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To cite this article: Paula Amad (2012) From God's-eye to Camera-eye: Aerial Photography's Post-humanist and Neo-humanist Visions of the World, History of Photography, 36:1, 66-86, DOI: [10.1080/03087298.2012.632567](https://doi.org/10.1080/03087298.2012.632567)

To link to this article: <https://doi.org/10.1080/03087298.2012.632567>



Published online: 15 Feb 2012.



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# From God's-eye to Camera-eye: Aerial Photography's Post-humanist and Neo-humanist Visions of the World

Paula Amad

Aerial photographs are most commonly associated with notions of panoptic vision or the environmental sublime. This paper reviews the dystopian and utopian discourses surrounding aerial photography and suggests a third approach to understanding aerial vision as dialectically situated between the poles of science and art, rationality and imagination, abstracted and embodied knowledge, visibility and invisibility, the archive and the museum.

**Keywords:** *aerial photography, aerial vision, photography and World War One, Walter Benjamin (1892–1940), Jean Brunhes (1869–1930), Le Corbusier (1887–1965), Siegfried Kracauer (1889–1966), Antoine de Saint-Exupéry (1900–1944)*

[With the view from a plane] The eye now sees in substance what the mind formerly could only subjectively conceive.

Le Corbusier, 1935

The airplane has unveiled for us the true face of the earth.

Antoine de Saint-Exupéry, 1939

After nearly four decades of visual theory dominated by a panoptic model of power in which seeing has become synonymous with controlling, it has become orthodox to reduce the diversity of early photographic and film archives to one function: the complicity of technologies of reproduction with visual practices employed by modern European nation-states to regulate the bodies of social, colonial, racial and gender Others. However, these archives continue to demand our attention, not because their visual evidence is self-evident but because it is at once transparent and opaque. They are weighed down by their display of the connections between ways of seeing and ways of conquering, and yet they are still difficult to pin down ideologically. No type of view embodies this troubling connection between sight and surveillance or vision and violence more than that delivered by aerial photography, whose extension of human vision, as it developed on an industrialised scale during the First World War, was literally attached to the more efficient annihilation of humans. Central to the ontological problem posed by aerial vision is its unique perspective on the world from above. Alluding to the negative reputation this perspective has developed across the sciences and humanities, Donna Haraway has argued that whereas the view from below has come to signify an intimate, embodied,

I would like to thank Gordon Beck, Graham Smith, Nick Yablon, and Terry Finnegan for research advice and Lorraine Daston, Kelley Wilder, and Gregg Mitman for their helpful suggestions and for inviting me to present an early version of this essay at the Documenting the World workshop at the Max Planck Institute for the History of Science, Berlin, in January 2010.

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1 – D. Haraway, 'The Persistence of Vision', in *The Visual Culture Reader*, ed. Nicholas Mirzoeff, London: Routledge 2001, 191–8.

2 – S. Kracauer, 'The Mass Ornament', in *The Mass Ornament*, trans. Thomas Y. Levin, Cambridge, MA: Harvard University Press 1995 (1927), 75–88; see 77.

3 – J. Woods, 'At the Tent Flap Sin Crouches', review of *The Five Books of Moses: A Translation with Commentary* by Robert Alter, *London Review of Books*, 28:4 (23 February 2006), 3–7.

4 – On the long history of earth imaging, see Denis Cosgrove, *A Cartographic Genealogy of the Earth in the Western Imagination*, Baltimore, MD and London: Johns Hopkins University Press 2001.

local perspective of those who are subjugated, that from above has acquired the status of a distant, dehumanising, transcendent perspective of those ultimately in power – or so this particular myth of vision goes.<sup>1</sup>

This essay interrogates the myth of aerial vision by examining its modern development and its impact (aesthetically, ethically and ideologically) upon how we view, document and understand the world. The abstract potentialities of aerial vision have long been associated with modernist perspectives within painting, criticism and photography; from the cubist simultaneity of Robert Delaunay's 1922 painting of the Eiffel Tower from above and the aestheticisation of aero-violence in Futurism, to the reifying overhead image of mass gymnastics described by Siegfried Kracauer in his 1927 essay 'The Mass Ornament'.<sup>2</sup> In what follows, I trace the historical evolution of the predominantly utopian and dystopian associations of the above discourses on aero-vision and then move beyond them in order to broaden our received interpretations of the 'view from above'. Being wary of the impasse posed by reading aerial images as the sublime or tragic apogee of Enlightenment rationality, I offer a less polarised approach that displays the complicated material and ideological networks within which aerial images were produced, circulated, interpreted and acquired meaning. Ultimately, I suggest that the aerial view must be understood in a fluid relational context. This entails attending to the intertwined aesthetic and military context of aerial photography (particularly as it evolved during the First World War, as reported in popular illustrated journals) and recognising how aerial views were connected to other 'new' spatial (from below, beneath and within) and temporal perspectives (within history, archaeology and ecology).

The aerial view existed before the airplane gave it objective substance (to paraphrase Le Corbusier) and elevated it into the quintessential expression of the modernist gaze. In the Judeo-Christian tradition, the aerial perspective dates back to the nexus of the God's-eye view, whose cosmological and religious connotations appear in biblical discourses on God's creative and judgemental view of the world. One of the most powerful results of this view was its capacity to read and shape the world-as-face – a trope that we will return to later but that finds its religious origins in the book of Genesis. As James Woods notes in a review of a recent translation of the Old Testament:

In the beginning was not the word, or the deed, but the face. 'Darkness was upon the face of the deep,' runs the King James Version in the second verse of the opening of Genesis. 'And the Spirit of God moved upon the face of the waters. And God said, Let there be light: and there was light.'<sup>3</sup>

The face of God and the face of the world (or of mankind) constitute an ongoing entanglement throughout the five Books of Moses in which Man fears to look upon God's face, and God frequently abhors the deeds of the people who live on the face of his world. The view from above, in other words, has always been dialectically in tension with the view of the above from below, the two gazes enmeshed in a struggle of attraction and repulsion.

Increasingly secular renditions of the ocular showdown between God and humans emerged in aerial views in western art from the fourteenth to sixteenth centuries, including the work of Ambrogio Lorenzetti, Fra Paolino, Filippo Brunelleschi, the so-called 'world landscapes' of Albrecht Altdorfer and the elder and younger Bruegels, and the bird's-eye maps and atlases of diverse illustrators.<sup>4</sup> But the mixture of science and art typified by aerial imaginary and vision was epitomised by Leonardo da Vinci, who in the late-fifteenth and early-sixteenth centuries produced studies of the flight of birds, designs for flying machines, and bird's-eye views of Italian regions.

The distance between the gaze of God and the gaze of man became further abbreviated in the eighteenth and nineteenth centuries in a range of cartographic and panoramic extensions of human sight, many of which served colonial and militaristic purposes, while others offered popular spectacles and entertainments. Surveying

maps, often referred to as bird's-eye views, had for centuries provided the textual preface to territorial expansion within and beyond Europe and North America. In the mid-nineteenth century they became subject to modernisation through the use of high-altitude photography from kites and balloons that were, amongst other applications, instrumental in the scale measurement production (using the science of photogrammetry) of military topographical maps pioneered by figures such as the French army engineer Aimé Laussedat.

Other views from above offered the hybrid appeal of entertainment and education, as with the spectacular large-scale illustrations of cities or historical events that characterised the panorama and diorama craze of the late-eighteenth and early-nineteenth centuries. Photography was quick to take to the skies with the well-publicised exploits in balloon photography made by Nadar (Gaspard Félix Tournachon) between 1858 and 1868 and the bird's-eye photo-panoramic montages of San Francisco by Eadweard Muybridge (1877–78). Motion pictures followed suit, most spectacularly with Raoul Grimoin-Sanson's Cinéorama, a short-lived experiment in simulated balloon-rides showcased at the 1900 Paris World Exposition, which consisted of a vast circular building in the middle of which was a huge balloon basket, within which people sat and watched filmed balloon rides and descents projected onto the walls by ten projectors positioned beneath the basket.<sup>5</sup>

These nineteenth-century efforts were part of a much longer historical tradition of world imaging connected with the desire to grasp the ungraspable and represent the unrepresentable, namely, the vast scale of the earth. Where the biblical tradition managed this unrepresentability by figuring the world-as-face, many of these later imaging traditions attempted to approximate the scale of the original through large formats, as in the vast panoramic illustrations mentioned above or the simulated architectural composites of the globe that made up the World Expositions. In spite of their colossal size, however, even the latter resembled, as Walter Benjamin pointed out, the 'world in miniature'.<sup>6</sup> Like the photographic portrait *par excellence* of the nineteenth century, the pocket-sized *carte de visite*, many of these attempts to bring the globe into focus ultimately relied, like the maps and atlases of the Renaissance, upon techniques of miniaturisation.

If the minuscule images carried and shot (using automatic cameras) by pigeons on reconnaissance missions up until the Great War provided one extreme form of miniaturisation, the mid-nineteenth-century craze for stereographs was even more exemplary of this desire to tame the world through visual diminution and classification. Resembling the miniaturising logic of the view from above, stereographic images, although dominated by ground-level views, reduced the earth to a scale that viewers could tour from the comfort of their armchairs. Often sold in shoebox-sized series of geographically thematised images, stereographic collections literally boxed the planet, rendering more intimate and tactile the previous large-scale and distanced cartographic and pictorial forms of capturing the world. Stereographs therefore occupied an important position between two stages of the western gaze's evolving drive to seize the world visually. They succeeded what Judith Adler has described as that 'style of travel performance [typical of the eighteenth century] which privileged the eye for comprehensive inventory' embodied in 'the rituals through which European cultural and intellectual elites sought to take title to "the whole world" then coming into view' through colonial-capitalist-consumer expansion.<sup>7</sup> At the other extreme, they preceded what Martin Heidegger described in 1938 as the ultimate modernist illusion of mastery presumed in the techno-visual 'conquest of the world as picture' – the latter materialised, not coincidentally, in formats like aerial and satellite photography.<sup>8</sup>

Above and beyond their differences, these technologies show how the aerial gaze was represented, dreamed of, experimented with and experienced vicariously before it was realised in the coming together of airplanes and cameras with the beginning of military aviation in 1909 and its application to map-making in 1910. Before it became a reality, the aerial view maintained a lively presence in the western

5 – On the Cinéorama, see Emmanuelle Toulet, 'Cinema at the Universal Exposition, Paris 1900', *Persistence of Vision*, 9 (1991): 10–36; see 21–3.

6 – W. Benjamin, 'Fourier or the Arcades', *Charles Baudelaire: A Lyric Poet in the Era of High Capitalism*, trans. Harry Zohn, London: Verso 1973, 157–60; see 158.

7 – J. Adler, 'Origins of Sightseeing', in *Travel Culture: Essays on What Makes Us Go*, ed. Carol Traynor Williams, Westport, CT: Praeger 1998, 3–25; see 19.

8 – M. Heidegger, 'The Age of the World Picture', *The Question Concerning Technology and Other Essays*, trans. William Lovitt, New York: Garland Publishing 1977 (1938), 133–4.

imaginary albeit as a fantastic perspective. In other words, the pre-modern view from above had always been embedded not only in a subjective context (as Le Corbusier suggested) but in an otherworldly, utopian context – its vantage point (especially the higher it got) designating the impossible *no-place* only literally inhabitable by a God-like presence. Twentieth-century modernity changed this. With the technological possibility of plane-mounted photography, aerial vision's utopianism acquired (to borrow Foucault's terms) a heterotopian dimension as an actually existing (view or representation of) space that nonetheless acts as a counter-force, with both negative and positive associations, upon society's dominant spatial perceptions.<sup>9</sup>

### *The Dystopian View*

Despite these utopian and heterotopian associations, it is the dystopian mode that dominates our contemporary understanding of aerial vision. Given aerial photography's major function in the early-twentieth century as a tool of military reconnaissance, not to mention the airplane's primary role in the development of aerial bombardments such as those of Hiroshima and Nagasaki in August 1945 or the airplane's more recent transformation into a literal weapon of mass destruction (with the 11 September 2001 destruction of the World Trade Center Towers), there is obviously significant material evidence for the association of aerial vision with a negative, violent and even terroristic mode of modern vision.

But how exactly did this evil eye from the sky descend upon our collective consciousness? The answer resides in the murderous status the aerial camera acquired during the First World War as, to quote a *Scientific American* article from 1917, 'a deadly instrument [...] many times deadlier than its equivalent weight of high explosive'.<sup>10</sup> Although military experiments with plane-mounted aerial photography preceded the war, full-scale industrialisation of the process dates back to the end of 1914, when the French (quickly following the Germans) began to use aerial photography as a reconnaissance instrument promising superior objective evidence for the production of maps, the study of the enemy's defensive organisation, the surveillance of the infantry's assault, and the anticipation and thwarting of enemy plans.<sup>11</sup> By May 1915 the first mobile laboratories and cameras with a 50 cm focal length became available. At the height of the war, the French were producing about ten thousand images per night. This unprecedented visual recording has led to the estimation by military historian Terry Finnegan that regions such as the Western Front acquired during the war the curious status of being 'the most scrutinized area on earth'.<sup>12</sup> Reflecting only a decade or so after the war upon the 'flood of photos' that characterised the early-twentieth century's unprecedented mediatisation, Kracauer might have had this intense aerial scrutiny in mind when he lamented that '[n]ever before has an age been so informed about itself [visually] ... [while knowing] so little about itself'.<sup>13</sup> Although Kracauer was referring broadly to mass photography's inability to aid in our critical understanding of the present, First World War military leaders might have agreed with his media scepticism with regard to aerial photography due to its imprecise application. Yet, as challenging and imperfect as the technology was during the war, by 1922 the French General Duval still maintained that 'aerial photography had been the eyes of the army'.<sup>14</sup>

If aerial vision equipped the army with new eyes, the vision of and from planes also provided a rebirth of perception for the European aesthetic *avant-garde*. Forming a foundational discourse of modernist aerovision, the Futurists, spearheaded by Filippo Marinetti's 1909 manifesto, lionised the plane and camera as machines of a new age connected to the cult of speed, masculinity, and the beauty of war. Italian aerophilic culture subsequently developed diverse aesthetic and nationalist offshoots ranging from Gabriele D'Annunzio's poetic tributes to aviation's spiritual dimensions, and propagandistic applications of the view from above in the 1920s and 1930s to provide a united fascist portrait of Italy, to the glorifying of

9 – Foucault, 'Of Other Spaces', trans. Jay Miskowicz, *Diacritics*, 16 (Spring 1986 [1967]), 22–7.

10 – W. Benjamin, 'The Camera at the Front', *Scientific American* (24 November 1917), 389–90; see 389.

11 – Jean-Marcel Humbert, 'Avant-propos', in *Vues d'en haut: La photographie aérienne pendant la guerre de 1914–1918*, Paris: Musée de l'Armée/Musée d'histoire contemporaine 1989, 7.

12 – T. Finnegan, 'Shaping 20th Century Military Intelligence Through a Static Battlefield: Aerial Photography's Impact', in *Images of Conflict: Military Aerial Photography and Archaeology*, ed. Birger Stichelbaut et al., Newcastle upon Tyne: Cambridge Scholars Publishing 2009, 55–68; see 56.

13 – Kracauer, 'Photography' (1927), *The Mass Ornament*, 47–64; see 58. Kracauer actually mentions aerial photography in the same essay (see 62).

14 – Général Duval, 'Préface', in *La Photographie aérienne pendant la guerre*, André H. Carlier, Paris: Librairie Delagrave 1921, 5–6; see 5.

Benito Mussolini as 'Il Duce Aviatore' and the development of explicit aerial-related painting and photographic (*aeropittura* and *aerofotografia*) movements.<sup>15</sup>

In what has become a canonical critique of aero-vision's dystopian dimensions, Walter Benjamin responded to the Futurist's aestheticisation of war at the end of his 'Work of Art' essay (1935/36). After quoting Marinetti's fascist glorification of the colonial war in Ethiopia ('war is beautiful because it creates new architectures, like those of [...] geometric squadrons of aircraft, [and] spirals of smoke from burning villages'), Benjamin invoked the recent militaristic usurpation of the previously God-only gaze: 'Humankind, which once, in Homer, was an object of contemplation for the Olympian gods, has now become one for itself. Its self-alienation has reached the point where it can experience its own annihilation as a supreme aesthetic pleasure'.<sup>16</sup> Benjamin's distrust of the aerial view also expressed itself more obliquely in 'The Storyteller' (1936), another essay written around the same time.<sup>17</sup> Describing the inability of men to fully communicate the experience of the First World War, Benjamin reached for the sky as the only stable perspective from which to view and comprehend the transformed nature of life on earth:

A generation that had gone to school on a horse-drawn streetcar now stood under the open sky in a countryside in which nothing remained unchanged but the clouds, and beneath these clouds, in a field force of destructive torrents and explosions, was the tiny, fragile human body.<sup>18</sup>

Although Benjamin does not seem to be necessarily writing from the perspective of the aerial view, the 'open sky' provides the stable reference point from which to register the total change of everything below. What Benjamin neglects to mention in this essay is how the mechanised transformation of the skies by reconnaissance and fighter planes were in part responsible for reducing the human body to a 'tiny, fragile' and defenceless target.

Benjamin's failure to fully historicise the skies in 'The Storyteller' is uncharacteristic, for elsewhere he attended to the makeover of clouds by machines as being in part responsible for creating that destructive force field around the 'tiny, fragile human body'. His more typical unease with aerial or elevated vision is fully displayed in his essay 'The Paris of the Second Empire in Baudelaire' (1939) when he invokes the modern literary view from above as delivering a 'frightening contraction' of the previously benevolent God's eye view.<sup>19</sup> Benjamin quotes Léon Daudet's ruminations upon Paris in *Paris vécu* (1929) from the elevated site of Sacré Coeur in order to expand his inquiry into modernity as the classical antiquity of the future:

What becomes most recognizable from these heights is a threat. The agglomerations of human beings are threatening ... A man needs work, that is correct, but he has other needs, too ... Among his other needs there is suicide, something that is inherent in him and in the society which forms him, and it is stronger than his drive of self-preservation. Thus, when one stands on Sacré Coeur ... one is surprised that Paris ... [is] still there.<sup>20</sup>

Paradoxically, just when the *external* threat of mass aerial bombardment became a reality with the 1937 German and Italian bombing of Guernica, Benjamin discovers from Daudet's description how the elevated view also illuminates the *internal* threat of humanity's own self-destructive, suicidal 'face' and the brittle-as-glass nature of the modern city.<sup>21</sup> Most strikingly, Daudet's elevated view functions for Benjamin as a *temporal* perspective from which present construction meets future destruction resulting in modernity's contiguity with the ancient past. That Daudet was a well-known right-wing activist and editor of the Catholic, monarchist, and anti-Semitic journal *Action française* only makes his death-drive commentary more urgently relevant to Benjamin's broader critique of the fascist appeal of the aerial view.

Following in the general footsteps of Benjamin's anti-aerialism, while also expanding specifically upon the First World War's metamorphosis of those once innocent clouds, is Allan Sekula's seminal essay 'The Instrumental Image' (1975) in

15 – See Karen Frome, 'A Forced Perspective: Aerial Photography and Fascist Propaganda', *Aperture* 132 (Summer 1993), 76–7.

16 – W. Benjamin, 'The Work of Art in the Age of its Technological Reproducibility', second version, in *Walter Benjamin, Selected Writings, volume 3, 1935–38*, ed. Michael W. Jennings, Howard Eiland, and Gary Smith, trans. Edmund Jephcott, Howard Eiland, and Others, Cambridge and London: Belknap Press of University of Harvard Press 2002 (1935–6), 101–33; see 121–2.

17 – W. Benjamin, 'The Storyteller', *Illuminations*, trans. Harry Zohn, New York: Schocken Books 1968 (1936), 83–110; see 84.  
18 – *Ibid.*, 84.

19 – Benjamin, 'The Paris of the Second Empire in Baudelaire', *Charles Baudelaire*, 9–106; see 85.

20 – *Ibid.*, 85.

21 – *Ibid.*, 85 and 82.

22 – Allan Sekula, 'The Instrumental Image: Steichen at War', *Artforum*, 14:4 (December 1975), 26–35.

which he maps out how the war's 'instrumental collage' of plane, aerial photography and long-range artillery combined to implement a more modern and rationalised form of warfare.<sup>22</sup> In a sense, Sekula provides the retrospective theory for Max Ernst's literal collage 'Murderous Airplane' (1920), in which the ex-soldier presents a grotesque translation of the birdman myth through the mutant form of a plane with human arms that dominates the skies beneath which two soldiers carry a wounded brother who has lost use of his inferior, exclusively human appendages. Much as Ernst's collage of the fright within flight questioned, with its cut-and-paste method, the aesthetic conventions of the original artwork, Sekula's negative framing of aerial vision is also integrally connected to an argument about modern visual technologies, especially photography. Critical of traditional art history's decontextualising approach to photography, Sekula militates on behalf of the need to return photographs (such as the war-time aerial images of art photographer Edward Steichen) to their original functional context. Thus, we have the determining binary of Sekula's argument: on the one hand, the aerial photograph as instrument, document, anaesthetics and evidence; and on the other, the aerial photograph as image, artwork, aesthetics, and pleasure. Put even more bluntly, Sekula's binary reduces to a polarisation between those two competing institutional homes for photography – the archive and the museum. His real concern being the institutional and ideological slip that occurs when aerial photographs (such as Steichen's [see figure 6]) belonging originally to military archives come to lead a second, redeemed life in the forgiving space of the museum.

Not surprisingly, in *War and Cinema* (1984), arguably the epitome of the dystopian discourse of aerovision, Paul Virilio draws explicitly upon Sekula's essay, while extending its scope to a transhistorical interpretation of cinema's military hardwiring.<sup>23</sup> He begins by arguing for the homology between the eye's function and that of a weapon by linking Étienne-Jules Marey's chronophotographic rifle camera and cinema in general, which then leads him to other convenient causal chains such as that between 'the original watch tower through the anchored balloon to the reconnaissance aircraft and remote sensing satellites'.<sup>24</sup> Virilio then points to how First World War aerial reconnaissance photography opened the way to the 'growing derealization of military engagement'.<sup>25</sup> This trend in military surveillance is today exemplified in unmanned aerial vehicles or 'drones', Stealth aircraft, smart bombs, remote control combat and global surveying technologies, which together have produced a situation in which a dematerialised postmodern 'war of pictures and sounds, is replacing the [modern] war of objects (projectiles and missiles)'.<sup>26</sup>

Underpinning Virilio's evidence for the 'fateful confusion of eye and weapon' is another set of standard assumptions about modern mechanised vision – that seeing in general is connected to the will to knowledge and the desire to control and act upon what one sees; and that the distanced, anonymous view, in particular, facilitates the will to power and the delivery of a dehumanised, abstracted view that makes killing easier and more efficient.<sup>27</sup> According to this dichotomous logic, the distant view from the 'murderous airplane' hiding within Benjamin's innocent clouds is incapable of offering the intimate perspective needed to perceive humans as 'tiny and fragile'. Instead, it turned bodies into depersonalised targets of destruction.

### *The Utopian Dimension*

The extreme nature of the dystopian framing of aerial vision may have in part been a reaction to the equally extreme utopianism that accompanied the birth of twentieth-century aviation culture, traceable to the Wright brothers' first flight of a heavier-than-air, powered machine on 17 December 1903. The brothers' accomplishment, which they also documented photographically, and the series of record-breaking feats that soon followed, transformed planes, pilots, and flying into major modern symbols of technological progress, superhuman achievement, borderless internationalism, and boundary-defying experience.<sup>28</sup> This utopianism shaped how the

23 – For Virilio's references to Sekula's essay, see P. Virilio, *War and Cinema: The Logistics of Perception*, trans. Patrick Camiller, London: Verso 2000 (1984), 92, notes 12 and 14.

24 – Ibid., 3.

25 – Ibid., 1.

26 – Ibid., 4.

27 – Ibid., 88.

28 – See Roger J. Crum, 'The Wright Brothers, Photography and their Visual Heritage', *History of Photography*, 28:1 (Spring 2004), 10–24.

plane and aerial vision become formal and thematic touchstones for the European *avant-garde* of the interwar years, as condensed in the optimistic headline 'Notre avenir est dans l'air' ('The Future is in the Air'), which Picasso featured in several 1912 still-lives, including *La Coquille Saint-Jacques*. But no other artist of the period explored more thoroughly the aesthetic implications of aerial vision and culture than Robert Delaunay. In *Le Dirigeable et la Tour* (1909), *Équipe de Cardiff* (1913) and *Hommage à Blériot* (1914) the motif of the plane and its high altitude partners combine in boldly coloured revisualisations of the typically drab Parisian skyline. In Delaunay's paintings, diverse aerial imagery, including a bi-plane, the Eiffel tower, the ferris wheel erected for the 1900 World Exposition, target circles, propellers, and the sky-reaching (line-out) catch of a rugby player together symbolise the emancipation of the body *and* representation from the gravitational pull of the earth and traditional perspectival art.

In addition to Delaunay's embrace of the plane, aesthetic modernism's multifaceted aerial influence is perhaps most recognised in the reduction to pure form and the inciting of a new form of visual literacy within cubist painting. Paul K. Saint-Amour has summarised this connection between aerial images and cubism by elaborating upon the 'single scopic regime' that conjoined the reconnaissance observer and the cubist spectator:

Both were asked to gaze on conspicuously flat image spaces and endeavour, through retraining their perceptual coordinates and reflexes, to produce a 'fusion' or 'assimilation' in the mind that would reveal objects in 'fictitious depths' that were both deeper and more overtly fictitious than the conventions of Cartesian perspectivalism.<sup>29</sup>

As a result of this linking of aesthetic and reconnaissance viewing practices, the canvas acquired the appearance of the earth (seen from above) and the earth increasingly resembled a canvas.

Beyond cubism, the perceptual liberation produced by the aerial image and aviation rippled across diverse *avant-garde* experiments including the 'objectless creation[s]' and reductive abstractions of the Russian Suprematist painter Kazimir Malevich, for whom 'flight became a metaphor for the transformation of consciousness [...] and the redefinition of time and space'.<sup>30</sup> The plane, and especially aerial vision, also featured heavily in Le Corbusier's architectural treatises, including *Towards a New Architecture* (1923), which contains a chapter entitled 'Airplanes', *The Decorative Art of Today* (1925), whose cover featured the pioneering 1909 balloon photography of André Schelcher and Albert Omer-Décugis that Delaunay had used as the source for another of his Eiffel Tower paintings, *Tour Eiffel aux Jardins du Champs de Mars* (1922), and, most importantly, *Aircraft* (1935), an urban planning manifesto in which the view from a plane provides the platform from which he 'indicts' the contemporary city as anachronistic, inhuman, and in need of replacement. As an object stripped to its functional core, the airplane symbolised for Le Corbusier the purist logic of a 'machine for flying' from which he would redefine the house as a 'machine for living'.<sup>31</sup> Le Corbusier's belief that the aerial view had a vital role to play in architecture was shared by László Moholy-Nagy, who also displayed a preference for the defamiliarising and libratory aspects of the relatively low overhead view in his photography. Modernist photography's multifaceted encounter with the skies also extended from Edward Steichen's role as director of the Division of Aerial photography for the American Expeditionary Force in 1918 and the subsequent rebirth of his reconnaissance images as art in the post-war period (as critiqued by Sekula) to Alfred Stieglitz's photograph from 1910 'The Aeroplane' and his more ethereal and immaterial study of cloud formations *Equivalents* (1922–31).

As important as its disembodied aesthetic value was for the above modernists, the aerial image cannot be divorced from the physicality of early, heavier-than-air flying or the embodied nature of aerial image-making processes. Although usually perceived as a practice of technological innovation, early flying resembled, we should

29 – Paul K. Saint-Amour, 'Modernist Reconnaissance', *Modernism/Modernity*, 10 (April 2003), 349–80; see 375.

30 – Robert Wohl, *A Passion for Wings: Aviation and the Western Imagination 1908–1918*, New Haven, CT: Yale University Press 1994, 161; and Malevich cited in Wohl, *A Passion for Wings*, 171. See also Christina Lodder, 'Malevich, Suprematism and Aerial Photography', *History of Photography*, 28:1 (Spring 2004), 25–40.

31 – Le Corbusier, *Towards a New Architecture*, trans. Frederick Etchells, New York: Dover Publications 1986 (1923), 107 and 110.



Figure 1. An observer and pilot demonstrating an early, physical-based, steering system for communicating directions. Source: US Air Force Historical Studies Office.



remember, a physically dangerous sport. The public triumphs of early aviation were always shadowed by disaster, and death was just as much the macabre crowd-puller as flying feats at the first aviation shows. Consequently, the more abstract allure of the spectacle of flight that coolly structures modernism's aero-landscape was inextricably connected with the risks associated with capturing the aerial image.

Popular press reportage of wartime aerial feats made these risks common knowledge. In the first months of aerial reconnaissance, when fuselages were too small to have cameras mounted on the interior, the observer had to lean out of the two-seater plane and hold the heavy camera outside for the most effective vertical shots. Operating in cramped, freezing conditions and under extreme pressure to determine the correct intervals at which to expose the lens (in order to ensure effective overlap necessary for the mosaic assemblage), the observer had to change each photographic plate by hand, which often resulted in spoilt images.<sup>32</sup> Furthermore, communication between the pilot and observer (regarding flight direction) was extremely primitive and examples exist of the observer guiding the pilot physically by means of a crude rope harness system (figure 1). For all the superhuman hyperbole that surrounded their portrayal in the popular press, reconnaissance pilots and observers (much like the images they produced) were essentially fragile and imprecise bodies, subject to extreme danger and difficulty due to enemy fire from below (enemy lines) and above (enemy fighter planes). Their job was especially arduous due to their observational imperative to fly over the same terrain repeatedly in a level and straight manner (often relying on nothing other than the pilot's sense of balance) in order to visually scan it in an exhaustive, stable, and uninterrupted fashion.<sup>33</sup> Forced to fly steady predictable routes, reconnaissance planes were therefore easy and highly valued targets. The body's liberation in flight (i.e. aviation's utopian lure) was thus always already accompanied by its potential elimination, even before this paradox was graphically materialised in aerial reconnaissance and bombardment photography's ability to simultaneously resuscitate and annihilate the past.

#### *The View In-between*

The preservational-destructive paradox of aerial vision brings us to a range of discourses that are neither straightforwardly dystopian nor utopian; instead, much

32 – Finnegan, *Shooting the Front*, 432–3. Later semi-and automatic cameras eased this problem somewhat.

33 – Lionel Dumarche, 'La Photographie aérienne 1914–1918: une nouvelle arme de guerre', in *Vues d'en haut*, 8–16; see 11; and Finnegan, *Shooting the Front*, 437.

like the previous introduction of the issue of embodiment, they express a more ambivalent context for understanding the view from above. The trope of the world-as-face offers a good starting point for thinking about the Janus-faced quality of the aerial view. As I discuss in *Counter-Archive*, a major monument to this trope occurred in Albert Kahn's 'Archives de la Planète', a vast photo-cinematographic inventory of the planet guided by an anthropo-geographical focus on human interaction with the environment.<sup>34</sup> Jean Brunhes, the geographer who served as the archive's scientific director, anthropomorphically described the purpose of his new branch of human geography as recording *the face of the planet*.<sup>35</sup> As outlined in his primary work *La Géographie humaine* (1910), the aerial view was central to Brunhes' practice for it provided the ideal perspective from which the physiognomy or face of the planet became visible. The aerial image facilitated the disciplinary rupture posed by the new branch of geography known as human geography. Photographed views from above disclosed what centuries of panoramic maps and city prospects only hypothesised; namely, a *radically relativist* scan of the earth, in which the monuments of physical geography (mountains, rivers, and ravines) stood side by side with the monuments of man (railways, irrigation tanks, bridges, houses, and roads). Human works and humans, 'themselves [now reduced to] *surface* phenomena', could henceforth be considered as geographical phenomena, while more traditional geographical features of the surface of the earth could be analysed as expressions or even organic entities: 'Mountains are no longer merely structures of different dates and origins: they can almost be compared in their development to living organisms'.<sup>36</sup> Man appeared as just a fragment within the larger picture provided by this new perceptual glance across the globe. Conversely, it was this removed, distanced gaze that enabled Brunhes to remap this newly perceived earth anthropomorphically. In addition to using the words 'physiognomy', 'features' and 'character' to explain geographical phenomena, he describes the earth's surface as 'the skin [*épiderme*] of our planet', material phenomena as having 'a sort of personal quality' all of their own, and compares human exploitation of the environment to a type of 'murder'.<sup>37</sup> Aerial vision thus produced in Brunhes's texts a curious mixture of machine-age post-humanism with a revitalised neo-humanism that became the hallmark of his pioneering efforts in environmental social geography.

Not surprisingly, the three editions of Brunhes's *Géographie humaine* not only describe the perceptual revolution enabled by aerial vision but also include aerial images. These ranged from the oblique images taken from balloons of physical geography (such as mountain ranges) to the more modern vertical views that exemplify the different perspective of human geography (such as the aerial photograph of a train hub whose sinewy fibres are compared with muscle fibres, that of the northern French city of Roubaix showing the 'immediate juxtaposition of industrial cities with agricultural zones,' and others expressing the 'physiognomy' of towns).<sup>38</sup> Most significantly, the 1925 edition presents, under the general heading 'Aerial Vision of the Earth', a map entitled 'Reims Seen from a plane' (figure 2) comprised of multiple vertical photographs 'shot rationally' (as the caption notes), which together realise the cartographical application of aerial photography pioneered during the war. Interestingly, the map presents a curious mixture of photographic and pictorial codes. While the unprecedented detail and accuracy promote the maps' photographic codes, older pictorial and symbolic codes (reflective of the residual non-mimeticism of earlier map-making) remain in the inclusion of the city's coat of arms. The non-mimetic aspect of the map is also directly suggested in the caption, which tells us that the photographer-topographers 'contented themselves' by "'clean[ing]" the streets of shadows' in order to give a more selective, de-humanised, map-like view. To be sure, it is not by chance that the map is of Reims for the city was pulverised by aerial bombardment during the war when its nearly destroyed cathedral, recorded in a near-vertical aerial image in the Kahn Archive (figure 3), delivered a profound spiritual blow to the French nation and came to symbolise the 'barbarity' of the Germans. Between these two images of the aerial view of the destroyed cathedral

34 – See P. Amad, *Counter-Archive: Film, the Everyday and Albert Kahn's Archives de la Planète*, New York: Columbia University Press 2010.

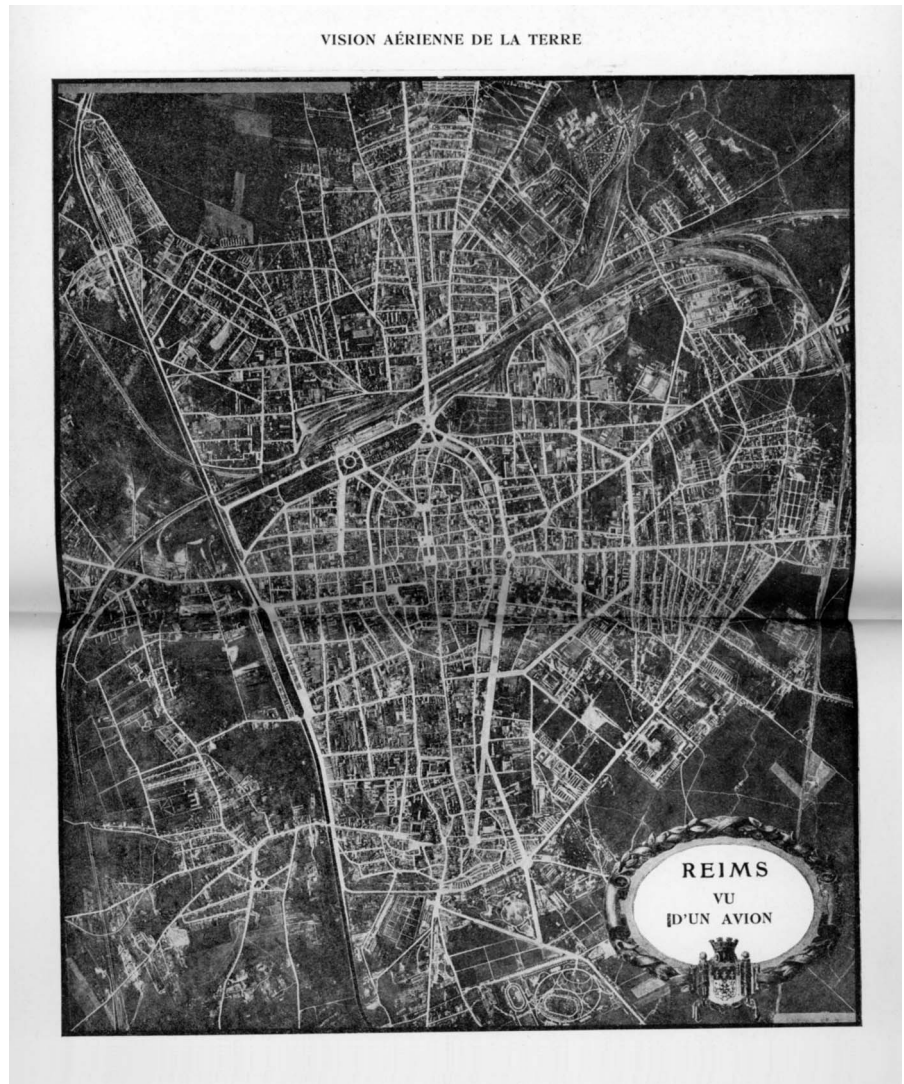
35 – J. Brunhes, *Human Geography: An Attempt at a Positive Classification*, ed. Isaiah Bowman and Richard Dodge, trans. I.C. LeCompte, New York and Chicago: Rand McNally 1920, 47 and 196.

36 – See J. Brunhes, *La Géographie humaine. Essai de classification positive. Principes et exemples*, Paris: Félix Alcan 1910; 2nd edition 1912; 3rd edition 1922, 19 and 21.

37 – Brunhes quoted in *Jean Brunhes: Autour du Monde, regards d'un géographe/regards de la géographie*, Boulogne: Musée Albert-Kahn 1993, 201; Brunhes, *Human Geography*, 8; and Brunhes, *La Géographie humaine*, 39.

38 – See figures 202, 204, and 205 in Brunhes, *La Géographie Humaine*, Volume III [Illustrations], Paris: Librairie Félix Alcan 1925 (3rd edition), 103, 104 and 105.

Figure 2. Map titled 'Reims seen from a plane'. Source: Jean Brunhes, *La Géographie Humaine*, Volume III [Illustrations], Paris: Librairie Félix Alcan 1925 (3rd edition), figure 254.



and the aerial composite map of Reims, we see a graphic intersection of aerial culture's destructive (bombardment) and regenerative (creation of the map) tendencies.

By simultaneously demoting man (who was now effaced within this new perspective, as the clean-up job done to the Reims map makes clear) while humanising his environment (the train-yard's muscle fibres), the aerial view provided a shift that would be crucial in the eco-environmentalism that human geography bequeathed to the late-twentieth century. Aerial, space and satellite images may make humans invisible but they also bring into visibility collective human responsibility for the earth's future. The ethical implications of aerial views of the earth, suggested in Brunhes's work, were spelled out clearly in E. A. Gutkind's essay 'Our World from the Air: Conflict and Adaptation' (1956). In that text the urban planner Gutkind mobilised the synoptic view delivered through aerial photography to establish the field of social ecology through a pioneering critique of humanity's exploitation of nature, ultimately suggesting that such images contain 'the moral conscience of mankind'.<sup>39</sup> The moral implications of aerial views were more popularly disseminated in the 1960s with the unintentional development of whole-earth globalism resulting from the Apollo space missions' pioneering images of what appeared to be an at once sublime and fragile planet. The iconic 'earth-rise' and 'big blue marble' earth images, as they have come to be called, from 1968 and 1972, inspired diverse and sometimes contradictory debates regarding human universalism, humanity's responsibility to the environment, and the insignificance of human life. But that is not to say that the human body has been totally negated by the extreme view from

39 – E. A. Gutkind, 'Our World from the Air: Conflict and Adaptation', in *Man's Role in Changing the Face of the Earth*, ed. William L. Thomas, Chicago and London: University of Chicago Press 1956, 1–44; see 11.



Figure 3. Low near-vertical photograph of Reims's bombed cathedral. No date, photographer unknown. Source: Musée Albert Kahn, Boulogne, France.

above. For example, during the Great War, disinterested Army aerial images, once blown up to reveal their microscopic detail, also captured the new human frailty to which Benjamin referred in 'The Storyteller' in haunting images such as those published in the *Illustrated London News* for 31 August 1918 (figure 4) showing soldiers huddled foetus-like in their trenches, isolated from each other and vulnerable to the skies.

The French literary poet of aviation *par excellence*, the pilot and writer Antoine de Saint-Exupéry, was strategically positioned to comment upon the murderous results of aviation and aero-vision. Shrouded in legend since disappearing over the Mediterranean during an aerial reconnaissance mission in 1944, Saint-Exupéry's writings (part adventure novels, part philosophical commentaries) provide some of the most strikingly double-edged ruminations upon the experience of flying and representations of the view from above. Unlike Benjamin's profound distrust of the will to control nature embedded in the view from above, Saint-Exupéry believed, somewhat like Brunhes, that the flying machine had the potential to bring humans in



Figure 4. Intersection of the macro and micro-view. Aerial photograph of French soldiers, encased womb-like in their individual trenches. Source: *Illustrated London News* (31 August 1918), 238-239. © Illustrated London News Ltd/Mary Evans.

closer contact with nature. As if in dialogue with Benjamin's aero-critique, he writes in *Wind, Sand and Stars*:

It is not with metal that the pilot is in contact. Contrary to the vulgar illusion, it is thanks to the metal, and by virtue of it, that the pilot rediscovers nature. As I have already said, the machine does not isolate man from the great problems of nature but plunges him more deeply into them.<sup>40</sup>

Instead of distancing humanity from nature, or indeed its own destruction, the aerial experience forces a critical penetration of nature and mortality. Saint-Exupéry's support for the plane's ability to force a much-needed modern, technologically-mediated encounter between humans and nature recalls the ideas of Le Corbusier, who, not coincidentally, he met and piloted around Brazil during the architect's formative 1928 trip. As a result of his own experience of flying with Saint-Exupéry and others, Le Corbusier argued in *Aircraft* that the mechanised aerial view provides the only perspective from which the unnatural and inhuman form of our cities can be detected. In other words, it is the mechanical eye from above that penetrates, even more deeply than Benjamin's Sacré Coeur observer, our habitual indifference to urban composition, revealing the problems of older city models and pointing to the solutions of future ones. For Le Corbusier, the airplane's interpenetration of machine and human was figured in a new mechanical organicism (that echoes Brunhes' post-humanist humanism) in which de-familiarising close-ups of plane parts (figure 5) reveal core frameworks that appear 'similarly in the marrow of our bones, [where] the same fibers "of equal resistance" exist'.<sup>41</sup> Where the aerial view

40 – A. de Saint-Exupéry, *Wind, Sand and Stars*, trans. Lewis Galantière, Orlando, FL: Harcourt Books 1967 (1939), 63.

41 – Le Corbusier, *Aircraft*, London: The Studio 1935, 24.

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Figure 5. 'In nature microcosm and macrocosm are one.' Le Corbusier's interest in the plane extended from the broad expanse of aerial vision to the micro-detail of plane parts. Source: Le Corbusier, *Aircraft*, London: The Studio 1935, 24. © 2011 Artists Rights Society (ARS), New York / ADAGP, Paris.

allowed Brunhes to find muscle fibres in train-yards, it allowed Le Corbusier to find steel fibres in human marrow.

Saint-Exupéry's and Le Corbusier's writings refuse to ground the aerial view in either an exclusively rationalist, utilitarian, and militaristic context or in an exclusively artistic, imaginative, and philosophical one. Their hybridised approach reminds us that, far from being a secondary usurpation of aerial vision's primary utilitarianism, the aestheticised view from above preceded and co-existed with the military production of aerial photography. In the late-nineteenth and early-twentieth centuries, when the military application of balloon, kite, pigeon and rocket photography was still imprecise, photographing from above, especially from balloons, attracted adventurous amateurs who incorporated the aerial view into pictorial conventions forming a new iconographic style for imaging Paris and its monuments.<sup>42</sup> By 1909, when a vertical (as opposed to the more common oblique) aerial photograph entitled 'La tour Eiffel vue en ballon' by André Schelcher and Albert Omer-Décugis became the first of its kind to feature on a double-page spread of *L'Illustration* (the premier French illustrated journal of its day, which had been

42 – See Thierry Gervais, 'Un Basculement du regard: Les débuts de la photographie aérienne 1855–1914', *Études photographiques*, 9 (May 2001), 89–108; see 105.



43 – Arsène Alexandre, *Comoedia* (23 October 1909).

44 – Anne Collins Goodyear, 'Chronology of Aviation and Art', in *Defying Gravity: Contemporary Art and Flight*, ed. Huston Paschal and Linda Johnson Dougherty, Raleigh, NC: North Carolina Museum of Art 2003, 1–15; see 2; and 'The Legacy of Kitty Hawk: A Century of Flight in Art' in Goodyear, *Defying Gravity*, 31–42; see 33.  
45 – See Edward R. Ford, *The Details of Modern Architecture, Volume 2, 1928–1988*, Cambridge, MA: MIT Press 2003, 165.

publishing photographs since 1900), the pictorial and visual elements of the view from above constituted its primary function. Indeed, the exhibition of Schelcher and Omer-Décugis's aerial photographs, alongside the latest planes, at the 1909 Exposition Internationale de Locomotion Aérienne, which was held in the same space and at the same time as the Salon d'Automne art exhibition, led the critic Arsène Alexandre to write the article 'L'Art et l'Air' (Art and Air) in the theatre review *Comoedia*.<sup>43</sup> In it he champions the idea that 'a work of applied mechanics can also be considered a work of art'. The striking juxtaposition of art and aviation also occurred in the literary journal *Gil Blas* on 4 November 1908, which announced another record by Wilbur Wright slightly above the review of Braque's first cubist paintings. This serendipitous encounter between aviation and cubism may have led to Braque's nick-name 'Wilbur Braque' and more loosely Picasso's three cubist still lives from 1912, which quote the headlines of a pro-aviation article 'The Future Is In The Air'.<sup>44</sup> Whatever level of influence aviation had upon Braque and Picasso, it is well known that the new phenomenon of aviation expositions became landmark haunts for the emerging *avant-gardes*. Their fans included Fernand Léger, Constantin Brancusi, Marcel Duchamp and Le Corbusier.<sup>45</sup>

While artists were clearly inspired by the pioneering feats of early aviator-heroes and the new machine aesthetic of the planes themselves, aerial images took this interest to another level. Unlike oblique views that still allowed the human eye to recognise the depth and scale of the built or natural environment (figure 6), vertical images taken from a perpendicular position above the earth flattened depth



Figure 6. Oblique aerial view of ruins of Vaux, 1918, attributed to Edward Steichen. Source: US Defense Visual Information Center.



Making a mosaic aerial map of Washington, D. C. The photos for this map were made in 2 hrs. 15 min. of straight flying time, and the map was delivered finished in one week of ordinary working days. Scale 1/10,000. By the ordinary methods of surveying and mapping, the same work would take over a year to finish

Figure 7. The hands-on physical assembly required for the production of mosaic maps. The caption notes how fast the maps are produced compared to pre-photographic methods. US School of Aerial Photo-Reconnaissance, Langley Field Virginia. Source: the magazine *Flying* (April 1919), 252, the official organ of the Aero Club of America.

perception (figures 8, 10). Most importantly, they abolished the horizon line, thereby doing away with the illusion of three-dimensionality within a two-dimensional image. By reducing the fullness and extensiveness of space to a single plane of lines and shapes bereft of a vanishing point, aerial images, such as those taken by Schelcher and Omer-Décugis, became inspirational sources for modernist pictorial abstraction. Pinpointing their immediate abstract implications as a reflection of the usually neglected dialogue between science and art, Alexandre noted in his 1909 essay that Schelcher's and Omer-Décugis's aerial photographs transformed the city into a 'drawing' and inversely made possible the far-reaching proposition that from now on 'A drawing must not be a drawing'. Robert Delaunay subsequently experimented with the post-impressionist implications of this formula in the literal use of their photography for his painting *Tour Eiffel aux Jardins du Champs de Mars* (1922).<sup>46</sup>

From the other side of the aviation/*avant-garde* dialogue, by 1918 one photograph atlas was training British pilots to see the landscape according to the taxonomies of 'FUTURIST country' and 'CUBIST country'.<sup>47</sup> The development is hardly strange given that camouflage techniques in France and Britain were actually developed by enlisted artists who consciously adapted cubism's fragmented deformation of the object to redraw the landscape with the intention of subsequently misleading photo-interpreters.<sup>48</sup> Other artistic contexts of aerial seeing and aerial photographs abound. They appear in the 27 July 1918 issue of *The London Illustrated News*, which featured an aerial photograph of 'enemy evidence' that captured the British blocking of Zeebrugge, its caption indicating that the image was presently also on display in an 'enlarged and coloured' version in the Exhibition of Naval Photographs at the Prince's Galleries, Piccadilly. As for the considerable aesthetic skill involved in aerial reconnaissance, this is reflected in a statement by the RAF's Director of Training, Air Commodore T. C. R. Higgins in 1923, in which he expressed concern that aerial photographic interpretation was in danger of 'becoming a lost art'.<sup>49</sup> The aesthetic framing of aerial reconnaissance continued during the Second World War when photo-interpreters commonly described the artistic impressions produced by aerial vision.<sup>50</sup> British Air Ministry publications like *Evidence in Camera* presented aerial

46 – On Delaunay's use of Schelcher and Omer-Décugis photographs, see Pascal Rousseau, 'La Construction du simultané: Robert Delaunay et l'aéronautique,' *Revue de l'art* 113 (1996): 19–31; 21; and for more on Schelcher and Omer-Décugis's photography, see Gervais, 'Un Bascullement du regard', 99–102.

47 – Saint-Amour, 'Modernist Reconnaissance', 350.

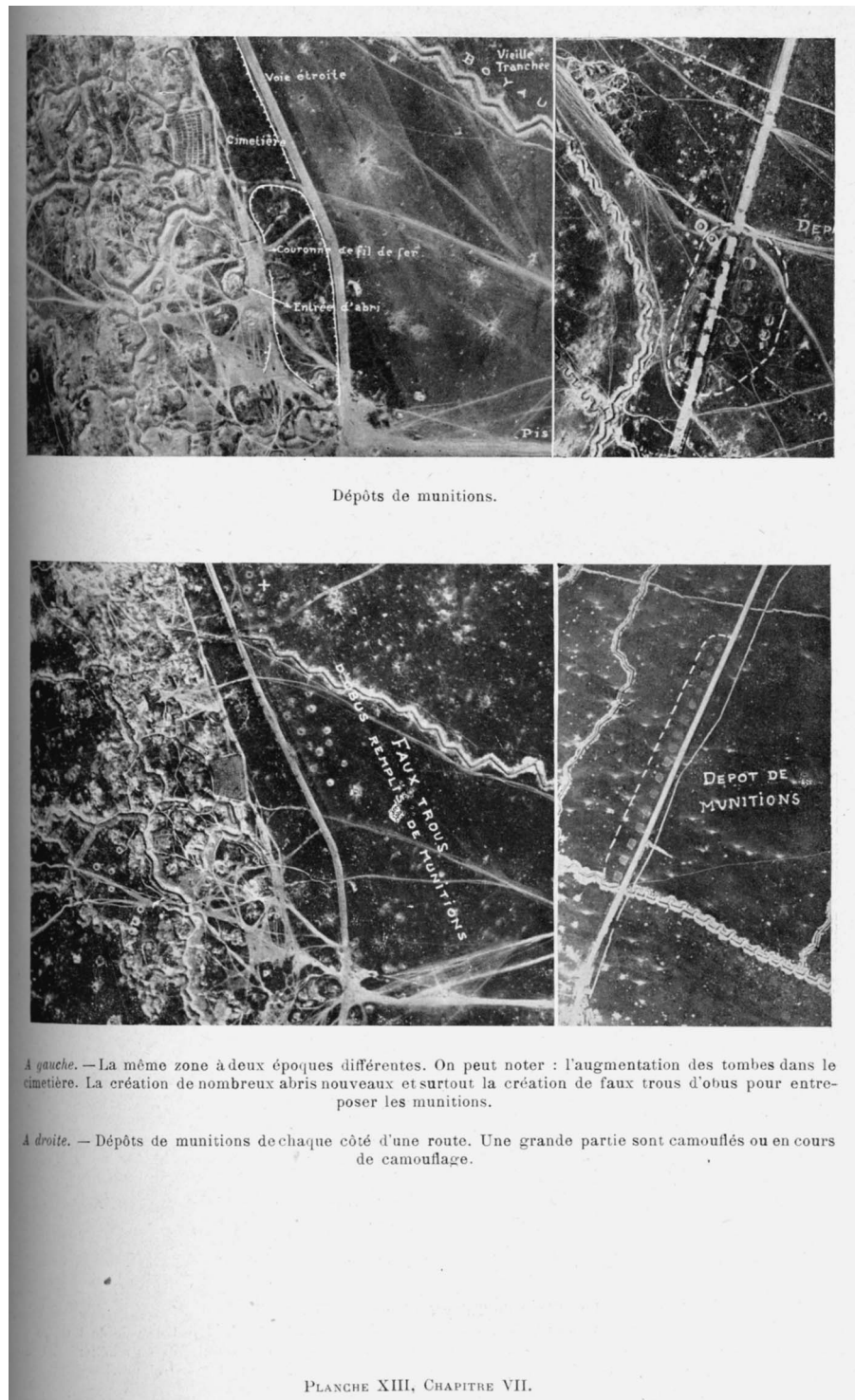
48 – See Danielle Delouche, 'Cubisme et camouflage', in *Guerre et cultures: 1914–1918*, ed. J.-J. Becker et al., Paris: Armand Colin 1994, 239–52.

49 – Higgins cited in Finnegan, 'Shaping 20th Century', 63.

50 – See Davide Deriu, 'Picturing Ruinscapes: The Aerial Photograph as Image of Historical Trauma', in *The Image and the Witness: Trauma, Memory and Visual Culture*, ed. Frances Guerin and Roger Hallas, London and New York: Wallflower Press 2007, 189–203; see 193.



Figure 8. The hide and seek of aerial interpretation. Notations on the photographs make the terrain readable. On the left, two photos taken at different times showing the position of false bomb craters used to hide ammunitions and a more densely populated cemetery. On the right, evidence of increased use of camouflage over time to hide ammunition depots. Source: André-H. Carlier, *La Photographie aérienne pendant la guerre*, Paris: Librairie Delagrave 1921, Chapter 7, Plate 13.



51 – See Deriu, 'Picturing Ruinscapes,' 193–6.

52 – Sekula, 'The Instrumental Image', 28.

photographs as enigmatic puzzles to be deciphered, while *The Illustrated London News*, continuing its eager coverage of aerial imagery from the First World War, published articles training the public to decipher aerial images.<sup>51</sup>

These diverse aesthetic encounters with aerial imagery highlight the fluid and indeterminate nature of their reception. It is important to recall that although most often associated with an extension of human vision, or to use Sekula's characterisation 'the triumph of applied realism', aerial photography in fact blocked normal habits of seeing, providing images enmeshed within complicated layers of encoding.<sup>52</sup> High verticals (as opposed to low obliques [see for example figure 6]) were especially unnatural to the human eye and delivered the furthest thing possible from the

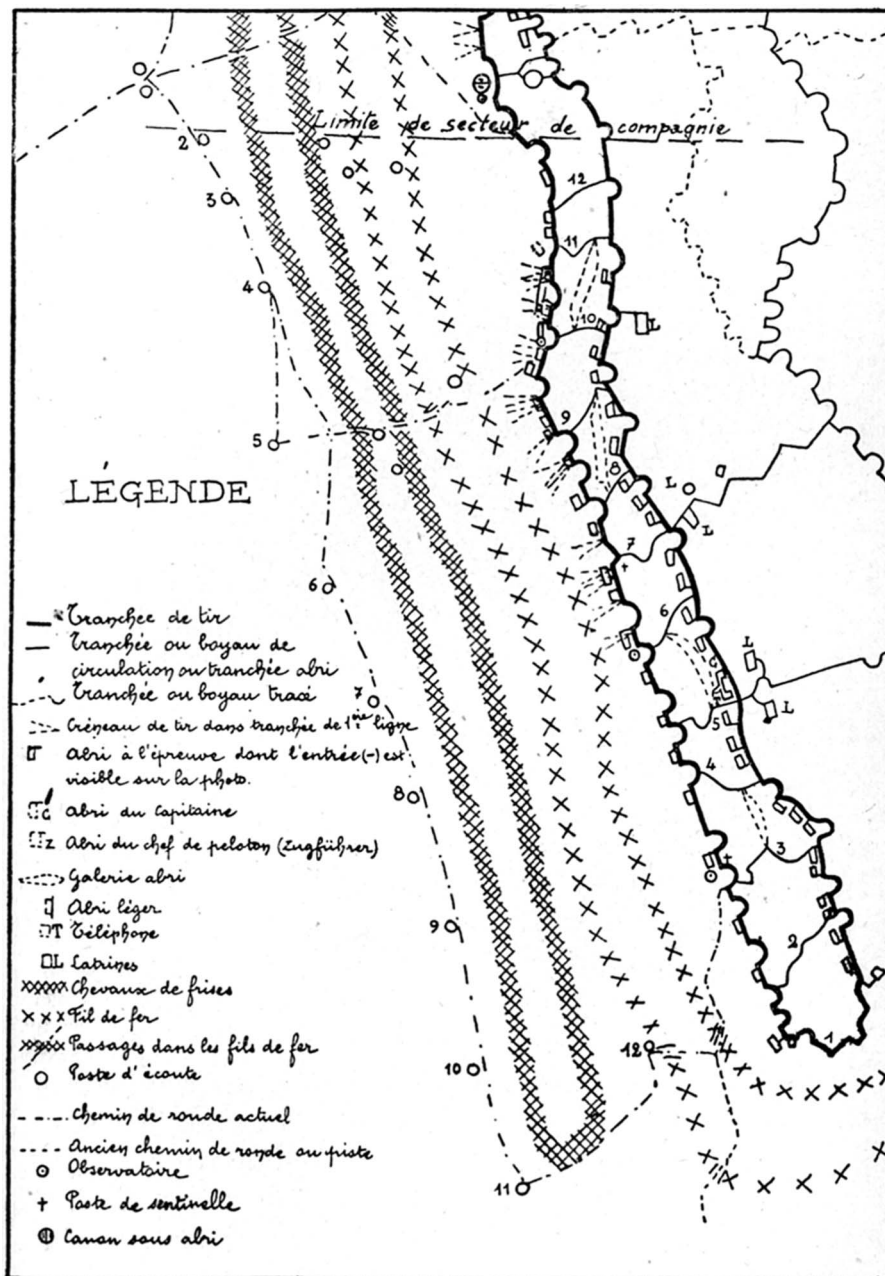


FIG. 52

Figure 9. Typical line drawing with detailed legend produced from an aerial photograph in order to make the latter more legible.

Source: C.-M Goussot, *Précis de photographie aérienne*, Paris: Librairie aéronautique 1923, figure 52.

perceptual comfort of photographic realism. Reconnaissance images were infamously obscure and difficult to read, requiring trained photo-interpreters and a re-education of sight. As of 1915, the French army, who would soon train the US army in these matters, conducted courses and conferences on stereoscopic photographic reading and the use of aerial photography. Far from exemplifying abstract knowledge, aerial image interpretation (like its production) involved the body and the hand in all sorts of interventions; from the complicated physical arrangement of photographs necessary for the formation of mosaics (figure 7) and the precise handwritten notations on the photograph's surface required for their translation into useable information (figure 8), to the draftsmanship needed to translate photographs into readily interpretable line drawings (figure 9). The subjective dimension was also evident in one of the skills most prized in the interpreter – 'imagination'; or as the veteran aerial observer Harold Porter put it, 'a very lively mental vision'.<sup>53</sup> Aerial photography's distance from the purported one-to-one simple referentiality of indexical objectivity is exemplified in the most

53 – Finnegan, *Shooting the Front*, 445 ; and Porter cited in Finnegan, *Shooting the Front*, 450 .

54 – See Beaumont Newhall, *Airborne Camera: The World From the Air and Outer Space*, Hastings House, 1969, 53. The serial photographing done from the plane meant that any two images taken from a similar angle could be joined to form a stereographic pair.

commonly used form of reconnaissance photography, the hyperstereoscopic images, which enabled an exaggerated, almost fantastical three-dimensional expansion of the contour-less flattened image.<sup>54</sup> Unlike the stereographic images of the nineteenth century, those used by the military were made by increasing the distance between each exposure beyond the standard 2.5 inches of interpupillary range required for three dimensional perception. This enabled a super-real magnification of depth once those photographs were viewed through the stereoscope, allowing the flat earth (and previously hidden evidence) to literally jump out at you in an experience of optical plasticity and distortion.

The opacity of the supposedly inviolable aerial image was also apparent in the fact that the moment aerial vision threatened to make the enemy permanently visible, the enemy retaliated by training in the counter-art of camouflage. Once aerial reconnaissance became the norm, the men on the ground knew they were being watched and thus worked even harder to evade the sky's eyes. Aerial photography's conquest of the previously unseen is thus paradoxical for aerial visibility incited invisibility, the legibility of the images was always threatened by their illegibility, and the seeking always productive of a hiding. Aerial reconnaissance and the hide-and-seek practices of decipherment and camouflage it incited thus exemplified the game of illusion (also played out on the ground through censorship of images, especially of non-enemy dead soldiers, destined for public circulation) that has come to describe the First World War's *modus operandi*. The photo-interpreters and *camoufleurs* (as they were known in France) became locked in a visual game of perception-deception in which each side was constantly finding flaws in the others' manufactured reality. It is worth repeating that reconnaissance images are highly encoded, non-literal, non-transparent, and opaque documents. This is why each photograph was attached to a textual supplement in the form of an index card intended to pinpoint the image's enigmatic meaning (figure 10). For all the allure of transcendent vision they promise, it is more accurate to describe aerial images as exemplifying the blindspot of western rationality. They thus maintain a special status in the long history of wayward photographs that failed to fulfil their original function, thus demonstrating what Elizabeth Edwards calls the 'uncontrolled and flawed' nature of the photographic-based representation and its threat to 'the integrity of the document' as a scientific record.<sup>55</sup> Edward Steichen unwittingly expressed the contradictory quality of aerial photographs when in a postwar report he triumphantly claimed that '[such images] represent neither opinions nor prejudice, but indisputable facts' while also paradoxically maintaining that '[w]ithout considerable experience and study [aerial vertical photographs are] more difficult to read than a map, for [they] badly represen[t] nature from an angle we do not know'.<sup>56</sup> Divorced from habitual modes of seeing and representing, aerial images mean nothing to the untrained eye. Indeed, it is this nothingness (explained by their distance from normal human perception and their flagrant colonisation of the previously no-place of utopia) that makes them so susceptible to being aesthetically (mis-)appropriated.

Saint-Exupéry, an aviator who performed daily the functional applications of flight (couriering mail to France's far-flung colonial posts), also believed the significance of the view from above lay in its paradoxical *anti-utilitarianism*. Echoing the geographer Brunhes's language, Saint-Exupéry argued that the aerial perspective was able to unveil for us for the first time 'the true face of the earth' because it had the capacity for disinterested (and therefore more truthful) seeing. In contrast, he went on to say, the earth-bound view offered from 'highways' and 'roads' had been 'deceiving us' for centuries about the earth's true face because such routes were enmeshed in 'man's needs'.<sup>57</sup> Aerial vision cast this fiction into a 'cruel light', sharpening our sight and training us to see from the non-human perspective and route of the 'flying crow'.<sup>58</sup> The result, as suggested earlier, is an eco-humanist vision of the earth that illuminates the 'precarious existence' of 'life' itself.

55 – E. Edwards, 'Uncertain Knowledge: Photography and the Turn-of-the-Century Anthropological Document', in *Documenting the World*, ed. Gregg Mittman and Kelley Conway, Chicago University Press forthcoming.

56 – Major Edward J. Steichen, 'American Aerial Photography at the Front', *U.S. Air Service*, 1 (June 1919).

57 – Saint-Exupéry, *Wind, Sand and Stars*, 63.

58 – Ibid., 64.

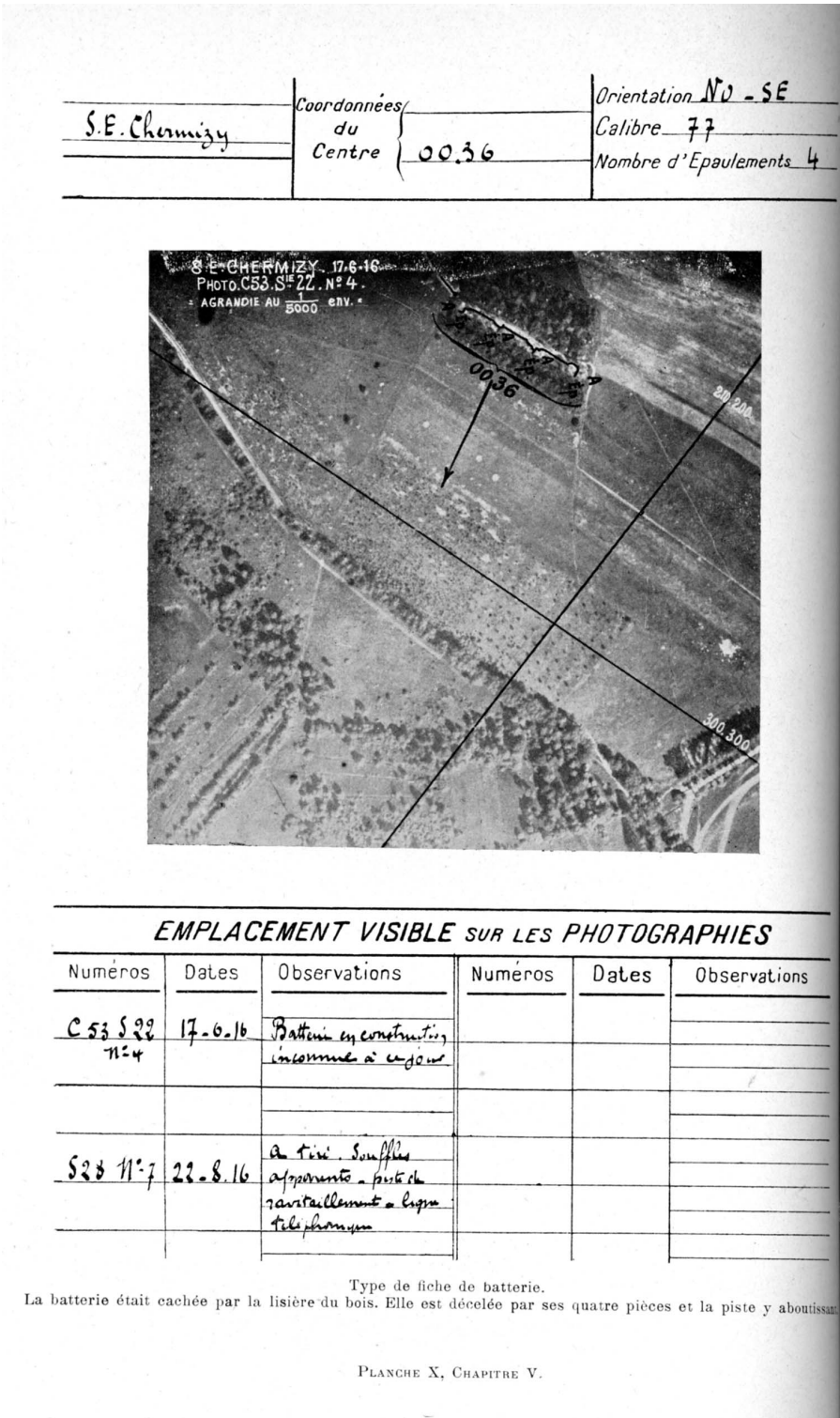


Figure 10. Typical index card with aerial photograph attached indicating amount of information that was required to be attached to or written on the image. Source: André-H. Carlier, *La Photographie aérienne pendant la guerre*, Paris: Librairie Delagrave 1921, Chapter 5, Plate 10.

A couple of years earlier in 1935, Le Corbusier connected the non-utilitarianism of aerial views to their *anti*-aesthetic force. The 'lesson' learned from these 'spectacles' is that he is 'not attuned to [their] enjoyment'.<sup>59</sup> They are not pleasing to the eye. Instead of finding beauty in the view from above, Le Corbusier argues that '[f]rom the plane: there is no pleasure [...] but a long concentrated, mournful meditation'.<sup>60</sup> Like Saint-Exupéry he also associates aerial views with a scrutinising force that 'gets to the heart of the *cruel* reality', capable of penetrating 'the misery of towns' and revealing them as 'heartless, and money-grubbing'.<sup>61</sup>

59 – Le Corbusier, *Aircraft*, 123.

60 – Ibid., 123.

61 – Ibid., 12; my emphasis.

Saint-Exupéry's and Le Corbusier's description of the aerial view's capacity to make us see the world anew, exposing it from Steichen's 'angle we do not know' (i.e. the perspective of a non-human 'cruel light'), bears striking affinities with descriptions of the work of the photographic process itself. Kracauer, for example, describes the photographic view as one that casts even our most cherished sights (of, for example, a beloved grandmother) in an alienating, disinterested and clinical perspective.<sup>62</sup> He then offers aerial reconnaissance photographs as the extreme example of photography's quasi-scientific detachment because they are obtained 'almost automatically'.<sup>63</sup>

Also interested in the scientific history of sight, Saint-Exupéry connects his reflections upon the aerial view's retraining of our perception even more directly to modern science's optical revolution. The view afforded through flight, he argues, has 'transformed [us] into physicists [and] biologists' who are now 'able to judge man in cosmic terms, scrutinize him through our portholes as through instruments of the laboratory'.<sup>64</sup> Of crucial importance here is Saint-Exupéry's *relational* contextualisation of the aerial view within a continuum of modern technologically-aided visual expansion that includes the laboratory microscope of the biologist, which he earlier connects to the plane by arguing both are benign tools of modernity.<sup>65</sup> He might also have added that both the plane and the microscope require the human observer to *look down*, a viewing position that he disassociates from the more condescending and controlling gesture of *looking down upon*. More importantly, his connection between the macro and micro-view suggests we cannot fetishise the aerial view as a separate, autonomous perspective. To do so is to perhaps re-mystify and give it too much power.

### History from Above

The aerial view and its miniaturising distanced view of the earth were integrally connected to the microscope and its magnifying and immersed view of the world. Put simply, the macro view from above was tethered visually to the micro view from below. Expressing the aerial view's imbrication with its spatial opposite, the micro-view, Le Corbusier argued – with reference to close-ups of plane parts (figure 5) – that the plane – in which 'everything is an essential part of the whole' – displays how 'in nature microcosm and macrocosm are one'.<sup>66</sup> Interestingly, Le Corbusier's *Aircraft* appeared in the 'New Vision' book series alongside Watson-Baker's *World Beneath the Microscope*.<sup>67</sup> Aerial images cannot be understood as visually autonomous forms. Militaristic methods of aerial photographic interpretation bluntly manifested this macro-micro connection in that the magnifying glass and print enlarger became essential tools of visual expansion for managing the images' otherwise ungraspable shrinking of the visual field.

Finally, I want to suggest that this non-isolated relational approach to scale is especially necessary for fully understanding the perhaps more oblique historiographical import of the aerial view. One of the founders of the French Annales school of history, Marc Bloch, is said to have discovered the importance of the *longue durée* or long timespan in history from the vantage point of a plane above the earth during the Great War when he served as an intelligence officer.<sup>68</sup> Interestingly, this perspective was also tied for Bloch to the view from below – or, to be specific, from within the trenches – whose incision into the soil also revealed to him the importance of a deep almost geological time span of the *longue durée*.<sup>69</sup> Others have analysed the experience of the trenches as the epistemological and social other to aerial experience, based less on the elite pilot's sense of distanced sight than on the common soldier's sense of intimate tactility – 'the so called haptic way of knowing the immediate environment' through feeling it (as claustrophobically demonstrated in the *Illustrated London News*'s image of individual trenches).<sup>70</sup> Far from being a metaphorical inspiration, both perspectives had concrete implications for Bloch, as seen in the pioneering promotion of non-traditional sources – such as aerial

62 – See Kracauer's discussion of Marcel Proust's photographic-like vision of his grandmother in *Theory of Film: The Redemption of Physical Reality*, Princeton, NJ: Princeton University Press 1997 (1960), 14–16.  
63 – Ibid., 15.

64 – Saint-Exupéry, *Wind, Sand and Stars*, 64.

65 – Ibid., 44.

66 – Le Corbusier, *Aircraft*, 24.

67 – W. Watson-Baker, *World Beneath the Microscope*, London: The Studio 1935.

68 – See Étienne Bloch and Alfredo Cruz-Ramirez, *Marc Bloch: An Impossible Biography*, Limoges: Culture & Patrimoine en Limousin 1997, 143; and Carole Fink, 'Introduction', in *Marc Bloch: Memoirs of War*, ed. and trans. Carole Fink, New York: Cambridge University Press 1988, 30–1, note 41.

69 – Ulrich Raulff cited in Audoin-Rouzeau, 'Introduction', in *Écrits de Guerre (1914–1918)*, ed. Étienne Bloch, Paris: Arman Colin 1997, 5.

70 – Nicholas Saunders, 'Ulysess' Gaze: The Panoptic Premise in Aerial Photography and Great War Archaeology', in *Images of Conflict*, ed. Stichelbaut, 27–40; see 35.

photography, maps, agrarian tools, and place-names – in his postwar historical research. Not surprisingly, Bloch's interest in the macro–micro perspectives showed the influence of human geography, the discipline Jean Brunhes was concurrently transforming from the perspective of aerial vision. Bloch's addition of geographic terms like 'stratum', 'substratum' and 'morphology' to his more familiar scientific vocabulary of 'dissection' 'anatomy' and 'physiology' in his history-writing reflects an approach to the science of time (history) transformed by the optics of the sciences of macro and micro space (geography and physiology).<sup>71</sup> To apply the macro and micro to the writing of history would therefore imply attending to both the elite command's and the common soldier's experience of events.

Aerial photography was accorded an even more extensive temporal stretch than that of the centuries-long *longue durée* in the immediate postwar years, when the study of ancient civilisations was transformed through the application of aerial photography to the new field of aerial archaeology. Pioneered by ex-army reconnaissance observers like the French Jesuit priest Antoine Poidebard and the British geographer O. G. S. Crawford, aerial archaeology literally introduced *temporal depth* into the view from above (in contrast to the narrowly presentist restrictions of reconnaissance images) by interpreting the earth as 'an immense palimpsest that literally registers humanity's memory' in the still visible (from the air) traces of submerged or overgrown architectural or agricultural ruins.<sup>72</sup> Much as the aerial perspective compressed space, it thus also, although less obviously, intervened with time. It allowed a temporal excavation of space that in many ways paralleled cubism's multi-perspectival deconstruction of the figural moment in time. Roland Barthes seized upon the aerial perspective's unique spatial–temporal qualities in his essay 'The Eiffel Tower' (1964), in which he argued that 'to perceive Paris from above is infallibly to imagine a history' in which 'it is duration itself which becomes panoramic'.<sup>73</sup> Drawing upon aerial views' dialogue with modernist art, Barthes settled on describing the image from the Tower as a 'Paris [which], in its duration, under the Tower's gaze, composes itself like an abstract canvas'.<sup>74</sup>

## Conclusion

Although 'history from below', signifying the rise of social histories of the marginalised in the 1970s, has become the more valorised historiographical perspective, in this essay I have suggested that a fuller history of the view 'from above', as materialised in aerial photography, might reveal perspectives which move beyond that view's conventional associations with pure power, mastery, and control. In order to do this, it has been essential to reintroduce aerial photography to its fluid sites of production, influence, interpretation, and dissemination. Opposed to simply repeating the formulaic interpretation of the aerial view as a self-sufficient, isolated, all-seeing and knowing emblem of power, I have demonstrated the plasticity of the aerial view across extremes of distance and proximity, aesthetic and military contexts, the eye and the body, the museum and the archive, two-dimensionality and three-dimensionality, and the sciences of space (geography) and time (history). Ultimately, what this approach discloses is the possibility of rethinking aerial vision as an example of what Haraway calls 'embodied objectivity', a way of seeing and knowing the world reflective of aero-vision's divided origins between the extremes of what Le Corbusier described as 'imagination and cold reason'.<sup>75</sup>

71 – For commentary upon Bloch's incorporation of geographical vocabulary, see Bonnie G. Smith, *The Gender of History: Men, Women, and Historical Practice*, Cambridge, MA: Harvard University Press 2000, 226.

72 – Raymond Chevalier, 'La détection aérienne en archéologie', in *Panorama des applications de la photographie aérienne*, ed. R. Chevalier, Paris: S.E.V.P.E.N, École Pratique des Hautes Études 1968, 33–6; see 36.

73 – Roland Barthes, 'The Eiffel Tower', reprinted in *Barthes: Selected Writings*, ed. Susan Sontag, Oxford: Fontana/Collins, 1982 (1964), 236–50; see 244–5.

74 – *Ibid.*, 245.

75 – Haraway, 'Persistence of Vision', 191; and Le Corbusier, *Towards a New Architecture*, 109.