

## Knowledge, affect and subjectivity in Katie Paterson's documents of darkness

Surely, scientific truth and natural phenomena are as good subjects for art as are man and his emotions, in their infinite variety.<sup>1</sup>

In April 1939, the revolutionary American documentary photographer Berenice Abbott wrote a “manifesto” entitled ‘Photography and Science’.<sup>2</sup> Though Abbott is championed as a modernist photographer – her *Changing New York* series is often claimed to be one of the most important in the documentary genre – it is her beautifully formulated science photographs, made between 1939 and 1960, that have recently received tremendous critical reappraisal (Figure 1).<sup>3</sup> This is undoubtedly encouraged by our present moment; scientific subject matter may well be the most telling of our time. Abbott insisted on the need for a ‘friendly interpreter between science and the layman’.<sup>4</sup> Katie Paterson might be the interpreter that Abbott wished for. Treating the cosmos as her playground, Paterson was the first artist-in-residence at the University College London’s Department of Physics and Astronomy in 2010–2011. She investigated ideas of Ancient Darkness, Early Light, Dark Energy and Dark Matter and made a series of works in response to these concepts. This paper will utilise two of these works – *Ancient Darkness TV* (2009) and *History of Darkness* (2010–) – to discuss knowledge, affect and subjectivity in Paterson’s lens-based scientific documents. This breadth of this material might seem overambitious, but it is my intention to illustrate how art and science are actually inseparable in their capacity and ability to reorder our relation to the world. I argue, then, that Paterson’s engagement with the scientific document is an extension of that transformative process that allows us to reconfigure our position in the world.

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<sup>1</sup> Berenice Abbott quoted in Terri Weissman, *The Realities of Berenice Abbot: Documentary Photography and Political Action* (Los Angeles: University of California Press, 2011), 170

<sup>2</sup> Sean O’Hagan, ‘Berenice Abbott: The Photography Trailblazer Who Had Supersight’, *The Guardian*, <http://www.theguardian.com/artanddesign/2015/mar/10/berenice-abbott-science-photography-trailblazer>, [Date accessed: 01/04/2015]

<sup>3</sup> O’Hagan, ‘Berenice Abbott’, [Date accessed: 01/04/2015]

<sup>4</sup> Berenice Abbott quoted in Weissman, *The Realities of Berenice Abbot*, 170

## Intervention

In his 1962 text ‘The Structure of Scientific Revolutions’, Thomas Kuhn reflected on the similarities between art and science. He argues that visual forms of knowledge are ancillary for the scientist because they present the means to obtain knowledge.

The paintings are end-products of artistic activities. They are the sort of object which the painter aims to produce. The scientific illustrations, on the other hand, are at best by-products of scientific activities. The artist, like the scientist, faces persistent technical problems which must be resolved in the pursuit of his craft. Even more we emphasise that the scientist, like the artist, is guided by aesthetic considerations and governed by established modes of perception. But an exclusive emphasis upon these parallels obscures a vital difference. Whatever term “aesthetic” may mean, the artist’s goal is the production of aesthetic objects; technical puzzles are what he must resolve in order to produce such objects. For the scientist, on the other hand, the solved technical puzzle is the goal, and the aesthetic is the tool for its attainment. Whether in the realm of products or of activities, what are ends for the artist are means for the scientist, and vice versa. <sup>5</sup>

Kuhn argues that the aim of the artist is to represent the world through non-linguistic entities (images), whereas the aim of the scientist is to represent the world through linguistic entities (theory). <sup>6</sup> Crucially, for the purposes of my argument, the artist and the scientist intervene in the world in order to transform our relation to it, whether through images or theories. In his 2013 essay ‘What The Scientist’s Eye Tells The Artist’s Brain’, Paolo Garbolino states: ‘Intervention is a process in which an underlying causal reality is used to, make, or change things’. <sup>7</sup> It is at this moment when the document rises to prominence. The document brings together material that generates conversation and stimulates knowledge production.

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<sup>5</sup> Thomas Kuhn, *The Essential Tension: Selected Studies in Scientific Tradition and Change* (Chicago: University of Chicago Press, 1977), 342–343

<sup>6</sup> Paolo Garbolino, ‘What The Scientist’s Eye Tells The Artist’s Brain’, in Mara Ambrožič and Angela Vettese, *Art as a Thinking Process: Visual Forms of Knowledge Production* (Berlin: Sternberg Press, 2013), 75

<sup>7</sup> Garbolino, ‘What The Scientist’s Eye Tells The Artist’s Brain’, 76

## Experiments

Astronomers at the W. M. Keck Observatory (on the summit of the Mauna Kea volcano in Hawaii) ‘probe the local and distant Universe with unprecedented power and precision’.<sup>8</sup> Their instruments are ‘the world’s largest optical and infrared telescopes’.<sup>9</sup> The W. M. Keck Observatory’s website describes them: ‘The twin telescopes stand at eight stories tall, weigh three-hundred tonnes and operate with nanometer precision. The telescopes’ primary mirrors are ten meters in diameter and are each composed of thirty-six hexagonal segments that work in concert as a single piece of reflective glass’.<sup>10</sup> The clarity produced by the twin Keck telescopes is unlike any other; astronomers travel from across the world to catch a glimpse of the first distant galaxies.

In 2009, the year before her residency at the University College London’s Department of Physics and Astronomy, Paterson travelled to Hawaii to work at the W. M. Keck Observatory with Professor Richard Ellis – one of the leading authorities on galaxy formation. Paterson states: ‘Richard is trying to find the first star, the very origins of the Universe’.<sup>11</sup> She contrasts this with her own intentions: ‘I’m interested in how you can conceptualise that, how you can evoke the light that emits from the beginning of time’.<sup>12</sup> In his 2010 essay ‘The Production of Knowledge in Artistic Research’, Henk Borgdorff outlined two forms that multidisciplinary cooperation between the artist and the scientist can take: ‘[...] either the scientific research serves or illuminates the art; or the art serves or illuminates what is going on in the science’.<sup>13</sup> ‘An artwork’, Catherine Z. Elgin describes in her 1993 essay ‘Understanding: Art and Science’,

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<sup>8</sup> ‘Keck Observatory’, *W. M. Keck Observatory*, <http://www.keckobservatory.org/about>, [Date accessed: 01/04/2015]

<sup>9</sup> ‘Keck Observatory’, [Date accessed: 01/04/2015]

<sup>10</sup> ‘Keck Observatory’, [Date accessed: 01/04/2015]

<sup>11</sup> Katie Paterson quoted in Michael Fordham, ‘Luminescence’, *POK Magazine*, [http://www.katiepaterson.org/press/Katie\\_Paterson\\_POK\\_Magazine\\_October\\_09.pdf](http://www.katiepaterson.org/press/Katie_Paterson_POK_Magazine_October_09.pdf), [Date accessed: 01/04/2015]

<sup>12</sup> Paterson quoted in Fordham, ‘Luminescence’, [Date accessed: 01/04/2015]

<sup>13</sup> Henk Borgdorff, ‘The Production of Knowledge in Artistic Research’ in Henrik Karlsson and Michael Biggs, *The Routledge Companion to Research in the Arts* (London and New York: Routledge, 2012), 73

‘affords epistemic access to the features it exemplifies. It presents those features in a context contrived to render them salient. This may involve unravelling common concomitants, filtering out impurities, clearing away unwanted clutter, presenting in unusual settings’.<sup>14</sup>

‘I find it astonishing that through telescopes, people can look directly into the Universe to a time when Earth didn’t even exist’, Paterson exclaims.<sup>15</sup> ‘I was very fortunate to be able to actually witness this directly – such distant galaxies like tiny jewels on the screen’.<sup>16</sup> It seems like she also wanted the general public to witness this abyss directly. On 22 November 2009 at 11.59pm, Paterson transmitted an image of Ancient Darkness from the W. M. Keck Observatory on the New York television station, MNN (Figure 2). Broadcast for one minute, it revealed darkness from the furthest point in the Universe: ‘13.2 billion years ago, shortly after the Big Bang and before Earth existed, when the stars, galaxies and the first light began to form’.<sup>17</sup> It is possible to understand *Ancient Darkness TV* in light of Alfredo Cramerotti’s ‘aesthetic journalism’ – a term that describes ‘artistic practices in the form of investigation of social, cultural or political circumstances’.<sup>18</sup> ‘Its research’, Cramerotti continues, ‘takes shape in the art context’.<sup>19</sup> Paterson’s document of darkness is an alternative to the typical scientific apparatus that Ellis might use. What she borrows from him is ‘investigative methods’ solely as a means to achieve ‘a certain amount of knowledge’ about the cosmos.<sup>20</sup> This process presents a paradox that Hito Steyerl summarises in her 2007 essay ‘Documentary Uncertainty’, which relates to the way we conceptually investigate documentary modes. ‘The more real the documentary seems to get, the

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<sup>14</sup> Catherine Z. Elgin, ‘Understanding: Art and Science’, *Synthese*, 95, (1993), 17

<sup>15</sup> Katie Paterson quoted in Ceci Moss, ‘Interview with Katie Paterson’, *Rhizome*, <http://rhizome.org/editorial/2010/jun/16/interview-with-katie-paterson/>, [Date accessed: 01/04/2015]

<sup>16</sup> Paterson quoted in Moss, ‘Interview with Katie Paterson’, [Date accessed: 01/04/2015]

<sup>17</sup> ‘Ancient Darkness TV’, *Katie Paterson*, <http://www.katiepaterson.org/tv/>, [Date accessed: 01/04/2015]

<sup>18</sup> Alfredo Cramerotti, ‘WHAT is Aesthetic Journalism?’ in *Aesthetic Journalism* (Bristol and Chicago: Intellect, 2009), 21

<sup>19</sup> Cramerotti, ‘WHAT is Aesthetic Journalism?’, 21

<sup>20</sup> Cramerotti, ‘WHAT is Aesthetic Journalism?’, 21

more we are at a loss conceptually. The more secure the knowledge that documentary articulations seem to offer, the less can be safely said about them'.<sup>21</sup>

What the artistic and scientific experiment have in common is related to the completion of work. The scientist needs to evaluate whether the information that has been produced is what they were seeking. Similarly the artist has to decipher whether the sought-for result has been accomplished. In Paterson's case, the art exhibition is not a main feature of her research nor is it the completion of her work. As Cramerotti describes in his aforementioned essay: 'The set-up of screens, monitors and printed material is usually only a moment of articulated aesthetic experience, and it serves as an occasion for something else to happen. It functions as a segment of a bigger system of knowledge production'.<sup>22</sup> This idea that the exhibition "serves as an occasion for something else to happen" is linked to the process of transforming an individual's sense of themselves and the world around them. As Fiona Venables highlights in her 2013 essay 'Katie Paterson: Another Time', Paterson's work 'reminds us of the value of looking to the stars and gives us hope that the future may not be such a bleak place after all'.<sup>23</sup>

### Point of View

Though the commitment to the photograph's social utility remains favourable among contemporary artists, Paterson shifts her attention away from the concrete, material world that we physically inhabit to the world of science, where the abstract laws that govern our physical world are determined. Paterson does not explain this shift as a retreat into abstraction, rather the opposite. The cosmos is a further expression of our reality here on Earth, just on the vastest scale humanity knows. Paterson explains: '[...] whilst these early pristine stars may seem remote from human experience, we are related in the most intimate way – every atom on Earth was synthesised by stars, they are what we've emerged from'.<sup>24</sup>

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<sup>21</sup> Hito Steyerl, 'Documentary Uncertainty', *A Prior Magazine*, 15, (2007), 01

<sup>22</sup> Cramerotti, 'WHAT is Aesthetic Journalism?', 21

<sup>23</sup> Fiona Venables, 'Katie Paterson: Another Time', *Katie Paterson*, [http://www.katiepaterson.org/press/Katie\\_Paterson\\_In\\_Another\\_Time.pdf](http://www.katiepaterson.org/press/Katie_Paterson_In_Another_Time.pdf), [Date accessed: 01/04/2015]

<sup>24</sup> Paterson quoted in Moss, 'Interview with Katie Paterson', [Date accessed: 01/04/2015]

*History of Darkness* is an attempt to capture the cosmos on a human scale. It is an ongoing project, which was initiated in 2010 when Paterson took up her residency at the University College London's Department of Physics and Astronomy (Figure 3). It is a slide archive, which will 'eventually contain hundreds upon thousands of images of darkness from different times and places in the history of the Universe, spanning billions of years'.<sup>25</sup> Arranged from one to infinity, each 35mm slide is accompanied by a handwritten record that states the distance from the Earth in light years. Silver gelatin photographs have also been taken, which are then framed and embossed with the distance from the Earth in light years. Arguably, *History of Darkness* is a more accurate rendering of reality than the archetypal documentary photographs. With no traces of a mediating human hand, Paterson effectively captures the cosmos on the photographic surface rather than merely describing it. In other words, scientific fact remains true. It is not sacrificed by the artist's will to create – as other examples of cosmos depictions highlight. Her truth to science is highlighted by Professor Ofer Lahav in his 2011 interview about Paterson's involvement with the Astrophysics Group at the University College London: 'We [scientists] are busy producing measurements and building a camera. She [Paterson] is looking at the exact same universe, but with an entirely different point of view'.<sup>26</sup> Her point of view, as I understand it, is about negotiating a human portrayal of scientific thought and practice. Turning complex science into pictorial simplicity, Paterson maintains the realistic atmosphere of science and the world in which scientists operate.

### Imagination

What I mean by "the human portrayal of scientific thought and practice" is that Paterson is engaged with the way in which the cosmos can demonstrate the brevity of an individual life. Actually, as Venables highlights in her aforementioned essay, 'of all human life, indeed of this planet's life in relation to the Universe'.<sup>27</sup> Paterson's work is not about the futility of existence, it has a celebratory atmosphere in which humanity and the power of the imagination reign forth.

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<sup>25</sup> 'History of Darkness', *Katie Paterson*, <http://www.katiepaterson.org/darkness/>, [Date accessed: 01/04/2015]

<sup>26</sup> Ofer Lahav, 'When Art Meets Astronomy', *YouTube*, <https://www.youtube.com/watch?v=Kh9niLnf6TE>, 2m00s–2m10s, [Date accessed: 01/04/2015]

<sup>27</sup> Venables, 'Katie Paterson', [Date accessed: 01/04/2015]

It is the imagination that has led humanity away from Earth and out toward the moon, the sun, the planets and the stars. It is that same imagination that is encouraging artists like Paterson to reflection on our microscopic existence in an unlimited void, the bleak nothingness of space.

Paterson is working within the Romantic tradition. A tradition that is renowned for its enquiries into the sublime, and in which the cosmos is always acknowledged as a manifestation of our imagination. Paterson's subtlety of expression is what makes this all the more powerful. 'Perhaps having less overwhelming stimuli questions the mind and allows a flowing imagination', she proposes.<sup>28</sup> *Ancient Darkness TV* absorbs our gaze and, to quote Neha Chokski, 'renews our capacity to receive light'.<sup>29</sup> In her 2013 essay 'On Starlight and Celestial Darkness: Human Vision and Cosmic Revision, as Seen in the Recent Works of Zoe Leonard and Katie Paterson', Chokski poses an interesting question: 'If seeing triggers a cascade of reactions in our brain, what does not seeing do?'<sup>30</sup> Jane Marsching might have an answer for Chokski, which she included in her 2003 essay 'Orbs, Blobs and Glows: Astronauts, UFOs and Photography':

When I shut my eyes and look at darkness, even nothing becomes something: a star field, a fractal simulation, an indistinct halo. The fact of the real is another world from the figment of our imaginations. Analogy satisfies our desire to place ourselves in the world – we link the known with the unknown to create an order that is dynamic and self-reflecting.<sup>31</sup>

In Marsching's writing, a conception of art arises that applies directly to Paterson's vertiginous documents. It is not that art has an aim to reproduce the world, but it strives produce and register effects. Affect is not completely separate from thought, but rather the means by which a new

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<sup>28</sup> Katie Paterson quoted in Alicia Reuter, 'From Cosmology to Jewellery: Interview with Katie Paterson', *Vitra*, <http://www.vitra.com/en-gb/magazine/details/katie-paterson>, [Date accessed: 01/04/2014]

<sup>29</sup> Neha Chokski, 'On Starlight and Celestial Darkness: Human Vision and Cosmic Revision, as Seen in the Recent Works of Zoe Leonard and Katie Paterson', *X.TRA*, 15:02, (2013), 32

<sup>30</sup> Chokski, 'On Starlight and Celestial Darkness', 32

<sup>31</sup> Jane Marsching, 'Orbs, Blobs and Glows: Astronauts, UFOs and Photography', *Art Journal*, 62:03, (2003), 62

kind of understanding is created. Thus the affective document becomes part of this process of transforming an individual's situation in the world. This is crucial because it is the affective document, created by Paterson's subject matter, that stimulates our senses and allows for this process to take place. This sentiment recalls what Paolo Freire when, in his 2005 text 'The Pedagogy of the Oppressed', he argues that reflecting upon the world can help transform it.<sup>32</sup> This idea has resonance with the aesthetics of Gilles Deleuze and Félix Guattari, a pair that I will turn to next.

### Aesthetics and affects

In his 2001 essay 'The Aesthetics of Affect: Thinking Art Beyond Representation', Simon O'Sullivan posits:

This world of affects, this universe of forces, is our own world seen without the spectacles of subjectivity. But how to remove these spectacles, which are not really spectacles at all but the very condition of our subjectivity? [...] We do it all the time: we are involved in molecular processes that go beyond our own subjectivity. Indeed, we are these processes. We are, as well as subjects, bundles of events, bundles of affects. At stake here, then, are the practices and strategies that reveal this other side to ourselves, practices that imaginatively and pragmatically switch the register.<sup>33</sup>

It is this sentiment that this paper has been building towards. The primary function of art is to reconnect us with the world by altering our intensive register. O'Sullivan describes that although art might have a representational function, it is 'a fissure in representation'.<sup>34</sup> He continues: 'We, as spectators, as representational creatures, are involved in a dance with art, a dance in which through careful manoeuvres, the molecular is opened up, the aesthetic is activated'.<sup>35</sup>

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<sup>32</sup> Paolo Freire, *The Pedagogy of the Oppressed* (New York: Bloomsbury Publishing, 2005), 49

<sup>33</sup> Simon O'Sullivan, 'The Aesthetics of Affect: Thinking Art Beyond Representation', *Journal of the Theoretical Humanities*, 06:03, (2001), 128

<sup>34</sup> O'Sullivan, 'The Aesthetics of Affect', 128

<sup>35</sup> O'Sullivan, 'The Aesthetics of Affect', 128

This is when art achieves its *modus operandi*: it transforms our sense of ourselves and our ideas about the world around us, even just for a moment. This boldly claims a kind of autonomy for art, but one that is distinct from Theodor W. Adorno's conception and more in-line with the affirmative notions the aesthetic impulse.<sup>36</sup> As such, the kind of aesthetics that I am eluded to here is not just a state of contemplation. It is much more. As Cramerotti describes in his aforementioned essay, 'it is rather the capacity of an art form to put our sensibility in motion, and convert what we feel about nature and the human race into a concrete (visual or bodily) experience'.<sup>37</sup> It is useful to introduce Deleuze's categories of the 'actual' and the 'virtual' and put them into motion. In his 1968 text 'Difference and Repetition', Deleuze explains that 'the virtual is not opposed to the real; it possesses a full reality by itself. The process it undergoes is actualisation. It would be wrong to see only a verbal despite here: it is a question of existence itself'.<sup>38</sup> Deleuze's category of the 'virtual', the realm of affects and Paterson's documents of darkness are united in their intangibility and their capacity to move the spectator beyond the familiar. Collectively, these forces harness the ability to transport the viewer to another time and place.

In his 1992 text 'Chaosmosis: An Ethico-Aesthetic Paradigm', Guattari describes this capacity as an 'ethico-aesthetic' paradigm, which pertains to subjectivity as well as art.<sup>39</sup> He argues that 'new complexes of subjectivation become possible' when giving individuals access to 'new materials of expression'.<sup>40</sup> 'Incorporeal universes of reference' are opened up and allow for, what Guattari terms, a process of 'resingularisation' – a process of reordering our relation to the world and ourselves.<sup>41</sup> It is possible to apply this theory and consider two audiences of Paterson's *Ancient Darkness TV*. On the one hand, the blinded viewer might understand timelessness and infinity all the better when, as Chokski explains in her aforementioned essay,

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<sup>36</sup> O'Sullivan, 'The Aesthetics of Affect', 128

<sup>37</sup> Cramerotti, 'WHAT is Aesthetic Journalism?', 21

<sup>38</sup> Gilles Deleuze, *Difference and Repetition* (New York and London: Bloomsbury Publishing, 2004), 211

<sup>39</sup> Félix Guattari, *Chaosmosis: An Ethico-Aesthetic Paradigm*, trans. Julian Pefanis and Paul Bains (Sydney: Power Institute, 1995), 07

<sup>40</sup> Guattari, *Chaosmosis*, 07

<sup>41</sup> Guattari, *Chaosmosis*, 07

‘darkness is explored as something that is not ironic, dualistic or enigmatic, but as part of the primordial beginning and ultimate end common to life and art’.<sup>42</sup> On the other hand, a puzzled viewer might use that one-minute live broadcast, or the six-minute nine-seconds of the gallery version, to question whether if they are looking at an emptied screen, to wonder about the blankness and thus unexpectedly visualise and project his or her own subjectivities outward.<sup>43</sup> Paterson’s work produces what Guattari termed ‘new modalities of subjectivity’ in the same way as ‘an artist creates new forms from a colour palette’.<sup>44</sup>

Deleuze and Guattari have countered Adorno’s notion that art was entirely useless and did not provide or partake in any form of critical debate. The pair have identified that art performs specific roles that are determined in the context of production. Deleuze and Guattari’s theory is supported by wider circumstances of current artistic practice, where post-medium notions are prevalent: medium specifics are no longer dwelled upon or considered the most significant. What is important, in our current moment, is what art can do. In his 2003 essay ‘Take A Reality Check’, Julian Stallabrass confirms this by asserting: ‘Art has generally tired of thinking about itself and has switched its attention to the outside world. Rather than muse about languages, visual or otherwise, and representation, it turns its wearied eye on some portion of reality’.<sup>45</sup> In short, art is less involved in making sense of the world (scientist’s aim), and more involved in exploring the possibilities of being and becoming in the world. Less involved in knowledge and more involved in experience, art continues to push the boundaries of what can be experienced here on Earth.

In conclusion, I wish to quote one of the most memorable concluding sentences in Abbott’s aforementioned essay: ‘So far the task of photographing scientific subjects and endowing them with popular appeal and scientific correctness has not yet been mastered’.<sup>46</sup> Paterson has taken control of this task. She is just one artist of many who are turning to science and securing its status as another expression of our reality. Instructive and beautiful, Paterson’s *Ancient*

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<sup>42</sup> Chokski, ‘On Starlight and Celestial Darkness’, 32

<sup>43</sup> Chokski, ‘On Starlight and Celestial Darkness’, 32

<sup>44</sup> Guattari, *Chaosmosis*, 07

<sup>45</sup> Julian Stallabrass, ‘Take a Reality Check’, *Evening Standard*, (2003), 41

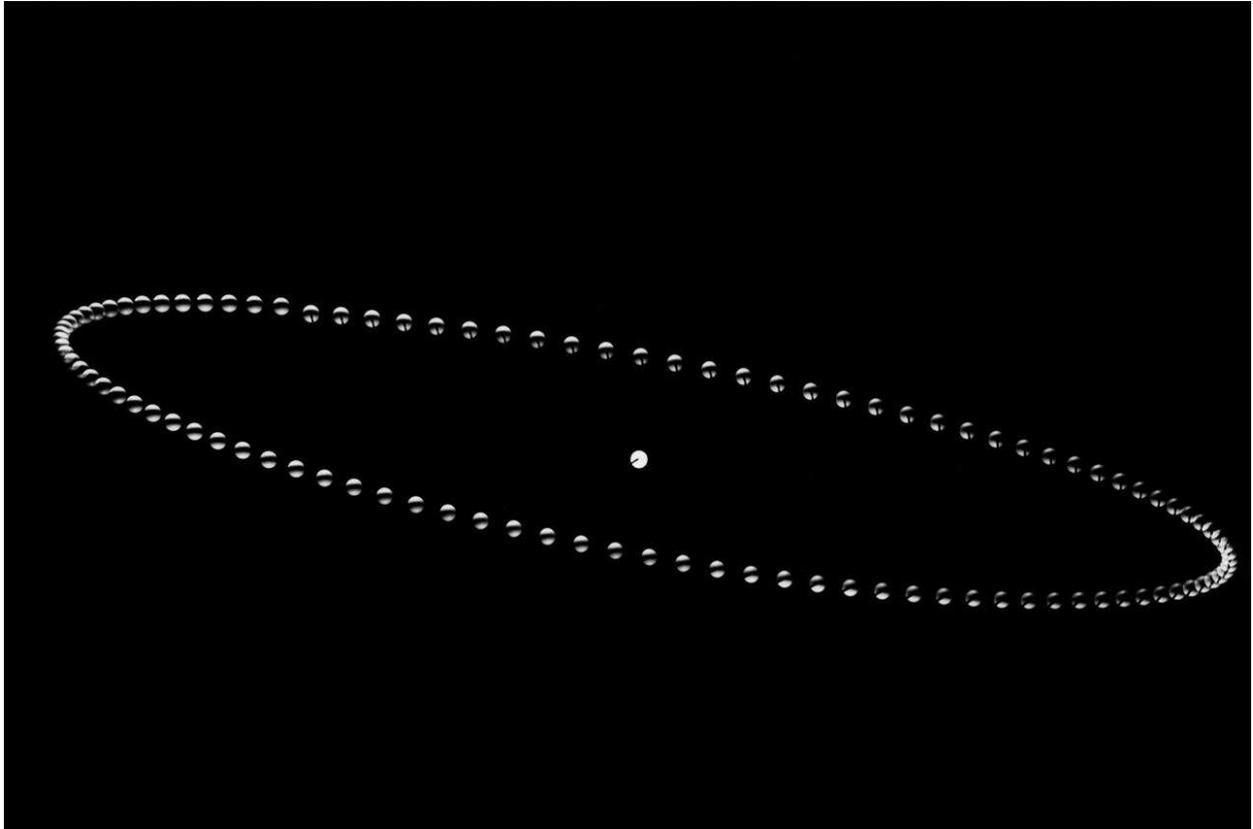
<sup>46</sup> Berenice Abbot quoted in Weissman, *The Realities of Berenice Abbot*, 170

*Darkness TV* and *History of Darkness* are exemplary artistic transformations of scientific concepts. This paper started by exploring the ways in which knowledge is produced by the artist and the scientist, illustrating how this knowledge is transformed in the context of art. Paterson's vertiginous documents of darkness have updated our notions of art's autonomy, refined the role of subjectivity and, crucially, confirmed art's enduring capacity transform our current position and reconnect us with the world. The process of transformation has resonated throughout this paper. Maybe it is no coincidence. To re-quote Paterson: '[...] whilst these early pristine stars may seem remote from human experience, we are related in the most intimate way – every atom on Earth was synthesised by stars, they are what we've emerged from'.<sup>47</sup>

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<sup>47</sup> Paterson quoted in Moss, 'Interview with Katie Paterson', [Date accessed: 01/04/2015]

## Illustrations



**Figure 1**

Berenice Abbott

*Multiple Exposure of Swinging Ball, c.1958*

Gelatin silver print

Photograph size: 16.19 x 24.61 cm

Courtesy: Berenice Abbott / SFMOMA



**Figure 2**

Katie Paterson

*Ancient Darkness TV*, 2009

Running time: 6 min 20 sec

Above: Installation view

Photograph: Peter Mallet

Right: VHS Video transferred to digital film, DVD

Photograph: Katie Paterson



**Figure 3**

Katie Paterson

*History of Darkness*, 2010–

Above: Installation view

Left: *3,261,566 ly* from slide *73/∞*

Slide size: 35mm

Photograph size: 48 x 48 cm

Photographs: Haunch of Venison

Courtesy: Haunch of Venison

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