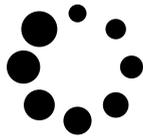# Metaphors of Immersion. Stereoscopes, 3D Vision and Photography in O.W. Holmes' Writings and Inventions

by Roberto P. Malaspina

Stereoscope
Oliver Wendell Holmes
Media Archaeology
3D Vision
Photography

Metaphors of Immersion. Stereoscopes, 3D Vision and Photography in O.W. Holmes' Writings and Inventions

ROBERTO P. MALASPINA, University of Milan "La Statale" – https://orcid.org/0000-0002-2372-789X

Abstract   Esteemed physician and writer, Oliver Wendell Holmes Sr. was also a leading figure in the stereoscope craze that swept the United States in the second half of the 19th century. He not only designed and promoted a particularly successful version of the stereoscope but also provided insightful commentary on its use and impact. This device, capable of producing a vivid illusion of three-dimensionality, had a significant influence on both technological advancements and cultural practices of the time. Adopting an interdisciplinary focus that intersects media archaeology and metaphorology, this paper will explore the rhetoric and material configurations of the stereoscope as designed and promoted by Holmes and Joseph L. Bates. The main objective is to show how the discursive communication surrounding this device, along with its ergonomic design, shaped both the identity and moral connotations of the technology, as well as the immersive practices it fostered.

By focusing on two key essays published in *The Atlantic Monthly* in 1859 and 1861, this study will reconstruct Holmes' complex metaphorology of technical reproduction and stereoscopic illusion, highlighting the central aesthetic, social, and political themes at play.

Introduction: Archaeology, Metaphorology and Discursive Commonplaces

Accomplished writer, physician and teacher of physiology and anatomy at Harvard, Oliver Wendell Holmes Sr. (1809-1894) was also a leading figure in the frenzy surrounding stereoscopy that swept the United States in the second half of the 19th century. He not only designed and promoted a particularly successful version of the stereoscope but also provided insightful commentary on its use and impact. This contribution will focus on the ergonomic and discursive characteristics of the Holmes-Bates stereoscope, with the aim of constructing a framework for a media genealogy, and therefore ideology, of immersion and the illusion of three-dimensionality that the device enabled.

The nature of this paper, then, requires some preliminary considerations and methodological clarifications. The following analysis intersects an interest in both the material configuration of a specific optical device and the ways in which it was communicated, the discourses that developed around it. The connection between these two regimes is primarily indebted to a media archaeological approach. Media archaeology, in fact, does not focus on the technological *history* of past devices, but rather on the non-linear relationships and diachronic recursions of certain material and discursive elements, which, following Huhtamo,[1] we can refer to as "topoi" or "commonplaces." The notion of "commonplace," in its etymological sense – *koinos topos* – captures the multiple identities of the medial framework under study. It refers to the "common place" as something shared and recognized within a social arena

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1   E. Huhtamo, "From Kaleidoscomaniac to Cybernerd: Notes toward an Archaeology of the Media," in T. Druckerey, ed., *Electric Culture: Technology and Visual Representation* (New York: Aperture, 1996): 296-304.

– what one might describe as *popular.*[2] But it also indicates *recurring* phenomena through different times and social groups. Indeed, media archaeology highlights "cyclical rather than chronological development, [the] recurrence rather than unique innovation."[3] At the core of this non-linear temporal perspective, the issue of cyclicity draws heavily from deep time theories[4] and plays a central role in defining media archaeology as the study of recurring commonplaces and media conformations. This analytical framework, with its clear Foucauldian influence,[5] emphasizes the cultural and *ideological* dimensions of these recurring topoi. As Huhtamo himself reminds us, "In the era of commercial and industrial media culture, it is increasingly important to note that topoi can be consciously activated and ideologically and commercially exploited."[6]

The focus on *topoi* also recalls a fundamental element in the discipline of literary studies,[7] where the concept defines a series of thematic, stylistic, and allegorical clichés which, through their repetition, produce the "building blocks" for a particular cultural tradition. This connection,

2   Think also of the derogatory use of the English adjective "common" as "typical of a low social class" that well indicates the ideological and class-related feature of the term. See: "COMMON | Meaning in the Cambridge English Dictionary," dictionary.cambridge.org, n.d., https://dictionary.cambridge.org/dictionary/english/common, accessed September 26, 2024.
3   E. Huhtamo, "From Kaleidoscomaniac to Cybernerd:" 303.
4   The term derives from the geological time considerations of the volcanologist James Hutton, see J. Hutton, *Theory of the Earth* (Edinburgh: Royal Society of Edinburgh, 1788). On this subject, see also S. Baxter, *Ages in Chaos: James Hutton and the Discovery of Deep Time* (New York: Tor Books, 2004). On the media archaeological perspective on deep time see: S. Zielinski, *Deep Time of the Media: Towards and Archaeology of Hearing and Seeing by Technical Means* (Cambridge MA: MIT Press, 2006).
5   Foucault's contribution to media archaeology is central. *The Archaeology of Knowledge* not only introduces the semantic shift of the discipline of archaeology, but also provides a method that questions the construction of our present and the devices – necessarily discursive in Foucault – which, through the lens of a more or less recent past, explain the systems of our contemporaneity. See: M. Foucault, *The Archaeology of Knowledge* (1969) (New York: Pantheon Books, 1978); C. Koopman, *Genealogy as Critique: Foucault and the Problems of Modernity* (Bloomington: Indiana University Press, 2013). On the specific and still very important issue of the relationship between archaeology, genealogy and media studies see: A. Monea, J. Packer, "Media Genealogy and the Politics of Archaeology," *International Journal of Communication* 10 (2016): 3141-59.
6   E. Huhtamo, "From Kaleidoscomaniac to Cybernerd:" 301.
7   The reference, as Huhtamo (cit.) reminds us, points to E. R. Curtius and his study of clichés or topoi across various forms of Western literature throughout the centuries. See E. R. Curtius, *European Literature and the Latin Middle Ages* (1948), trans. W. R. Trask, (London: Routledge and Kegan Paul, 1979).

as argued here, could establish a renewed link between a media archaeological approach to media discursivity and the broader context of allegorical language studies, with special attention to the field of *metaphorology*. The metaphor, as we will see, is indeed one of the main discursive strategies that Holmes employs, not only to describe the technological and intellectual revolutions that stereography brought about in the mediascape of his time, but also, and above all, to indicate a mental and moral approach to his technology.

In line with perspectives from philosophical anthropology[8] and linguistics,[9] metaphor does not appear merely as a simple semantic ornament or as a distraction from purely conceptual discourse. Rather, it constitutes a form of thought, a quality that enables us to make sense of the world, alongside other discursive devices broadly linked to narration.[10] A detailed study of metaphor is not the subject of this analysis, which instead seeks to propose a firm bond between the structures of metaphorical language and the ways in which we think about, use, and attribute meaning to certain media apparatuses and, more broadly, to the technoscape of an era.

Let us start, for example, with the machines we will examine: *immersive* technologies. The term, as conceived here, describes optical technologies that combine wearability with the exclusion of the spectator's immediate surroundings, like stereoscopes or their virtual "descendants" such as Virtual Reality headsets. These apparatuses are primarily characterised by a discursive metaphor.

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8   The main reference is to H. Blumenberg, *Paradigms for a Metaphorology* (1960) (New York: Cornell University Press, 2011).
9   See G. Lakoff and M. Johnson, *Metaphors We Live By* (1980) (Chicago: University of Chicago Press, 2003).
10   Blumenberg acknowledges the inherently narrative value of metaphor and other rhetorical figures, a component that contributes to making sense of the world, as in the case of mythopoiesis: "What has become identifiable by means of a name is raised out of its unfamiliarity by means of metaphor and is made accessible, in terms of its significance, by telling stories." H. Blumenberg, *Work on Myth*. trans. R. M. Wallace (Cambridge MA: MIT Press, 1985): 7.

Immersion, after all, is a *metapherein*, a transfer of meaning that shifts a physical action – the enveloping encounter with a liquid – towards a perceptual condition and, in this case, a medium specificity. However, it is important to highlight here, by referring to the ideological aspects of the *topos*, that this metaphor leads us to transversal connotations: immersion discursively activates a gestural and performative component – the term's etymology[11] is rooted in the scenic action of *diving* – thereby emphasising the active and multisensory nature of the immersive process. Yet, this sensory path also acquires another shift in meaning: the immersed subject is directly engaged with the iconic world, losing the distance of aesthetic contemplation and, with it, the *moral virtue* traditionally associated with detached perception. The immersed individual, especially in the latter half of the 19th century, becomes a subject of mockery, a figure found in parodic iconography,[12] deceived or defrauded in various ways which, ultimately, acquires a negative socio-moral connotation, often associated with improper and scandalous eroticism with the machinic.[13]

It is precisely from this moral geography of the device that Holmes promotes not only a different ergonomics but also, and more importantly, a distinct, cultured, and refined discursive genealogy of the apparatus, with the aim of contrasting the negative connotations associated with it. Among the tools of this dual "project," metaphor, allegory, and other forms of *metapherein* take centre stage and help us to understand the success of the device in the United

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11   Composed of the prefix "*in*" and the verb "*mergere,*" meaning to plunge. See: https://www.etymonline.com/word/immersion

12   On the issue see: R. Balzer, *Peepshows: A Visual History* (New York: Abrams, 1998). The collection of images published by Balzer shows many instances of social settings in which men of different social classes suffer various kinds of deception precisely because of their immersion in optical devices.

13   Particularly relevant in this respect is Baudelaire's heartfelt denunciation (1859) of the thousands of individuals making use of these stereoscopic devices. Indeed, Baudelaire was particularly concerned with the obscenity that the distorted bodies on the apparatus could demonstrate. It is no coincidence that the poet immediately associated this aspect with erotic-pornographic material. See C. Baudelaire, "On Photography," (1859) in J. Mayne, ed., *The Mirror of Art* (London: Phaidon Press Limited, 1956).

States of that period, along with a broader ideological and colonial system associated with technical reproduction, immersion and the illusion of three-dimensionality.

The Ergonomic Metaphors of the Apparatus[14]

As anticipated, this metaphorological media archaeology can only start from the material and ergonomic conformation of the device in question. Far from being a mere technical feature, ergonomics already speaks to us of certain media characteristics and their socio-moral connotations. A metaphorology without words, we might call it, but which suggests a way of thinking and categorising a medium and its social role.

Stereoscopic technology was – and still is – based on a simple optical-physiological trick: two images, captured using a specialised dual-lens camera, are placed in a device with two lenses that separate the visual field for each eye. Our perceptual system "fuses" these images, creating an illusion of three-dimensionality, akin to our everyday visual perception. The stereoscope, developed in England as early as the 1840s, took on various material forms. However, the earlier and European versions of the device, such as the Brewster-Duboscq (Fig. 1), were, one might say, *uncomfortable* devices. These earlier models required the user to *observe* – following Crary's interpretation of the term[15] – a set of challenging rules, postures, and optical techniques for proper functioning. As previously mentioned, such demands contributed to the morally ambiguous

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14   The term seeks to highlight the theoretical convergence between media technologies and socio-political structures. Specifically, the terminological choice aims to emphasize the etymological sense of the word – namely, the act of preparing and arranging an image on a medium – while intersecting it with political-identity perspectives in Foucauldian subjectification and ideological interpellative propagation as theorized by Althusser, Cf. A. Pinotti and A. Somaini, *Cultura Visuale. Immagini, sguardi, media, dispositivi* (Turin: Einaudi, 2016).
15   This refers to the observance of scenic and, above all, ideological-political rules which, according to Crary, optical devices such as the stereoscope "imposed" on their audiences in the 19th century. See J. Crary, *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* (1990) (Cambridge MA: MIT Press, 2012).

connotations of the stereoscope and other peep media, which shared similar postural and perceptual requirements.

Fig. 1 – Lenticular or "Brewster" stereoscope (creative commons copyright: Museo nazionale della scienza e della tecnologia Leonardo da Vinci, Milan)

Holmes, together with Joseph L. Bates,[16] developed a new version of the lenticular stereoscope between 1859 and 1861, introducing it to the broader American public. The Holmes-Bates stereoscope was a portable but open device. It "exploded" and revealed its workings to the eye while combining it with a high degree of comfort and portability. The device consists of three main elements (Fig. 2): a handle, a mask with two lenses – which enhances the process of three-dimensionality and the exclusion of the observer's surroundings – and a space for the stereographic strip, held by two metal parts.
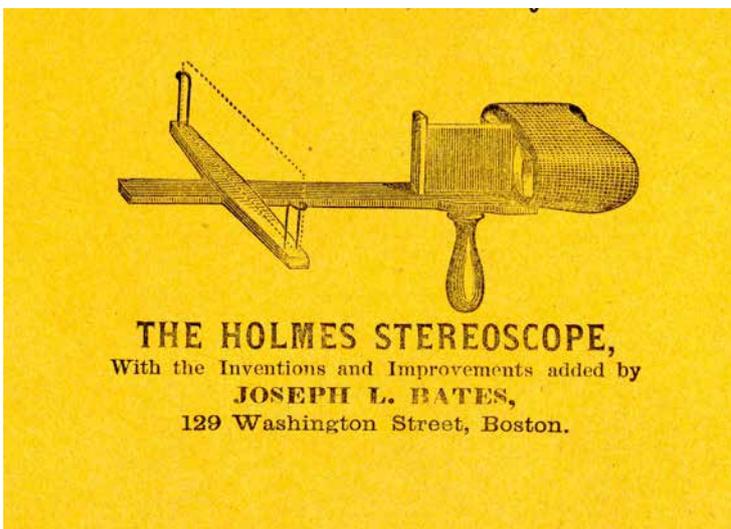

Fig. 2 – Advertisement for the stereoscope designed by Oliver Wendell Holmes and Joseph L. Bates. Boston Medical Library Artifact Collection.

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16   Bates, a merchant and manufacturer from Boston, was the first to produce and distribute Holmes's stereoscope. It is important to note that the patent for this apparatus was never registered by Holmes, allowing it to be freely reproduced.

The success of this technology was determined by the lower production costs compared to the closed Brewster-type boxes, the greater ergonomic comfort, and the solution to the problem of image illumination. The Holmes-Bates stereoscope allowed a more complete visibility of the stereographic strip, allowed by the ambient lighting. As Holmes himself stated in his emphatic promotional prose: "an instrument which may be held in the hand that is very convenient. We have had one constructed which is better, as we think, than any in the shops."[17]

The emphasis on the portability of the device – "which may be held in the hand" – allows us to focus on a number of seemingly marginal elements that were nevertheless essential to the construction of the immersive experience. In line with the chiasmus between immediacy and hypermediation,[18] an archaeology of immersion cannot but take into account the interstitial spaces and elements that construct the performative rituality of absorption in the image, as in the case of the various ways in which the observer materially manipulates the optical apparatus.[19] The Holmes-Bates stereoscope was, in fact, easier to operate, and the presence of a wooden handle, often carved so as to improve ergonomics, imposed greater control over the technology. The ergonomic and commercial revolution of the Holmes-Bates type was probably also meant to put the device back "at the service" of its user. Holmes' stereoscope *tamed* this machine of the visible and, in a sense,

17   O.W. Holmes, "Sun-Painting and Sun-Sculpture: With a Stereoscopic Trip across the Atlantic," *The Atlantic Monthly* (July 1861): 13-29, 29.
18   Following Bolter and Grusin, if immediacy is often shaped by hypermediation – that is, through the multiplication of technical components and mediating "layers" within a device – examining the nature of these layers, including secondary elements such as the handle, may provide insight into the broader medial, social, and ideological functions of certain optical devices. See J. D. Bolter and R. Grusin. *Remediation: Understanding New Media* (Cambridge MA: MIT Press, 1999).
19   This "aesthetic ecology of things" of Simmelian matrix also helps in methodologically defining an archaeology of ergonomics, always focused on the material conformations of the devices and objects in question. See E. De la Fuente, "Frames, Handles and Landscapes: Georg Simmel and the Aesthetic Ecology of Things," in T. Kemple and O. Pyyhtinen, eds., *The Anthem Companion to Georg Simmel* (London: Anthem Press, 2016).

purged it of some of the obscenity or moral ambiguities it was often accused of.

The seemingly secondary presence of a handle thus demonstrates a sense of renewed dominance over the device and the three-dimensional image it conveys, a process that is further intensified by the clear class connotations associated with the Holmes technology. The presence of the handle suggests in fact a precise posture, probably more comfortable, but above all more in keeping with the moral canons of the time. Unlike the Brewster type, the Holmes-Bates version can be counted among the family of optical instruments, characterised by their *partial* wearability and supported by a handle. This is the case with the *lorgnette*[20] (Fig. 3), a form of corrective spectacles that was closely associated with upper-class femininity, symbolising both social grace and moral propriety while subtly evoking erotic allure.

Fig. 3 – Folding set of Lorgnettes spectacles, Bedford Museum, Bedford.

20   On this subject, see C. Willett Cunnington, *English Women's Clothing in the Nineteenth Century: A Comprehensive Guide with 1,117 Illustrations* (New York: Dover Publications, 1990).

This dual function was amplified in variations like the *fan lorgnette* (Fig. 4), which combined optical utility with the social codes of seduction and modesty, typical of Victorian stereotypes of femininity[21].
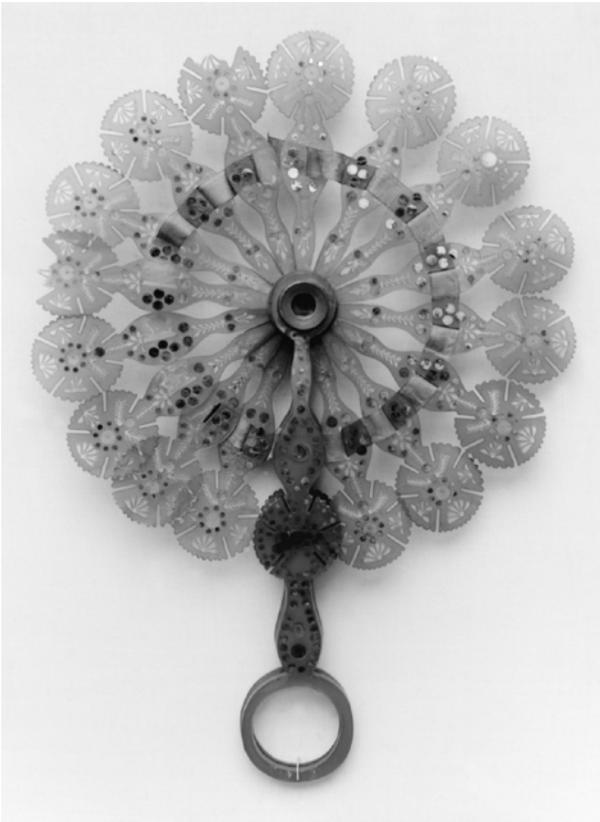

Fig. 4 – Lorgnette fan, French, early 19th century. The Moses Lazarus Collection, Gift of Josephine and Sarah Lazarus, in memory of their father, 1888-95. Metropolitan Museum of Art, New York.

By the late nineteenth century, the lorgnette inspired the design of opera glasses – richly decorated, long-handled devices that became status symbols of the aristocracy and the rising industrial bourgeoisie. The ergonomic link between these devices and the Holmes stereoscope shifted the latter technology from the morally ambiguous realm of "attractions" to tools of social distinction, reinforcing the elite's control over emerging media technologies.

The veiled desire concealed in the handle of the opera glass or the Holmes-Bates stereoscope can thus be traced back to a desire to *frame* and thereby control not only the image produced by these devices but also the

21   On the subject see Giuliana Bruno's reflections, developed in *Atlas of Emotion: Journeys in Art, Architecture, and Film* (New York: Verso Books, 2002) on the function of the fan for women as an extension of their identity, linked to intimacy, desire and social practices.

somatechnical interrelationship that more radical – and obscene – wearability would have allowed.

The Discursive Topoi of the Holmes-Bates Stereoscope: Erosion of Reality

A media archaeological analysis, such as the one undertaken here, employs a methodological approach that highlights the correlation between material and discursive devices. This approach also extends to the textual apparatuses that, as in this case, played a role in the promotion and marketing strategies of a given medium. This discursive production, characterised by extensive use of allegories and metaphors, once again aids in understanding how technology was made sense of and, more broadly, how the revolution of three-dimensional technical reproducibility was interpreted by Holmes in his time.

The first of the articles under consideration here, "The Stereoscope and the Stereograph," inaugurates Holmes' discursive architecture on the device. Published in June 1859, it defines the role of photography in the construction of "self-portraits of nature," anticipating, as Fiorentino[22] noted, Walter Benjamin's insight into the role of technical reproducibility in the construction of urban social geography. The piece begins, as befits a "poet laureate," with a reference to ancient philosophy:

Democritus of Abdera [...] believed and taught that all bodies were continually throwing off certain images like themselves, which subtile emanations, striking on our bodily organs, gave rise to our sensations. [...] Forms, effigies, membranes, or *films*, are the nearest representatives of the terms applied to these effluences. They are

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22   G. Fiorentino, *Il Flaneur e lo spettatore. La fotografia dallo stereoscopio all'immagine digitale* (Milan: Franco Angeli, 2014).

perpetually shed from the surfaces of solids, as bark is shed by trees.[23]

The incipit of the article draws from the Greco-Latin genealogy an essential physiological positioning; "forms, effigies, membranes or films" are "shed" from the surface of solids, powerfully indicating the process of flattening of the three-dimensional image occurring upon the contact of solid reality with the membrane of the cornea, typical of the physiological interpretation at the time.[24] Holmes continues in his description of the films of matter, stating that

These evanescent films may be seen in one of their aspects in any clear, calm sheet of water, in a mirror, in the eye of an animal by one who looks at it in front, but better still by the consciousness behind the eye in the ordinary act of vision.[25]

The films of matter are thus visible on natural (water), artificial (mirrors) and biological (an animal's eye) surfaces. In the case of the human being, however, the materialisation of these films does not take place on a concrete surface but "through the consciousness behind the eye." Nevertheless, Holmes defines the archaeology of image technical reproducibility, opening up a confrontation with the atmospherology of projection,[26] which focuses on the alchemical nature of screens and the role of light

23 O.W. Holmes, "The Stereoscope and the Stereograph:" 738.
24 This refers above all to the widespread European debate on the physiology of binocular perception, which also saw prominent figures in stereoscopic technology such as Wheatstone and Brewster among its protagonists. See: N. Wade, *Brewster and Wheatstone on Vision* (Amsterdam: Elsevier Science, 1983).
25 O.W. Holmes, "The Stereoscope and the Stereograph:" 738.
26 In *Atmospheres of Projection*, Bruno deals with the elementality of projective processes. Bruno's in a sense archaeological perspective crosses the alchemical value of surfaces with the representational, medial and ideological processes of projected light. The conceptual adherence is in this case derived from the (rhetorical) attention that Holmes proposes with respect to the material, elemental and "natural" supports of the impression of the image. See: G. Bruno, *Atmospheres of Projection. Environmentality in Art and Screen Media* (Chicago: University of Chicago Press, 2022).

projection. Furthermore, Holmes immediately defines his position in relation to optical physiology, conceiving the image as an act of consciousness, physically "behind the eye" and determined by the primacy of sight-mind in the construction of perception.

After an emphatic description of the blazing modernity of, first, the daguerreotype and, second, photography, understood as "a mirror with a memory"[27] and "sun-painting," Holmes devotes the third section to the stereoscope itself, beginning with a brief but effective description of the apparatus:

A stereoscope is an instrument which makes surfaces look solid. All pictures in which perspective and light and shade are properly managed, have more or less of the effect of solidity; but by this instrument that effect is so heightened as to produce an appearance of reality which cheats the senses with its seeming truth.[28]

In this case, this illusion is further specified by the term cheat, which refers to the sphere of fraudulent games or gambling as well as stage magic. This aspect surely hints, on the one hand, at perceptual tricks in the context of attractions and coin-operated machines, a central market for the stereographic and, later, the film industry.[29] On the other hand, the interesting conceptual chiasmus of Holmes' perspective, however, is the association of this illusion with a supposed visual *truth*, a system typical

27   The wording "mirror with memory" would be among the most successful photographic metaphors of the nineteenth and twentieth centuries. The alliance between the mirror and the photographic device was essential, especially at the time, in promoting the indexical qualities of photography. See E. A. Poe, "The Daguerreotype." *Alexander's Weekly Messenger*, (January 15, 1840) and A. Bazin, "The Ontology of the Photographic Image," (1945) in H. Gray, ed., *What Is Cinema*, Vol. 1 (Berkeley: University of California Press, 1971)
28   O.W. Holmes, "The Stereoscope and the Stereograph:" 742.
29   On the connection between optical devices, stereoscopes and "attractions," see: J. Plunkett, "Selling Stereoscopy, 1890-1915: Penny Arcades, Automatic Machines and American Salesmen," *Early Popular Visual Culture* 6, no. 3 (2008): 239-55, https://doi.org/10.1080/17460650802443027; W. Strauven, *The Cinema of Attractions Reloaded* (Amsterdam: Amsterdam University Press, 2006).

of the cultural (and popular) response to the new machines of the visible of the time.[30]

In the next section of the article, devoted to a purely physiological disquisition on the device and its illusions, Holmes provides a popularisation of the binocular perceptual process that is particularly intriguing for a theory of haptics:[31]

We see something with the second eye which we did not see with the first; in other words, the two eyes see different pictures of the same thing, for the obvious reason that they look from points two or three inches apart. By means of these two different views of an object, the mind, as it were, *feels round* it and gets an idea of its solidity. We clasp an object with our eyes, as with our arms, or with our hands, or with our thumb and finger, and then we know it to be something more than a surface. This, of course, is an illustration of the fact, rather than an explanation of its mechanism.[32]

Holmes' proposal of a synaesthetic description of sight, touch and consciousness would go on to have a strong appeal to his readers and determine the discursive success of the stereoscopic device. The mind "feels" an object by means of two points of view. This making equivalent of sight and touch in the hierarchy of the senses is, in Holmes' case, transformed into a rhetorical and discursive trick to present a material device capable of deceiving the senses while at the same time verifying their functioning.

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30   On the question of photography as a tool, symbol and symptom of nineteenth-century positivist culture, see H. Molderings and G. Wedekind, *L'évidence photographique la conception positiviste de la photographie en question* (Paris: Maison des sciences de l'homme, 2009); D. Dufour, C. Delage, *Images à charge: La construction de la preuve par l'image* (Paris: Le Bal, 2015).

31   We are referring to the perspective opened up by Riegl, but above all to the "reversal" of the haptic-optical regimes proposed by Benjamin, which, given its focus on optical technologies of image reproduction, is particularly consistent with the perceptual "revolution" of the stereoscope and the illusion of solidity given by the apparatus, which retains, albeit with due differences, the ballistic quality that Benjamin recognised in the new media of his time. See: W. Benjamin, "The Work of Art in the Age Mechanical Reproduction," (1935), in *Illuminations* (1968) (New York: Schocken Book, 2007); A. Riegl, *Late Roman Art Industry* (1901) (Rome: Bretschneider Giorgio, 1985).

32   O.W. Holmes, "The Stereoscope and the Stereograph:" 742.

By means of a mirror with a memory – photography – the stereographic device is able to reproduce a part of nature with all of its apparently indexical *truth*.

What happens then when the stereographic strip is inserted into the proper stereoscopic apparatus? Holmes continues with his usual emphatic description:

The first effect of looking at a good photograph through the stereo–scope is a surprise such as no painting ever produced. *The mind feels its way into the very depths of the picture.* [...] Then there is such a frightful amount of detail, that we have the same sense of infinite complexity which Nature gives us.[33]

The discursive system promoted by Holmes in this passage introduces some *topoi* that are essential in understanding the recurring rhetoric on new technologies and immersion. On the one hand, Holmes states that the new stereographic medium is "a surprise such as no painting has ever produced," implying a fundamental rethinking of the illusionist schema of pictorial perspective. On the other hand, in the light of the physiological processes described above, "the mind feels its way into the very depths of the picture," thus defining for Holmes the typically *projective* possibility of stereoscopy, in which the perceiving subject is launched, rather than immersed, into the inhabitable depths of the image.

In the conclusion of the essay, Holmes imagines, in a futurological afflatus, the potential prospects of stereoscopic technology. Drawing on an imaginative process typical of the nascent genre of science fiction,[34] he continues with a piece full of aesthetic implications:

33   Ibid.: 743.
34   See M. Bould, *The Routledge Companion to Science Fiction* (London-New York: Routledge, 2009), in particular, ch. 2.

Form is henceforth divorced from matter. In fact, matter as a visible object is of no great use any longer, except as the mould on which form is shaped. Give us a few negatives of a thing worth seeing, taken from different points of view, and that is all we want of it. Pull it down or burn it up, if you please.[35]

With the powerful locution of "form divorced from matter," Holmes condenses and, above all, anticipates much of the twentieth-century reflection on the status of the technical and, one would add today, the virtual image. The loss of aura announced by Benjamin in the 1930s cannot but resonate with this separation of form from matter: the *cult* value of the original, now not only technically reproduced but also illusorily restored to its concrete, solid, three-dimensional nature, becomes a simple "mould on which form is shaped." Matter – states Holmes with an significant dose of irony[36] – is only useful as a mould imprinted in photographic negatives: whether they are destroyed or set on fire, all that matters is that the things that should be seen, archived and transmitted are recorded by the sun-painting of stereography.

As West[37] notes, however, Holmes' prose points to a more complex system of values that also anticipates the postmodern and simulacral perspective on "reality" and simulation. In particular, stereoscopy in Holmes' prose is an important actor (material and discursive) in the construction of what Baudrillard called the "weightless system" of capitalism, a system that "is no longer anything but a gigantic simulacrum, never again exchanging for what is real, but exchanging in itself, in an uninterrupted circuit

35   O.W. Holmes, "The Stereoscope and the Stereograph:" 747, emphasis in the original.
36   Nancy M. West links Holmes' literary irony to an awareness of the socio-philosophical changes of his time, which included photo-stereography: "Holmes uses irony, a trope that allows him to explore the paradoxes of the invention, its potent conflation of depth and surface, intimacy and alienation." N.M. West, "Fantasy, Photography, and the Marketplace: Oliver Wendell Holmes and the Stereoscope," *Nineteenth-Century Contexts* 19, no. 3 (1996): 231-58, 237, https://doi.org/10.1080/08905499608583425.
37   Ibid.

without reference or circumference."[38] The capitalist-simulacral entanglement interspersing the lines of this first article by Holmes is further confirmed by a passage shortly afterwards in which the author, maintaining the ironic perspective of his prose, suggests a new system of monetary exchange based on stereographs:

As a means of facilitating the formation of public and private stereographic collections, there must be arranged a comprehensive system of exchanges, so that there may grow up something like a universal currency of these bank-notes, or promises to pay in solid substance, which the sun has engraved for the great Bank of Nature. Let our readers fill out a blank check on the future as they like – we give our endorsement to their imaginations beforehand.[39]

This passage, part of a rhetorical speculation on the possible future of stereoscopic technology, invites a twofold reflection. On the one hand, it emphasises the *metaphorical* reception of the technical reproduction of the image: just as banknotes are a material (and two-dimensional) support of economic value – established, at least at the time, by a financial attribution system linked to the calculation of a particular nation's gold reserves – so stereography becomes a "promise to pay in solid substance," an indexical counterpart to its referent. Stereographic banknotes are thus printed for the "Great Bank of Nature." Nature, the bio-bank institution of the perceptible, reconnects and confirms the discursive nexus of stereophotography as the principal device in the technical reproduction of part of visual truth. At the same time, the passage seems to be

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38   J. Baudrillard, *The Ecstasy of Communication* (Los Angeles: Semiotext(e), 1988): 170.
39   O.W. Holmes, "The Stereoscope and the Stereograph:" 748.

framing a more subtle argument about the interrelationship between money, capitalism and photography.

Stereoscopy as a banknote and photography as a technical prosthesis of capitalism are expressions that are fundamentally concerned with the perceived erosion of the real that such systems inaugurated in those very decades. This association is even more effective when we recall, as Trachtenberg[40] does, that at the time of Holmes' writing, the United States was emerging from more than two decades of severe unemployment and inflation,[41] challenging the myth of eternal economic growth and American capitalism.

From a Marxian perspective, the emergence of speculative capital is rooted in the separation between productive activity itself and the expectation of future accumulation. Indeed, it is no coincidence that Marx himself uses a metaphor akin to that of optical illusions to describe this process, arguing that "everything in this [financial] system appears in duplicate and triplicate and is transformed into a mere *phantom of the mind*."[42] In effect, this represents a model, that of the erosion of reality by the technologies that allow its technical reproduction, which is closely related to the more general anxiety determined by simulation, and the detachment from a concrete economic value system.

We have thus seen how Holmes's discursive framework surrounding stereoscopic technology presents a complex metaphorical system, suggesting the potential role of technology in undermining reality. However, the author's writing introduces additional metaphors that

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40   A. Trachtenberg, *Reading American Photographs. Images as History* (1989) (New York: Hill and Wang, 2008).

41   "Playing on popular anxieties about inflated paper money since the crash of 1837 (aggravated by another bank failure in 1857), Holmes offered the stereographically enhanced photograph as a new form of security between an image and what it claims to represent." Ibid.: 18.

42   K. Marx, *Capital: A Critique of Political Economy,* Vol. 3 (1867) (Harmondsworth: Penguin, 1991): 603, emphasis mine). On the link between Marxian perspectives and optical metaphors and technology see P. Väliaho, *Projecting Spirits: Speculation, Providence, and Early Modern Optical Media* (Stanford CA: Stanford University Press, 2022):174.

position technology as a force of aggression, or even a form of "hunting" the real, deeply characterized by colonial and imperialist attitudes.

The Discursive Topoi of the Holmes-Bates Stereoscope: Aggression towards Nature and "Stereoscopic Picturesque"

In an earlier paragraph of the same 1859 article, Holmes provides a different metaphorical description of photographic capture that, while still in keeping with the irony of the prose, has many implications for the logics of immersion analysed here. In the regimen of futurological speculation, Holmes imagines the stereographers of the future as fur trappers:

We have got the fruit of creation now, and need not trouble ourselves with the core. Every conceivable object of Nature and Art will soon scale off its surface for us. Men will hunt all curious, beautiful, grand objects, as they hunt the cattle in South America, for their skins, and leave the carcasses as of little worth.[43]

The image as skin is a topos of widespread appeal, as Holmes himself demonstrates at the beginning of his text quoting the Lucretian theory of emanations. What seems particularly significant in this passage, however, are the allegorical, mediological and, more broadly, political consequences implied by the metaphor of the hunter. The stalking of the image is a widely used topos in the same period, turning the photographic lens into an instrument of *aggression* against reality. One thinks of the case of the photographic rifle developed by Marey in 1882, a perfect crasis between hunting and photography, which materialises a device aimed at capturing the movement, for example,

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43   O.W. Holmes, "The Stereoscope and the Stereograph:" 748.

of the flight of birds, twice-fold "victims" of the aggressiveness of the photographic hunter's eye.[44]

Sontag further specifies the connection between photography, killing and technical reproduction, noting how the scopic regimes of hunting were replaced by those of the machine in the context of the safari: "Instead of looking through a telescopic sight to aim a rifle, they look through a viewfinder to frame a picture."[45] That shift from the rifle to the camera also decrees a different status for the concept of nature, no longer an ecosystem against which to be defended but, rather, an environment to be protected, reproduced and archived.

Holmes' article describes, albeit with ironic emphasis, exactly this process: men (in this case, in the double sense of human and male) hunt stereographs just as one hunts *exotic* animals. For an American like Holmes, the reference to South America as the destination of the natural and primitivised Other is not coincidental and reflects the logic of othering[46] typical of the cultural, visual and, we would add here, stereographic colonialism of the time. The global South– South America, Africa and the so-called Middle East – is the preferred site of this hunt for images, whose skins are then transported, archived and activated by the devices in question. The specificity of the American media ecosystem is also imbued with the same projective model, which, in line with proto-simulacral thought, implies the will to control its subjects (both human and non-human), places and cultures through its stereoscopic double.

The paradigm of the skin-image and the violence of flaying, also akin to the practice of hunting

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44   On chronophotography in Marey, see É.J. Marey, *Le Mouvement* (Paris: G. Masson, 1894); M. Braun, *Picturing Time: The Work of Etienne-Jules Marey* (1830-1904) (Chicago: University of Chicago Press, 1994).
45   S. Sontag, *On Photography* (New York: Picador, 1977): 11.
46   On the role of visuality on the colonial othering process, see J. Khrebtan-Hörhager, *Communicating the Other across Cultures* (Ann Arbor: University of Michigan Press, 2023), especially ch. 2.

mentioned earlier, returns in a later article by Holmes, written in 1861 again for The Atlantic Monthly. "Sun-Painting and Sun-Sculpture" begins with a reference to ancient Greek mythology, as is typical of the author's prose, recalling the story of Dionysus and Marsyas. For Holmes, this myth became an unprecedented and "cultured" genealogy of stereo-photography. The author, who emphasises the association between Apollo and the sun, of which he is the deity and symbol, finds in the barbarity practised on Marsyas a desire to technically reproduce an image:

But the God of Song was also the God of Light, and a moment's reflection reveals the true significance of this seemingly barbarous story. Apollo was pleased with his young rival, fixed him in position against an iron rest, (the tree of the fable), and took a photograph, a sun–picture, of him. This thin film or *shin* of light and shade was absurdly interpreted as being the cutis, or untanned leather integument of the young shepherd. The human discovery of the art of photography enables us to rectify the error and restore that important article of clothing to the youth, as well as to vindicate the character of Apollo.[47]

What is of interest here are the metaphoric implications and discursive themes that this passage associates with the photographic and stereographic device. The equation proposed by Holmes in this 1861 article links the photographer with the punishing deity. The reference to Marsyas is not, however, exclusively ornamental: the satyr, in antiquity the symbol of an untamed, impertinent and highly sexualised naturalness, is punished for his hubris by the deity of light. Apollo's photographic process is, thus, a further confirmation, in the discursive and metaphorical realm of the stereographic medium, of the predatory attitude with which the technology was intended to be

47   O.W. Holmes, "Sun-Painting and Sun-Sculpture:" 13.

communicated. Hunting and skinning are processes that attack its subjects (in this case, non-human or near-human) that are victims of technical reproduction. Just as Apollo tames the faun, man technically reproduces the natural, thereby defusing its subversive potential.

This view, as Teukolsky notes, resonates with the long and contemporary tradition of the *picturesque*. For the author, "the stereoscope functioned as a Victorian remediation of Romantic philosophy, a kind of organic machine and prosthesis attached to the spectator's body that enabled an extraordinary, humanistic experience."[48] The picturesque, as defined by Gilpin,[49] describes the relationship of the natural, understood as landscape, with the image (picture). The requirement of the picturesque, which as an aesthetic category originated in landscape and garden architecture, envisages a skilful, partial but *transparent* control of natural and botanical elements. Unlike Italian gardens and other landscape styles typical of modern Europe, the picturesque, which, like the stereoscope, originated in England, involves a manipulation that must "be as various, wild, and free as Nature's self."[50] This short-circuit between the natural and the manipulated is thus consistent with the discursive devices that Holmes and the press of the time applied to stereoscopic technology, while expressing what W.J.T. Mitchell recalls on landscape painting, understood as "the 'dreamwork' of imperialism."[51] Indeed, one of the main themes of stereography was the view of landscapes or urban realities, providing a technical equivalent to the forms of proto-tourism of the time. A virtual grand tour that expressed colonial attitudes of expansion and integration.

48   R. Teukolsky, *Picture World: Image, Aesthetics, and Victorian New Media* (Oxford: Oxford University Press, 2020).
49   W. Gilpin, *Three Essays: On Picturesque Beauty; On Picturesque Travel; and On Sketching Landscape* (London: R. Blamire, 1792).
50   W. Mason, *The English Garden: A Poem in Four Books* (Dublin: P. Byrne, 1786): 33.
51   W.J.T. Mitchell, "Imperial Landscape," in W. J. T. Mitchell, ed., *Landscape and Power* (Chicago: Univ. Of Chicago Press, 1994): 5-34

In this stance towards the natural, reproduced and controlled Other, landscape painting and its stereoscopic remediation became "packaged commodities," contributing to the fetishisation of distant *loci*. This sentiment is further emphasised by the compositional qualities of the landscape genre, whose bird's eye view recalls the distant, top-down control that nascent aerial technologies inaugurated over the natural and urban environment.[52] It is a compositional instrument which, in its stereoscopic remediation, discovers an unprecedented possibility of incorporation due to its illusionistic and immersive qualities: a type of attitude towards stereoscopic technology which, therefore, was profoundly imbued with the "deep-seated western desire to erode the gap between the viewing subject and non-local object"[53]– a process of proto-othering that found in the apparatus a new ally in this predation.

Teukolsky indeed, recalling Nochlin,[54] used the term *picturesque* precisely to refer to the construction of the colonial Other as an assemblage of static representations and stereotypical models produced for the pleasure of the Western eye. The system of the stereoscopic picturesque seems, therefore, to imply, even in Holmes' prose, an important partner in the visual colonialism of the time and in the production of a stereotypical, classifiable, reproducible and archivable extra-Western world. There is, however, an important characteristic of the pictorial subject in question: it is not disembodied, as the Cartesian perspective would have predicted, but strongly incorporated. The virtual traveller described by Holmes in many passages[55] is equipped with a sensory apparatus because of the haptic qualities

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52   On the broad scope of aerial vision in architecture and urbanism, see: P. Adey, Aerial Life (Hoboken NJ: John Wiley & Sons, 2010); M. , F. Pousin, eds., *Seeing from Above. The Aerial View in Visual Culture* (New York: Palgrave Macmillan, 2013).
53   J. Plunkett, "'Feeling Seeing': Touch, Vision and the Stereoscope," *History of Photography* 37, no. 4 (2013): 389-96, 396, https://doi.org/10.1080/03087298.2013.785718.396.
54   L. Nochlin, "The Imaginary Orient," in L. Nochlin, ed., *The Politics of Vision: Essays on Nineteenth-century Art and Society* (London-New York: Routledge, 1989).
55   O.W. Holmes, "Sun-Painting and Sun-Sculpture:" 19-29.

of the technology, therefore virtually providing them with a form of vicarious agency over technically reproduced places and subjectivities.

An augmented and bifurcated form of the predatory trajectory towards the "othered," exotic, and subordinate real, applied both to "image-making" and "image-viewing." Stereography, driven by its metaphors and rhetoric, on the one hand, assaults the world with visual "weapons" that strip away layers of films from the tangible surface of a distant locus. On the other hand, the stereoscope permits a miniaturised visualisation, one that is tamed – recalling Marsyas – and always accessible to the bourgeois Western observer. This observer, however, is afforded the possibility to engage with an inhabitable and solid iconic world – subject, if only vicariously, to tactile manipulation and infused with a deeply illusionistic reality effect.

The stereoscope maintains an inherently ambiguous structure: it possesses an almost magical quality, capable of presenting solid objects in their very absence. This attribute aligns seamlessly with the places and the subjects that populate its photographic spaces. Echoing Said, the Orient and the colonial "elsewhere" are constructed by the Eurocentric imagination as realms filled with "monsters, devils, heroes; terrors, pleasures, desires."[56] These places, rendered as the mystical and primitive "Other," are nevertheless captured and dominated by the stereoscopic device that reproduces them in their solidity, as picturesque environments in the service of haptic immersion.

Conclusions

In conclusion, this paper has explored the complex intersection of technology, perception and ideology through the lens of Oliver Wendell Holmes' stereoscopic

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56   E.W. Said, *Orientalism* (New York: Vintage Books, 1979): 63.

device. By examining both the material and discursive dimensions of the stereoscope, it has shown how Holmes used metaphors of immersion to frame his technology as a cultural and moral force. The ergonomic design of the Holmes-Bates stereoscope not only made the device more accessible and comfortable, but also reshaped its socio-cultural connotations, distancing it from the moral ambiguities associated with earlier versions. Using a media archaeological and metaphorological approach, the study demonstrated how the rhetoric surrounding the stereoscope, with its promises of heightened realism and sensory immersion, reflected wider anxieties about the erosion of reality in the age of mechanical reproduction. In addition, the essay has shown how Holmes's writing framed the stereoscope as both a tool of technological innovation and a medium of colonial and imperial control, with metaphors of hunting, skinning and objectification. Ultimately, Holmes's discourse on stereoscopy reflects a profound shift in how emerging media technologies were understood and integrated into nineteenth-century cultural, social, and moral frameworks, anticipating many of the twentieth-century philosophical and ideological debates about simulation, perception, and the nature of reality itself.

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"PIERO MARTINETTI"