

ABOUT TIME:
PHOTOGRAPHY AND TEMPORAL REALISM

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ABSTRACT

Traditional temporal realism, a characterisation I introduce here, is the view that a photographic image is temporally indexed to an event that occurred at the time the image was created. Adherents include Roland Barthes, André Bazin and Kendall Walton. Time-restriction is a pitfall of this view: unique among visual arts, photography cannot produce images of scenes in the future or distant past. Advancing an approach known as the New Theory of Photography, I present a better way to understand temporal realism. By offering a multi-stage account of photography, I refute the imprinting model that lies behind traditional photographic realism and with it the view that photographic images are temporally indexed icons. Discussing forensic astronomy of a photograph by Ansel Adams and a painting by Claude Monet, I argue that temporal realism, properly understood, comes without time-restriction.

Keywords: New Theory of Photography, indexical icon, temporal realism, time-restriction

INTRODUCTION

The idea that every photograph captures a moment of time has been articulated by photographers, critics and curators as well as writers in photography theory, art history and philosophy. Here are two examples from a wide assortment:

When you capture an image you capture not only a piece of space, you also capture a piece of time. So you have this piece of specific time in your square or rectangle¹.

¹ D. Best, *Gerardo Suter*, in "Black & White Magazine for Collectors of Fine Photography", Issue 11, February 2001, p. 118



Precisely by slicing out this moment and freezing it, all photographs testify to time's relentless melt².

We find metaphorical reports that a photograph can 'capture', 'freeze', 'fix', 'preserve', 'embalm', 'arrest', 'seize', or 'record' a moment in time. If metaphor is replaced with theoretical terminology, a photograph is said to 'represent', 'present', 'signify', 'depict', 'reference', 'index', 'describe', 'document', or 'denote' a moment in time. Talk of the 'moment', 'slice', 'parcel', 'fragment', or 'piece' of time can be replaced with 'instant', 'period', 'duration', 'interval' or 'event'. For now, the phrase 'captures a moment in time' can be shorthand for the following idea: in some sense, the visual features of a photographic image are causally related to the visual features of a scene or an event as they existed during a particular time interval. I will call this 'temporal realism'³.

While something about temporal realism seems correct, much of what is claimed distorts the truth. I suggest that practitioners and theorists are led to imagine that a photograph ineluctably 'captures' the precise time interval that the photograph was taken by presupposing a 'single-stage' conception of photography. Rejecting the single-stage orthodoxy, I will deny that a photographic image is a causal imprint of the scene before the camera during the exposure time interval. This undercuts the influential but incorrect idea that a photograph is a temporally indexed icon.

I will present a 'multi-stage' conception of photography to explain how photographs 'capture' moments in time without the pitfalls of the orthodox view, such as the implication that photography is a time-restricted medium. Comparing a photograph by Ansel Adams with a painting by Claude Monet, I argue that the temporal origin of both kinds of picture puts no time constraints on the depicted scene. In sum: the single-stage view offers traditional temporal realism hindered by time-restriction, whereas the multi-stage view provides temporal realism free of time-restriction⁴.

PHOTOGRAPHS AS CAUSAL TRACES AND INDEXICAL ICONS

In some sense, the visual features of a photographic image are causally related to the visual features of a scene or an event as they existed during a particular time interval⁵. The task is to understand this causal relation. The view I will challenge claims that a photographic image is a causal 'trace' of the photographed scene and consequently every photograph is an 'indexical icon'. An indexical icon is a visual image whose iconic features have been entirely determined by, and so indexically reference, its causal origin. A footprint, for example, is an indexical icon insofar as it shares the shape of the foot that caused it to be impressed.

The 'indexical icon' originated with Charles Sanders Peirce but following attention from Rosalind Krauss and others, it escaped the confines of his strict taxonomy and circulates freely in photography discussions. For convenience, I use this term to target a general orthodoxy about images without directly engaging with Peirce's theory of icons. To gather different theories around core agreements, I will also attribute the index-

² S. Sontag, *On Photography*, Penguin, London 1977, p. 11.

³ Any theory of images, be it based on structure, resemblance, recognition, or experience, can in principle support temporal realism. I presuppose no specific theory in what follows.

⁴ This outcome highlights an advantage of the New Theory of Photography over Orthodox theories. Distinctive features of these competing positions are detailed in D. Costello, *What's So New about the "New" Theory of Photography?*, in "The Journal of Aesthetics and Art Criticism", 75/4, 2017, pp. 439-452.

⁵ Slit-scan photography will not be discussed. It is not a counterexample to my approach, but it raises different considerations.

ical icon to theorists who do not explicitly acknowledge the term⁶. Geoffrey Batchen succinctly presents the view as follows:

Light bounces off an object or body and into the camera, activating a light-sensitive [surface] and creating an image. Photographs are therefore designated as indexical signs, images produced as a consequence of being directly affected by the objects to which they refer. It is as if those objects reached out and impressed themselves on the physical surface of the photograph, leaving their visual imprint⁷.

Imprinting supplies the orthodox ‘causal trace’ model: the scene in front of the camera is said to ‘imprint’ or ‘impress’ its visual appearance, entirely through the action of light, onto a photosensitive surface during a timed exposure. A ‘captured’ photographic image can then be developed, printed and disseminated. As causal traces produced by this process, all photographs are said to be indexical icons: visual representations that indicate their causal origin. Although photography is associated with faithful visual realism, the visual features required for an indexical icon are a low bar. A blurred or badly exposed photograph need not accurately resemble a scene or enable the recognition of objects, but its status as an indexical icon that refers to the scene is supposedly secured by an exposure having taken place.

For present purposes, I take icons, or images, to be visual representations in a general sense that does not assume a specific theory of images and is neutral about natural, agential, or automated provenance⁸. I reserve the term ‘pictorial representations’ – ‘pictures’ – for a subcategory where it is relevant that the visual representation has pictorial content that is mindfully determined by an agent. The terms ‘represent’ and ‘depict’ follow this pattern, where ‘represent’ means ‘visually represent’. A typical footprint counts as a visual representation but not a depiction: it may represent a foot shape but does not depict anything⁹.

Strictly, only a visual image produced through an entirely causal process can be an indexical icon¹⁰. To the extent that visual features of an image are dependent on an agent’s mindful interactions, the image can be considered a picture, but those pictorial features do not causally index the depicted content¹¹. Standardly, non-photographic pictures such as drawings and paintings are not indexical icons¹². Photography harnesses a causal process that can be entirely automated, so the question whether photographic images can also be pictures has been debated. Traditional accounts of photography assert that a photograph is essentially an indexical icon so the principle that a picture has mindfully-produced visual features, but an indexical icon does not, is a recipe for scepticism about artistic photographic depiction¹³.

⁶ D. Cavedon-Taylor, *Arrangement and Timing: Photography, Causation and Anti-Empiricist Aesthetics*, in “Ergo: An Open Access Journal of Philosophy”, 7, 2021, pp. 877-903, employs the term “Causal Theories of Photography” to similar effect.

⁷ G. Batchen, *Forget Me Not: Photography and Remembrance*, Princeton Architectural Press, New York 2004, p. 31.

⁸ This is a concessionary view of what counts as a representation. Others might be stricter, insisting that, for example, a visual pattern formed by an ant trail in the sand would not be a representation. However, I am allowing only that a found image of this kind could visually represent something to a viewer, not that it pictorially represents that thing. Merely being perceived as a visual representation does not imply that an image is a picture or sign, or that it has a subject, referent, or sense.

⁹ I say ‘typical’ because a footprint may depict something when mindfully employed in the production of a picture.

¹⁰ By convention a pointed finger, a drawing of a finger, or a word such as ‘there’, can be used as kinds of indices, but only by convention rather than causal origin. In section 6 I will claim that photographs likewise are at most indices only by convention rather than causation.

¹¹ Elsewhere, I challenge the established distinction between causal and intentional standards of correctness for depiction in relation to photographic images, but a detailed discussion of this topic lies outside the scope of this essay.

¹² Notwithstanding artists who subvert this principle with anti-authorial strategies such as ‘automatic’ drawing.

¹³ See E. Eastlake, *Photography* (1857), in B. Newhall (ed. by), *Photography: Essays and Images*, Secker and Warburg, London 1980, pp. 81-95; R. Scruton, *Photography and Representation*, in “Critical Inquiry”, 7/3, 1981, pp. 577-603; R. Hopkins, *The Real Challenge to Photography (as Communicative Representational Art)*, in “Journal of the American Philosophical Association”, 1/2, 2015, pp. 329-348. Although in photographic practice, artists have actively welcomed automation to explore art created

To resist scepticism, it would not suffice to concede that some photographs, such as speed camera images, are indexical icons and appeal to photographic practice to insist that some photographs, such as artistic portraits, are not¹⁴. By assuming that imprinting is the causal origin of every photographic image, traditional accounts maintain that all photographs are necessarily indexical icons, whether produced by speed cameras or portrait artists. If correct, photographic representation could never attain the mindfulness that characterises non-photographic depiction. At best an artist can compensate for this restriction, but never entirely overcome it. The traditional temporal realism that I target motivates analogous scepticism: photographic images are inherently time-restricted where non-photographic pictures are not. I suggest this is an error that begins with the supposition that every photographic image is temporally indexed.

TEMPORALLY INDEXED ICONS AND TEMPORAL REALISM

An imprinting event leaves a trace which later points back to that event. If a photographic image is an indexical icon, it indexically refers to physical features of the scene that were causally responsible for its visual appearance. This is how ordinary photographic realism is traditionally understood¹⁵. Further, it is implicit in many accounts that traditional photographic realism includes what I am calling ‘temporal realism’: the image also indexically refers to the time of the event that caused it to exist. For example, Jonathan Friday claims:

A photograph always depicts real and existing objects *at a particular moment in time* because the necessary first step in the photochemical process of photography is the exposure of film to light reflected from objects in the world. The final photograph is therefore causally dependent on the way the world is in front of the camera—that is, what is there and in how much light¹⁶.

My target is traditional temporal realism understood in this sense.

As a temporally indexed icon, the photographic image points to the time that imprinting occurred and points to the time of an event that occurred in front of the camera, because necessarily these are the same time interval. ‘Time interval’ picks out the duration of some period and its chronological location in an ordering of time, for example 1/500th of a second at noon on 2 July 2011. A smile and the exposure of a film frame are two elements of a single moment of impress. Simultaneity between the photographed event and production of the photographic image supposedly determines the temporal index. Although a time interval has no visible appearance, a photograph imprints a visual appearance of the real world as it existed at a real time. Consequently, whatever iconic content the photographic image may have, it is necessarily tethered by indexical reference to that time interval. The image both captures the moment and is captured by it.

I will briefly survey three examples to illustrate how photographic realism incorporates temporal realism. For Roland Barthes, Kendall Walton and André Bazin, temporal realism is established through the

with minimal or absent agency.

¹⁴ I acknowledge, within photographic practices, a difference between “mindless” images and “mindful” pictures (“witless” and “witty” in D. M. Wilson, *Reflecting, Registering, Recording and Representing: From Light Image to Photographic Picture*, in “Proceedings of the Aristotelian Society”, 122/2, 2022, pp. 141-164), but my anti-sceptical argument does not hinge on different kinds of practice because I will argue that no photographs of any kind are indexical icons.

¹⁵ Some versions of photographic realism require merely that a viewer believes there to be causal relation, but I am concerned with realism based on an actual causal relation.

¹⁶ J. Friday, *Aesthetics and Photography*, Ashgate, Aldershot 2002, pp. 38-39. My emphasis.

traditional idea that a photographic image causally ‘captures’ the appearance of a real scene or event at the precise time of exposure. In other words, given a story of causal imprinting and temporal indexing, the visually represented event can only have occurred at a determinate, real time.

According to Barthes, a photograph professes to be a «mechanical analogue of reality»¹⁷. In referring to reality it points to a real moment in time. He describes photography as a «temporal hallucination», «false on the level of perception, true on the level of time»¹⁸. Time, he claims, is the ‘punctum’ of all photographs because every photograph can pierce the viewer with a distinctive phenomenological experience of reality and the past. On this basis, the distinctive essence of photography is the way it captures moments in time through a unique kind of indexical relation.

In Photography I can never deny that the thing has been there. There is a superimposition here: of reality and the past. And since this constraint exists only for Photography, we must consider it, by reduction, the very essence, the noeme of Photography. [...] The name of Photography’s noeme will therefore be: ‘That-has-been’ [...]’¹⁹.

According to Barthes, the temporal index that is unique to photography is what he calls the «superposition of reality and the past» or the confrontation between ‘here now’ and ‘there then’. A photograph indexes a real moment of the past that is phenomenologically experienced in the present. Barthes claims that photographic images alone have this ‘superposition’ and it is a ‘constraint’ that other kinds of image do not face.

Walton’s photographic realism is not phenomenological. According to his theory of ‘transparency’, photographs provide genuine perceptual contact: real, albeit indirect, contact with objects in the past. Supposing Walton’s photographs bear a transparent relation to an actual event, Walton ought to consider that event’s duration and location in chronological history²⁰. He comes close to addressing this question in ‘Experiencing Still Photographs’, where he poses questions about the length of time of a depicted event in relation to the length of time of our pictorial experience²¹. A photograph such as *Bicycles*, he suggests, is a depicted event lasting one fifteenth of a second because this is the duration of the exposure.

The momentary event depicted in ‘Bicycles,’ what viewers imagine seeing, arguably lasts for one-fifteenth of a second, the duration of the film’s exposure when the photograph was taken²².

It is reasonable to attribute to Walton the general view that the duration and the chronological location of a depicted event are determined by the time interval of the film exposure. This would be consistent with his claim that photographs let us see back in time. He says that when I view a photograph of my long-dead great-grandparents I am in perceptual contact with them. I am having a perceptual experience in the

¹⁷ R. Barthes, *The Photographic Message*, in S. Sontag (ed. by), *A Roland Barthes Reader*, Vintage, London 1982, p. 197.

¹⁸ R. Barthes, *Camera Lucida*, Vintage Classics, London 2000, §47, p. 115.

¹⁹ Ivi, §32, pp. 76-77. Emphasis in the original.

²⁰ Philosophers who discuss temporal aspects of photography, including J. Benovsky, *Photographic Representation and Depiction of Temporal Extension*, in “Inquiry: An Interdisciplinary Journal of Philosophy”, 55/2, 2012, pp. 194-213; J. Kulvicki, *Timeless Traces of Temporal Patterns*, in “The Journal of Aesthetics and Art Criticism”, 74/4, 2016, pp. 335-346; L. Marchetti, *Depicting Motion in a Static Image: Philosophy, Psychology and the Perception of Pictures*, in “The British Journal of Aesthetics”, 62/3, 2022, pp. 353-371; and K. L. Walton, *Experiencing Still Photographs: What Do You See and How Long Do You See It?*, in Id., *Marvelous Images: On Values and the Arts*, Oxford University Press, Oxford 2008, pp. 157-192, typically question how movement, change and stillness are pictorially represented in photographs, but they do not address the chronological location of the event. See, for example, J. Benovsky, *Photographic Representation and Depiction of Temporal Extension*, cit., p. 201.

²¹ I set aside Walton’s discussion of pictorial experience. I am interested in the time of the actual event, not the time of an experience, imagined experience or imagined event.

²² K. L. Walton, *Experiencing Still Photographs*, cit., p. 172.

present, but I am really, although indirectly, seeing objects as they existed at the time the photograph was taken. For Walton, transparent photographs are perceptual time-machines rather than temporal hallucinations. Bazin presents an even stronger ontological commitment: time is ontologically ‘embalmed’ in a photographic image.

Laura Mulvey highlights the role of temporality in Bazin’s conception of photography «specifically as a characteristic of the index»²³. She attributes to him the idea that «The index, fixed as it is in the photograph, is a record of a fraction of time. When rays of light record an object’s presence they also inscribe that moment of time, henceforth suspended». Mulvey reflects on temporality in the following passage from Bazin:

Hence the charm of family albums. Those gray or sepia shadows, phantomlike and almost indecipherable, are no longer traditional family portraits but rather the disturbing presence of lives halted at a set moment in their duration, freed from their destiny; not however by the prestige of art but by the power of an impassive mechanical process: for photography does not create eternity as art does, it embalms time, rescuing it simply from its own proper corruption²⁴.

She concludes that, for Bazin, «Once time is “embalmed” in the photograph, it persists, carrying the past across to innumerable futures as they become the present»²⁵. Mulvey’s summary includes all the key steps that lead inevitably from imprinting and indexicality to temporal realism and time-restriction. When Bazin states that «photography does not create eternity as art does», he implicitly contrasts eternal with temporal and assumes that every photograph is tethered to the temporal moment of its causal origin. Drawings and paintings can «create eternity» because they have no such tether to temporal events. Going beyond Bazin, I will suggest that time-restriction is a widespread thesis that presents a sceptical threat to art photography.

TIME-RESTRICTION: A SCEPTICAL PROBLEM

Iconic representations of moments in time are common in all visual media, but photographers, critics and theorists claim that causally capturing a moment in time is peculiar to photography. Traditional temporal realism categorically distinguishes photographs from non-photographic images, implying that photography is a unique art medium. John Szarkowski articulates this view when he claims that:

Each [photograph] describes a discrete parcel of time. This time is always the present. Uniquely in the history of pictures, a photograph describes only that period of time in which it was made²⁶.

Although Szarkowski is endorsing fine art photography and is no sceptic, this commitment invites scepticism. If every photograph is indexed to the moment it was taken, then all photographs since the official advent of photography in the early nineteenth century are restricted to capturing events that have occurred between that date and the present day. If correct, being tethered to its temporal origin would be a unique and significant restriction on this medium. I call this the time-restriction thesis. Drawings, paintings and

²³ L. Mulvey, *Death 24x a Second: Stillness and the Moving Image*, Reaktion Books, London 2006, p. 56.

²⁴ A. Bazin, *The Ontology of the Photographic Image*, transl. by H. Gray, in “Film Quarterly”, 13/4, 1960, p. 8.

²⁵ L. Mulvey, *Death 24x a Second*, cit., p. 56.

²⁶ J. Szarkowski, *The Photographer’s Eye*, Museum of Modern Art, New York 2007, p. 10.

pictures of similar kinds do not have this time-restriction. There can be non-photographic pictures of the distant past, the present and the future, with the option of multiple time zones within a single picture. There can be pictures of events occurring in the time of an imaginary world; and pictures of scenes that are timeless, eternal or in some other respect outside of the temporal order. If photography lacks this capacity, time-restriction is a form of scepticism about the artistic potential of photography.

For traditional temporal realism, the moment indexed by the photograph cannot be indeterminate or imaginary. It must be a specific moment of real time²⁷. Accordingly, Cartier-Bresson admits that temporal realism forces artists to reach a compromise that accommodates time-restriction: «The photographer can merely show the clock's hands, but he does choose his moments»²⁸. Famously, he recommends being alert for a decisive moment that is a real, unstaged juxtaposition of events²⁹. Others might conclude that the hands of the clock could be staged to show any time the photographer chooses. But even if that technique alters how the icon is interpreted, it could not change the actual temporal index.

One could object by claiming that viewers may imagine of a photograph that it depicts a time unrelated to the real world or imagine that it depicts an actual time from the distant past or the future. But this pragmatic concession merely discounts the time-restriction thesis while leaving it intact: it requires a pretext that the photograph is something other than a photograph³⁰. If every photograph is an indexical icon, the scene iconically indexed must lie in the real past between the early nineteenth century and the present day, even if a clock or calendar represented in the photograph tells a different time. The real, indexed time is stubbornly the time the photograph was taken.

Graham Clarke remains committed to time-restriction, despite reframing the matter as taking a moment out of time rather than fixing a moment in time:

A photograph fixes a moment in *time*. [...] We look at a photograph as recording time, as a historical record, whereas invariably it stops time and, in turn, takes its subject *out* of history. Every photograph, in that sense, has no before or after: it represents only the moment of its own making³¹.

In this remark and elsewhere, writers can be found expressing the idea that a photograph cannot represent any moment before or after exposure because it ineluctably represents the time interval of its autonomous creation: the moment of impress. Consequently, photography is uniquely constrained as an art medium, as it is unable to depict times that can be depicted by other kinds of still images. If Bazin is right, «photography does not create eternity as art does», simply because it cannot do so³².

Time-restriction scepticism begins with the idea that every photographic image is temporally indexed to

²⁷ G. Currie, for example, endorses this restriction when he claims that photographs «have only [a] causally induced, representing role. They may not represent things and events other than the things and events they are traces of»: G. Currie, *Visible Traces: Documentary and the Contents of Photographs*, in «The Journal of Aesthetics and Art Criticism», 57/3, 1999, p. 290.

²⁸ H. Cartier-Bresson, *Europeans* (1955), in Id., *The Mind's Eye: Writings on Photography and Photographers*, Aperture, New York 1999, p. 53.

²⁹ Ivi, p. 42.

³⁰ For a parallel discussion of fictional competence, see Paloma Atencia-Linares' critique of Gregory Currie (P. Atencia-Linares, *Fiction, Nonfiction, and Deceptive Photographic Representation*, in «The Journal of Aesthetics and Art Criticism», 70/1, 2012, pp. 19-30). Note also her proposal that documentary photographs may depict a fictive event or «fictive time-slice» through photographic means.

³¹ G. Clarke, *The Photograph: A Visual and Cultural History*, Oxford University Press, Oxford 1997, p. 24. Emphasis in the original.

³² A. Bazin, *The Ontology of the Photographic Image*, cit., p. 8.

the moment it is created. Now I want to block that first step³³.

TIME FOR A MULTI-STAGE ACCOUNT

If a photographer can only depict the moment that a photograph is created, the moment needs to be right.

In photography, creation is a quick business – an instant, a gush, a response – putting the camera up to the eye's line of fire, snatching with that economical little box whatever it was that surprised you, catching it in midair, without tricks, without letting it get away. You make a painting at the same time that you take a photo³⁴.

The claim that «you make a painting at the same time you take a photo» perfectly articulates Cartier-Bresson's artistic practice, but it presents a false notion of photography. I have talked loosely about 'taking a photograph' and 'producing' or 'creating' a photograph but for philosophical analysis greater care is needed. Any supposition that a photographic image comes into existence during exposure is what I call a 'single-stage account of photography'³⁵. My alternative, multi-stage account denies that a photograph is created during the time that a photosensitive surface is exposed to light. Rather, multiple process stages are necessary before a photographic image exists.

An orthodox, single-stage account assumes that a photographic image comes immediately into existence during the exposure time because imprinting occurs. Recall Batchen's description: «it is as if those objects reached out and impressed themselves on the physical surface of the photograph, leaving their visual imprint». Single-stage imprinting entails that the coming into existence of the image is simultaneous with the occurrence of the photographed event. The causal relation of imprinting tethers the two together and the image is therefore a temporal indexical icon for that time interval. I counter the main premise of this approach by arguing that the causal relation at the heart of photography is a product of 'registering' rather than imprinting³⁶. And registering alone is insufficient to create a photographic image.

My central claim is that the distinctive causal event that occurs during the time interval traditionally referred to as 'taking a photograph' is not the creation of an image, but only the causal registration of light by a photosensitive surface. I call this the 'photographic event' and it occurs for the duration of time that the presence and absence of light from the scene is registered. At the end of a photographic event, no photographic image yet exists; there exists only a photographic register such as an undeveloped frame of film or a digital file³⁷. A register stores determinate information about the intensity and distribution of light arriving at the sensor during a time interval, but information is not stored iconically³⁸. Information from the register must be rendered, chemically or electronically, in subsequent process stages before a stable, visible image exists.

Single-stage accounts are obliged to explain the lack of a visible image at the end of an exposure, so postulate that the indexical icon first exists as an invisible 'latent' image. The latent image supposedly becomes

³³ Possibly some other step might also lead to time-restriction scepticism, but absent any live argument, I take it that blocking this step is sufficient to dispel the threat.

³⁴ H. Cartier-Bresson, *Europeans*, cit., p. 53.

³⁵ D. M. Wilson, *Invisible Images and Indeterminacy: Why We Need a Multi-stage Account of Photography*, in "The Journal of Aesthetics and Art Criticism", 79/2, 2021, pp. 161-174.

³⁶ For discussion of how this relates to John Kulvicki's notion of 'recording', see D. M. Wilson, *Reflecting, Registering, Recording and Representing*, cit.

³⁷ D. M. Wilson, *What Is a Photographic Register?*, in "The Journal of Aesthetics and Art Criticism", 81/3, 2023, pp. 408-413.

³⁸ A register can be obtained by a causal trace that indexes the time interval of its causal origin, but it is never an indexical icon.

visible as a developed image, so the indexical icon persists throughout the process. Without the existence of a 'latent imprint' the developed photographic image would not have an unbroken dependency relation to its causal origin, and it could not count as an indexical icon. But I have argued elsewhere that an invisible image would not have determinate iconic features and a photographic 'latent' image with indeterminate iconic features could not possibly secure a dependency relation between determinate features of the scene and determinate features of the image. In this way, my argument against the possibility of an invisible latent image refutes the idea that a photographic image is an indexical icon³⁹.

The stable, visual properties of a photographic image are acquired during the rendering processes that follow the completion of the photographic event. For this reason, the photograph eventually presented to viewers is an image that only came into existence after the time interval of any photographed event. The time lag is not an empirical deficiency that could be superseded by faster camera technology or processing techniques. It is a necessary corollary of the causal process of registration that defines photography. Despite seeming instantaneous in modern digital cameras, the time interval for any event that is being photographed must have ended before a photographic image comes into existence. As a photographic image cannot possibly be produced in a co-temporaneous 'moment of impress', it cannot be a temporally indexed icon that points to the time interval of its single-stage causal origin.

I should address a technical point. Unlike the 'developing-out' process that is the basis of most chemical photography, some processes 'print out' the photographic register. A printed-out image gradually becomes visible in real time during the photographic event. But this is not a counterexample to my thesis that no photographic image comes into existence during the same time interval as the photographed event. A printed-out image is not a photographic image before its visual properties are chemically stabilised. Until then the register will continue to react to light, visual properties will change, and eventually no image remains. This is why the results of eighteenth-century experiments by Thomas Wedgwood and others are not classified as photographs. Stabilising the image, for example through fixing and rinsing, requires rendering stages that only occur after light registration has ceased, in other words when the photographic event has ended. Rendering therefore occurs after the time interval of the photographed event, and even a printed-out photographic image is not a direct imprint.

I have rejected the route from imprinting to indexicality that leads to traditional temporal realism. However, it remains true that, in some sense, the visual features of a photographic image can be causally related to the visual features of a scene or an event as they existed during a particular time interval. What follows is a multi-stage account of this causal relation and a revised account of temporal realism. A single-stage account makes a temporal tether to the photographed event necessary, so obligatory, for all photographs. The multi-stage account makes it contingent, which means it is optional. This is why revised temporal realism can avoid time-restriction scepticism.

TEMPORAL REALISM WITHOUT TIME-RESTRICTION

The occurrence of a photographic event is necessary in the causal history of any photographic image, else there is no photograph at all. The fact that a photographic event begins at a specific point in

³⁹ See D. M. Wilson, *Invisible Images and Indeterminacy*, cit.; Id., *What Is a Photographic Register?*, cit.

chronological time and lasts for a determinate interval is highly significant to every photograph and irrelevant to non-photographic images. However, the time interval of the photographic event by itself puts no constraints on the time interval that a photograph can iconically represent. It is possible for a photograph image to iconically represent the moment in time the photographic event occurred, but it could iconically represent some other time interval, or no time interval⁴⁰. On the one hand photography has a powerful capacity for temporal realism, on the other hand it can have the temporal freedom of painting and drawing. This is a benefit of the multi-stage approach that is central to the New Theory of Photography.

While it is true that the time of the photographic event is a significant feature of every photograph, and many photographs are treated as a representation of that moment in time, nonetheless this does not entail that every photographic image necessarily represents the time interval of the photographic event. Simultaneity between the photographic event and the occurrence of an event in the world does not determine any reference between the photographic image and the photographed event, even if combined with a high degree of accurate resemblance. Imprinting was supposedly a causal relation that secures a temporal reference for the image. Registering is not a substitute.

I recognise there is likely to be resistance to this view, and an objection could be raised that every photographic image does in fact have a causal temporal index, even on the multi-stage account. Perhaps, it could be argued, moving from the single-stage account to a multi-stage account makes traditional temporal realism more tolerant but it leaves the core commitment intact. A tolerant position could accept that the multi-stage account gives artists freedom to play with the apparent time of the event represented by a photograph, using techniques such as staging, darkroom manipulation, or narrative framing. Yet behind this tolerance lies a residual commitment to deep-seated traditional realism. On this interpretation of the multi-stage view, a photographic event takes place during a specific time interval, during which information about the visual appearance of the scene is recorded in an entirely causal process. Subsequent rendering of the register into an image is anchored to information recorded at that moment in time. So, the objection goes, on a multi-stage account the image is truly tethered by a causal index to the timing of the photographed event, even if the image was not created at that moment in time. Information stored in the register is information about the visual appearance in front of the camera during that time interval and no other. For creative purposes the photographic image may be treated as if it is a visual representation or depiction of a scene as it appeared at some other time, but deep down, it really represents the scene at the time of registration through an unshakable causal relation.

My response is to argue that this underestimates the radical character of the multi-stage account. The multi-stage account denies that photography involves a fundamental causal relation between image and scene that, by itself, establishes indexical reference and traditional realism. Whenever a photographic image comes into existence it stands in a dependency relation to the register and it can stand in a dependency relation to the photographed scene, but the relation is contingent on how information is encoded and decoded in the registration and rendering stages and this is determined by whatever conventions govern its production, not solely causation. Consequently, fulfilment of specific conventions is necessary for photographic

⁴⁰ In D. M. Phillips, *Photography and Causation: Responding to Scruton's Scepticism*, in "The British Journal of Aesthetics", 49/4, 2009, pp. 327-340, I argued that the photographed object may or may not be the subject of a photographic image. This is a parallel for the present argument that the time of the photographed event may or may not be the time of the event in the photograph.

images to have reference or realism and not all photographs fulfil these conventions. Causation remains central to the multi-stage account, but its role is qualified. If convention is satisfied, a photographic image can refer to the temporal duration and location of an event that occurred in front of the camera at the time interval of the photographic event, but there is no causal necessity. It is possible to have a photographic image that is not indexically tethered to the photographed event. And the radical claim is that images of both kinds are equally entitled to be considered photographs. Although tradition defaults to treating images of the former kind as primary, this only reflects dominant practice and amounts to a prejudice. There is no ontological priority.

A photographic event is a causal process of light registration that encodes, in a register, information about the intensity and distribution of light arriving from a scene during a time interval. Information stored in the register is retrieved when it is rendered into a photographic image. Given reliable conventions for information retrieval, the visual features of the resultant image can be causally related to visual features of the photographed scene or event as they existed during that time interval, but this outcome is entirely contingent on facts about the rendering process. As Catharine Abell has argued, it makes a difference if registered information is channelled from register to image *«through a communication channel of a type that is effective at carrying such information»*⁴¹. The principal consideration is not whether the rendering of registered information is a manual or automated process, because agents and machines can both be effective for preserving information from the register to the image. What matters is whether an agent's mindful interactions influence the registering or rendering processes. The key idea is that there are multiple pathways for producing photographic images, some of which are mindless end-to-end and some of which involve mindful interventions. The imprinting model dictates that only mindless images count as photographs or, at least, count as the primary kind. But favouritism is unjustified according to the multi-stage account and it puts both kinds of image on an equal footing. Mindless and mindful renderings from the register can count as photographic images with equal warrant⁴².

I have explained that the reference of a causal index is determined by its causal origin, but it is also possible to have a conventional index that references in accordance with rules of use. Paintings are iconic representations that can refer to a real moment in time, but any reference will be established by convention rather than causation. The same, as the following section will illustrate, is true of photographs⁴³. A significant difference is that, in photography, the occurrence of a photographic event lies in the causal history of any photograph. The mistake is to imagine that this causal provenance ineluctably determines a temporal index for the image. The prevailing convention for photography is temporal realism with a default assumption that the photograph both iconically represents a particular event and indexes that event. The default is compelling because a photographic image often has a high degree of visual resemblance to the photo-

⁴¹ C. Abell, *Out with the Old? The New Theory of Photography*, in "Aisthesis. Pratiche, linguaggi e saperi dell'estetico", 11/2, 2018, pp. 208-216, p. 214.

⁴² D. M. Wilson, *Reflecting, Registering, Recording and Representing*, cit.

⁴³ With some difference of scope (I hold that some, but not all, photographs are recordings), my argument against time-restriction aligns with J. Kulvicki, *Timeless Traces of Temporal Patterns*, cit., who argues that photographs and handmade pictures are both open to interpretation as depicting temporal patterns of motion or stillness, though they can also be interpreted as depicting timeless patterns (pp. 341-42). He anticipates that some may worry that photographs «do not depict motion so much as represent it nonpictorially» (p. 344). His response is that «all photos, when thought of as pictures, represent much richer scenes than they record» (p. 340) and «many genuine pictorial effects seem highly conventionalized» (p. 344). Hence, the pictorial content of a photograph is open to interpretation as representing various timeless and temporal patterns, even when construed as a recording (p. 341).

graphed scene. But any referential relation to the photographed event is only secured through convention. A photographic image cannot perform a referential role by itself, as an unmediated causal index. At most a photographic image is a finger apt for the convention of pointing to a scene; it is not a fingerprint left behind by the scene⁴⁴.

I initially characterised temporal realism as the idea that, in some sense, the visual features of a photographic image are causally related to the visual features of a scene or an event as they existed during a particular time interval. Traditional temporal realism supposes that every photographic image is a causal imprint of the photographed scene. Revised temporal realism acknowledges that some, but not all, photographic images are causally related to the photographed scene, thanks to information registered during the photographic event and subsequently rendered into an image absent any mindful interventions. Temporal realism need not apply to all photographic images, because some will have features that depend on mindful interventions during the registration or rendering stages. Images of both kinds qualify equally as photographs and in any given case whether temporal realism applies is a matter of conventional choices rather than causal necessity. As a matter of well-established conventions, photographic images are assumed to temporally refer to the scene or event as it existed during the exposure, and this supports the revised temporal realism that I am defending. But photographic images may be created as pictorial representations of any time that the artist chooses, just like drawings and paintings, in which case temporal realism does not apply.

Photographers do not need to opt in to temporal realism because it comes as the default convention for interpreting a photographic image. My goal was to show that it is possible to opt out, as this liberates photographers from time-restriction. Now I will argue that this approach is plausible in practice.

MOONRISE AND SUNSET: TWO STUDIES IN FORENSIC ASTRONOMY

Moonrise, Hernandez, New Mexico is one of the best-known fine art photographs by Ansel Adams. Set in a darkening sky, the bright moon is rising above distant clouds and a line of snow-ridged mountains. The texture of the desert expanse is detailed through a range of monochromatic tones. Towards the foreground, the desert encircles a small town and a church cemetery that has white wooden crosses distinctly illuminated by the setting sun. Although appearing tranquil, the image captured a scene that was available only for a fleeting time interval. Adams described in interviews how he urgently stopped his car, set up his large format camera in haste and had only enough time to expose a single glass-plate before the last rays of sunlight vanished from the wooden crosses. He recorded in his journal that the exposure time was one second at *f*/32 on ASA 64 film as this information was crucial for developing the 8" by 10" negative. However, Adams did not record the date, not even the year, and this information had no technical relevance for the photographic process. When he exhibited prints of the work on different occasions, he listed dates ranging from 1940 to 1942. Fifty years later, by identifying the location of the tripod and considering the angle of sunlight and the position of the moon above the horizon, Dennis di Cicco used astronomical analysis to establish the exact date and time⁴⁵. Putting this together with the exposure time, it seems, on the account that I am resisting, that *Moonrise, Hernandez, New Mexico*

⁴⁴ This choice of description is influenced by Lambert Wiesing.

⁴⁵ D. di Cicco, *Dating Ansel Adams' Moonrise*, in "Sky & Telescope", 82/5, November 1991, pp. 529-533.

conclusively captured this scene at a particular time interval: 4.49pm and 19 seconds to 4.49pm and 20 seconds on 1st November 1941.

It is instructive to consider this example of astronomical detective work alongside similar forensic astronomy applied to a painting by Claude Monet. In 1883 Monet spent three weeks on the Normandy coastline and produced sketches that eventually enabled him to complete several paintings. One of these paintings, *The Cliff, Étretat, Sunset*, features a distinctive arch-and-needle rock formation. To the right of the darkly silhouetted cliff, a red sun is sinking towards the horizon where the sea is reflecting the colours of the sky. Along with information from Monet's journal, analysis was carried out using the tide level, the position of the sun in relation to the rock formation and the location of Monet's easel. The finding, reported by Donald Olson, is that «Monet observed this sunset on Feb. 5, 1883 at 4:53 p.m. local mean time»⁴⁶.

Art historians note that Monet dated his artworks from when he completed them or sold them. For argument's sake, allow that Monet's *Sunset* painting does indeed depict the scene at Étretat at the specified moment in 1883, or more pertinently it depicts an impression of the scene experienced by Monet exactly at that time. To achieve this, it was not necessary for Monet to create the painting in a matter of seconds or minutes, during his observation of the sunset. Even had he done so, his picture would not thereby become a temporal index for that moment because it is not a purely causal trace. In any case it would be unfounded and unnecessary to claim that the painting indexes that specific time on the basis that it was created at that moment. Monet set up his easel, observed the scene, and made sketches in real time during the sunset, but he did not create the painting that day. Rather, he returned home with his sketches and painted during the weeks that followed. From setting up the easel on the shore to the finished canvas in the studio, the painting was fully created during an extended period of several weeks. Paintings are not temporally indexed icons and *Sunset* does not refer to the time interval during which it was caused to exist. It is not even essential that the sunset depicted really occurred during the production of the painting. It would be possible for Monet to paint an imagined sunset, or a sunset from a childhood memory and neither of these would temporally index the time of their creation. Monet was free to depict his impression of the brief appearance of this sunset at a time of his choosing because paintings are not time restricted. If the painting succeeds in being an 'index' of that moment it is only by conventional choice rather than causal necessity.

If a single stage account is accepted, and photographs are temporally indexed icons, there can be no such leeway for Adams' *Moonrise* photograph. If a photograph is caused to exist at the time of exposure and consequently indexes the time of its causal origin, then *Moonrise* is necessarily an iconic representation of the Hernandez scene exactly during that one-second time interval in 1941. Time-restriction dictates that it cannot be an indexical icon for any other moment.

However, I have argued that time-restriction does not apply to photographic images. On a multi-stage analysis, by the time the sun went down on 1st November 1941, Adams had in his possession an exposed but undeveloped glass plate; in other words, a photographic register. No photographic image had yet been created. He did not develop the plate until some days later, but when he finally arrived at his darkroom he needed painstaking care to create a negative photographic image with tonal values suitable for making the fine art prints that he had visualised. Strictly speaking, the first photographic image of the scene came into

⁴⁶ *How Monet Painted the Time into His Sunset*, in "The Daily Telegraph", 23 January 2014, <https://www.telegraph.co.uk/news/science/science-news/10590521/How-Monet-painted-the-time-into-his-sunset.html>.

existence when he finally fixed his negative. Fortunately, the negative of *Moonrise* is not an icon tethered to its causal origin, otherwise it would be temporally indexed to that moment in the darkroom⁴⁷.

Although a negative is a photographic image, it is not standardly considered a fine art picture, so a positive print is the appropriate test case. Adams dedicated years to producing different prints from the negative. Each print required a new photographic event, occurring whenever light from the enlarger was registered on photographic paper. Each new photographic register had to be developed and fixed to create a photographic image. The multi-stage account denies that a positive print is the very same image, or even a copy of an image, that was 'imprinted' on a sensitised glass plate during exposure. No image of any kind is created during exposure. If we were to insist that *Moonrise* temporally indexes the interval of its own creation, we have to say that it captures a collected period of hours, or perhaps an extended period of decades, rather than a one second interval in 1941.

The time-restriction thesis cannot do justice to *Moonrise* or to the notion of visualisation that is central to Adams's artistic practice. While it is possible for a photographer to visually represent a scene as it appeared at the time of exposure, that goal understates what Adams was seeking to achieve. Adams did not document the momentary appearance of the scene, or even a momentary impression of the scene; rather he registered information on his glass plate that would enable him, at a future date, to create a picture that he was visualising while looking at the scene. Anyone viewing a print of *Moonrise* is not seeing an image that was created on 1st November 1941, nor does the artwork depict Hernandez on that specific date. Like many paintings, the tranquillity of this picture is successful because it has an indeterminate time that allows the depicted scene to be untroubled by questions of duration, temporal location or tense. A scene indeterminately suspended from time is quite different to a scene determinately arrested for a frozen second. *Moonrise* is a pictorial representation that fulfils Adams's visualisation of the timeless beauty of the landscape. A photographer is entitled to opt out of temporal realism and, contra Bazin, it is possible for photography, as art, to create eternity⁴⁸.

Photographs, I claim, just like paintings and drawings, are not temporally indexed icons so temporal realism is optional rather than obligatory and time-restriction scepticism does not arise.

CONCLUSION

My conclusions undermine influential accounts of traditional photographic realism. I have denied the fantasy of an indexical icon, described by Batchen, that is the basis of Barthes' superposition, Walton's transparency and Bazin's 'decal' and I reject these theories. Clarke is wrong to say that a photograph «represents only the moment of its own making» and Szarkowski is wrong to say that «a photograph describes only that period of time in which it was made». But these claims can be reviewed charitably because a revised conception of photographic and temporal realism is available through the multi-stage account. When a photographic image is a rendering from a photographic register, it can under some circumstances have

⁴⁷ To complicate matters, years later he subjected the negative image to further chemical intensification to increase the tonal contrast.

⁴⁸ In G. Dyer, *See/Saw: Looking at Photographs*, Canongate Books, Edinburgh 2021, Dyer characterises photographs that «seem to contain a century's worth of time» and others that «contain none at all» (pp. 254-255); photographs that contain temporal depth, or «deep permanence» (p. 220); scenes that have «dropped not only out of time but out of history» (p. 129); images with a stillness that seems as if the shutter speed was set to «eternity» (p. 112); and some pictures, emptied of time, that «represent an eternal or unchanging idea of Los Angeles» (p. 105).

visual features that are causally related to the visual features of a scene or an event as they existed during the time interval of the photographic event. This is temporal realism properly understood and in cases where it applies, it is unique to photography. However, the timing of a photographic event does not put temporal restrictions on a photographic image as iconic content is determined by the multi-stage production of the final image, not solely the production of the photographic register. Understood in this new way, temporal realism can distinguish photographs from drawings and paintings, as Clarke and Szarkowski required, but it does not imply that photography is subject to time-restriction.

Time-restriction is nicely deflated by tongue-in-cheek remarks from two photographers. Robert Doisneau observes: «A hundredth of a second here, a hundredth of a second there, put together end to end; that never makes more than two or three seconds wrung from eternity»⁴⁹. James Keivom reflects: «It's weird that photographers spend years or even a whole lifetime trying to capture moments that added together don't even amount to a couple of hours»⁵⁰. These remarks remind us that the work of a photographer is indeed distinctively different to creating hand-drawn images. It is right to think that capturing selected moments in time is something that much of photography involves. This is elaborated famously and fully in Cartier-Bresson's notion of the 'decisive moment', but it equally applies to the long exposure methods of Hiroshi Sugimoto. Either way it would be absurd to imagine that the full import of a photographer's work, the sum or limit of what a photographer can depict, amounts to a temporal index of the moments when the camera shutter was open. Only by believing that photography has a fantastical mode of co-temporaneous production should we imagine that there are such constraints on photographic pictures. Traditional photographic and temporal realism was based on this misconception. I have argued that we can understand how a photograph can capture a moment in time while keeping photography free from time-restriction⁵¹.

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⁴⁹ R. Doisneau, *Three Seconds of Eternity*, te Neues Publishing Company, New York 1979, p. 20.

⁵⁰ This quote has been widely attributed to James Keivom since at least 2011. I attempted to contact him to confirm the original source, but to date have received no response.

⁵¹ I thank Vanessa Brassey, Kathleen Lennon, Donnchadh O'Conaill, Sara Romani, and two anonymous reviewers for valuable comments. A version of this argument was filmed for the 2023 "Time for Beauty" virtual conference and earlier versions were presented to the Bildtheorie/Picture Theory Research Group, a workshop on "Images and Time" in Nottingham hosted by Jonathan Tallant, and a conference on "Philosophy and Photography" in Ovronnaz hosted by Jiri Benovsky, as well as seminars at Leeds, Hull, Cambridge, and Trinity College Dublin. I am grateful to everyone who gave me helpful feedback at these events.

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