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# Reflecting, Registering, Recording and Representing: From Light Image to Photographic Picture

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## Abstract

Photography is valued as a medium for recording and visually reproducing features of the world. I seek to challenge the view that photography is fundamentally a recording process and that every photograph is a record — a view that I claim is based on a 'single-stage' misconception of the process. I propose an alternative, 'multi-stage' account in which I argue that causal registration of light is not equivalent to recording and reproducing an image. Intervention or non-intervention by photographers is more sophisticated than the traditional view allows. Using the multi-stage account, I describe four models for producing photographic images and pictures.

## I

*Introduction.* Photography is valued as a medium for recording and visually reproducing features of the world. It has a reputation for accuracy, reliability, objectivity and credibility on the basis that features of a photographed scene are recorded and reproduced through a causal process that bypasses mindful intervention.[1] When François Arago publicly announced the first patent, he claimed that the Daguerreotype process could reproduce millions of monument hieroglyphics not only more efficiently than reproductions made by human hand, but also with greater fidelity. Arago (1839, p. 17). Although photographic technology is a product of human design, and human agents operate the apparatus, the causal action of light on a photo-sensitive surface does not require the intentional states of a photographer. A traditional view is that in photography the world imprints itself and yields its own reproduction. This is a view that puts causal recording at the heart of the photographic process and implies that every photograph is essentially a reproduction produced from a recording of the photographed scene — a 'record', for short.

I call this the view that photography is *fundamentally* a recording medium. It is the view I wish to challenge in this paper. I will instead argue that photography is only *functionally* a recording medium. Photographs can be records of photographed scenes and photography is an exemplary medium for recording and reproduction, but it is not necessary that a photograph be a record of the photographed scene. On the fundamental view, where recording is the essence of photography, every photograph must be a

[1] See Hopkins (2012) on accuracy, Rini (2020) on reliability, Cavedon-Taylor (2013) on credibility and Walden (2005) on objectivity.

record just in so far as it is a photograph. On the functional view, photography is well suited to produce records if specific, contingent conditions are met, but a photograph can still be a photograph when it does not meet these conditions.[2]

The idea that a photograph is a record of the photographed scene is often used to draw a fundamental distinction between photographic and non-photographic images. When Roger Scruton constructs a contrast between the logical ideals of painting and photography, he claims that the 'ideal photograph' has a merely causal relation to its subject, so it is a 'record of how an actual object looked'. Scruton (1981, p. 579). Gregory Currie claims that 'a camera records what is in front of it, not what the photographer thinks is in front of it'. Currie (1999, p. 286). The associated notion that, unlike drawing and painting, photography is in some sense a mind-independent medium has epistemic, aesthetic, ethical and legal significance. It also shapes expectations about applications of photography in an era of digital technology, machine learning and artificial intelligence.[3]

Recording and representing are different functions. A tideline leaves a causal record of waves on the shore without being a representation of the waves. In addition to functioning as a causal record, a photographic image may function as a representation or depiction, in which case it has a representational subject — something it is about — something that its visual appearance is intended to lead the viewer to see in the photograph. Unlike recorded content, representational content requires intentionality. Debates in the philosophy of photography have largely addressed representation rather than recording, presumably because recording has been taken as given, while representation is considered contentious.[4] The view that, fundamentally, every photograph is a record has until now set the terms for discussion about whether a photographic record can also be a pictorial representation and, if so, how far its representational capacity is necessarily constrained by what it records.[5] My proposal for an alternative view offers terms for a new discussion.

The idea that recording is fundamental to the photographic process, I will suggest, is part and parcel of a 'single-stage' view that can be traced to the inception of photography and became orthodoxy among photographers, historians, and theorists. A single-stage view supposes that a photographic image is generated during the period when a camera exposes a photosensitive surface to light. This is the view of photography that I will challenge here, proposing an alternative, 'multi-stage' account. In the terms of this alternative account, exposure of a photosensitive surface to light is a necessary first stage in the production of a photographic image, but not by itself sufficient. Subsequent process stages are also necessary before a photographic image is produced. I shall argue that, as the single view of the photographic process is so closely

[2] Catharine Abell's account of the standardisation of the function of photographic processes is a helpful forerunner of this idea. 'Given a certain scene, most such mechanisms will yield an accurate depictive representation of that scene. This is a purely contingent fact about photographic mechanisms.' Abell (2010, p.99). 'The reliability of photographic processes results from the standardization, not of the processes themselves, but of the functions they perform.' Abell (2010, p.98).

[3] See Carlson (2021) and Rini (2020) on Deepfake images, and Chávez Heras and Blanke (2021) on photographic vision in AI.

[4] Notable exceptions are Maynard (1997) and Kulvicki (2018). See section IV.

[5] For example, it has been claimed that a photograph can only carry representational content by recording and reproducing a staged representation, rather than producing a genuinely photographic representation. See Scruton (1981, p. 588) and Berger (1982, p. 69).

entangled with the view that photography is fundamentally a recording medium, once the former is rejected then the motivations for the latter are removed.

I have suggested that it is orthodoxy to view photography as fundamentally a recording medium. There is truth in this generalisation but, under cross-examination, few if any would commit to a full-blooded version of this view: perhaps no-one would insist that, without exception, every product of the photographic process is necessarily a record of the photographed scene. This does not mean I am targeting a straw man; rather my point is to reveal a 'man' made of straw. My aim is to expose significant misconceptions that arise if a contingent recording function is treated as a necessary feature of every photograph. The truth in the generalisation is a widely employed assumption that only those photographic images that are records *strictly* or fully count as photographs.[6] I will argue that a multi-stage, functional account of photography can acknowledge the importance of photographic records without privileging that category over photographic images that are not records of the photographed scene. This makes it possible to accommodate an expanded range of photographic depictions.

I proceed as follows. In section II, I spell out the single stage view and explain its appeal. I also explain the alternative, multi-stage view. In section III, I explain how the single-stage view motivates the idea that photography is fundamentally a recording medium. In section IV, I adopt useful distinctions from John Kulvicki's account of 'witless' recording, and argue that the model of photographic recording assumed by the single-stage account is a myth. In section V, I use the multi-stage account to show that alongside witless records, photography can produce 'witty' pictures. Images of both types have equal claim to be photographs.

## II

*Single- and Multi-stage Accounts of Photography.* Single- and multi-stage accounts of photography share a common starting point before they diverge. A preliminary step for any photographic process is to arrange an array of light. Although open exposure to light can be used to produce a photogram, conventional photographic images require light to be channelled through an aperture into a dark chamber — a *camera obscura*. Light arriving at the aperture has been emitted by, or reflected from, surrounding objects, so it is governed by the relative position of the camera.[7] Inside the camera, light is directed onto a surface to form an array of dark and bright areas of intensity. Lenses and filters can sharply focus the diffuse array to produce an optical light image.

The phenomenon of an optical light image is an entrancing curiosity that inspired and obsessed the pioneers of photography. It is both a reflection and a visual image, with size, shape and location on a surface.[8] It consists of richly detailed, differentiated areas of colour and contrasting tones. It reacts to real-time changes in the scene and the camera, so it can be dynamic or static, but above all it is ephemeral. The view inside a camera obscura is at the same time a view of the outside world — selected, reflected, inverted, scaled, and flattened. People move, shadows deepen, and, at some point, the

[6] Scruton (1981) and Currie (1999), quoted above, are both examples.

[7] 'Surrounding objects' has a wide sense, which can include the sun, or distant stars.

[8] The visual image in a camera obscura is an optical phenomenon: specifically, a real image rather than a virtual image. I am grateful to Nicholas Wade for recommending this terminology.

reflective light image must disappear. The pioneers of photography decided they would compel it to remain — seized, arrested, fixed. However, they were not content to trace a reproduction of the light image by hand. They instead wanted to record the image — by causing it to reproduce itself autonomously.

Henry Fox Talbot described his invention as 'fixing upon paper the image formed by the Camera Obscura; or rather, I should say, causing it to *fix itself*'. Watson & Rappaport (2013, p. 129. Emphasis in the original.). A partnership agreement, signed by Joseph Niécephore Niépce and Louis Daguerre, attributed to Niépce the discovery of a new method consisting of the 'spontaneous reproduction of the images of nature received in a camera obscura'. Fouque (1935, p. 27). Hippolyte Gaucheraud reported that:

> M. Daguerre has found the way to fix the images which paint themselves within a camera obscura, so that these images are no longer transient reflections of objects, but their fixed and everlasting impress which, like a painting or engraving, can be taken away from the presence of the objects. Gaucheraud (1839, p. 17).

These descriptions show the emergence of the single-stage view of photography. I will first outline that view and, in the following section, say more about recording and reproduction.

When an optical light image has formed, it is not a photographic image. A necessary step for generating a photographic image is to direct the light onto a photosensitive surface for a limited time interval. Single and multi-stage accounts of photography diverge in how they characterise the process stages that lie between a light image and a photographic image. Both accept that numerous, sequential tasks are required in the overall process. 'Single' and 'multi' do not indicate some number of tasks to be performed. Rather, these labels are different answers to the question, 'By what stage(s) of the production process does a photographic image come into existence?'

'Single-stage' applies to any account that is committed — implicitly or explicitly — to answering that a photographic image is in some sense produced ('seized', 'fixed', 'imprinted', 'inscribed', 'registered', or 'recorded') during the period in which the photosensitive surface is exposed to light. The term refers to the notion that the photographic image exists by the end of one single stage of the process: the 'exposure' stage. Single-stage accounts recognise that secondary stages such as 'development' may be necessary to reveal, display or modify the photographic image but suppose that these tasks come after the image has already been produced. For example, reporting on the Daguerreotype method, one nineteenth century author elaborated that, during exposure, the light image becomes 'perfectly imprinted' on a photosensitised metal plate. At the end of the exposure time there is no visible image, yet the image has already been affixed to the plate invisibly. A subsequent task is then to make the invisible image visible by applying mercury fumes:

> The image of immobile objects becomes perfectly imprinted on the plate although this image is yet invisible […]. Before application of mercury there does not exist any distinct image, although these images have already been set down and set down forever. Isid B. (1839, pp. 1-2).

This remains the template for twenty-first century single-stage accounts, which are committed to the notion that a photographic image exists once a photo-sensitive surface has been exposed to light from the scene. An image produced during exposure supposedly exists as an invisible latent image on undeveloped film, or as a digital file, before it is subsequently developed, printed, or screened. [9]

The multi-stage account does not simply start with the single-stage view and add another stage.[10] Rather, it re-conceives the relationship between two process stages (registration and rendering) and offers a new way to understand photographic images. A photograph is a stable visual image: a two-dimensional, visible array. The multi-stage account denies that a stable visual image comes into existence during an exposure stage. It also denies that an invisible image comes into existence.[11] It acknowledges that the exposure of light to a photosensitive surface is a distinctive causal phenomenon: a 'photographic event'.[12] But this event is not the production of an image. During the photographic event there is causal registration of light that forms the optical light image, but the result of this first stage is only a photographic register, not a photographic image.

For example, in photo-chemical technology, silver halide emulsion forms micro-specks of metal by reacting to varying intensities of light distributed across a surface. Material changes in the emulsion tally the quantity of light during the photographic event and the result is a register of these changes. When the photographic event ends, only a photographic register exists. No image yet exists, visible or invisible.[13] To create a photographic image, another stage is necessary: the photographic register must undergo chemical treatments to render a stable visual image. Image rendering does not reveal an already existing image — it uses a photographic register to bring a visual image into being and some features of the image will be determined by the image rendering process.[14] A photographic image can exist only after the stages of registration and rendering are both successfully completed.

Photo-electrical processes, likewise, do not produce an image during a photographic event. Individual pixels, or 'photosites', of an electronic sensor tally the light they receive as electrical charge, then deliver electronic signals to produce a digital file.[15] A software program is required to render a visual image from a digital register. If the processes of light registration and image rendering are automated to occur in a fraction of a second, production of the photographic image can seem simultaneous with the

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[9] For example, as described by Christy Mag Udhir:'"taking a photograph" standardly indicates performing a certain relevant action (for example, tripping a camera's shutter release) initiating a certain relevant process (for example, photochemical, photoelectrical) over a certain relevant base (for example, film, plate, file), onto which some (latent or visible) image is thereby produced (or encoded) and from which further certain relevant products may subsequently be developed or processed (for example, negatives, prints, slides, and so on).' Udhir (2012, pp. 37-8).

[10] It does not conjoin the distinct exposure and development stages that are described in the single-stage account. This would leave intact the single-stage idea that an image is produced during an exposure.

[11] In Wilson (2021) I argue against the notion of invisible latent images.

[12] The multi-stage notion of a photographic event is not the same as the single-stage notion of an 'exposure'.

[13] This describes the 'developing out' method. I discuss the 'printing out' method in Wilson (2021).

[14] The multi-stage notion of rendering is not the same as the single-stage notion of 'development'.

[15] Hopkins (2012, pp. 723-4) discusses the implications of interpolation in photo-electrical technology.

exposure time — suggesting a single-stage process. But the process can be interrupted after the first stage and, as there is no suggestion of an invisible latent image, it is straightforward to acknowledge, in line with the multi-stage account, that the digital file is a photographic register, not a photographic image.

Single- and multi-stage accounts each seek to accommodate photo-chemical and photo-electrical production processes, and all varieties of photographic technology: from the production of Heliographs and Calotypes through to Polaroid and digital photography. The single-stage view originated in early photo-chemical photography, whereas the multi-stage account emerged in an era of photo-electrical photography. It might be tempting to classify photo-chemical photography as single-stage and photo-electrical photography as multi-stage, but this would not be accurate. The multi-stage account is correct for both. The single-stage view is a deep misconception of photography, not an alternative type of photography.

The arrival of digital photography does not spell the end of the single-stage orthodoxy, because the view has an influential legacy. During its period of unchallenged dominance, the single-stage view instilled the idea that a 'pure' photograph (a 'strict', 'ideal', or 'authentic' photograph) is a visual image produced causally and without mindful intervention.[16] This idea can seem to sit well with highly automated digital technology, even though commitment to this view is, at heart, a commitment to the single-stage view of photography. To fully understand how this conception of photographs is the legacy of the single-stage view, it will help to turn to the idea that photography is fundamentally a recording medium.

**III**

*The Idea that Photography is Fundamentally a Recording Medium.* Reproductions need not be the product of a recording process: it is possible to produce reproductions by hand, guided by conscious control. But the key attraction of photographic reproduction is the prospect of a causal recording process that does not rely on conscious control. A footprint in the snow reproduces the outline shape of a boot through a causal recording process. When the boot shape is causally impressed in the snow it leaves behind an imprinted reproduction of that shape. The physical impression, or imprint, is at one and the same time a recording of the shape and, also, a reproduction of the shape. The single-stage view makes the error of using impression as a model of causal recording to explain the production of a photographic image.[17]

In photo-chemical technology, recording and reproduction has been misconceived as a process of immediate impression — albeit where the imprint is initially invisible. Supposedly, the camera obscura image is recorded in the photosensitive surface and the photographic image is none other than a reproduction of the camera obscura image. This combination of ideas explains why photography can appear to be fundamentally, rather than functionally, a recording medium. The view can be traced back to the pioneers of photography who explicitly attempted to 'copy', 'record' and 'reproduce' the

[16] Philosophical theories that illustrate this legacy include Currie (1999), Hopkins (2012) and Scruton (1981).
[17] Imprinting methods, for example using lithotypes, were a template for this idea. 'Calotype' and 'Daguerreotype' are terms derived from 'typos' — an impression.

camera obscura image.[18] Reports of the invention of photographic processes repeatedly feature two interrelated ideas: the first is that the camera obscura image reproduces itself; the second is that the photographic image has created itself autonomously. These two ideas fit together: the ephemeral camera obscura image reproduces itself by forming a stable, visual photographic image; or, put the other way around, the photographic image autonomously creates itself in the action of a camera obscura image spontaneously reproducing itself. In effect, the reproduction of the camera obscura image and the production of the photographic image are two descriptions of one event – an event that is described as an imprint or impression.[19] This model is the basis of the single-stage conception of photography. [20] It is erroneous, but it has had a profound influence.

The initial technical challenge of photography was to record and reproduce the light image. Early accounts made it clear that a photographic image was considered a reproduction of the light image. But before long it became normal to gloss over the interceding role of the light image and treat the photographic image as a reproduction of the scene before the camera. Talbot, for example, claimed that Laycock Abbey was the first building in history 'to have drawn its own picture'. Talbot (1839, p. 46). According to Rudolph Arnheim, 'the fundamental peculiarity of the photographic medium' is the fact that 'the physical objects themselves print their image by means of the optical and chemical action of light'.[21] Robert Hopkins observes that 'the idea of allowing the world to form its own image by a process of imprinting is central to photography's self-conception.' Hopkins (2015, p. 330). This idea is found in the everyday notion that photography records the appearance of the world in front of the camera. The original idea that photography reproduces a light image might seem alien to many people, even though, if a photosensitive surface is completely exposed to a scene without a focussed light image, the result is a pattern that has little use as a visual record.[22]

The pioneers of photography viewed recording through imprinting as the fundamental basis for the photographic process. This established the single stage view as orthodoxy. The photographic recording process was described, variously, as a natural discovery, or a mechanical invention, or a combination of both. Crucially, it was characterised as an

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[18] In Wilson (2021) I describe variations of this view.

[19] For example, in the nineteenth century reports quoted above, Gaucheraud claimed that a Daguerreotype image is the 'fixed and everlasting impress' of the camera obscura image and Isid B. claimed that the camera obscura image became 'perfectly imprinted on the plate'.

[20] The model then assumes that development processes occurring after exposure only reveal an image that has already been produced. Daguerre and others assumed that an invisible latent image and the visible patent image were one and the same image. Talbot misleadingly claimed that the invisible latent image '*developed itself* by a spontaneous action'. Watson and Rappaport (2013, p. 189. Emphasis in the original).

[21] This is quoted by Kendall Walton in connection with his theory of photographic transparency. Walton (1984, fn. 18).

[22] *The Day Nobody Died* (2008) by Adam Broomberg and Oliver Chanarin exemplifies this point. Each action-photograph, created while the artists were embedded as war correspondents in Afghanistan, was produced by exposing 6 metres of a roll of photosensitive paper in daylight for 20 seconds. By avoiding the contrivance of an intermediate light image, each huge photographic exposure should technically count as an unmediated recording of the entire scene — in theory recording more than any standard photograph. Yet, absent any selectively formed light image, the recorded and reproduced pattern completely lacks any rich detail that would make it useful as a visual record of the scene. http://www.broombergchanarin.com/the-day-nobody-died-1-1/

entirely causal process that bypassed the conscious control of the photographer. As John Berger puts it, 'the photographic image is produced instantaneously by the reflection of light; its figuration is *not* impregnated by experience or consciousness'. Berger (1982, p. 68). On this view, a photographic image is essentially autonomous rather than authored. In philosophy that idea has evolved into an expectation that absence of mindful intervention defines a true photograph. Versions of this idea feature in work by Currie (1999) on visible traces, Hopkins (2012) on accuracy, Scruton (1981) on aesthetic scepticism, Walton (1984) on transparency, and Walden on objectivity. Walden (2005, fn.3).[23] Photographic images that fall short of this threshold may not considered photographs at all, or may be considered deficient in the qualities — transparency, objectivity, accuracy — that a full exemplar would possess. These ideas have collectively established a default assumption that, for the purpose of philosophical discussion, a true photograph, a photograph in a strict sense, is a record of the photographed scene. In what follows, I will present an alternative.

**IV**

*Photographic Recording, Reproducing and Representing.* Several different notions of recording have appeared in the discussion so far. In this section, I will clarify and develop this notion using an account provided by John Kulvicki. [24] Two distinctions he elaborates are particularly useful: recording and representing; and recording and 'playback' (reproduction). He also notes two kinds of recording processes — those with and without an intermediary.

This is how Kulvicki describes the defining characteristics of recordings:

> While representations have an intentional character, recordings are *relational*. The relation between a recording and what it records is *witless*, and it allows *playback*. Kulvicki (2017, p.271. Emphasis in the original).

'Witless' means that 'the process is causal, and as long as everything is working properly, no wits are required. […] Wits might be pre-requisite to making such machines, but recording processes don't require those wits'. Kulvicki (2017, p.271). 'Playback is a witless process whereby that which is recorded can be reproduced'. Kulvicki (2017, p.272).

Kulvicki's term, 'witless', does not carry the implication that there must be a total absence of intentional states. It means only that the system as a whole, including the wits of any agent involved in the process, is indifferent to the recorded content. This applies not only to the recording stage, but also playback. Using my terminology, in the darkroom a person might render an image from a register by witlessly enacting a sequence of instructions. It matters that this is an agent not a machine — an agent's actions involve intentional states when carrying out tasks such as measuring and mixing

[23] Hopkins (2015) more moderately grants that, as causal imprinting is only one strand of photography, 'authentic' is just a name for photography of this kind, rather than a presumption about how photography should be defined. However, in the next section, I will deny that imprinting is even one strand of photography.
[24] Kulvicki acknowledges ideas from John Haugeland that he has adopted or adapted, but the present account is his position. He notes that Patrick Maynard has made a similar notion central to his discussion of photography. Kulvicki (2018, p. 336 fn. 1).

chemicals or timing the immersion in developing fluid — but Kulvicki's point is that an agent can do this while remaining ignorant of the pattern that is reproduced on the sheet, so the result is a witless playback. Of course, the same steps could also be performed by a machine in a fully automated system.

Kulvicki specifies that a recording is a state of affairs that relates the event it records to a reproduction of that event. Specifically, a recording is, or generates, the reproduction of an abstract pattern: it relates one instance of pattern to another instance of the same pattern. Descartes may be the source of a recording, but it is not possible to record Descartes because he is a unique object that cannot be reproduced. Kulvicki (2018, p.338). It is, however, possible to record a pattern of light and dark caused by an object or scene and to reproduce that pattern. A photograph of Descartes would reproduce the pattern of light and dark that was recorded when he stood before the camera. Kulvicki's claim that a recording is a relation between patterns can underline a point that I have been at pains to emphasise: it must not be overlooked that an optical light image intercedes in the recording process. The light image delivers the pattern of light and dark that determines the recordable content. This can help to moderate the traditional notion that the world imprints itself and that a photograph is an impression of objects in front of the camera.

Kulvicki characterises the content of images in terms of structural features rather than perceptual features. When a pattern of causal features is recorded, the recorded content is whatever pattern a recording of that playback would itself record. Kulvicki (2017, p. 276). For my purpose this is useful for clarifying that the requirement for a photographic image to be visible is not principally an epistemic or perceptual notion. Rather, the requirement is a structural claim. An image with recorded content must have a pattern of features that can play a role in a causal process: features must be recordable. [25] Accordingly, as I have already argued, a supposedly invisible, 'latent image' could not count as a photographic image.

To support a relation between two instances of a pattern, recording relies on some state of affairs that constitutes or enables a playback of the recorded pattern. An imprinting recording mechanism, such as a print of a boot in snow, needs no intermediary, because the recording is itself an instance of the recorded pattern — recording and playback are one. Kulvicki contrasts a recording process of that kind with systems that do require an intermediary. He notes that, 'a digital camera saves a file which can then be used to create an image.' Kulvicki (2017, p. 272). The jpeg file is an example of an intermediary:

> Sometimes, the recording is one step away from playback, as with wax cylinders and jpeg files. The record-*ing* in these cases is not the same pattern as that which gets recorded, but the right witless apparatus allows one to reproduce that recorded pattern. Kulvicki (2017, p. 272. Emphasis in the original).

If the single-stage account were correct, photo-chemical photography would be a system where recording and playback are one.[26] But I have argued that the 'imprinting'

[25] Not all abstract patterns can be recorded. 'We can record patterns of features: features that can enter into causal relations and thus participate in witless processes.' Kulvicki (2017, p. 273). See Kulvicki (2018, section 2), for more on patterns.

[26] Kulvicki mentions the Daguerreotype as an example of recording and reproduction as one: 'In Daguerreotypes, the pattern burned into a sheet of silver records a pattern of light and dark, and also serves

conception of photographic recording is a myth. All photography, chemical and electrical, is implemented by a recording system of the second type. The photographic register is not a reproduction of the recorded pattern because it is not an image. Instead, it is an intermediary that makes it possible to produce a reproduction of the recorded pattern. However, the register is not limited to producing records, it can have other uses, including the production of pictorial representations.

Kulvicki examines the relation between recording and representation. The visible pattern witlessly reproduced by a photographic recording process may be taken up as the intentional content of a representation (a photographic portrait of Descartes), but witless recordings can be independent of representation (Descartes caught by a speed camera, perhaps), and many representations have only intentional content, without recorded content (a painted portrait of Descartes). I classify this as a functional account of photographic representation — it allows that some, but not necessarily all, photographs can acquire intentional content and serve as representations. Being a representation is a contingent, functionally determined matter. The key question, then, is whether every photograph is necessarily the product of a recording process — in which case the only two options are that a photographic image is either merely a witless recording, or that it is a witless recording with a representational function. Although that position seems tacitly taken for granted, Kulvicki's account is in fact well suited to support the multi-stage, functional view of recording that I am proposing here.[27]

In the following section I will take forward this idea and use the multi-stage account to argue that photography is only functionally a recording medium — just as it is functionally rather than fundamentally a representing medium. I will argue that although many photographic images are witless reproductions from recordings, many are not. Photography properly includes images that are 'witty' as well as those that are witless.

**V**

*Witless and Witty Images – Photography is Functionally a Recording Medium.* According to the multi-stage account, a photographic image does not generate itself autonomously when a photosensitive surface is exposed to light. Instead, registration of light takes place during the photographic event and, once an image is rendered from the register, the photographic image can, in some cases, be considered a recorded reproduction of the light image.[28] But whether it is a record is an open question — it will be settled by facts about how the register was produced and how it was used to render the photographic image. If the entire process has been set up in an appropriate way and

as a playback of that pattern, because it *is* the pattern of light and dark that was recorded. Just look, and you see, reproduced, the pattern that caused it.' Kulvicki (2017, p. 272). This overlooks the fact that the Daguerreotype image in question has already been rendered from a register.

[27] Kulvicki is theorising about recording processes in general, not photography specifically. But any recording process needs to be implemented in a system. The multi-stage account details how recording is implemented in photography systems.

[28] The key issue for most people is whether it is a record of the photographed scene, but this can only be properly understood if the intercession of the light image is acknowledged.

end-to-end stages of the process are fully witless, the result is a record.[29] Otherwise, it is not. Nothing in photography makes it fundamentally the case that photographic images are records. On a case-by-case basis that outcome is a contingent, functionally determined matter.

A photographic image is a photographic record when the image has been reproduced by witless light registration and witless image rendering. For a recording or playback process to be witless, a system that bypasses human intervention is necessary. The single-stage view would be able to claim that, so long as everything during the exposure stage is witless, the production of a photographic image is fundamentally witless — because these are one and the same event. The multi-stage view recognises that a witless photographic event only produces a register, so it does not determine whether the photographic image is a witless playback. Even if the first stage is witless, there are two possibilities: there may be a witless second stage, in which case the photographic image is an entirely witless playback. Or the photographer may intervene in the second stage, in which case the photographic image is not an entirely witless playback. I will introduce the term 'witty' to characterise photographic process stages that are not entirely witless.

Some definitions are useful here.[30] A recording is a relation between two instances of a pattern. Necessarily, it must support playback (witless reproduction) of the recorded pattern, otherwise it is not a recording. Registration is a causal relation between a distribution of light and effects caused by the light. It is not necessarily a relation between instances of a pattern. A register can support witless playback and thereby serve, functionally, as a recording. But a register can also be used to create an image that is not a witless playback. It is a register in both cases, but it is only a recording in the former case. It is understandable that photography has prioritised the recording function and privileged those cases where technology has been successfully designed to implement that function. Norms and standards have been established to ensure success at every process stage (see Hopkins 2015). But one legacy of single-stage orthodoxy is that failure to live up to the norms of being a recording has been treated as failure to live up to the norms of being a photograph.

The multi-stage account does not treat witless recording as the paradigm case of a photographic image. It recognises four schematic possibilities: i) witless registration followed by witless rendering; ii) witless registration followed by witty rendering; iii) witty registration followed by witless rendering; and iv) witty registration followed by

[29] A lot needs to be said about norms and standards that would have to be met to ensure that a process has functioned witlessly end-to-end. Abell (2010 and 2018), Hopkins (2015) and Walden (2005) contribute significantly to this discussion.

[30] When I first introduced the multi-stage account, I described the photographic event as a 'recording of the light image', Wilson (2009a and 2009b), but subsequently redescribed it as, 'causal registration of the light that forms the optical light image'. Wilson (2021, p. 163). The present argument shows why I considered it important to refine my choice of words. The multi-stage account has become the basis for a view collectively known as the 'New Theory' of photography and has been discussed, developed and applied by other thinkers, including Anscomb (2018), Abell (2018), Atencia Linares (2012), Blanc-Benon (2019), Costello (2017) and Lopes (2016). New Theorists and critics have characterised the photographic event in various ways, not all using the same terms. My contribution here is not an attempt to impose uniformity on the discussion. Settling on exact terminology — registering or recording — is not the main point; what matters is how best to elucidate that a photographic event — the registration of light — does not by itself constitute the production of an image.

witty rendering. The first is entirely witless and the other three are witty in various ways, but the outcomes of all four modes of production count equally and fully as photographic images. Hence, it would be a mistake to insist that mindless image production is a defining feature of a photographic image. A witty self-portrait by Vincent Duault (Figure 1) will allow me to illustrate these various modes of production.

Figure 1 Fragmentary silver halide development. Original photograph, by Vincent Duault: "Self-portrait (2018)," from the series *Resurgences*. © Vincent Duault, used by permission.

*i) Witless registration followed by witless rendering.* Duault sat in front of the camera. Light reflecting from his face was channelled to produce an array and focussed to form an optical light image, reflected inside the camera. A photographic event occurred: light arriving at the photosensitive film surface caused material changes in the emulsion. When the photographic event ended, a register consisting of the material changes was removed from the camera. The register was not a record or a representation. The register was immersed in developing fluid which caused microscopic catalysts to grow into large grains of silver and produce a visible pattern. The photographic image was chemically stabilised to halt the rendering process. The resultant 'negative' is a photographic record: an instance of a pattern that was witlessly recorded, then reproduced by a witless playback. Although a negative is already a photographic image, it is not usually considered a final result. Photo-chemical methods with a negative-positive process require two photographic events and two image-rendering steps. The first register, produced in camera, is rendered into a negative photographic image in the manner just described. The negative is then used in the darkroom to stage a second photographic event.

*ii) Witless registration followed by witty rendering.* Inside a darkroom, the negative was placed in an enlarger. A second optical light image was formed, and a second photographic event occurred. This time the quantity and distribution of light shining through the negative was registered by causal changes in the emulsion of a sheet of photosensitive paper. The production of this second register was also a witless process. It would have been possible to immerse the second register in developing fluid and witlessly produce a visible image. However, Duault chose not to render the image using this standard witless method. Instead, he selectively finger-painted developing fluid over the surface of the register, layered in some places and large gaps untouched elsewhere. He then fixed the sheet in a stop bath to prevent further change. The close-up details in Figure 2 show that Duault has not merely 'developed' a reduced selection of what might be thought of as the full image. Rather, his technique has creatively produced contour lines and areas of differential tonal contrast. This is an example of witty image-rendering in every sense of the word. The result is not a witless playback of a recorded pattern: it is a photographic picture.

Figure 2 Close-up detail of Fig. 1. © Vincent Duault, used by permission.

A view of photography which considers witless recording and reproduction to be a requirement for an image to be a photograph must say that this self-portrait is not a photograph. Some theories, for example Scruton (1981), would classify it as a drawing

or painting. The multi-stage view can claim that this is categorically a photographic image, without claiming that it is a record of the photographed scene.

*iii) Witty registration followed by witless rendering.* A photographic picture can be the product of witless light registration combined with witty image rendering. However, witty light registration is also possible. It is commonly supposed that techniques of 'dodging and burning' are interventions at the image-rendering stage of the process. These are considered to be techniques for post-production manipulation or enhancement of an image. That impression is another misconception caused by the single-stage view. In fact, dodging and burning take place during the occurrence of a photographic event.

Enlargement printing requires light to be projected through a negative and focussed to form an optical light image, reflected on a photosensitive surface. The negative provides a motionless scene, but the optical light image is still temporally active as it is causally responsive to changing light conditions. Dodging is a technique for reducing the amount of light arriving at specific areas of the photosensitive surface. Burning is a technique to increase the relative amount of light received in a selected area. These commonly used techniques allow the photographer to consciously control how light is registered and give the photographic register intentionally determined properties.[31] A photographic event can be a witty process; it is not necessarily a witless process.

A witty photographic event can be followed by witless image-rendering: after dodging and burning a register can be put through a standardised, perhaps automated, development process that lacks witty intervention by the photographer.

*iv) Witty registration followed by witty rendering.* I have claimed that a photographic event occurring in a darkroom can be witty as well as witless. The same is true for all photographic events, whether photo-chemical or photo-electrical. Gjion Mili's practice of 'light drawing', particularly in partnership with Pablo Picasso, is a good example of dodging and burning taking place outside the darkroom. [32] The formation of an optical light image through judicious positioning of a camera and adjustment of settings and controlled management of the registration of light can be the basis of a photographic event that is either witty or witless, followed by image-rendering of either kind.[33] Being entirely witless is an all-or-nothing matter, but being witty comes in degrees. Heated discussions must inevitably continue about how far it is possible for a photographer to make interventions that are salient in the final image. Although photographers are often keen to let the image speak for itself, the multi-stage view shows that knowledgeable testimony of photographers is invaluable for ascertaining whether or to what extent the production of an image was witty or witless in both the registration and rendering stages.[34] This extends to every conceivable use of photography — social, artistic,

[31] Paloma Atencia Linares (2012) has explained how particular darkroom techniques, such as layering two negatives in the enlarger, count as photographic means for producing a photographic image with fictional depictive content.
[32] See Cosgrove (n.d.) https://www.life.com/arts-entertainment/behind-the-picture-picasso-draws-with-light/
[33] See Lopes (2016), Costello (2017), Anscomb (2018) and Morris (2020) for informative descriptions of photographic techniques that enable photographers to exert control over the photographic image.
[34] Technical information provided by camera metadata is another factor.

scientific, forensic, or reportage — so is true for all types of image, from depictive portraits to speed camera records.

## VI

*Conclusion.* I am not alone in arguing for an approach to photography that can be described as 'functional', but among those who endorse functional approaches there are significant areas of disagreement and there remains much to discuss.[35] If, as I have argued, the multi-stage account is correct, no photography genuinely fits the self-image of the world imprinting itself. That said, if functional norms and standards required for witless registration and witless image rendering are appropriately specified and scrutinised, then for, at least some photographs, it is possible to justify claims about accuracy, reliability, objectivity, credibility and any other qualities that explain why photography is highly valued as a recording medium.[36] The crucial point is that photography is valued because it can be used to make records, not because it inevitably does so. Addressing the legacy of the single-stage view clears the way for better understanding how photography functions as a recording medium — and better understanding when it does not.

'Photograph' is a generic term that has been used to refer to various objects that display the visible effects of being marked by light.[37] It might seem that 'photograph' is a useful term to apply to a wide category of items, produced by different technologies and covering a range of different applications. On the contrary, in analytic philosophy of photography and beyond, 'photograph' can be an unhelpful term that conflates separate process stages, and obscures different technological functions and practical techniques.[38] Most significantly, it has evolved into a term that encourages contingent, functional factors to be regarded as necessary, fundamental conditions. This has led to epistemic dogmatism and aesthetic scepticism (as argued in Phillips 2009b). 'Photograph' carries an inheritance of mythical claims about a magical-mechanical process and 'black-box thinking': autonomous recording and reproduction that supposedly takes place as an immediate but invisible imprinting process inside the camera obscura. To understand how photography functions as a recording medium, it is necessary to expose what actually goes on inside and outside the black box: to recognise different roles played by the optical light image, the photographic register, the photographic image, and the photographic picture.[39] Only then is it possible to develop a full picture of the witty and witless capacities of the photographer.[40]

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[35] I would include Abell (2010 and 2018), Anscomb (2018), Benovksy (2011), Hopkins (2012), Lopes (2016), Maynard (1997) and Walden (2005).

[36] See Anscomb (2018) and Abell (2018) for constructive work in this direction.

[37] Maynard (1997) cautions that not every item marked by light in a photographic process is a photograph. Wiesing notes that the products of abstract photography need not be pictures, or even images. Wiesing (2010, p. 77).

[38] Jiri Benovsky (2011) gives a metaphysical analysis that addresses similar concerns and concludes that photographs should not be treated as a fundamental ontological category.

[39] The multi-stage approach is also applicable to sound-recording and would deliver similar benefits.

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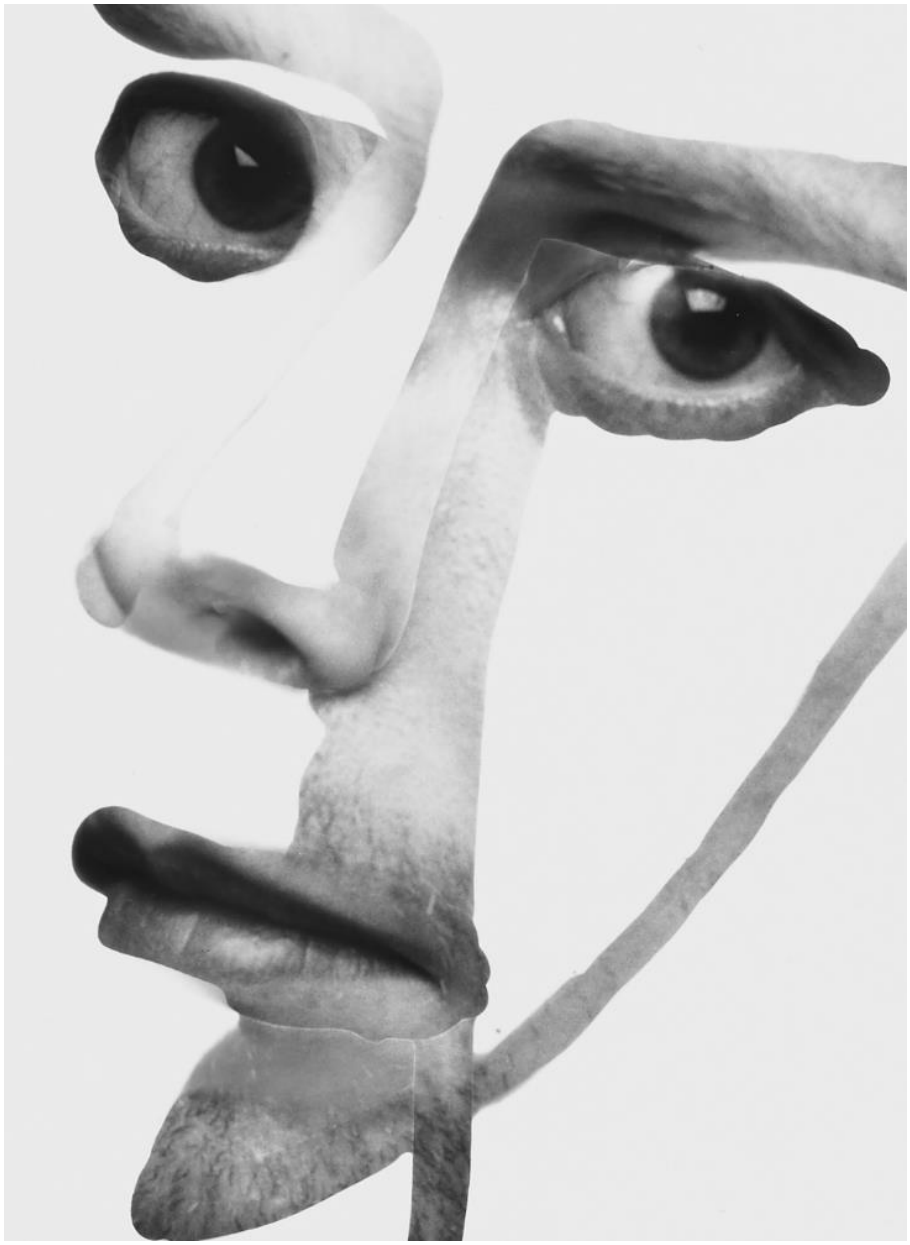
**Figures**

Figure 1 Fragmentary silver halide development. Original photograph, by Vincent Duault: “Self-portrait (2018),” from the series Resurgences. © Vincent Duault, used by permission.



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