

Chapter 3

The Anti-Aging Movement

Contemporary Cultures and the Social Construction of Old Age

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3.1 Introduction

This chapter seeks to characterise the Anti-aging movement and indicate the role it plays in the contested nature of old age. I approach the topic from a cultural anthropological and critical gerontological perspective. My interest has been to investigate how old age is constructed across diverse cultures. The purpose of looking at the Anti-aging movement was to explore the contemporary western idea of old age by examining the contested cultural meanings of ‘old age’ manifest in their antipathy. The research on which this chapter is written in ethnographic is style and based on systematic observation of scientific and other anti-aging conferences, reading and analysis of journals, text-books, websites and other materials produced by a broadly defined Anti-aging movement. The original research is presented in previous publications; the intention here is to summarise that work and suggest some policy implications (Vincent 2003a, b, 2006a, b, 2007, 2008, 2009, 2011).

3.2 Social Movements

In all societies some use is made of social categories based on age. The use of age to classify people and attribute meaning and value in Western culture has a long and changing history (Minois 1989; Cole 1992; Katz 1996; Johnson and Thane 1998; Thane 2000; Macnicol 2006). Such change is manifest over the last sixty years, not least in social movements around the politics of identity. Broadly conceived, these social movements have sought to challenge received identities based on what anthropologists have in the past called ‘natural categories’; notably sex, race, and age. These movements mobilise around a ‘liberation agenda’; that is to say these

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social movements see themselves as liberating people from traditional stereotypes and enabling individuals to participate freely as full members of society (Touraine 1971; Weeks 1994; Bradley 1996; Isin and Wood 1999). However, there is a standard dilemma which manifests itself within the agendas of identity politics; namely, what priority should be afforded between the elimination of difference (making the cues invisible/ irrelevant), and the celebration of difference (valuing diversity and difference). Should we be colour blind or celebrate black as beautiful? Is femininity in dress and sexuality an oppressive personal style imposed by a male dominated society or something to be re-evaluated as having equal social value? This dilemma has been increasingly visible in debates on the significance of old age in the contemporary world.

There have been a number of social movements associated with the reappraisal of age-based social categories in the last thirty years. Two such developments are the focus of this chapter. They are the Third Age movement (Laslett 1989) and the Anti-aging movement. These movements present contrasting perspectives on the culturally devalued status of old age; the former seeks to celebrate old age, the latter to eliminate it. They have developed in the context of an aging population and of significant cultural and technological change. New discoveries in cell science, genetics and biochemistry offer the prospects of dramatically increased knowledge and control of the ways bodies change over the life course (Kirkwood 1999; Rose 1997; Bramstedt 2001; Benecke 2002; Fukuyama 2002, Post and Binstock 2004). The advances in the biology of aging should not be seen as simply causing cultural change, but part of the contemporary social and cultural milieu which not only responds to, but also frames scientific understanding (Kenyon et al. 1991; Dupré 1993; Gieryn 1999; Franklin and Lock 2003; Turner 2007).

3.3 The Diverse Phenomenon of Anti-Aging

The Anti-aging movement is not characterised by adherence to any particular knowledge system. The Anti-aging movement spans not only conventional medicine and orthodox science but holistic medicine; it is debated within diverse theologies and alternative knowledge systems (Mykytyn 2006a, b; Spindler 2008). The common theme which runs through all the manifestations of anti-aging is the identification of old age as a highly negative phenomenon of the body which requires action to defeat (Vincent 2006a, b). Indeed the anti-aging literature is replete with military images of the fight against old age (Vincent 2007). The position pays no heed to social age; as for example in senior citizen, church elder; or familial age, as in grandfather or great aunt. Similarly psychological aspects of aging such as maturity, fear of death, or wisdom are left out of the equation. Aging is seen entirely as a negative phenomenon of the body as an individualised biological entity.

I suggest the movement can be understood as having four linked foci differentiated by their location of the key identifying characteristic of old age. They are:

1. Old age as appearance. Old age is manifest on the surface of the body; this form of anti-aging seeks to eliminate the visual clues which mark people out as old. This approach is embedded in the aesthetics of a youthful body, not in the re-evaluation of older people's appearance. It is the subject of massive commercial activity, focussing in particular on women and an aesthetic which equates youth with health and beauty. Technical progress in these circumstances gives experts the ability to control and modify appearance. Examples might include the development of Botox (Ting and Freiman 2004; Cooke 2008) or the use of stem cell technology to rejuvenate hair colour (Nishimura et al. 2005). Hurd Clarke (2011), amongst others argues that such activity, while it might in some circumstances give pleasure, fundamentally reinforces highly negative attitudes towards older bodies.
2. Old age as a medical condition. Old age is seen as located within the organs of the body as a collection of symptoms. Anti-aging medicine seeks to cure these disease symptoms. Manifestations of old age are subject to diagnosis and cure and strategies are adopted to slow or to eliminate them. Technical progress in these circumstances is seen as eliminating the diseases of old age. Examples from research include the controversial use of male hormone replacement therapy by Ronald Klatz of the American Academy of Anti-Aging Medicine (<http://www.worldhealth.net/whos-who/ronald-klatz/>) or use of stem cells for heart repair by amongst others Bruno Gridelli (Triolo and Gridelli 2006). There is a key debate around the extent to which such strategies should aim to lengthen lifespan as opposed to merely increasing healthy life expectancy toward some 'natural' limit.
3. Old age as a biological process. Old age is identified as a biological process driven by the biochemistry of complex organic molecules, aging is located deep within the cell processes of all living things. This kind of anti-aging seeks to eliminate old age by techniques of bio-chemical control and optimum cell performance. Illustrative examples could include the work of the Geron Corporation on telomerase (<http://www.geron.com/technology/telomerase/telomerase.aspx>, Hall 2003), or that of James Carey genetically manipulating the lifespan of drosophila (Carey 2003). Constructing old age as cell function raises issues of a post-human future and a world stratified by biological powers including longevity (Bostrom 2008).
4. Old age as a prelude to death. Old age is understood as the period of life leading to death. Death is seen the ultimate failure of the body, aging is thus to be avoided by immortality. The strategy of this form of anti-aging is to devise techniques to postpone or avoid death through scientific study of rejuvenation. Serious money and biological expertise is being mobilised for such objectives. Aubrey de Grey's SENS (Scientifically Engineered Negligible Senescence) Foundation (<http://www.sens.org/>) and the Cryonics Institute (<http://www.cryonics.org/>) are two examples of institutions devoted to this end. Age as the prelude to death raises issues about the desirability of death, should we be seeking a good death rather than denying death any value. It also raises issues of the succession of generations.

3.4 Why has the Anti-Aging Movement Grown?

What gives the Anti-aging movement its salience in the contemporary world? Why has it become so important in how old age is defined and understood? We can draw on a number of developed sociological literatures to gain some insight into these questions. These include the sociology of medicine, of science, of the body, and of identity. Schermer Maartje in this volume (Chap. 16) has made excellent use of the sociology of medicine to examine claims about the understanding and control of aging in a medical context. I will look at the other three.

3.4.1 *Sociology of Science and the Focus on Life as Essentially Molecular*

The linked areas of the Sociology of Knowledge and the Sociology of Science provide historical and cultural contexts for claims about knowledge, including scientific and specifically biological knowledge, about human aging. This work can direct us to understanding how what counts as knowledge is contingent on social context (Mannheim 1952; Habermas 1987), how competing knowledge systems and scientific disciplines conduct 'boundary maintenance' (Barnes 1985; Barnes and Bloor 1996; Gieryn 1999), the trend towards reductionism manifest in scientific activity (Dupré 1993; Rose 1997), and the location of vital processes at increasingly microscopic levels (Rose 2001, 2007). A number of scholars, particularly in the sociology of science, have identified shifts in the cultural understanding of the essence of life (Franklin and Lock 2003; Lock and Farquhar 2007; Moreira and Palladino 2008). In the contemporary world the essences which are seen to animate life are the forces at play at the biochemical level in the cell. A related issue is the role of reductionism; in science in general and in scientists' understanding of life processes in particular. Scientists tend to look for explanations by seeking to divide problems into constituent elemental processes. This is an effective strategy but creates conceptual and communication issues when putting together a complete understanding of the whole, be that an organism an ecosystem or a process such as aging.

Rose's (2001, 2007) work examines the power struggles and cultural consequences of seeing life in this micro-molecular and fragmented way. He points out economic, professional, political and moral struggles over 'life itself'. Rose suggests five processes through which to understand changes to 'the politics of life itself'. They are molecularization, optimization, subjectification, somatic expertise, and the economics of vitality. The policing and control of life implies the same processes for death. Not only in the sense of avoiding death and prolonging life, but dealing with the inevitable fact of death. For all the culturally enwrapped denial, we all still die, and this fact has to be managed. The extent of the denial makes this a difficult task. Lafontaine (2008) sees death as having been removed from a world where it is special and set apart and is now considered within the realms of mundane bio-chemical processes. As a consequence those experts who have the knowledge of ritual and symbol

around death are sidelined and the expertise of medicine and biological science takes first place in our cultural understanding of old age and death (Vincent 2003a; Turner 2007; Vincent 2011).

3.4.2 The Sociology of the Body and its Implications for the Older Body

The development of the sociology of the body reflects the way in which the body has been re-evaluated in contemporary culture. The body has always been a site of cultural inscription but bodily aesthetics have changed and become more self-aware. The marks of a culturally acceptable body are scrutinised and contested. People's bodies have become self-help projects to be actively moulded and sculpted (Giddens 1991; Gimlin 2002). The body has also increasingly become the site of personal identity. People understand who they are through their bodies, how they experience them and other people's reaction to them (Oberg 2003). Some writers have looked at the body as cultural capital and the process of aging, particularly for women and for athletes, as loss of capital (Dumas et al. 2005; Tulle 2008). Laura Hurd Clarke (2011) has explored the powerful impact of aging on older women as they experience and interpret their aging bodies. The kind of self-loathing and coping strategies in terms of bodily practices she describes are testimony to how deep the antagonism to the aging body is. The political dimensions of this particular cultural orientation towards the body includes issues of consumerism and the commodification of appearance, and in policy terms the individuals personal responsibility for the condition of one's body. These cultural developments create significant problems for the end of life (Twigg 2000, 2004; Moreira and Palladino 2008). What choices, what responsibilities, what methods of personal fulfilment in bodily terms are possible for an individual with an aging or dying body? (Hallam et al. 1999; Lloyd 2011)

3.4.3 Sociology of Identity and the Extreme Individualism of Contemporary Culture

Historically, the discipline of Sociology starts from concerns about the nature of individual and collective identity in changing society. Many sociologists, anthropologists and historians have identified individualism as a unique characteristic of western culture. Compared to the full global range of contemporary and historical cultures, that of the contemporary West lies at the far end of a continuum furthest away from group ascription and collective identity. Historians and historical sociologists have sought to identify the impact of individualism through time (MacFarlane 1978; Lukes 1973; Badie 1990; Gagnier 2010). Anthropologists such as Louis Dumont have compared cultures (Dumont 1985) including comparisons of old age (Amoss and Harrell 1981; Keith 1994; Holmes and Holmes 1995). A further set have looked at changing ascribed collective identities, including that of old age, when faced with

the dynamics of modernity (and post-modernity) (Cumming and Henry 1961; Elias 1985; Gilleard and Higgs 2000; Daatland and Biggs 2005).

La Fontaine's (2008) account of the 'post-mortal society' emphasises the role of individualism and the removal of collective rituals of life and death. She examines how the history of ideas in the west has accentuated the individual as the location of moral worth. The image of the rational individual capable of exercising choice is a dominant post-enlightenment image of the moral person. The dominant values of the West are those of individual self-fulfilment and policy priorities are framed as promoting individual choice (Phillipson 1998; Mishra 1999; Estes et al. 2003). Habermas argues that science and technology and liberal values emphasising individual choice have historically developed together.

And since enlarging the scope of individual choice fosters individual autonomy, science and technology have, to date, formed an evident alliance with the fundamental credo of liberalism, holding that all citizens are entitled to equal opportunities for an autonomous direction of their own lives. (Habermas 2003, pp. 24–5)

Individualism becomes problematic faced with death. La Fontaine argues that from the point of view of the individualist there is no valid reason to die and leave a place for a new generation (Lafontaine 2008, p. 184). Immortalist urges are fuelled by a lack of value ascribed to anything other than the individual. There is the Warren Buffett solution, the mega rich foundation which will keep your name alive through charity or the arts. Or, some wealthy people use their money in an attempt to preserve themselves through scientific endeavours by endeavouring to create corporeal immortality (Boia 2004).

Thus from the perspective of each of these three extensive bodies of literature we can identify a 'high modern' [historical west in 20th and 21st c.] cultural trend which feeds into the burgeoning of anti-aging movement. These developing features of contemporary western culture which provide the context for 'anti-aging' sentiment are: An understanding of the essence of life as being located at the level of complex organic molecules; a focus on the body as the locus of identity; and an extreme form of cultural individualism. They all feed into the view that aging is no more than an undesirable aspect of the external appearance or internal constitution of a person's body which is capable of manipulation and remedy. They translate into policy dilemmas as (a) finding alternative sources of knowledge, power and authority to the growing command of old age by medicine and biology; (b) finding positive sources of identity for older people other than their bodies; and (c) finding alternatives to the current dominant model of social policy which de-emphasises social solidarity and valorises choice and individual responsibility.

3.5 Celebrating Old Age or Eliminating it—Critiques of Anti-Aging

We can now return to the initial question posed at the beginning of the chapter. The development of anti-aging science and practice challenges us to consider how people should approach old age. While the Third Age movement has to some extent been

successful in establishing the idea of a new positive stage in life post retirement, they have failed to overthrow the dominant image of old age as one of illness and decline. The concept of the third age can be seen in some circumstances as an attempt to prolong youth and not necessarily to create a new attitude to old age as a life stage valuable in its own right. But it is clear that despite the success of some of these attempts at re-evaluation, increasingly the dominant contemporary cultural attitude to later life is that of 'anti-aging'; trends within western culture seek not to celebrate aging but to avoid it.

The perspective of critical gerontology has been mobilised to question the nature of the anti-aging enterprise (Vincent et al. 2008). Some are critical of the corporate exploitation of ageism and the use of fear of aging to promote consumer markets in skin products and other commodities which fetishize youth. Others fear that the new biology will add a further twist to the bio-medicalization of old age (Estes and Binney 1989). The problem of aging has become: 'What is a satisfactory/healthy body?' Does it include the aging body (Dumas and Turner 2007; Powell 2010)? Contrasting arguments have been made, on the one hand about the value of non-standard bodies (for example people whose bodies exhibit dwarfism, deafness, disability, or old age), and on the other a desire to eliminate pain, suffering or social stigma. The concern is that anti-aging science will add new scientific tools to discipline old age into something tractable in the interests of the state, commerce and other powerful elites and inhibit the incipient politics of identity amongst older people who seek to reclaim the later part of life as valuable in its own right (Vincent 2009). In the contemporary world, the great investment of time, resources, and cultural ingenuity to find ways to live longer and if possible for ever, have consequences for old age. The fantasies of avoiding old age created through commercialism and the dominance of the medical model are bad for older people. These attitudes identify old age as a problem waiting for a solution, postpone action on current problems of old age, and inhibit research into death as a natural event and the final stage of the life course as a positive meaningful process (Vincent 2003b). Anti-aging can do as much for age discrimination as skin whiteners for race relations, and gender re-assignment surgery for sex equality.

3.6 Celebrating Old Age or Eliminating it—Critiques of Anti- Anti-Aging

The anti-aging protagonists have sought to counter these arguments in a number of ways (Overall 2003). I will deal with three criticisms of the anti-anti-aging position outlined above. Firstly there is the argument presented by a number of philosophers, ethicists and others that 'life' is a self-evident good and therefore all attempts to prolong it are 'good' (Ackerman, 2007). I suggest that the social science evidence of people's attitudes to death show a rather more nuanced and pragmatic picture (Palgi 1984; Gott and Ingleton 2011). In response to the question: "How old would you

like to be when you die?” posed in a 2011 UK national survey by ComRes¹ only 15 % replied that they would like to live for ever. Men in the survey were slightly more likely to tick the ‘live for ever box’ (17 % as opposed to 13 % for women). Or to put it another way, offered the chance to indicate a preference for of living for ever, 85 % of respondents chose not to. There was a systematic relationship to class with those with high status occupations less likely to want to live for ever. A further finding was related to age, where there was a progressive relationship, the older the respondent the less likely they were to indicate they wished to live for ever. I suggest these findings are grounds for scepticism that highly educated, middle aged, male professionals are the right people to introspect on the value of immortality for the rest of us.

Secondly there is the accusation that the anti-anti-aging position is an untenable rationalisation for prolonging pain and suffering (Glaser 2009). A critique that comes from a modernist approach to science, which sees the growth of scientific knowledge as inexorable, inevitably beneficial and therefore aging as merely one more technical problem to be solved. I have presented the case against that critique in two papers (Vincent 2009, 2011). A case which, whilst acknowledging the power of science as a knowledge creating system, does not see it as necessarily progressive or standing outside culture and operating independently from cultural and ethical considerations. Defining old age as pain and suffering is part of the problem, not a way forward.

There is a third and in some ways more powerful critique, which is that the anti-anti-aging position relies on an appeal to naturalism and an untenable reliance on a traditional notion of human nature (Jones and Higgs 2010). However, although many do make such an appeal, it is not necessary to base a critique of anti-aging on assumptions about the essence of human biology. I hold a humanist position that seeks to value the diversity of age-based identities, differences that are based in the cultural (not biological) nature of gender and generation. ‘Human nature’ is itself a cultural concept. Although the relationship between culture and biology in human behaviour is a large, complex and poorly understood, the appropriate starting point is the diversity of human behaviour and experience and not assumptions about universality. The evolutionary history of our distinctive human characteristics comes from the increasing dominance of culturally acquired behaviour over biologically inherited ones. The fascinating thing about the emergence of human society is precisely the way gender and generation moved from the realm of the natural to become features of culture. Humans have built their diverse kinship societies by culturally moulding the basic building bricks of gender and generation. A society without age would be without generations and therefore less human. The concern is not merely that the powerful forces behind framing old age around failing bodies are detrimental to older people now, it is that a successful anti-aging, science based,

¹ “The research, which was carried out for the Dying Matters Coalition by Comres, reveals that although most people are scared of dying, quality of life is viewed as more important than how long we live for. . . Comres interviewed 2,028 British adults online between 28 April and 1 May 2011. Data were weighted to be representative demographically of all British adults.” Survey published 16 May 2011 on <http://www.comres.co.uk/dyingmattersurvey11.aspx>.

immortalist technology would undermine a human cultural process—the succession of generations—and hence compassion and social solidarity. Societies that are without compassion and atomised to a high degree have existed—such societies are not ‘unnatural’ in any biological sense. It is an ethical and a cultural position that such societies are undesirable.

3.7 Conclusion

The policy conclusion of the humanist position on old age advocated in the above discussion is that increasing power to a diversity of older people’s voices is essential for progress. The extent to which ageism is embedded in the cultural and scientific, knowledge-creation institutions has to be acknowledged and countered. Commercial, medical and biological institutions have re-enforced the anti-aging mind set. If the ‘Third Age’ agenda of a renaissance for later life is to succeed, older people must themselves be in the lead in positively valuing themselves, which means that together they/we have to find ways to live well and die well.

References

- Ackerman, F.N. 2007. Death is a punch in the jaw: Life extension and its discontents. In *The Oxford Handbook of Bioethics*, ed. B. Steinbock 324–348. Oxford: Oxford University Press.
- Amoss, P.T., and S. Harrell. 1981. *Other ways of growing old: anthropological perspectives*. Stanford, CA: Stanford University Press.
- Badie, B. 1990. Community, individualism and culture. In *Individualism: theories and methods*, eds. P. Birnbaum and J. Leca. 95–115. Oxford: Clarendon.
- Barnes, B. 1985. *About science*. Oxford: Blackwell.
- Barnes, B., D. Bloor, and Henry, J. 1996. *Scientific Knowledge: A Sociological Analysis*. London: Athlone.
- Benecke, M. 2002. *The Dream of eternal life: Biomedicine, aging, and immortality* (trans. R. Rubenstein). New York: Columbia University Press.
- Boia, L. 2004. *Forever young: A cultural history of longevity*. London: Reaktion Books.
- Bostrom, N. 2008. Why I want to be a posthuman when I grow up. In *Medical enhancement and posthumanity*, eds. B. Gordijn and R. Chadwick 107–137. <http://www.nickbostrom.com/posthuman.pdf>.
- Bradley, H. 1996. Fractured identities: Changing patterns of inequality. Cambridge: Polity Press.
- Bramstedt, K.A. 2001. Scientific breakthroughs: Cause or cure of the aging ‘Problem’. *Gerontology* 47(1):52–54.
- Carey, J. 2003. *Longevity: The biology and demography of lifespan*. Princeton: Princeton University Press.
- Cole, T.R. 1992. *The journey of life: A cultural history of aging in America*. Cambridge: Cambridge University Press.
- Cooke, G. 2008. Effacing the face: Botox and the anarchic archive. *Body and Society* 14(2):23–38.
- Cumming, E., and W.E. Henry. 1961. *Growing old: The process of disengagement*. New York: Basic Books.
- Daatland, S.O., and S. Biggs. eds. 2005. *Aging and diversity: Multiple pathways and cultural migrations*. Bristol: The Policy Press.

- Dumas, A., and B.S. Turner. 2007. The life-extension project: A sociological critique. *Health Sociology Review* 16(1):5–17.
- Dumas, A., S. Laberge, and S.M. Straka. 2005. Older women's relations to bodily appearance: The embodiment of social and biological conditions of existence. *Aging & Society* 25(6):883–902.
- Dumont, L. 1985. *Essays on individualism: Modern ideology in anthropological perspective*. London: University of Chicago Press.
- Dupré, J. 1993. *The disorder of things: Metaphysical foundations of the disunity of science*. London: Harvard University Press.
- Elias, N. 1985. *The loneliness of the dying*. Oxford: Blackwell.
- Estes, C.L., and E. Binney. 1989. The biomedicalisation of aging: Dangers and dilemmas. *Gerontologist* 29(5):587–596
- Estes, C.L., S. Biggs, and C. Phillipson. 2003. *Social theory, social policy and old age*. Buckingham: Open University Press.
- Franklin, S., and M. Lock. 2003. *Remaking life and death*. Oxford: James Currey.
- Fukuyama, F. 2002. *Our posthuman future: Consequences of the biotechnology revolution*. New York: Farrar, Straus and Giroux.
- Gagnier, R. 2010. Individualism, decadence and globalization: On the relationship of part to whole, 1859–1920. Basingstoke: Palgrave Macmillan.
- Giddens, A. 1991. *Modernity and self-identity*. Cambridge: Polity Press.
- Gieryn, T.F. 1999. *Cultural boundaries of science: Credibility on the line*. Chicago: University of Chicago Press.
- Gilleard, C., and P. Higgs. 2000. *Cultures of aging*. Harlow: Prentice Hall.
- Gimlin, D. 2002. *Body work: Beauty and self image in American culture*. Berkeley: University of California Press.
- Glaser, V. 2009. Interview with John Vincent. *Rejuvenation Research* 12(1):59–63.
- Gott, M., and C. Ingleton. 2011. *Living with aging and dying: Palliative and end of life care for older people*. Oxford: Oxford University Press.
- Habermas, J. 1987. *The theory of communicative action. Vol.2, lifeworld and system: A critique of functionalist reason*. Cambridge: Polity.
- Habermas, J. 2003. *The future of human nature*. Oxford: Polity.
- Hall, S.S. 2003. *Merchants of immortality: Chasing the dream of human life extension*. Boston: Houghton Mifflin.
- Hallam, E., J. Hockey, and G. Howarth. 1999. *Beyond the body: Death and social identity*. London: Routledge.
- Holmes, E.R., and L.D. Holmes. 1995. *Other cultures, elder years*. 2nd ed. Thousand Oaks, CA: Sage Publications.
- Hurd Clarke, L. 2011. *Facing age: Women growing older in anti-aging culture*. Plymouth: Rowman & Littlefield.
- Inis, E.F., and P.K. Wood. 1999. *Citizenship and identity*. London: Sage.
- Johnson, P., and P. Thane. eds. 1998. *Old age from antiquity to post-modernity*. Routledge: London.
- Jones, I.R., and P.F. Higgs. 2010. The natural, the normal and the normative: Contested terrains in aging and old age. *Social Science & Medicine* 71(8):1513–1519.
- Katz, S. 1996. *Disciplining old age: The formation of gerontological knowledge*. London: University Press of Virginia.
- Keith, J. 1994. *The aging experience: Diversity and commonality across cultures*. Sage Publications: London.
- Kenyon, G.M., J.E. Birren, and J.J.F. Schroots. eds. 1991. *Metaphors of aging in science and the humanities*. Springer: New York.
- Kirkwood, T. 1999. *Time of our lives: The science of human aging*. London: Weidenfeld & Nicolson.
- Lafontaine, C. 2008. *La Société Post-Mortelle*. Paris: Seuil.
- Laslett, P. 1989. *A fresh map of life: The emergence of the third age* London: Weidenfeld and Nicolson.

- Lloyd, E. 2011. What do we know about the congruence between what older people prioritize at the end of life and policy and practices? In *Living with aging and dying*, eds. M. Gott, and C. Ingleton. 63–72. Oxford: Oxford University Press.
- Lock, M., and J. Farquhar. eds. 2007. *Beyond the body proper: Reading the anthropology of material life*. Durham, N.C.: Duke University Press.
- Lukes, S. 1973. *Individualism*. Oxford: Basil Blackwell.
- Macfarlane, A. 1978. *The origins of English individualism: The family, property and social transition*. Oxford: Blackwell.
- Macnicol, J. 2006. *Age discrimination: An historical and contemporary analysis*. Cambridge: Cambridge University Press.
- Mannheim, K. 1952. *Essays on the sociology of knowledge*. London: Routledge & Kegan Paul.
- Minois, G. 1989. *History of old age*. Polity Press: Cambridge.
- Mishra, R. 1999. *Globalization and the welfare state*. Cheltenham: Edward Elgar.
- Moreira, T., and Palladino, P. 2008. Squaring the curve: The anatomo-politics of aging, life and death. *Body and society* 14(3):21–48.
- Mykytyn, C.E. 2006a. Anti-aging medicine: A patient/practitioner movement to redefine aging. *Social Science and Medicine* 62(3):643–653.
- Mykytyn, C.E. 2006b. Anti-aging medicine: Predictions, moral obligations, and biomedical intervention. *Anthropological Quarterly* 79(1):5–31.
- Nishimura E.K., S.R. Granter, and D.E. Fisher. 2005. Mechanisms of hair graying: Incomplete melanocyte stem cell maintenance in the niche. *Science* 307(5710):720–4.
- Oberg, P. 2003. Images versus experience of the aging body. In *Aging bodies: Images and everyday experience*, ed. C. A. Fairclough 78–102. Oxford: AltaMira.
- Overall, C. 2003. *Aging, death, and human longevity*. Berkeley: University of California Press.
- Palgi, P. 1984. Death: A cross-cultural perspective. *Annual Review of Anthropology* 13(1):385–417.
- Phillipson, C. 1998. *Reconstructing old age: New agendas in social theory and practice*. London: Sage.
- Post, S.G., and R.H. Binstock. 2004. *The fountain of youth: Cultural, scientific, and ethical perspectives on a biomedical goal*. Oxford: Oxford University Press.
- Powell, J. 2010. The aging body: From bio-medical fatalism to understanding gender and biographical sensitivity. In *Culture, bodies and the sociology of health*, ed. E. Ettore. Chap. 6. Farnham: Ashgate.
- Rose, N. 2001. The politics of life itself. *Theory, culture & society* 18(6):1–30.
- Rose, N. 2007. *Politics of life itself: Biomedicine, power and subjectivity in the twenty-first century*. Oxford: Princeton University Press.
- Rose, S. 1997. *Lifeline: Biology, freedom, determinism*. London: Penguin.
- Spindler, M. 2008. Surrogate religion, spiritual materialism or protestant ethic? Three accounts of the function of religiosity in anti-aging. *Journal of Aging Studies* 22(4):322–330.
- Thane, P. 2000. Old age in English history: Past experiences, present issues. Oxford: Oxford University Press.
- Ting, P. T., and A. Freiman. 2004. The story of Clostridium botulinum: From food poisoning to Botox. *Clinical Medicine* 4(3):258–261.
- Touraine, A. 1971. *Post-industrial society*. New York: Random House.
- Triolo, F., and B. Gridelli. 2006. End-stage organ failure: Will regenerative medicine keep its promise? *Cell Transplantation* 15(Supplement 1):S3–S10. http://cfweb.ismett.edu/documenti/pubblicazioni/CellTx_Vol15-S1_2006/CellTx_Vol15-S1_s03-10.pdf.
- Tulle, E. 2008. *Aging, the body and social change*. Basingstoke: Palgrave Macmillan.
- Turner, B.S. 2007. Culture, technologies and bodies: The technological Utopia of living forever. In *Embodying sociology: Retrospect, progress and prospects*, ed. C. Shilling 19–36. Oxford: Blackwell.
- Twigg, J. 2000. Care work as a form of bodywork. *Aging and Society* 20(4):389–412.
- Twigg, J. 2004. The body, gender, and age: Feminist insights in social gerontology. *Journal of Aging Studies* 18(1):59–73.

- Vincent, J.A. 2003a. *Old age*. London: Routledge.
- Vincent, J.A. 2003b. What is at stake in the 'war on anti-aging medicine'? *Aging & Society* 23(4):675–684.
- Vincent, J.A. 2006a. Anti-aging science and the future of old age. In *Futures of old age*, eds. J. Vincent, C. Phillipson, and M. Downs. eds. London: Sage.
- Vincent, J.A. 2006b. Aging contested: Anti-aging science and the cultural construction of old age. *Sociology* 40(4):681–698.
- Vincent, J.A. 2007. Science and imagery in the 'war on old age'. *Aging and Society* 27(6):1–21.
- Vincent, J.A. 2008. The cultural construction old age as a biological phenomenon: Science and anti-aging technologies. *Journal of Aging Studies* 22(4):331–339.
- Vincent, J.A. 2009. Aging, anti-aging and anti-anti-aging; who are the progressives in the debate on human biological aging. *Medicine Studies* 1(3):197–208.
- Vincent, J.A. 2011. Anti-aging and scientific avoidance of death. In *Living with aging and dying: Palliative and end of life care for older people*, eds. M. Gott, and C. Ingleton. 29–41. Oxford: Oxford University Press.
- Vincent, J.A., E. Tulle, and J. Bond. 2008. The anti-aging enterprise: Science, knowledge, expertise, rhetoric and values. *Special edition of The Journal of Aging Studies* 22(4):291–294.
- Weeks, J. 1994. *The lesser evil and the greater good: The theory and politics of social diversity*. London: Rivers Oram Press.