; rather than rectilinear slopes, the crowd descends then ascends *curved* inclines. A whimsical gesture? An exercise in disciplinary control exerted on 17,000 marchers? Or, seen together, do these two anomalies — bodies determining an architectural drawing's graphic depth, into which building space is positioned; and concave ramps leading marchers back to the initial starting level — evince an uncommon design mindset?

The two anomalies are distinct in kind: the latter involves spatial-design decisions on choreographing crowd movements; the former concerns graphic representations that, ostensibly, prime such design moves. This nexus, where design graphics provoke spatial manipulation, defines this paper's area of inquiry. Negotiating spatial and formal transformations is the primary performative function of architectural drawings; however, graphics retain an inimitable residue in the thought process: an implied

reframing of the subject(s) experiencing the drawing. A design drawing evokes certain qualities in its author during making and in its observer while witnessing, which imply psychological inclinations alongside potential socio-political roles — a provocation the critical author-observer might assimilate or resist. Interrogating the simultaneous impacts on one's subjectivity, the fundamental question this paper poses regarding ARU's drawing, echoes Robin Evans (1995): what generative translations unfold between drawings and physical space?

Probing subjectivity is particularly opportune in distinctly political design problems, hence my focusing this inquiry on drawings in which architects employ spatial design and graphics to address the political challenges of what may be called the *crowd-design problem*. By the 1920s, the modern urban crowd emerged from a long history of struggles in the nineteenth century as an enigmatic but largely illiterate medley of workers, migrants, and vagrants, with deficient collective consciousness and limited devices of self-expression (Thompson 1964). As such, it demanded novel representations to conjure such consciousness and to shape built space after its collective aspirations. The building artifact — with its sensitivity to subtle social relations — inherited this charge from the nineteenth-century city's unpredictable street networks. Particularly in post-revolutionary Russia of the 1920s and '30s, where being part of a crowd became a pervasive mode of social being and a formative dimension of collectivity, a plethora of large assembly buildings were designed and built. Traffic flows and safety aside, these projects problematized the construction of space for radically gregarious social formations — or, more specifically, problematized the morphology and aesthetic of choreographing and visualizing mass crowds in buildings to evoke collective consciousness. In response, Soviet avant-garde artists and architects devised graphic representations and spatial conceptions that drew on the crowd's inherent qualities as their generative principles. This paper samples such representations from propaganda posters, art, and architecture.

And hence the Rationalist ARU's three-dimensional drawing as this paper's focus. This architectural drawing constitutes a rare specimen in its depiction of crowds, thus promising exceptional insights into graphic modes of seeing crowds. Furthermore, Soviet avant-garde submissions to the Palace of Soviets Competition (1931–33), with its multiple assembly halls and parade ground, were arguably the last effort to advance a significant range of avant-garde ideas that engaged the crowd-design problem. Joseph Stalin's 1932 command to 'reorganize' all artistic and professional organizations disbanded the Rationalists along with other groups and movements, thereby concluding a phase in Soviet revolutionary art and architecture.

Usually eclipsed by their better-known Constructivist comrades, the Rationalists warrant a brief introduction; much depends on what their *rationalism* implies. Along with fellow Rationalists, their founder and leader Nicolai Ladovskii (1881–1941) taught studios and the Basic Course at VKhUTEMAS (the Higher Technical-Artistic Studios).[1] Professionally, the Rationalists operated through sub-groups that negotiated their own internal differences: ASNOVA (Association of New Architects), established by Ladovskii, Vladimir Krinskii, and Nikolai Dokuchaev in 1923; and ARU, founded in 1928 to reflect Ladovskii's growing interest in urban issues. Rationalists and Constructivists emerged from the same cauldron of ideas, seeking to translate the revolutionary principles of Historical Materialism into the active production of the environment and everyday life. The Soviet avant-garde mobilized soon after the 1917 revolution as an undifferentiated coalition of individuals across the arts; towards the mid-1920s, ideas matured and trajectories diverged, and ambiguous boundary lines hardened into distinct movements. The Rationalists distinguished their theoretical approach from the technical rationalism of Constructivism and Productivism by pursuing an *emotional economy*. As Ladovskii asserted, 'architectural rationality is the economy of psychic energy in the perception of the spatial and functional properties of the building' (Cooke 1983: 178). Using quasi-scientific experimental procedures, Rationalist design research attempted to capture the impacts of human emotions on space and form, building on pre-First World War work of the practical psychologist Hugo Munsterberg. But instead of indexing emotional impacts through recording fluctuations of blood pressure or urine composition in response to stimuli, the Rationalists compiled their data from responses to subjects' perceptions and cognitions of spatial-cum-formal properties. Thus, Ladovskii constructed a 'psycho-technical' laboratory at VKhUTEMAS in 1927, where the Rationalists conducted experiments to gauge responses to environmental conditions ranging from elemental design categories — including proportions, volume, shape and weight — to more complex compositions. In addition to this quantitative approach, the Rationalists investigated emotion qualitatively, as in the provocative exercises of the Basic Course (Cooke 1983, Khan-Magomedov 1987: 1993).[2] Significantly, Ladovskii also explored the rhythms of human movement as part of this emotional economy, to forge spatial conceptions based on theories of 'dancers and actors who work in space' (Cooke n.d.).

These ideas informed the intellectual background of ARU's competition team, which mainly comprised Ladovskii's VKhUTEMAS students of the late 1920s, and ASNOVA 'defectors': Georgii Krutikov, Vitalii Lavrov and Valentin Popov, as well as Nikolai Beseda (Cooke & Kazus 1992: 106–9; Cooke 1992: 708). ARU may also have drawn on El Lissitzky's work. Besides his publications, to which they would have had ready access, he was affiliated with the Rationalists, and collaborated with Ladovskii on several design projects (Cooke 1983). Despite divergence from other avant-gardes, the Rationalists practiced in a fluid context where ideas and techniques flowed across groups and disciplines. Being only two years ahead of Krutikov at VKhUTEMAS and widely known in architectural circles by 1931, Ivan Leonidov was potentially another important influence on ARU. His Suprematist graphic techniques offer clues as to how ARU drew on non-objective paintings for their crowd portrayal. For the Palace of Soviets competition

entry, ARU also collaborated on their three-dimensional drawing with artist Aleksandr Deineka who, although not yet the influential figure he would become a few years later, was already an established artist advocating figuration in progressive revolutionary art (Kiaer 2005). Arguably, Deineka's collaboration informed key graphic qualities of the encounter depicted by ARU.

Finally, what is peculiar about the Rationalists' underlying philosophy is its incongruity with Marxist thought. Their interest in emotion departs not only from the pursuit of collectivity in material constructions of their fellow Constructivists, but more radically questions canonical Historical Materialism on the derivative nature of human consciousness within the relations of material production. Instead, their work suggests crucial roles for architectural space and design graphics in constructing an emotional economy within such relations. ARU's drawing frames alternative possibilities for the subject's social roles in production by redefining the subject-object relationship, and transforming one's visceral communion with the drawing itself. It does so by offering graphic devices that reorient spatial design thinking to draw on the crowd's immersive experience and its inherent qualities. Interpreting the two aforementioned anomalies, I argue that this drawing posits the logical framework, and exemplifies the emotive experience, of 'seeing-like-a-crowd' — seeing a crowd as if one is immersed in its experiences.

This paper begins by outlining inherited graphic constructions of 'seeing crowds' and their nested ideologies, particularly in the nineteenth-century panoramic tradition; then demonstrates how concurrent revolutionary arts challenged such constructions as these to introduce immersion in the visualization of the crowd. The paper then demonstrates the Rationalists' interpretation of immersion in architectural drawings. Graphics constitute the primary materials and evidence throughout. While the discussion indicates the sources from whence ARU drew their ideas, the paper is primarily concerned with discerning ARU's architectural graphic devices and qualifying their connections to spatial design ideas.

The Panoramic Tradition

What does one really *see* when witnessing crowds? Historically, the gaze directed at modern crowds carried charges of class tensions and contradictory emotions. Soviet artists and architects inherited literary and pictorial traditions of crowd representation, which evolved in the politically turbulent industrial city of nineteenth-century Europe. This setting framed the modern crowd as an enigma: as the fount of emancipatory revolution, but also as a fearsome, capricious mass. Stigmatizing discourses in the fledgling disciplines of modern sociology and psychology institutionalized suggestibility, irrationality and hysteria as definitive of crowds (Le Bon 1895, Freud 1921, and others). Simultaneously, the modern crowd's constitution as an impoverished and illiterate medley, ill equipped with conventional tools of cultural representation, retarded its capacity for advancing its self-representation.

A tense couplet of qualities — *exhilaration* versus *distancing* — thus constituted representations of the modern crowd, the foremost being the panoramic tradition. Analyzing its historical development, Jeffrey Schnapp distinguished two categories: the emblematic and the oceanic (2002: 245). The pre-modern *emblematic* category foregrounds the larger-than-life figure of a man (against the mob's 'female-fickleness') on whom members of the crowd fixate in hypnotic deference, exemplified by Abraham Bosse's 1651 frontispiece to Thomas Hobbes' *Leviathan* (**Fig. 2**). Precluding emblems, the *oceanic* category better represents the modern crowd by focusing on its mass of bodies as the source of awe and fear. With its immensity, density and deafening sound, the crowd had an affinity to eighteenth-century aesthetic formulations of the sublime. Unfolding in diverse media, the panoramic tradition thus drew on sublime landscape painting traditions — from alpine scenes to industrial settings — to

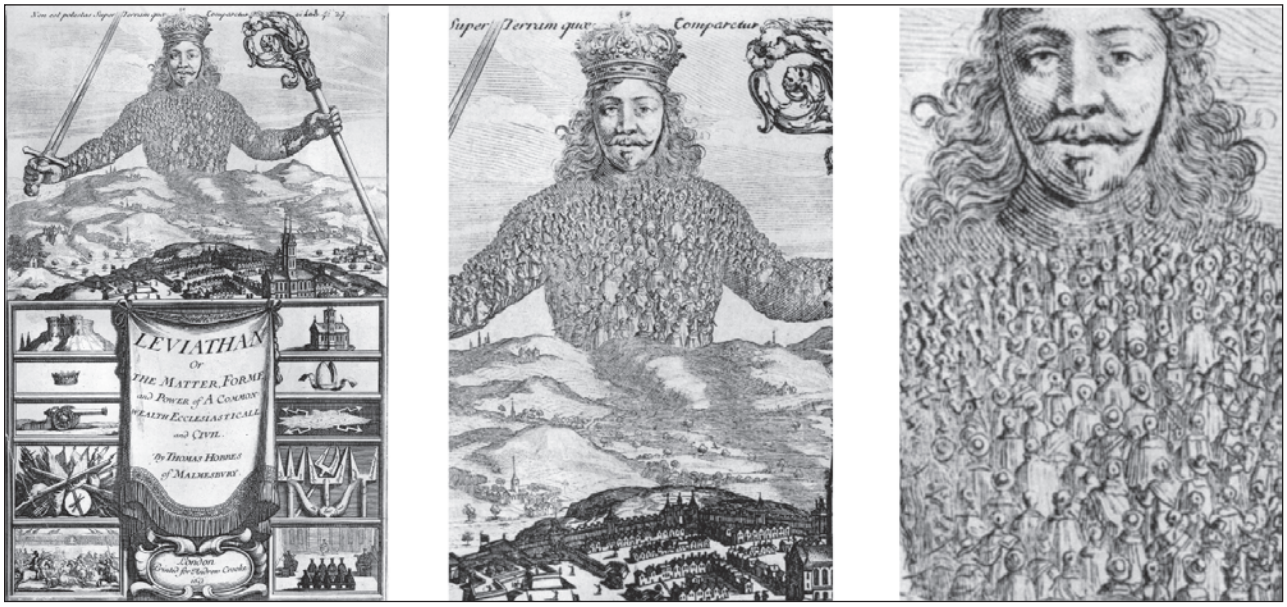

Figure 2: Abraham Bosse's frontispiece to Thomas Hobbes' *Leviathan* (1651).

formulate its own graphic and spatial devices. Realistically painted crowd masses enveloped centrally located observers in late eighteenth-century diorama buildings, maintaining viewers' safe detachment. Arthur Mole's (1889–1983) photographs 'distanced' crowds by oblique, elevated vantage points, cropped frames and meticulously arranged bodies. Early cinema advanced its own devices. Enforcing detachment, the judgmental long shot framed crowds against horizons, transposing crowd sublimity onto the sky.

The panoramic tradition of crowd representation had its most widespread impact during the first half of the twentieth century in the print-centered media. Foldouts of renowned Italian publications, such as *Rivista illustrata del popolo d'Italia*, were crucial sites for the tradition to develop sophisticated variants on earlier representational devices. Schnapp's archival research further revealed that Fascist artists pushed the limits to preserve the dueling impressions of overwhelming awe and rational distance. Instead of using available rolling-lens technology to capture crowd scenes, propaganda artists constructed them as photomontages from discrete tiles, each taken from an elevated viewpoint and stitched together into a seamless (if distorted) image to effect a larger, more cohesive crowd, as occurred for a 1930 mass rally in Milan. A starker case is the panoramic assemblage portraying Hitler's 1938 visit to Mussolini's Naples (**Fig. 3**). Comparing the published photomontage against its original tiles, Schnapp uncovered numerous manipulations: 'cropping, cutting, pasting, masking, even airbrushing'. Erased from the original photographic tiles were the 'distractions': gaps in the crowd, electrical cables […], military groups parading at opposite ends of the Piazza'. These interventions portrayed a more contiguous crowd mass in an urban square widened by the distorted panorama. Also effaced were 'a fleet of destroyers shrouded in the mist of the Bay', to place the mass gathering with its backdrop of classical buildings directly against the horizon (Schnapp 2002: 257–63).

Considering these examples, let me summarize the techniques of the panoramic tradition before discussing the Soviet avant-garde's responses to its challenges. Affected by sublime aesthetics, this tradition developed graphic devices that structured the act of seeing mass-crowds as two forces in tension between observer and spectacle, *exhilaration–distancing,* and which reflect a detachment of class and power. Devices to apprehend the crowd's overwhelming, unfathomable impact included association with a larger sublime entity, such as the horizon; frame cropping and distortion to project an impression of the crowd's endless continuity; and intensifying the density of the crowd. Counteracting this exhilaration, distancing devices maintained rationality and control over the unpredictable crowd, including establishing a resolute distance safe from its overwhelming force; perspectival cones or foreshortened scenes with clear distinctions between foreground and background; elevated viewpoints commanding height and pronouncing unfamiliarity; and circumscribed shapes and rigid order.

Challenges of Immersion

Ironically, while the panoramic tradition of crowd representation matured in propaganda foldouts and posters, it met its challenge in the same medium. Inexpensive in production, easy to disseminate and effective educational tools for a largely illiterate population, revolutionary propaganda posters assumed a pivotal role in Soviet artists' responses to the tradition. Hardly an exclusive site of resistance, posters emulating the panoramic tradition increased dramatically in Soviet Russia from the early 1930s, featuring an emblematic iconography of prominent leaders. Yet there remained clearly discernible attempts to explore alternative seeing devices that were in direct contest with the tradition itself. A core principle of *immersion* binds this range of experiments. In contrast to traditional distancing devices, avant-garde artists tested graphic constructs for seeing from within the crowd, or as implications of its dynamic assembly of bodies. Immersion involved devices collapsing viewing distances, lowering vantage points and conjuring coterminous viewpoints. Immersion emphasized the crowd's internal kinesthesis and encounter narratives, while identifying sublimity exclusively with its mass of bodies. Politically, immersion prodded experiences of shared presence and identification with the idealized worker's persona.

One poster expressive of these qualities is by artist-propagandist Gustav Klutsis, called *We'll Fulfil the Plan of Heavy Tasks* (1930) (**Fig. 4**). Against a red background (foreground?), palms and faces are arrayed and layered

Figure 3: Zagnoli, photomontage of Hitler's visit to Naples, 5 May 1938, published in *Rivista Illustrata*. Source: © Archivio Luce, Rome.

Figure 4: Gustav Klutsis, propaganda poster, *We'll Fulfil the Plan of Heavy Tasks*, 1930. Credit: © 2015 Estate of Gustav Klutsis / Artists Rights Society (ARS), New York (reproduction, including downloading of Gustav Klutsis works is prohibited by copyright laws and international conventions without the express written permission of ARS, New York).

upon each other into the poster's depths to occlude horizons beyond, thus orienting sublime sensations onto the dense aggregate itself. Continuing the array, the oversized but anonymous worker's palm defies emblematic iconography. Significantly, this work employs a dual foreshortening device. Palms and faces foreshorten in reverse progressions to each other, effecting two interwoven, conflicting rhythms; palms diminish as they approach the viewer while faces enlarge. Meandering to different scales, progressions wind around the diagonal axis rather than along it, further complicating this two-directional interlace. This 'warped space' approximates immersion by positing co-dependent presences, or emulating the visual, cognitive and kinesthetic experiences of inhabiting the midst of an active crowd. Its graphic devices guide eye movements to re-live a crowd's dynamic movements, restless viewpoints and shifting depth-of-field by iteratively tracing different contours of lines and curves connecting different palms, faces and palms-to-faces.

Simultaneously, one's attention gravitates to the closer scale of individual components, here defined by fragments or *close-ups*. Each face (or palm) peers back from its own peculiar moment; each demands a focus on its own qualities, while forming, with others, visual cones of different depths amongst which the eye incessantly shifts attention. In other words, the poster emulates how, within a crowd, one's attention shifts amongst deep shots and close-ups, invoking Dziga Vertov's early cinematic work or what Ludwig Wittgenstein called aspect-dawning. With an intense moment of visual apperception, the observer is ushered into a state of sharp critical attention and heightened cognitive awareness within a continuous generic perception (Sheehan 2002: 106). One's experience vibrates between different — even conflicting — readings of the scene. Indeed, this vibrating visuality becomes the poster's theme. Even towards the lower right-hand corner the eye cannot ascertain whether the composition overflows above the red plane or recedes into the drawing's depths. Thoughtful uncertainty marks the experiences of both poster and crowd. Moreover, the faces occupying this corner, coupled with the overall diagonal tilt, provoke the observer (figuratively or conceptually) to lean sideways to engage them. The twist echoes Aleksandr Rodchenko's *Vakhtan Lumberyard* photographic series (1928), where the observer twists with the sawmill-worker's movements. A kinesthetic self-awareness complements cognitive attention as one's posture is actively transformed.

Against the observer's heightened self-awareness, the poster's warped-space invokes *another presence*: visually, cognitively and kinesthetically. This is confirmed by the figure-background tensions between faces and palms. Due to their expressive nature, the advancing faces are identified more readily as figure. Reversing foreshortening and dominating scale, the palms resist settling as *ground* to the faces' figure. They haunt the poster while refusing to be absorbed within the observer's space, extending from the collaged faces off the drawing surface. A crowd is constituted by presences irreducible to one's own; one is never alone in a crowd.

Variations on these techniques recur in other period graphics. In some posters, Nikolai Kochergin layers crowd bodies to conceal the horizon, but displays them in oblique projection to suggest dynamic immersion; diagonal inclines, or directional movement within long frames, foregrounded group kinesthesis (e.g., *Long Live the Red Army*, 1920; *Even Higher Banner of Leninism*, 1932). Some such posters evoked familiarity by distinguishing costumes and facial features of members of the crowd as indices of different professions, genders and ethnicities within the collective. Printed in the tens of thousands, such posters established a context of immersive imagery of crowds.

Similar techniques were explored in other artworks. El Lissitzky, probing the implications of collective labor on representation in his *Prouns*, used the orthographic and oblique projection of the work-table shop-drawing to qualify the observer's kinesthetic presence as that of a laboring worker. The resultant non-directional, non-gravitational qualities of many such drawings points to his association

of productive collectivity with Suprematist-like extensions. Moreover, introducing multiple viewpoints in his 'work-drawings' (including architectural drawings, e.g., *Proun Room Drawing,* 1923 (see http://www.stedelijk.nl/en/artwork/3499-proun), and *Design for the Abstract Cabinet*, 1927), suggested the drawing as a gathering point for collaborative production (Bois 1990). El Lissitzky's affiliation with the Rationalists directly exposed them to such experiments, possibly inspiring crucial compositional features of ARU's three-dimensional drawing, such as its horizontal orientation and the non-objective qualities of its masses and graphic extension, as discussed later in more detail.

Another tributary of immersive techniques was the collaboration between ARU and painter Aleksandr Deineka on the three-dimensional drawing. Despite the predominance of abstract non-objectivity in painting of the 1920s, Deineka pursued figuration as integral to revolutionary art. However, his mostly active sport-persons' and workers' bodies abjured the academism of pre-revolutionary art and the fullness of later social realism. Moreover, while most depictions displayed revolutionary bodies 'in formation', Deineka depicted his unfinished figures in ambiguous interrelationships, suggesting unresolved encounter narratives (as in *Before Descending into the Mines*, 1925, and *Building New Factories*, 1926). Such ambiguities — of figure and relations — signaled that the socialist body and collective, formed by dynamic personal and group relationships, remained inadequately articulated as the communist transition unfolded (Kiaer 2005). Both features resonate in ARU's crowd figures in its thoughtfully choreographed mass-encounter. However, although Deineka's pre-1931 paintings occasionally retained modernist flatness or collage as background to depicted bodies, as in the *Defense of Petrograd,* 1928 (see http://www.tretyakovgallery.ru/en/collection/_show/image/_id/2240%20), this background remained largely passive, which is not the case in the drawing by ARU. As argued below, ARU synthesized a more complex graphic-construction.

This sampling of key propaganda posters and artworks of the period reveals a budding convention of immersion in depicting revolutionary crowds. Three categories of immersive tactics emerge. First are those challenging the panoramic tradition's established graphic devices by collapsing viewing distance and viewing angle, eliminating horizon lines, and distorting individualistic constructions of depth (perspective or foreshortening). Second, transcending that tradition, the posters reframed crowd visualization through an aesthetic issuing from the crowd's primary substance: the kinesthesis of proximate dynamic bodies constructive of each other's collaged visual fields of intense co-visibilities, shifting attentions and critical awareness. Crowd experiences and encounters, heretofore irrational and inscrutable, thus become comprehensible and accessible for a generative design discourse. Finally, drawing on such kinesthesis, the posters problematized presence as means of recasting the drawing's observer(s). While the catalogue of tactics remains unexhausted, these categories frame the context wherein ARU reformulated architectural ideas on crowd visualization and spatial design.

Architecture's Immersion

Returning to ARU's three-dimensional drawing in **Figure 1a**, with its crowd depicted from an elevated, distant viewpoint, one wonders if this drawing promotes the panoramic tradition rather than challenges it. Compared to the aforementioned works, ARU's drawing seems far from offering its observer an immersive experience within the crowd. Yet two observations caution against hurried judgment. First, detached crowd depictions in the panoramic tradition commonly generate their sense of awe in the viewer by facing the masses from a safe distance, or beholding the crowd's rear by framing the crowd against an emblematic figure or horizon. However, distancing is subtly dispelled by the foreground figure (lower right), 'leading' the observer to overtake the marching crowd. No devices confer non-intrinsic sublimity: the drawing's background color continues largely unmarked, with no hints of ground or sky. With no silhouette or skyline, building forms fade into the light brown haze flatly and transparently.

All this mitigates the impacts of the detached viewpoint in the ARU drawing, but also suggests a subtler reading: any distancing effect the drawing exudes seems a by-product rather than a primary device — which leads to my second observation. Possessed of their own purpose, history and performativity, architectural drawings do not merely customize painterly compositions or photographic devices. Performing together in sets, architectural drawings furnish the basis upon which spatial conceptions are negotiated. Thus, for this drawing, contextualized amongst other drawings in the ARU submission, one should look beyond literal immersion to instead probe for graphic devices with generative, reciprocal impacts on space making for collective experiences.

The initial driving question therefore becomes, what spatial design conceptions do ARU's drawings propose? I contend that across ARU's drawings, we encounter a radically gregarious space borne of the dynamic mass-crowd's distinctive formal logic, which affords non-deterministic possibilities for interactions that construct collectivity. The next phase of the argument therefore probes how Rationalist drawings propose a graphic framework for negotiating such spatial conceptions. Are these negotiations merely analogical, or structural and constitutive? How does design drawing, tasked with *seeing-like-a-crowd*, scaffold design strategies of inherent gregariousness?

Rhythmic Crowd Space

If the first anomaly observed that, against convention, the crowd presents the primary sense of depth in ARU's three-dimensional drawing, further scrutiny confirms the crowd's spatial and graphic autonomy from the surrounding masses of buildings.

While the crowd remains spatially cohesive, buildings are ambiguously grounded and exhibit tenuous graphic alignments with one another (**Fig. 5**). With the impression of their site arrangements here inconsistent with their placements in ARU's plans (**Fig. 6**), one suspects that this distortion foregrounds another spatial design quality.

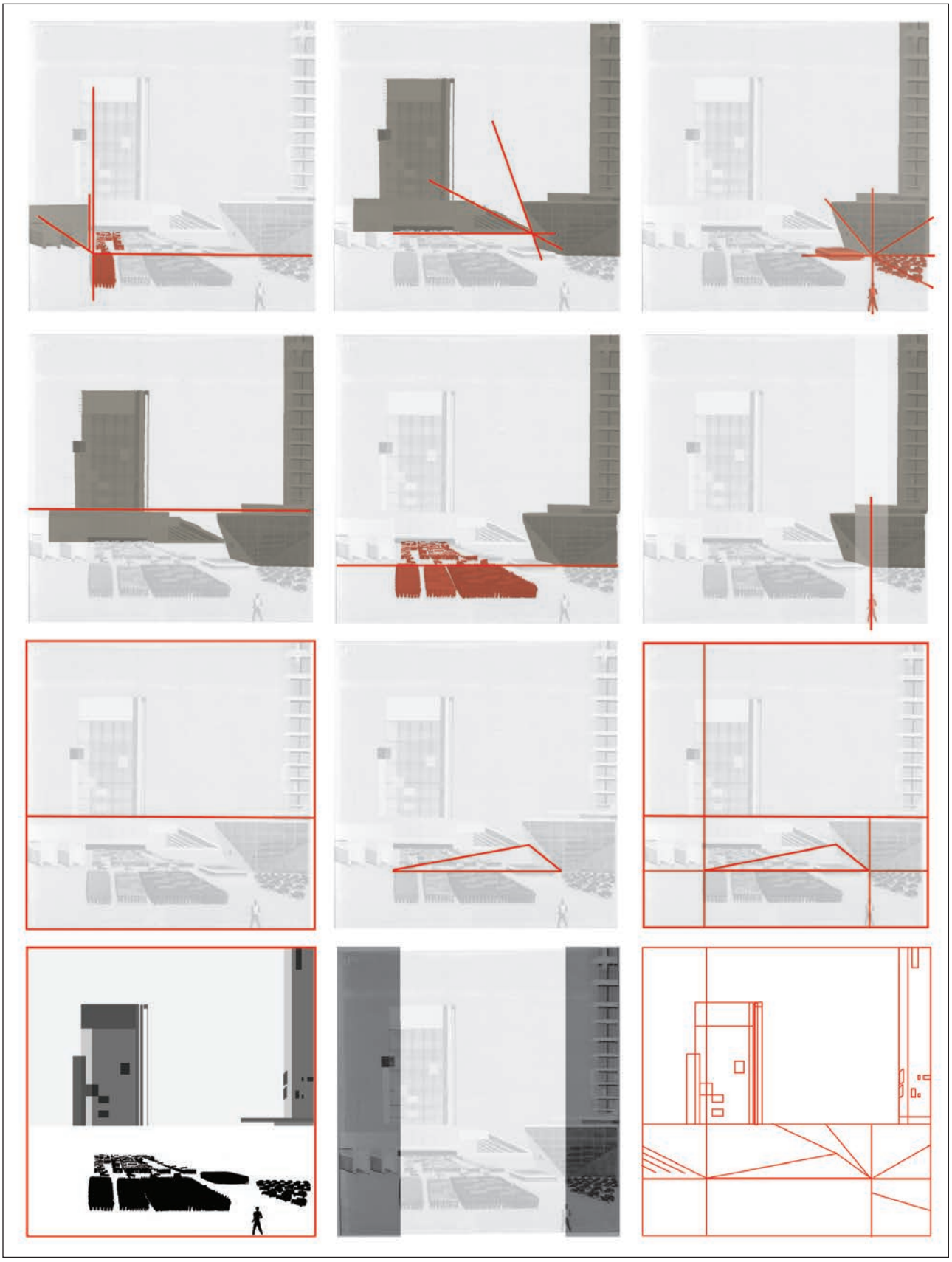

Figure 5: Three-dimensional Drawing, 1931, ARU, Palace of Soviets Competition Entry, Phase I. Alignments between drawing components (incongruent with their spatial relations) evoke a structure of surface tension. Translucent building planes in the upper section vibrate in depth. Lower row, left: two distinct treatments of depth divide the drawing into horizontal segments. Lower row, center: vertical alignments generate an effect of folded surface. Lower row, right: the compiled structure of surface tension. Based on an image from Ziada (2013: 592, Fig. 1a).

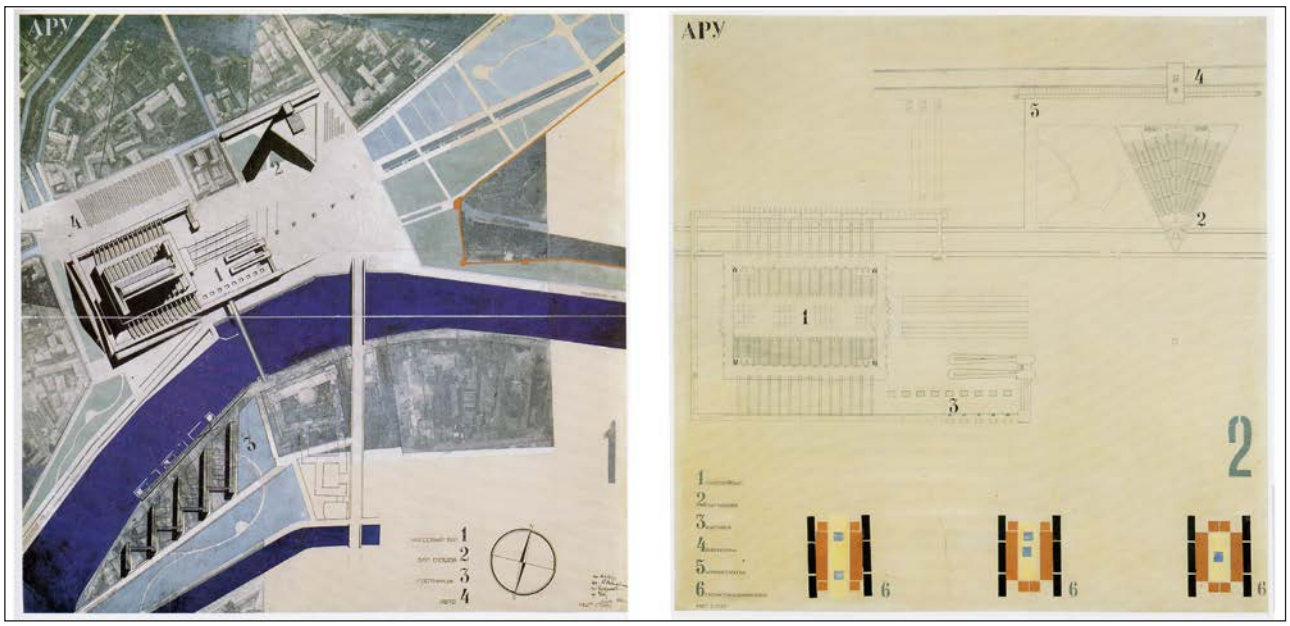

Figure 6: Three-dimensional Drawing, 1931, ARU, Palace of Soviets Competition Entry, Phase I. Top: layout. Bottom: ground floor plan. Based on an image from Ziada (2013: 592, Fig. 1a).

Interestingly, buildings do not define the main spatial configuration in the ARU scheme.

While the crowd marches down a linear space, buildings adjacent to this field do not adjoin it as boundaries, but rather as juxtaposed freestanding objects. The diamond-shaped plinth of the small auditorium building, where the All-Soviet Executive Committee and Presidium were presumed to convene, distances its longer sides from the parade ground, while pointing its triangular apex above it. Even the southern row of pavilion-like structures constitutes no edge to the field, but rather another crowd-organizer to guide columns on parade.

Without acts of enclosure along the parade ground, what defines this field in spatial terms? As argued in an earlier paper (Ziada 2013), ARU's spatial logic tenders a field punctuated by a series of rhythmic 'events', each instigated by ground-surface depressions and outcrops as 'hints' for action, where the crowd displaces or reshuffles its own formations. Extending along one axis from the Kremlin's northern boundary, across the parade ground and through the mass hall (**Figs. 6, 9**), this borderless field achieves internal coherence only when bodies amass along its segments. In wall-defined enclosures, assembly is secondary to space making; in a field activated by ground features, assembly defines space. True to mass gatherings, ground-surface treatments are available to moving crowd members and do not disappear, as walls would, behind other bodies. This renders crowd activity meaningful to space making (**Fig. 7**).

As rhythmic variations instigated by ground undulations, spaces follow or overlay each other within this field, accenting its linear continuity. As the southern pavilions sort crowd flows, they differentiate the rhythms of marchers into the building from those mounting its surfaces. The main 'event' comprises the system of ramps and platforms prefacing the mass hall and occupying its interior. Before entry, marching clusters are transformed into linear columns, climbing inclines and marching between flats, which extrudes rhythms three-dimensionally, and locally intensifies the tempo of the linear field (**Fig. 8**). Inside the hall, columns reshuffle once again into clusters atop square-ground outcrops.

Organized as admixtures of different companies (**Fig. 9**), clusters demand a concise organization of crowd numbers, thus necessitating self-regulating flows in the system of ramps and platforms before entering the mass hall. Besides group rhythms, the ramps choreograph individual bodily movements. This paper has already noted a second anomaly: instead of linear ramps, the ARU drawings show *curved* inclines. A linear ramp would reveal the aesthetics and evoke the sensations of everyday movement induced by building surfaces, but with a uniform speed, repeated rhythms, regularized exertions of weight and predictable postures. Instead, a curved incline provokes a complex rhythm of non-repetitive body movements. Ascending or descending curved surfaces, a body does not settle into uniform rhythms, since its inclination angles and gravitational pull change from one step to the next. The body is engaged self-consciously; its sense of weight is alert, and displacement up or down the incline requires vigilant attention (to ground tilt and to adjacent bodies) to manage its bearings. Bodily gestures, aiming 'outwards' like feelers sensing the surrounding world and subtly shaping the body accordingly, are directional in kind. For a column of bodies at any given moment, the basic rhythmic pattern consists, not of repetitive trace rhythms, but of arrayed spatial movements, rippling simultaneously across ascending or descending columns (**Fig. 10**).

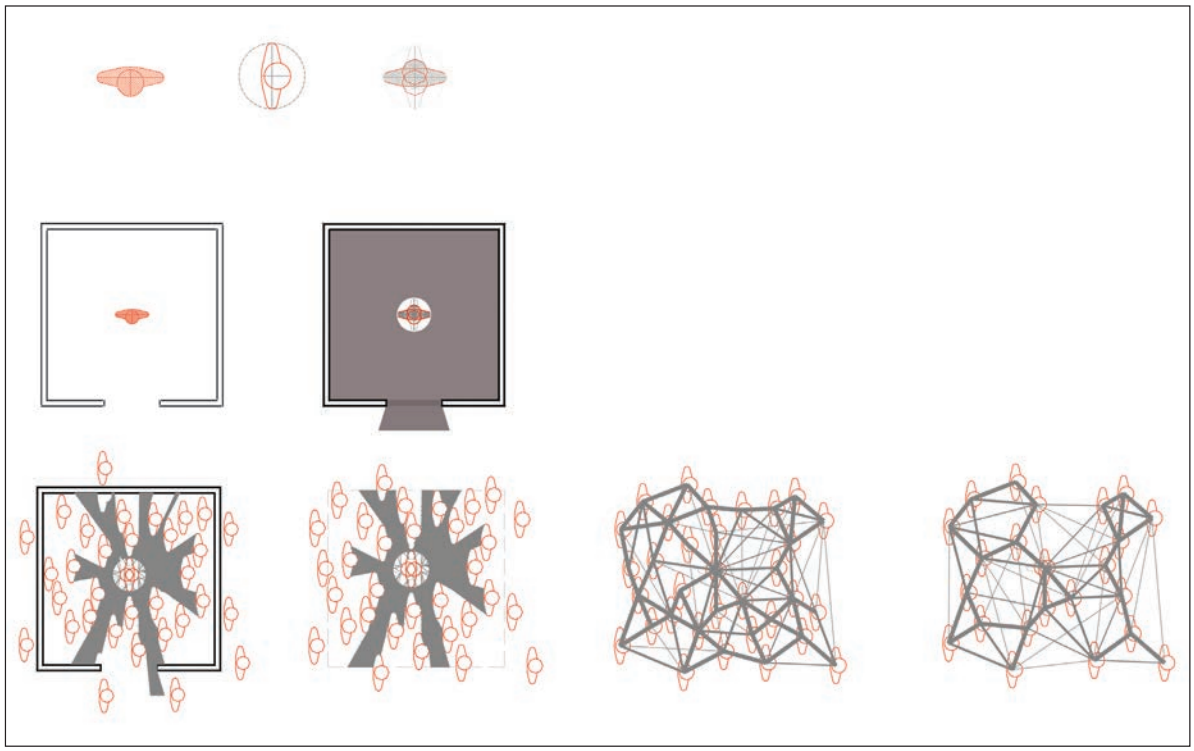

Figure 7: Left: The convex enclosure and the challenge presented by bodies in a hypothetical fragment from a crowd. Right: Index Maps showing a breakdown of two hypothetical crowd conditions based on metric proximities; all possible lines of communication are connected, displaying crowd patterns and densities.

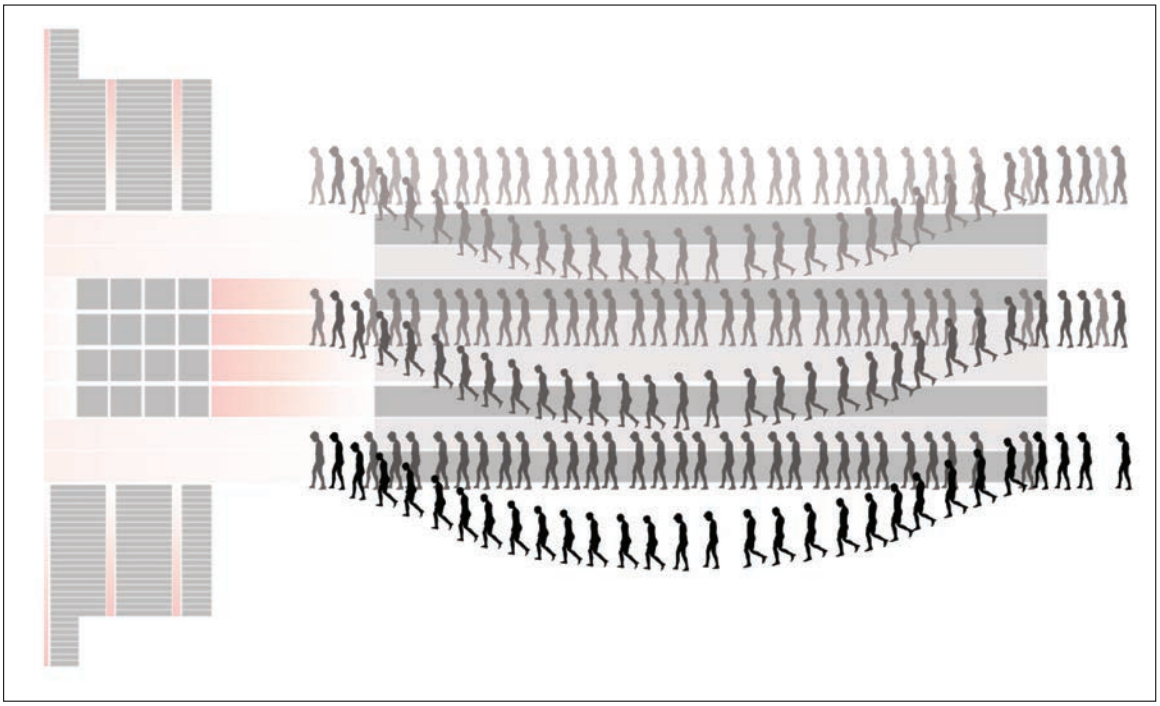

Figure 8: Sectional reconstruction of movement through the system of ramps and platforms. ARU, Palace of Soviets Competition Entry, Phase I, 1931. From Ziada (2013, 593, Fig. 1b).

Together, group rhythms and bodily rhythms distinguish ARU's spatial interpretation of immersion, presenting the crowd activity aesthetically. A cinematic metaphor approximates this quality. *Slow motion* reveals the minute gestures of interaction, the barely perceived gestures of socialization that usually pass by unnoticed. But rather than slowing the representation of movement over time, Rationalist space unpacks the instant of group activity

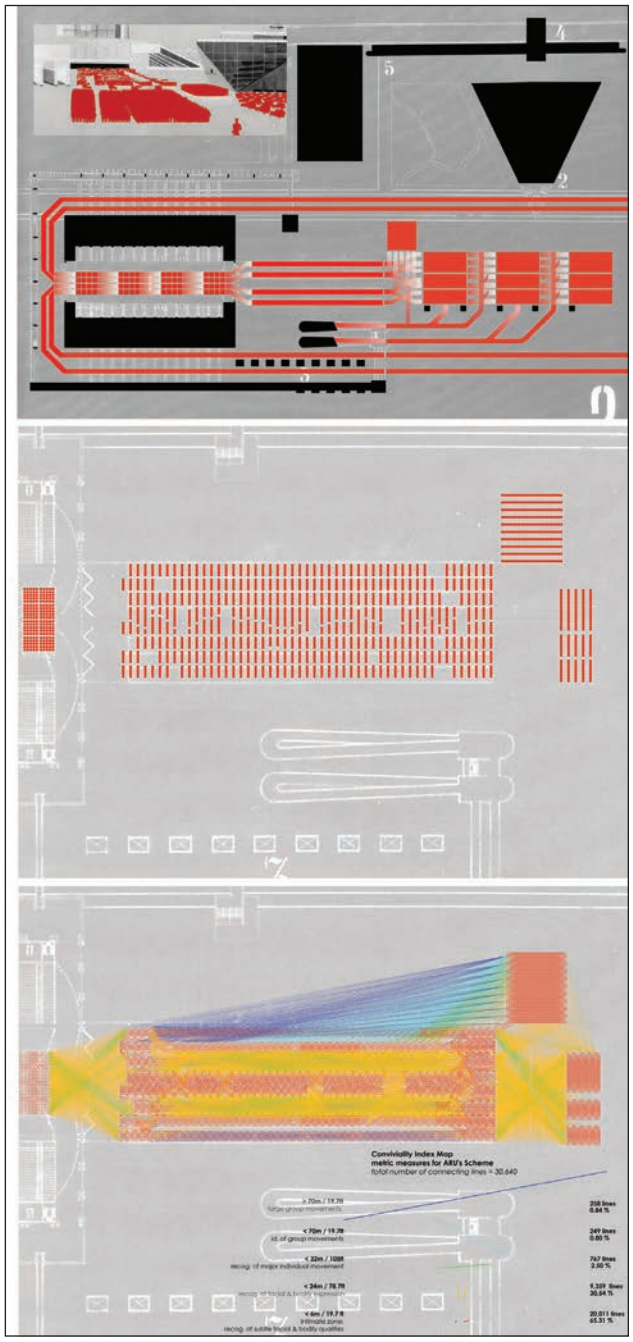

Figure 9: Inferred movements and encounters of the crowd in ARU's scheme. ARU, Palace of Soviets Competition Entry, Phase I, 1931. Top: Movement from ramps into mass hall. Middle: Hypothetical locations of agents for the crowd in a dynamic involving minimum waiting time and incessant flow. Bottom: Conviviality Matrix, all possible crowd encounters at a given moment. Red represents the most proximate and direct encounter, while blue is the most distant; see key. Reconstruction by author. Based on images taken from Ziada (2013: 608–9, Figs. 9b, 10).

along a surface, amplifying its embedded, reciprocal gestures and postures — spatializing the temporal and rendering the ephemeral observable. Even at such a small scale, the drawn crowd figures support this (**Fig 11**); while maintaining overall formations, small groups and individual bodies exhibit looseness in postures and marching rhythms.[3]

Moreover, the space in ARU's drawing affords the experience of a textured visual field with shifting attentions and heightened co-presence. Splitting the crowd into columns moving at different speeds and with varying viewpoints, the ramps create dynamic gaps within the crowd fabric, which present bodies and faces to each other from unanticipated angles and distances. As narrow enclosures amidst the expanse of parade ground, the ramps afford the juxtaposition of multiple 'scales of seeing': one at the scale of one's own ramp, others of distant faces and bodies at medium and longer ranges. Sequences of such alternating views possess a 'textured' quality conducive to Wittgenstein's aforementioned moments of aspect-dawning: 'half visual experience, half thought' (Wittgenstein 1958: 193–229), but with an emphasized visceral effect as one's whole body lurches forward on the curved incline. Thus, one actively engages others in critical co-presence as specific qualities of 'other' bodies spring to one's visual, cognitive and kinesthetic attentions.

This dynamic, textured visual field has important socio-political implications. Potential 'distractions' are structured into ARU's fields of co-visibilities, thus preempting lingering gazes or the passive fixation on a central figure. Echoing revolutionary propaganda posters, shifting attention prevails, yet with a particular morphological twist: it inscribes attention onto *line(s)* instead of a point or an arrangement of points (**Fig. 12**). Along the ramps and platforms and inside the mass hall, spectators observe each other while overlooking performers along parallel axes of movement: converging, diverging and overlapping along one overall linear composition. Instead of a single focus upon a stage, or even multiple static points, as in the Vesnins' Palace of Labor competition scheme (1922), this configuration embeds *coincident* foci. ARU's linear space draws on the condition of movement itself to generate dynamic and unpredictable attention points.

An Alternative Graphic Framework

These moves delineate the Rationalists' logic for a space constituted by the crowd's native substance of amassed dynamic bodies, and articulate its components: undulating grounds, rhythmic intensities of formations, loose body postures and a textured visual field. 'Togetherness' takes on a substantive significance in the morphology and experience of this space; it activates the visceral gestures and postures of social communication within an aesthetic framework. The paper now turns to ARU's graphic devices, probing how they prime such spatial design ideas and articulating their proposed alternative framework within which to see crowds. I argue that drawing on Suprematist aesthetics, ARU's three-dimensional drawing graphically imparts to the observer experiential clues about this intersubjective space. The concluding arguments then articulate the qualities of subjectivity suggested by the drawings.

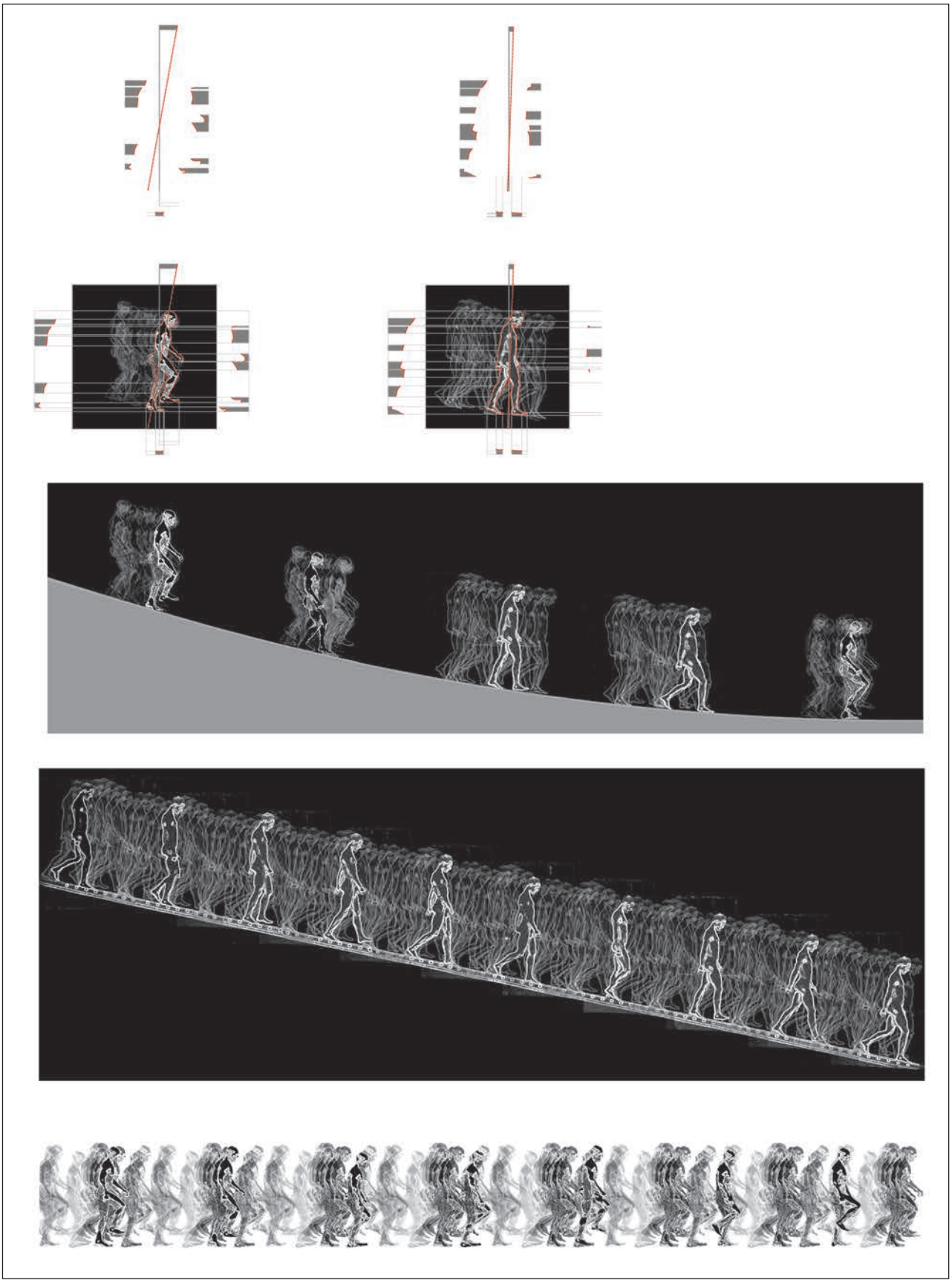

Figure 10: Mapping 'natural movement'. Bottom: Walking along a flat surface. Middle: walking down a linear ramp. Top: Mapping of approximate bodily rhythms for marchers down a hypothetical curved ramp. Each group of rhythms is a single body taking one step. A finer grain of fragmented postures emerges with curved surfaces. Based on Muybridge's Photographic Investigations; see also Ziada (2013: 605, Fig. 8).

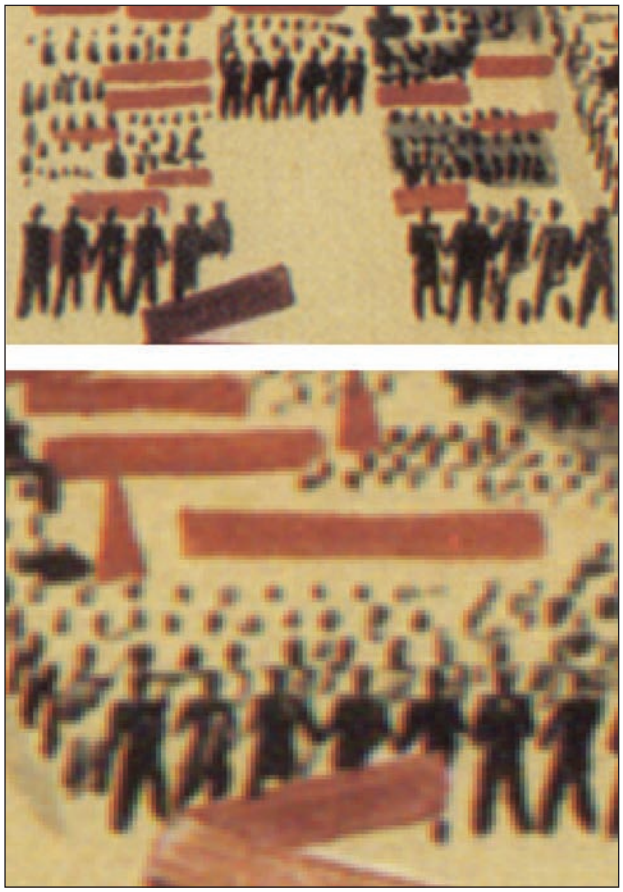

Figure 11: Studies of the three-dimensional drawing: close-ups showing the loose grain of the depicted crowd. ARU, Palace of Soviets Competition, 1931. From Ziada (2013: 592, Fig. 1a).

Three main graphic devices, in tense interrelations, constitute the spatial design thinking apparatus of ARU's three-dimensional drawing. Pictorial depth warrants initial scrutiny. The depicted crowd's aforementioned illusory depth first draws the eye to follow the direction of the mass movement, thus setting the drawing's theme: a mass encounter where different marching companies, processing down the parade ground towards the mass hall, negotiate turns to enter the system of ramps and platforms. Probably crafted by Deineka, and recalling his earlier paintings of unresolved socialist encounters, it captures the key question driving the scheme of the ARU drawing: how does the mass revolutionary crowd organize itself, especially in the absence of guides or flag-bearers to orchestrate movement? What kind of architectural space enables the crowd's self-organization and collective consciousness?

Surprisingly, while the crowd displays a cohesive composition, building masses exhibit clear distortions. Besides lacking an explicit common ground to designate their relative positions, different masses are drawn using dissimilar projections and from different viewpoints. Consider the two dominant masses: while the mass hall (rear, center) features orthogonal projection with no diminishing lateral surfaces, the small auditorium (middle ground, right) exhibits some horizontal and vertical foreshortening. The two smaller masses present starker conundrums; the mass hall's side-atrium (right) is drawn using oblique projection (or as an oddly inclined but flat curtain-wall), which not only contradicts the flatness of the main building, but also defies the projection angle from which the oblique projection for the stairs (left) is

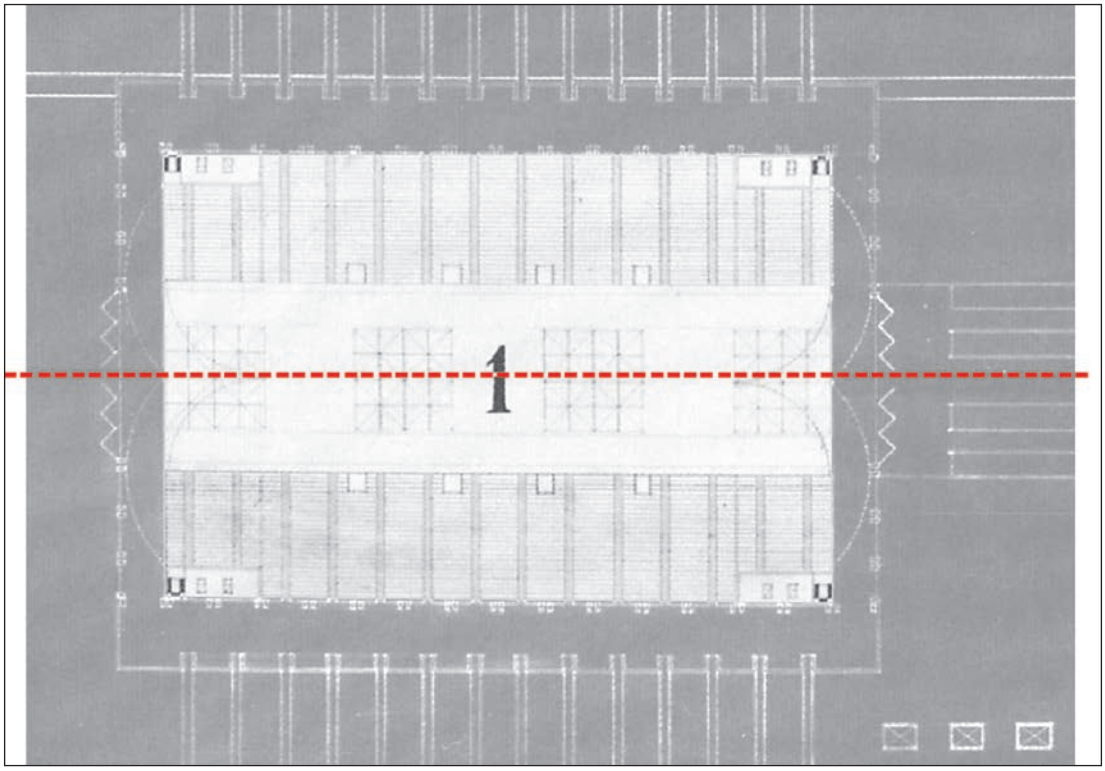

Figure 12: Line of movement and attention in ARU's scheme, plan view. Palace of Soviets Competition Entry, Phase I, 1931. Based on image from Ziada (2013: 592, Fig. 1a).

captured. Not unlike some Cubist paintings, the drawing consists of graphic fragments juxtaposed in tension, simulating multiple vantage points.

But while Cubist paintings pronounce fragmentation, this drawing's other graphic devices mute it. For one, the encounter narrative absorbs first attention, especially given its cohesive illusion and dominant angularity. Moreover, the fragmented buildings are compositionally held together by a tenuous alignment linking the mass hall's plinth top to the platform of the small auditorium, and by a tense point of contact between their triangular forms (**Fig. 5**). Both can only occur from a peculiar vantage point, which mystifies the ground placement of the masses and collapses their depth. A quasi-stable state is achieved only through more peculiar alignments extending from the crowd's clusters that graphically stitch together the fragments. This constitutes the second graphic device: a network of implied lines extending across the drawing surface like a taut 'skin', with crowd formations as agents of adhesion. Hence, the crowd partakes in two graphic devices in perpetual flux in relation to one another: one simulating illusory depth through foreshortening and oblique-projections, and another stretched across the drawing surface. Oscillating restlessly between the two devices, the eye's restiveness is compounded by the background of the drawing itself, which offers the third and principal graphic device. Distancing fragments from each other, the background dilutes distortions and mitigates collage effects. What affirms this is that the drawing's negative space (the ground) does not visually alternate with the figure (crowd-clusters and building-masses); the figure-ground relationship remains stable.

Before articulating how the three devices, including the background, constitute an alternative graphic framework, one already glimpses the nascent graphic qualities at work in ARU's spatial conception and the independent impact of the drawing. Denying the eye a resolute composition with a clear center, the drawing's fragmentary constitution and visual oscillations provoke restive saccadic movements and shift attention in ways resembling ARU's visual field. They also problematize presence. To the drawing's illusory depth, the surface 'skin' acts across the drawing surface as an interstitial counter-force, reminding one that a drawing is but surface markings. Rather than allowing the depicted content or illusion to overwhelm observation, it persistently alerts one to the drawing's independent presence as an artifact, and one's own critical presence confronting it, as its surface tension infringes onto one's space (recall Klutsis' poster, discussed above). These observations suggest that the architectural drawing's customary function as a representational medium for the illusions, and potential transformations, of space is here shared (even overshadowed) by another two-fold function. The drawing *exemplifies* the qualities of that space; it transmits that space's emotional charge to its observers in ways akin to how the space affects its users. Simultaneously, the drawing transcends its function as a vehicle for transmitting a representation of space and asserts its own presence, foregrounding the space it shares with its observers.

An Active Background

I return to this two-fold action later. Thus far, although the drawing's tense fragments and alignments simulate discontinuities in the designed space and visual fields, the relation between drawing and space remains *analogical* rather than *generative*. The drawing's specific fragmentation does not offer a graphic notation to structure the aforementioned spatial shifts. Although the graphic devices imply intentionality, to scaffold spatial design strategies is another matter. At best, they vaguely familiarize the observer-cum-designer with a quality of design spaces for crowds.

A more generative relation between drawing and space emerges with further consideration of the role of the background. Uninterrupted by significant indications of sky or ground (no horizon, materials or shadows, despite shadows elsewhere), the background forms a dominant unity. Having the warmest color in the composition, the yellowish background forces its perceived continuity forward to engage the different shapes, colors, tones and translucencies (of crowd clusters and building masses) in pulsations vertical to the drawing surface. Other features confirm this Suprematist effect. The masses are dominated by frontal projections. Even oblique masses (the stairs, the rear atrium and the small auditorium), distort as they turn flat façades towards the observer. Furthermore, the use of gouache on colored paper to render the building surfaces dematerializes their shapes. Gouache patches, with distinct texture and uneven application, extrude above pencil lines, and the resulting translucency enhances the impression of a non-objective graphic construction (**Figs. 13, 14**).[4] To an observer, the perception of the building surfaces may as readily 'sink into' the drawing's *ganzfeld*-like background as hover above it. The drawing emerges as an assembly of hovering frontal planes, with color and translucency compelling the Suprematist impression through subtle variations of white and beige against the background's light brown haze.

Arguably, therefore, the drawing's background sustains a graphic scaffold for a crowd space of inherent sublimity, gregarious rhythms and textured visual fields. It prepares the observer-cum-designer's thoughts and sensations to engage the mass crowd as the principal motivation for space making, in certain ways.

For example, drawing on non-objective painting, it offers an infinite multi-directional extension, logically unrestricted by gravitational pull and unbounded by horizon lines, against which to 'see' the crowd, and as a parallel to its experiences. Itself the source of sublimity, the crowd invites the imagination of infinite space. The imaginary space of planes, pulsating against the drawing surface, echoes the kinesthetic and visual exchanges among bodies simultaneously experienced from distributed, immersed positions within the crowd-space. Indeed, like its design space, the background's Suprematist extension participates in the aforementioned game of shifting

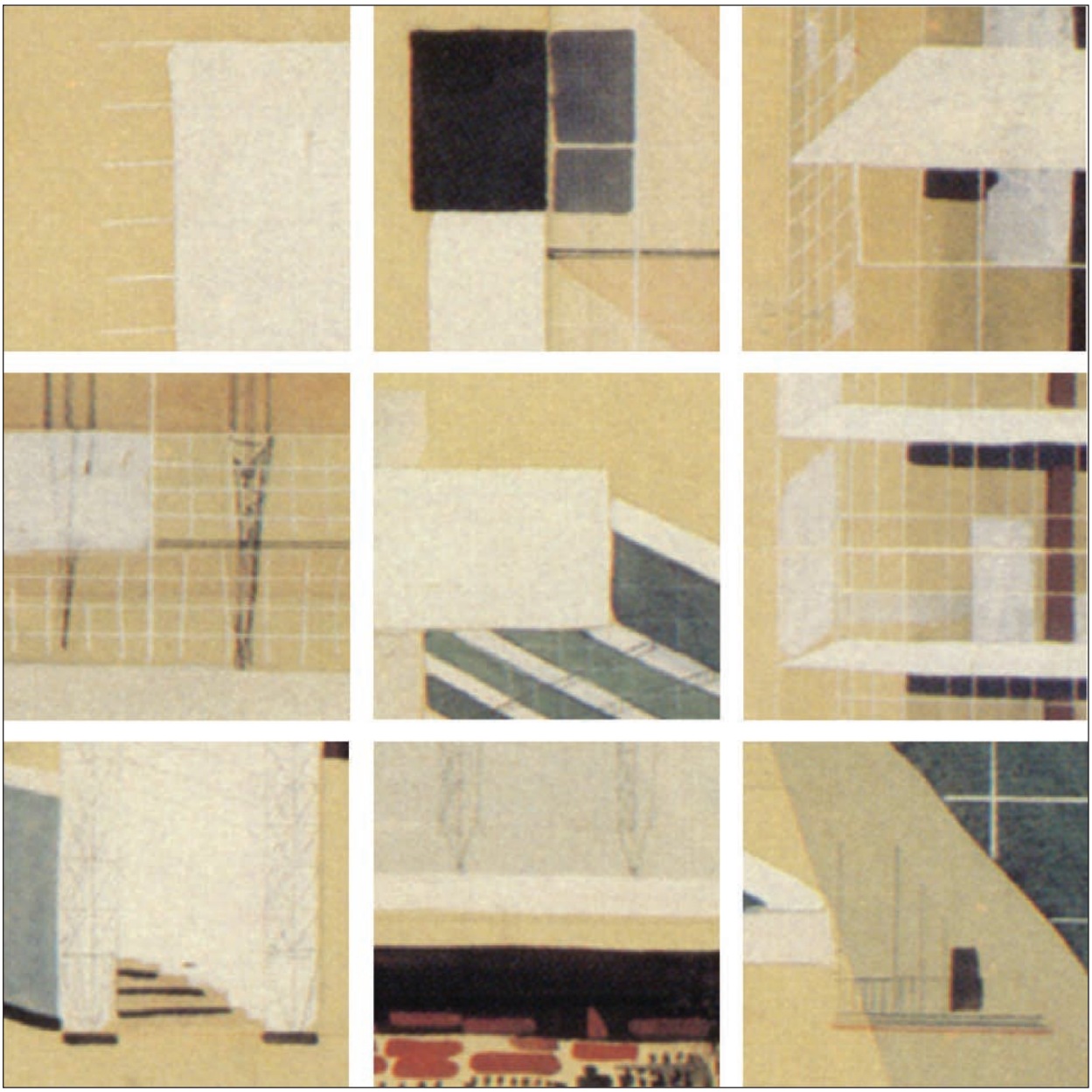

Figure 13: Close-ups from ARU's three-dimensional drawing: the gouache technique application dematerializes masses. From Ziada (2013: 592, Fig. 1a).

attentions. It provokes visual tensions with the lateral restraint that the 'drawing skin' implies, with the triangular shapes of building masses and crowd formations, and with the illusory depth they imply. These vibrations multiply the layers of depth amidst which the eye oscillates, and systemize its movements amongst the various tones and colors, offering a system whose shapes and colors may, potentially, be notated and translated into maneuvers of physical space.

ARU's Suprematist composition is a graphic interpretation of immersion in architectural drawings, in which the background plays the crucial role. Activating the background may be ARU's belated response to the 1921 controversy among avant-garde artists over its customary redundancy in pictorial compositions (Gough 2005: chapters 3, 4). But instead of eliminating the background, as some artists attempted to do, ARU brought it actively into play; it is through this background's unmistakable thrust and throb — rather than its denial — that the drawing's graphic space performs. The ARU scheme activates another conventionally redundant element: the physical *ground* — and in ways crucial to the scheme's physical space conception. Indeed, a deeper analogy obtains between the *two grounds*. Not only does one metonymically recall the other, but also each portends properties of the other: each displaces emphasis away from the object (building masses, etc.). Each redefines the primary site for design intervention: the physical ground refocuses design attention onto a spatial component viscerally connected to crowd bodies; the background scaffolds a graphic system which enables reimagining crowd space. Moreover, each provokes kinesthesis as a generative category: undulating grounds in

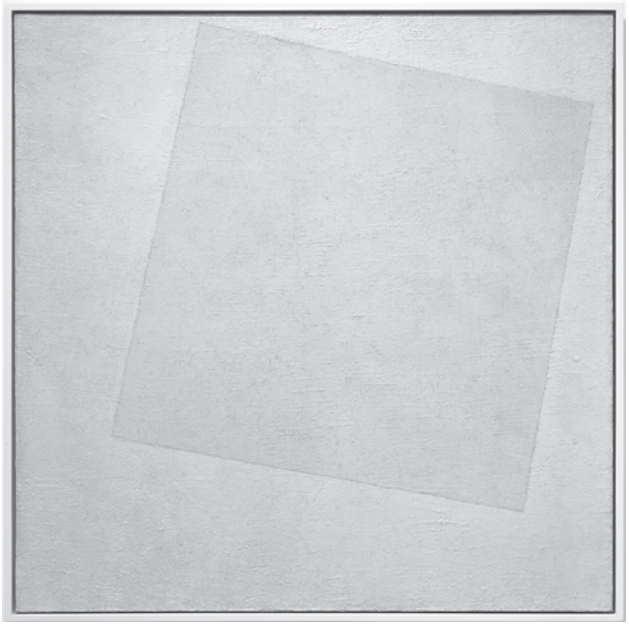

Figure 14: Kazimir Malevich (1878–1935), *Suprematist Composition: White on White,* 1918. Digital Image © The Museum of Modern Art / Licensed by SCALA / Art Resource, NY. A non-gravitational extension is forged by tensions between shapes and tones (colors in other compositions), thereby activating the background. See other paintings by Malevich, such as *Suprematist Composition: Airplane Flying*, 1915 and *White Planes in Dissolution*, 1917.

the conception of physical space compose rhythmic formations and bodily choreographies as the substance of a gregarious space; the drawing background helps narrate the dynamics of the crowd encounter via a graphic field of hovering masses and negated horizons. The *background* and the *physical ground* invoke one another.

This paper's main question probed generative translations between design drawings and space. Although the ARU drawing tenders only a potential graphic notation for manipulating design space, it establishes a substantive conceptual framework for envisioning crowd space and employing its immersive qualities. It raises the requisite issues (shifting attention, transparency and kinesthesis); it clarifies emphasis (on the crowd's spatial implications, rather than on objects); it even tenders some clues for design space (fragment pulsations promote the textured visual field; colors suggest ways of handling surfaces; hovering masses indicate how to engage building masses). In the final argument, let us consider one final aspect of the drawing: the concept of the object and the subjectivity to which it attends.

The Drawing's Subject

How does the ARU drawing graphically address the subject? To address the paper's second question on subjectivity, two arguments follow. The first clarifies the kind of presence suggested by this drawing; the second investigates concomitant conceptions of the object in Rationalist design and philosophy. I argue that ARU's works consistently pronounce dependency as the object's predicament in their kinesthetic space of intersubjective relations, which contradicts the negation of consciousness in canonical Historical Materialism.

The nature of the subject in the ARU drawing issues from its peculiar sense of presence. Self-awareness is generated by the tensions between the drawing's three devices, further pronouncing how the Suprematist extension intrudes on the observer's own space. Simultaneously, the field of frontal planes presents a space populated by measurable, orthogonally projected elements undistorted by radial projection. Recalling El Lissitzky's work, this is the visual language of *work* and of the *worker* — the one who manufactures from workshop drawings and construction documents. ARU's drawing is an artifact to *work on* rather than to *gaze upon* — best engaged horizontally, as if on a worktable, rather than vertically, like a painting on a museum wall (Bois 1990: 32). It engages the observer-as-worker's imagination in constructing or transforming the objects under scrutiny to realistic proportions and calculated interventions.

In other words, the drawing's graphic devices evoke the presence of an active, working body, ready to act upon the drawing and its depicted masses. The nature of the object, on which this working body acts, qualifies its subjectivity even further. Here, ARU's drawing set should be regarded in two contexts: amongst the Rationalists' œuvre of design projects and student exercises, and against the Marxist canon through which filter they were viewed in their time, and which — purportedly — they advanced. Let us revisit the impression of building masses that hover in ARU's three-dimensional drawing: while the crowd's foreshortening lends it an implied grounding against the persistent background's continuity, the building masses exhibit distinct weightlessness. This tendency to destabilize an artifact's (not the crowd's) relation to the ground is consistent with numerous other ARU design schemes, including work executed by students in the VKhUTEMAS studios under the supervision of Ladovskii and other leading Rationalists, as well as professional schemes by Rationalist designers. As demonstrated elsewhere (Ziada 2013), the formal language of Rationalist artifacts de-emphasizes structural expression, gravitational pull and the relation to the ground while emphasizing implied forces inflicted by an imaginary, active observer. Performative forces applied laterally and obliquely, and not the management of vertical weight, prevail upon one's perception of Rationalist form. Simulating a process of labor or work, an observer's eyes and body re-enact the forces inflicted and re-live the emotive kinesthesis involved.

Compared to the Rationalists' aforementioned commitment to the ground in defining crowd space, this 'de-grounding' points to a particular theoretical formulation: Rationalist space promotes a subdued objecthood against a dominant intersubjectivity, with architectural space as the medium of exchange. Experientially, Rationalist kinesthetic language performs as a set of relations: subject-to-subject, subjects-to-ground, and subjects-to-artifact, thus rendering the overall experience subject-centered. As pivot for design language, the sensuous experience of the grounded subject in Rationalist space consists of hovering

exertions of force (some more dramatic, others more subtle), seen through the thicket of other bodies and experienced from within a field of kinesthetic sensations evoked by these bodies. Forces within this force field are *reciprocal* between agent-subjects and objects; the object bears the marks of apparent force exerted by active agent-subjects, only to evoke empathetic sensations in crowd members in return. The object's form possesses legitimacy within the Rationalist framework of intersubjectivity as long as it draws from crowd kinesthesis, and redirects attention back to its dynamic, thus reinforcing subject-to-subject relations. This is the cyclical process through which the crowd writes itself into physical space over time, as it incrementally constructs its consciousness using the built environment. It is in this light that one construes the Rationalists' laboratory experiments in gauging emotions — as far-fetched as they seem. Compiling statistics on the accurate identification of two- and three-dimensional forms, and the reconstruction of complex shapes, forms, weight and mass in student exercises (Khan-Magomedov 1987, Cooke 1983, Senkevitch 1983), were all attempts to train body and eye to associate with object qualities in accord with, or contradiction to, other bodies and eyes. It was not to identify with otherness through the mediation of the object (i.e., as commodity), but rather to describe, transform and eventually subjugate the object within the emerging collective aesthetic.

Subject-to-subject bonds not only negotiate collective awareness but also reconstruct individual consciousness. Rationalist spaces are fields of kinesthetic exchange that activate the body as a 'reserve and medium of signs for communicating one's 'mental life' and subjectivity to others, […] without which one would not be a subject' (Christensen 1997: 521). Pliable social codes inhabit body postures in negotiation with other postures to shape productive, but tentative, intersubjective relations (Ziada 2013). Their primacy in Rationalist space contradicts key tenets of canonical Historical Materialism, as formulated in Marx' later work: 'The mode of production of material life conditions the general process of social, political and intellectual life. It is not the consciousness of men that determines their existence, but their social existence that determines their consciousness' (Marx 1859).

Marx and Engels describe alienation as twofold: an alienation from the means of production, since workers on meager wages cannot accumulate enough to break the capitalist cycle; and alienation from one's creative potential to produce (rather than reproduce) new ideas and own skills — to find one's humanness. Thus the produced object, the commodity, usurps not only the relationship between subjects, but also the subject's relation to oneself. Marx posits that alleviating the second alienation — within the production process — is detached from human consciousness and will, and may occur only superfluously at the level of superstructure, in an art for and by the proletariat away from sites of production.

The import of the Rationalists' œuvre, exemplified by the competition entry of ARU, is the theoretical reversal of this negation of consciousness from the relations of production. Rationalist space transposes the sensuous productive forces from the realm of construction and material manipulation (following the Constructivists), to one which arguably *underlies* this material construction: the emotive space of motives, agency and exchange. It assigns production of the conventional artifact — for example, the physical building — secondary status to the productive role of (architectural) space as a generator of social, and particularly emotive, relations. It is not that Rationalist space *replaces* the Constructivists' construction, but rather that it *heralds* it in the process of spatial manipulation and form-making. As such, Rationalist space relocates the space of production, conventionally construed as the factory from Marx's later works (even in Aleksandr Bogdanov's neo-Kantian utopia *Red Star* of 1908 [1984]), to the spaces of everyday life. Thus, architecture becomes the site of first production, its space the medium and purpose. The making of its artifacts — building, city and drawing — emerges as the first loci where new relations of production are explored and inscribed.

By finding a conceptual foothold for incorporating the emotive intersubjectivity of crowds, and by proposing an empirical method for gauging such emotional exchange (based on Munsterberg's practical psychology), the Rationalists in fact proposed a radical revision of Marx's notion of 'relations of production', where architecture becomes the initial (original?) act of 'making', which alleviates alienation. Thus, the worker presented by ARU's drawings (as its observer, its designer and its user) is no generic laborer, but a worker whose intersubjectivity with other 'workers' is emphasized; whose consciousness is consequentially activated; and who, in the drawing's presence, inhabits an alternative space of production for imagining crowd spaces.

Acknowledgements

I would like to thank my mentors, Associate Professor Sonit Bafna, PhD, and Professor John Peponis, PhD, at the School of Architecture, Georgia Institute of Technology, for their valuable feedback and probing questions throughout this research project.

Notes

[1] Originally established in 1918 by Lenin as the Free State Art Studios, it was renamed in 1920 VKhUTEMAS (*Vysshie Khudozhestvenno-Tekhnicheskiye Masterskiye,*) under the control of INKHUK (Institute of Artistic Culture); only to be reorganized in 1926 as VKhUTEIN (Higher Technical Institute). OBMAS was the Basic Course taught by and under Ladovskii's supervision to beginning students in this influential institution, with impact comparable to the Bauhaus' *Vorkurs*.

[2] Additionally, Anatole Senkevitch furnishes a detailed account of Rationalist laboratorios and design exercises in *Aspects of Spatial Form and Perceptual Psychology in the Doctrine of the Rationalist Movement in Soviet Architecture in the 1920s* (1983).

[3] Generally, early Soviet crowds were not rigid or militaristic, as documented by Catherine Cooke in *Street Art*

of the Revolution (London: Thames and Hudson, 1990). Curved ramps enhance that.

[4] The technique recurs in the drawings of the 1920s and '30s by Leonidov, Rodchenko and others.

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How to cite this article: Ziada, H 2015 To See (Like) a Crowd. *Architectural Histories,* 3(1): 13, pp. 1–18, DOI: http://dx.doi.org/10.5334/ah.co

Published: 09 July 2015