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Mortality as Framed by Ongoingness in Digital Design
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Introduction

To reveal valuable qualities for the enhancement of digital design, in this article we present a number of perspectives on mortality, first using Victorian mourning and memento mori jewelry, and second from perspectives on bereavement therapy and grieving. We introduce and describe four digital lockets as the means to help us think through both Victorian and modern-day practices related to mortality, mourning, grief, and death, and to explore possibilities for digital design. Finally, we introduce the notion of ongoingness, both as a theoretical construct and as a resource for design practice, by reference to the work of artist Moira Ricci. Central here is the notion that, rather than distancing or detaching ourselves from the deceased (as has been a predominant grieving therapy approach of modernity in Western societies), we can find ways to continue having an active and growing relationship with them. We situate ongoingness in the context of "continuing bonds" within bereavement. Our discussion concludes with the introduction of a fifth digital locket that exemplifies how digital artifacts can engage with ongoingness directly.

Critical to our inquiry are the specific and particular characteristics of the medium of jewelry in the exploration of issues of identity and significance.[1] Objects that are active at the boundary of the body—jewelry in its widest sense—provide the circumstances and territory to explore issues that arise at this junction of the personal, social, and cultural. We advocate that jewelry gives us unique entry points to consider how digital technologies affect these personal, social, and cultural aspects of our lives.[2]

Victorian Mourning Jewelry and Memento Mori

The Victorian period in Britain (1837–1901) had rich cultural practices in relation to mortality. As a period of both intense innovation and constrictive social etiquette, tensions emerged in how people dealt with death and grief. Jewelry was a far more explicit communication tool than it is in our current age.[3] Jewels were used to form acronyms, with the first letter of each gemstone spelling out messages of love. And beyond this practice, a whole culture of jewelry responded at "astonishing speed (…) to topical news."[4]

1   Jivian Astfalck, Jane Adam, and Paul Derrez, *New Directions in Jewellery* (London: Black Dog Publishing, 2005).

2   Jayne Wallace, Andy Dearden, and Tom Fisher, "The Significant Other: The Value of Jewellery in the Conception, Design and Experience of Body Focused Digital Devices," *AI & Society* 22, no. 1 (2007): 53–62.

3   Charlotte Gere and Judy Rudoe, *Jewellery in the Age of Queen Victoria: A Mirror to the World* (London: British Museum Press, 2010).

4   Ibid., 7.

The Victorians used jewelry as a public signifier of a vast array of allegiances, emotional states, and commentaries on both politics and culture. Its location on the body was used as a way to give voice to things that etiquette didn't permit in spoken conversation. Moreover, jewelry was a category of object used to embrace technological inventions, such as the first developments in photography and also in electronics.[5] What we now know as digital jewelry had its roots in this era—for example, a skull pin made in 1867 by Auguste-Germain Cadet-Picard, which used electrical pins invented by French electrical engineer Gustave Pierre Trouvé. The piece contained electric terminals so that, when connected to a battery concealed in a wearer's pocket, the eyes in the skull rolled and the jaws snapped.

Although this example of electronic jewelry was not common, the piece speaks clearly to death and mortality—both cultural obsessions of the Victorian period. Mourning jewelry and memento mori were the two predominant forms of jewelry during this era. While mourning jewelry provided a souvenir of the dead and memorialized the death of a particular person for an individual, or a culturally important figure for the masses (e.g., Lord Tennyson, or soldiers lost in battle), memento mori jewelery was intended to aid reflection on death, mortality, and the transience of life.[6] One form steeped itself in grief and the presentation of mourning, and the other supported the contemplation of death itself, and thus the appreciation of life, for the living.

A vast business around mourning and death emerged: a visual language that was used in all artifacts of burial, memorial, and mourning and a complex set of rules and etiquette around behavior and dress. Widows went through various phases of mourning: deep mourning, which lasted for a year and a day after initial bereavement; secondary mourning, spanning approximately the next nine months; ordinary mourning, which lasted a further three months; and half-mourning, which could last from six months to a lifetime.[7] Garments and jewelry had to be black, lack luster, and be aesthetically heavy, gradually becoming lighter in texture and hue during the course of these phases.

However constrictive or obligatory the nature of mourning etiquette, the wearing of mourning jewelry was not always or necessarily an expression of grief.[8] "Bereavement and grief are seen, respectively, as individual states of loss and response to loss, so mourning is related to grief, but is not the same."[9] In other words, women adhered to the etiquette of mourning in part because society enforced it; strict rules were keenly observed and policed by peers, even if the wearing of a mourning "uniform" might have belied the wearer's actual feelings. In addition, a commonplace practice of contemplation on mortality existed, including activities such as planning aspects of one's own death, designing related

5   Ibid.
6   Claire Michele Barratt, An Investigation into the Cultural Meanings of Contemporary Mourning and Memento Mori Jewellery (London 1980–2008) (PhD Dissertation, University of the Arts London, 2010).
7   Sonia A. Bedikian, "The Death of Mourning: From Victorian Crepe to the Little Black Dress," *OMEGA-Journal of Death and Dying* 57, no. 1 (2008): 35–52.
8   Barratt, *An Investigation into the Cultural Meanings,*
9   Ibid., 23.

Figure 1
Remember.

artifacts (e.g., jewelry) for others in preparation of dying, and using memento mori to "make more sense of the loss of an individual by turning the experience of death into a didactic tableau."[10] Such practices suggest an acceptance of mortality, and objects like the Cadet-Picard "laughing skull pin" and memento mori depicting dancing skeletons suggest a subversion of the fear of death through humor.[11] Furthermore, in being steeped in a culture that engaged very openly with mortality, people found intricate ways to continue their relationships with the deceased and used objects such as mourning jewelry and memento mori to "sense-make" in relation to their bereavement and their own mortality.

Lockets

The locket is one of the most archetypal forms of jewelry of this period (and still endures in traditional and contemporary art jewelry).[12] Its affordance of containment means that it offers a place for the storing of personal materials and also a way to literally keep them close by carrying them on the body. The locket can serve as a worn memorial—both a private and a public declaration. Historically used both for mourning and memento mori, it has spanned a range of scales enabling the housing of a variety of materials (i.e., photographs, love notes, or locks of hair). The locket is an uncommon example of an object that grew from the desire to keep signifiers of a relationship "close"; it became steeped in Victorian practices of mourning and memento mori and has endured as a common form of jewelry used today in both everyday traditional jewelry and as a symbolic motif in contemporary art jewelry.[13] The locket gives us a unique design context for imagining what "digital dwelling" could mean and how the digital can support contemporary reflections on mortality, mourning, and continued bonds with the dead. We describe a series of four digital lockets, made by the authors through 2010 and 2011. The lockets are tangible examples of physical-digital artifacts that speak to mortality, and we use them as propositional objects that enable us to think about the potential for digital and design to respond to this context more fully.

Remember, Forget, Daguerre, and Orpheus are four metal lockets housing digital screens on which images can be displayed.
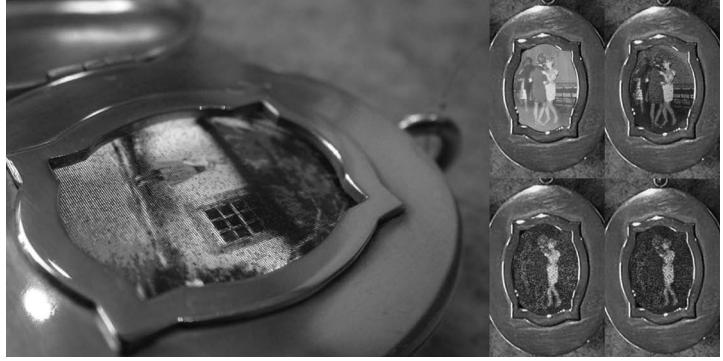
10 Nigel Llewellyn, *The Art of Death: Visual Culture in the English Death Ritual c.1500–c.1800* (London: Reaktion Books, 1991), 19.
11 Barratt. *An Investigation into the Cultural Meanings.*
12 http://www.laurapotter.co.uk/index.php/2003/treasure/ (accessed May 15, 2017).
13 Lin Cheung, *Tomfoolery: Objects and Jewellery* (UK London: Tomfoolery Publishing, 2013).

Figure 2
Forget.

Remember

Remember (see Figure 1) houses a large number of images, moving from one to the next each time the locket is opened. It was made as a way for people with dementia to carry a host of images of personal significance with them, on their body, in the hope that the locket and the showing of the images to others could form a bridge between who the owners of the locket are and have been over the course of a life and their family and caregivers in the present.

If we imagine *Remember* as being owned by someone bereaved, it doesn't step far from the Victorian tradition of using a locket to house photographs to enable acts of remembrance, remembering and holding the deceased close.[14] The digital enables a multitude of images to be held in one locket, which could signify a sense of control over content and could bring comfort for a wearer and possibly a closer connection to multiple facets of the deceased. The digital herein enables a very personal space of dwelling. However, that a wearer would need to close and reopen the locket to view each image brings the notion of control into question. This digital interaction could act as a stimulus for remembering particular aspects of a relationship, akin to Leong's work on serendipity, where random encounters of personal content often led to the "emergence of powerful personal meanings out of a seemingly random coincidence of events."[15] Conversely, the frustration of having to seek a particular desired image in the locket could undermine the value for some, or indeed, as Leong found, would depend "on when, where and to whom those experiences are being recounted."[16] In the context of mourning or mortality, we suggest the potential value in digital artifacts that do not give someone full control over what content to view at any given time; small acts of randomness and/or loss of control might actually serve as valuable qualities of an artifact with which people could engage as part of their coming to terms with bereavement.

Forget

Forget (see Figure 2) holds a large number of images but only shows one image a day. Each day the image inside the locket slowly degrades and is finally deleted. The digital logic operates to hold

14 Deborah Lutz, "The Dead Still Among Us: Victorian Secular Relics, Hair Jewelry, and Death Culture," *Victorian Literature and Culture* 39, no. 01 (2011): 127–42.

15 Leong, Tuck Wah, Peter Wright, Frank Vetere, and Steve Howard. "Understanding Experience Using Dialogical Methods: The Case of Serendipity." In *Proceedings of the 22nd Conference of the Computer-Human Interaction Special Interest Group of Australia on Computer-Human Interaction,* 256–63. ACM, 2010.

16 Ibid., 263

onto the most precious aspects of each image for as long as possible, but eventually an image dissolves entirely. *Forget,* made for the CraftCube Touring Research Exhibition in 2010 (Crafts Council, UK), focused on the lead author's research related to dementia and memory loss. In response to spending time with people living with dementia and learning about different individuals' personal, nuanced dynamics of forgetting, the locket visually "forgets" an image each day in ways that echo these dynamics. It was made as an object that empathizes with how people experience forgetfulness and memory loss and to evoke the notion within personhood in dementia that each person is far more than the sum of our cognitive abilities. A theory of personhood provides alternatives to dementia's being seen, at its extreme, as death of self or as a deteriorating state of unbecoming a person[17]; dementia is not constructed as "a steady erosion of selfhood to the point at which no person remains."[18] Instead, the theory of personhood highlights how people construct and maintain self and being a person through social relationships; the theory suggests that "[one] could dispense with psychological memory… without ceasing to meet the criteria for personhood."[19]

Regarding digital design and mortality, an image being gradually lost and then deleted presents a number of discussion-worthy points. First, a wearer would need to select images to place in the locket, suggesting that these images would not necessarily be the only copy and that a wearer has some control over what it means if an image is "forgotten." Although the locket images erode, copies on a different hard drive would remain unaffected. Second, change is palpable in *Forget;* it is viewable over a short time span. Through the act of *seeing* the degradation occur, the viewer is forced to engage with this tangible transformation. Like memento mori—as a meditation on loss, forgetting, and death, the locket causes us to consider dynamics of digital data management from an uncommon perspective, where erosion could take on a poetic construct to represent deletion as death. Third, losing an image each day suggests malfunction in terms of our expectations of digital technologies, but the loss simultaneously suggests a dynamic that reflects human-ness, forgetfulness, old age, perhaps dementia or organic degradation. Physical–digital objects that echo people's characteristics could serve as bridges between the realities of personhood and the oft-lauded perfection of digital products. Fourth, the piece creates opportunities to reflect on aspects that remain the longest in each image before deletion. The digital logic retains areas of an image that have been deemed the most significant—decisions made about the current images by us, in this case, and programmed into the digital logic of the piece. Therefore, the locket potentially offers space for a meaningful meditation focusing on what aspects of a relationship depicted in an image mean the most. A sense of liberation might even be experienced in

17   See, e.g., Donna Cohen and Carl Eisdorfer, *The Loss of Self: A Family Resource for the Care of Alzheimer's Disease and Related Disorders* (New York: WW Norton, 2001); and Andrea Fontana and Ronald W. Smith, "Alzheimer's Disease Victims: The 'Unbecoming' of Self and the Normalization of Competence," *Sociological Perspectives* 32, no. 1 (1989): 35-46.

18   Pia C. Kontos, "Embodied Selfhood in Alzheimer's Disease: Rethinking Person-Centred Care," *Dementia* 4, no. 4 (2005): 553.

19   Steve R. Sabat, and Rom Harré, "The Construction and Deconstruction of Self in Alzheimer's Disease," *Ageing and Society* 12, no. 4 (1992): 447.

Figure 3
Daguerre.

the engagement with transience. For some, the piece could be about letting go—but of the weight or burden of grieving; being set free of such burdens might give way to a lightness. For others, the locket might offer opportunity to become more comfortable with change. Of course, for some people, the functionality of this locket would cause distress, and a very particular kind of decision-making would be taking place in choosing to place images in this locket. We imagined that this choice would only be made by the owner of the locket for themselves.

Daguerre

Extending *Forget* and *Remember,* the next two lockets, *Daguerre* and *Orpheus,* formed part of a series made to further explore cultural assumptions of digital materialities as we experience them.[20]

Daguerre (see Figure 3) comprises a locket with a small camera in a leather case connected above it. It can hold only one image at a time, taken with its connected camera. A photograph can be taken by removing the lens cap on the camera for a few seconds and then replacing it again. The image captured is then automatically displayed in the locket. Any number of photographs can be taken, but as the locket can hold only one image at a time, the previous image is deleted from the locket as a new one is taken; each new image replaces the previous one. *Daguerre* was named after Daguerreotypes—the first permanent commercial photograph made through a process refined by Louis Daguerre (with Joseph Nicéphore Niépce) in 1822.[21] Daguerreotypes were fragile, one-off, positive-only images on a silvered copper plate that could not be reprinted.

In two respects *Daguerre* is very closely related to Victorian lockets: It houses only one image, and the owner can view this image as often as desired. The camera component of the piece tethers the act of taking photographs to the locket itself in a far more direct way than Victorian technologies permitted. The joining of the camera and locket gives compositional control to the wearer, but it also creates a one-off, site-specific image housed only in the locket. As with daguerreotypes, copies or duplication of the image are not possible, other than by photographing the screen, which would produce a far less detailed version of the original.

20 Beatte Gegenwart and Charlotte Kingston, "Momentum," in *Craft in the Bay*, Swansea. Exhibition Catalogue (2011).

21 Louis Jacques Mandé Daguerre, *An Historical and Descriptive Account of the Various Processes of the Daguerréotype and the Diorama* (London: American Photographic Historical Society, 1839).

Figure 4
Orpheus.

Each of these characteristics offers particular dynamics for acts of mourning, contemplation of mortality, and the notion of digital dwelling. We posit a perceived preciousness to the image held in *Daguerre* because of its uniqueness, which could echo the finite and limited nature of mortality. Furthermore, this singularity could be emphasized by the fragility of the image: When the lens cap is removed, another image would take the place of the previous one. The singularity of a digital image is contrary to our common associations of digital materials, which we suggest could be a contemporary "way in" to meditations on the finite elements of life for people in our time. Through each of these features, the digital is drawn into the heart of the intrinsic materiality and historical use of the locket—something that is uncommon for the digital to portray in our contemporary culture.

Orpheus
Orpheus (see Figure 4) also comprises a locket connected to a camera, and in appearance it looks identical to *Daguerre.* Similarly, any photograph taken with its camera is automatically shown in the locket, and it also can hold only one image at a time. However, a wearer has the opportunity to view this image only twice: once on taking the photograph and once again by opening the locket at some future point, whereon the image is displayed for a few seconds, fades, and is then deleted. *Orpheus* takes its name from a hero of Greek mythology, who travels to the underworld in search of his dead wife, Eurydice. He is granted her return to life, but on the conditions that he travel back with her following him and that he not look back at her. In his anxiety, just before reaching the upper world, Orpheus turns to look at Eurydice, at which point she fades away forever.

In permitting the wearer to view the image only twice, *Orpheus* relates strongly to a particular aspect of lockets historically: that the *holding close* of mementos was important, rather than the looking at them. More than the viewing, the significant act was the *knowing* that the contents were within. For someone bereaved, this aspect to the locket could help strengthen, and of course challenge, their belief that the deceased is "with them" in some capacity. *Orpheus* calls us to speculate on the conditions that would

22 See, e.g., Richard Banks, *The Future of Looking Back,* Microsoft Research Series (Redmond, WA: Microsoft Press, 2011); Daisuke Uriu, and Naohito Okude, "ThanatoFenestra: Photographic Family Altar Supporting a Ritual to Pray for the Deceased," in *Proceedings of the 8th ACM Conference on Designing Interactive Systems,* ed. Olav W. Bertelsen, Peter Krogh, Kim Halskov, and Marianne Graves Petersen (New York: ACM, 2010), 422–25; Wendy Moncur, Miriam Julius, Elise Van Den Hoven, and David Kirk, "Story Shell: The Participatory Design of a Bespoke Digital Memorial," in *Proceedings of 4th Participatory Innovation Conference,* ed. Rianne Valkenburg, Coen Dekkers, and Janneke Sluijspp (The Hague University of Applied Sciences, 2010), 470–77.

23 See, respectively, Corina Sas and Steve Whittaker, "Design for Forgetting: Disposing of Digital Possessions After a Breakup," in *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems,* ed. Wendy E. Mackay, Stephen Brewster, and Susanne Bødker (New York: ACM, 2013), 1823–32; and Tony Walter, "New Mourners, Old Mourners: Online Memorial Culture as a Chapter in the History of Mourning," *New Review of Hypermedia and Multimedia* 21, no. 1-2 (2015): 10–24; William Odom, Richard Banks, and Dave Kirk, "Reciprocity, Deep Storage, and Letting Go: Opportunities for Designing Interactions with Inherited Digital Materials," *Interactions* 17, no. 5 (2010): 31–34.

24 See, e.g., Sarah Schorr, "The Bereavement Project: Picturing Time and Loss Through Photographs in the Landscape of New Media," in *Mediating and Remediating Death: Studies in Death, Materiality and Time,* Vol. 2, ed. Dorthe Refslund Christensen and Kjetil Sandvik (Ashgate: Surrey, 2014), 75–91.

25 Dennis Klass, Phyllis R. Silverman, and Steven Nickman, *Continuing Bonds: New Understandings of Grief* (Washington, DC: Taylor & Francis, 2014).

26 Glennys Howarth, "The Rebirth of Death: Continuing Relationships with the Dead," in *Remember Me: Constructing Immortality,* ed. Margaret Mitchell (London: Routledge, 2007), 19–34; and Glennys Howarth, "Dismantling the Boundaries Between Life and

cause a person to choose to open the locket to view the image for a last time. Rather than limiting design contemplations to legacy and ways to remain, we argue that design can create a space to support acts of meaningful "consumption" rather than conservation and passing things on—viewing the image and causing its deletion on one's own deathbed, for example.

Continuing Bonds and Ongoingness

Each of the lockets offers a "way in" to thinking about design and mortality. We want to develop thinking further in one particular direction: toward the concept of ongoingness. In addition to literature on Victorian practices, we have drawn from existing work on design and mortality in human–computer interaction (HCI), including literature on design for looking back and on physical/digital memorials[22]; on design for forgetting after a relationship breakup on online practices of memorialization and mourning and on design perspectives on phases of letting go.[23] We also have drawn on the literature on bereavement.[24] We bring into our discussion some key points as grounding for our call to designers across design and HCI fields to acknowledge the value of "ongoingness" in design of the digital.

Klass, Silverman, and Nickman discuss the many ways in which a social relationship with people who were close to us, but now are dead, can endure long after their death through "continuing bonds."[25] They question the belief that by experiencing grief and mourning we are meant to sever bonds with the dead so that we can free ourselves and make new attachments. Their work questions the model of grief and bereavement in which disengagement is viewed as healthy. Building on this perspective, Howarth argues that continuing relationships between the living and the deceased is not new, but it has been "marginalized by the discourses and practices of modernity."[26] Literature from psychology on coping with bereavement gives examples of how maintaining relationships with the dead—for example, by talking to them or keeping objects of theirs—can be sources of great comfort.[27]

Howarth discusses a number of ways in which people from different cultures have engaged with their mortality and their varying attitudes toward relationships with the dead.[28] She asserts that in Western societies, "life and death have been perceived as being in opposition, and the dead viewed as having little impact on the world of the living."[29] Ironically, a key contributor to this perspective came from a framing of how to cope with grief, championed in the latter part of the twentieth century in bereavement studies and counseling, which encouraged the living to work through stages of detaching themselves from the dead so that they

Death," *Mortality: Promoting the Inter-disciplinary Study of Death and Dying* 5, no. 2 (2000): 127.

27 Gillian Bennett and Kate Mary Bennett, "The Presence of the Dead: An Empirical Study," *Mortality: Promoting the Inter-disciplinary Study of Death and Dying* 5, no. 2 (2000): 139–157.

28 Howarth, Glennys. "The Rebirth of Death: Continuing Relationships with the Dead" (2007): 19–34.

29 Ibid., 25.

30 Erich Lindemann, "Symptomatology and Management of Acute Grief," *American Journal of Psychiatry* 101, no. 2 (1944): 141–48; John Bowlby, Attachment and Loss Vol. I (New York: Basic Books, 1969); J. William Worden, *Grief Counseling and Grief Therapy: A Handbook for the Mental Health Practitioner* (New York: Springer, 2008); and Beverley Raphael, *The Anatomy of Bereavement: A Handbook for the Caring Professionals* (Lanham: Rowman and Littlefield, 1984).

31 Ibid., 26.

32 Chris Allen, "The Poverty of Death: Social Class, Urban Deprivation, and the Criminological Consequences of Sequestration of Death," *Mortality: Promoting the Interdisciplinary Study of Death and Dying* 12, no. 1 (2007): 79–93.

33 Dennis Klass, Phyllis R. Silverman, and Steven Nickman. *Continuing Bonds: New Understandings of Grief* (Taylor & Francis, 2014); and Jayne Wallace, Peter C. Wright, John McCarthy, David Philip Green, James Thomas, and Patrick Olivier, "A Design-Led Inquiry into Personhood in Dementia," in *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems,* ed. Wendy E. Mackay, Stephen Brewster, and Susanne Bødker (New York: ACM, 2013), 2617–26.

34 Peter Marris, *Loss and Change* (London: Institute of Community Studies, 1974).

might continue to live fulfilling lives.[30] Howarth charts how both World War I and World War II, occurring in the first half of the twentieth century, had a profound effect on Western attitudes to death and mortality.[31] Significantly, instead of seeing death as something that comes after a long life, people witnessed the death of thousands of young people. Yet, because most of them died overseas, the living were denied the experience of burying their loved ones. A further significant feature of World War II was the rise in institutions for the sick and elderly, which removed people close to death from the heart of everyday life; thus, sequestration distanced the living to some degree from death and from the phases of life leading up to it.[32]

This distancing had the effect of altering practices of grief from being experienced by the collective, in sight and recognition of each other, to being private and hidden. One consequence has been a psychological and private focus on loss rather than a social one. Loss has been dealt with as an illness and set in a biomedical framing, rather than as a social, shared one. Significant to this paper is the fork in the road with which we are presented here: One path would lead us to design to support people in detaching and being detached (which does not mean to forget, but does suggest finding a place for the deceased in their past as a memory rather than in their present); the other path would lead us to design to support people in maintaining their relationship with the dead and even in developing this relationship.

Klass, Silverman, and Nickman speak to the premise that people are not bounded selves, but instead connect with the selves of others, relating strongly to the philosophy of personhood around dementia care.[33] Klass builds on a point made by Marris to suggest that we should foreground the effects of the death of a loved one to our interdependence, rather than to the independence gained through detachment.[34] In other words, we could acknowledge that for the bereaved, the effect of death is more than their losing a loved one; it also is the loss of a part of themselves.

This shift creates a very particular design space, and we posit "ongoingness" as a useful quality in the development of designs that respond. Ongoingness is the active and dynamic continuation of a relationship in which the emphasis is on a continued, evolving, future-focused dialogue as time passes; it represents a subset of the range of actions through which existing bonds are able to be continued. The focus with ongoingness is on a changing and dynamic social relationship, unlike other modes of enacting a continued bond (e.g., memorialization, which recaptures the relationship as it was in a former state"). Ongoingness is separate and different from living in the past. Klass, Silverman,

and Nickman highlight the potential for bereavement to be seen as a continuing process of negotiation and meaning making—something fluid that changes as feelings for the deceased periodically lessen or intensify over time.[35] What this framing gives us is an invitation to see grief and bereavement not primarily as a loss, over which we have very little control, but as a space in which to actively sense-make and to build ways to have an ongoing and active relationship with the deceased. The work of Moira Ricci, an artist photographer, speaks very pertinently to this framing.

Ongoingness in Practice
20.12.53–10.08.04 is a series of photographs created by Ricci between 2004 and 2014, following the death of her mother.[36] The series comprises family photographs featuring her mother over the course of her life. Ricci altered each photograph to add herself into the image—always at the same age, as an adult, and always looking at her mother (see Figures 5 through 8). Ricci's craft has enabled her to manipulate the photographs to create a realistic inclusion of her own image into the variety of different qualities of photograph that make up the work.

35 Dennis Klass, Phyllis R. Silverman, and Steven Nickman. *Continuing Bonds: New Understandings of Grief* (Taylor & Francis, 2014).

36 Moira Ricci, interview with Teresa Meucci, May 26, 2011, Artfacts—Dealing with the Past, www.artfacts.net/index.php/pageType/newsInfo/newsID/6193/lang/1 (accessed May 15, 2017).

Figure 7
Fidanzati, "20.12.53 – 10.08.04," 2004–2014.
Image courtesy of the artist. ©Moira Ricci.

Figure 8
Mamma innaffia, "20.12.53 – 10.08.04,"
2004–2014. Image courtesy of the artist.
©Moira Ricci.

Ricci describes the works as her response to her mother's death, stemming from her need to both remove the image of her mother's dead body from her mind and also to "carry on an external dialogue with [her] mother" by placing herself within the photographs to try to warn her of the accident that would lead to her death.[37] The gaze is central, and Ricci states that "I always look at her, as I need to tell her about the accident that is going to separate us. You can see from my gaze that I already know what will happen. Unfortunately, I remained trapped in the picture, but at least close to her."[38] This body of work took place over ten years (2004–2014), itself suggesting an *ongoingness,* a developing dialogue and possibly reflecting the continued process of negotiation and meaning making, articulated by Klass, Silverman, and Nickman.[39]

37 Ibid.
38 Ibid.
39 Ibid.

Ricci's beautiful, poetic, and intensely personal works, along with the perspectives we cite on continued bonds, give us a rich platform from which to contemplate what ongoingness could be in designing physical–digital artifacts. In response, we have developed a fifth digital locket—*Punctum*—that speaks to ongoingness for us in regard to digital design and mortality.[40] It is a locket centered on the dynamic of ongoingness within the continuing bond between a bereaved person and someone deceased. *Punctum* was chosen as a title because of its range of meanings: The term is used by Barthes to discuss the wounding, personally touching detail in a photograph that establishes a direct relationship between the viewer and the object or person within the photo[41]; it also means a point, a moment, and the opening of a tear duct. We were drawn to this word because it at once resonates with meanings experienced when looking at photographs (sometimes and unpredictably) and also with references to the body; it refers to the eyes, the locus of seeing and a place on the body where grief is externalized.

Punctum comprises a metal locket containing a digital screen that can hold images of both parties (the bereaved and the deceased) taken during their lives. As such, a finite number of images of the deceased is included, but a growing number of photographs of the bereaved as time passes. The digital logic of the locket selects imagery of both people from all of these photographs and gradually presents a series of new photographs displayed in the locket where both parties' images are interwoven. Each person features within their own past in new ways, as well as in each other's past. We note similar concepts explored in HCI through the merging of multiple digital images of new parents in an exploration of identity.[42] We thus engage directly with what Mitchell articulates to be a key challenge: "How do we talk about the everyday phenomenon of the influence of the dead, in language that does not suggest something more or less than it is—that is, the very ordinary and everyday ways our dead friends, relatives… 'continue' here."[43] We offer *Punctum* up as a propositional design to suggest what the physical–digital could be in terms of ongoingness after death and a tangible way to experience the everyday images of two people's lives being intertwined in new ways, potentially, as if in dynamic engagement with one another. We draw on Graham who asserts that the ubiquity and everydayness of contemporary photographs of the dead in people's lives "make death both more immediate and unreal…, positioning them as alive and present."[44] Meanwhile, the dead also are supported in "reaching out" from the photograph and living on.

40 This locket is currently in the process of being made.

41 Roland Barthes, *Camera Lucida: Reflections on Photography* (New York: Hill and Wang, 1981), 27.

42 Diego Trujillo-Pisanty, Abigail Durrant, Sarah Martindale, Stuart James, and John Collomosse, "Admixed Portrait: Reflections on Being Online as a New Parent," in *Proceedings of the 2014 Conference on Designing Interactive Systems,* ed. Ron Wakkary, Steve Harrison, Carman Neustaedter, Shaowen Bardzell, and Eric Paulos (New York: ACM, 2014), 503–12.

43 Margaret Mitchell, ed., "Constructing Immortality: The Role of the Dead in Everyday Life" in *Remember Me: Constructing Immortality: Beliefs on Immortality, Life, and Death* (London: Routledge), 2007), 10.

44 Connor Graham, "The Photograph Reaches Out: Uses of Photographs of the Dead in China," *Mortality* 20, no. 4 (2015): 351–74, 352.

Reflections and Conclusion

A number of design elements clearly need to be resolved regarding the visual imagery and digital logic in *Punctum,* but we want to focus, for now, on what enabling forms of "ongoingness" could mean in designing the digital in relation to mortality.

Our first reflection is that *Punctum* invokes personhood more directly than the previous four lockets. *Punctum* embodies a dynamic aspect, whereby the digital logic would constantly juxtapose images of the bereaved and the deceased together in new ways. The changeable and unpredictable nature of this feature supports potential new readings of the relationship and possibly a conduit to experiencing an ongoing, dynamic dialogue for the bereaved with the deceased, which itself speaks very directly to personhood. Further, we assert that the notion of maintaining personhood after death could form a key component of enabling someone to maintain "continued bonds."

Second, we acknowledge the challenges in supporting continuing bonds through digital design. Although one aim might be to create designs that enable people to have a personally healthy connection with a deceased loved one in very grounded and down-to-earth ways, this capacity will be mitigated by social norms. Literature on both contemporary and Victorian bereavement outlines a societal perception of acceptable periods for mourning that affects understandings and forms of ongoing relationships with the dead. Gere and Rudoe, Mitchell, Silverman, Klass, and Nickman, and Howarth all indicate that when people have a period of grieving that goes beyond what a society deems to be "normal," grieving is then thought of as an illness.[45] This shift from perceptions of normal to abnormal is a significant challenge to digital design in this context.

Finally, we assert that jewelry is a medium with a number of particular characteristics that make it highly advantageous to digital design specifically interested in new approaches to mortality. It is an object active at the boundary of the body, strongly related to issues of identity and significance. Distinct from wearables as a category, it is steeped in rich and varied historical and contemporary contexts of the self—including highly personal self–other relationships and internal and external expressions of grief. Further, many people articulate the ways that objects support the externalization of grief,[46] and jewelry provides us with unique ways to consider how digital technologies can support personal, internalized narratives of grief and ongoing dialogues with the deceased.

45   Gere and Rudoe, *Jewellery in the Age of Queen Victoria;* Mitchell, ed., *Remember Me;* Klass, Silverman, and Nickman, *Continuing Bonds;* and Glennys Howarth; "Dismantling the Boundaries."

46   Ricci interview with Meucci; Graham, "The Photograph Reaches Out," 352.