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# The Natural Coming of Age: Anti-Aging Medicine and Optimization

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*Anti-aging medicine is a newly emerging specialty, and thousands of physicians in the United States now call themselves anti-aging doctors. Researchers around the world are focusing on various aspects of the aging question, with the expectation that significant breakthroughs are imminent.*

(Smith 1999)

## Abstract

This article deals with the construction of the category of 'natural' in anti-aging medicine. Proliferating greatly in the past decade in the United States, anti-aging medicine seeks to target aging for biomedical intervention. By focusing on the technoscientific categorical constructions of nature along with a discussion of medicalization, this article asserts that natural is no longer a relevant framework for thinking about and biomedically attending to aging. Anti-aging medicine medicalizes aging in such a way that bypasses a disease category in favor of another thrust in biomedicine, namely, optimization. Aging is not specifically constructed as a disease for the anti-aging medicine practitioners, yet it is something that biomedicine can and should do something about. The category of the optimal becomes the important goal. That aging is natural is irrelevant; that aging can be a target for biomedical intervention is significant.

In the past decade, anti-aging medicine has emerged with a powerful voice in the United States as both a biomedical practice and a realm of scientific inquiry. Built upon the controversial belief that aging can be targeted for biomedical intervention (to varying degrees with current therapies and with varying predictions for future biotechnical abilities), anti-aging medicine goes further to posit that this is a moral imperative. Practitioners and proponents argue that aging *should* be consigned to a

biomedical model and moreover the goal of biomedicine ought to be one of optimization rather than ‘merely’ prevention or treatment of disease. Anti-aging medicine aims to dislodge aging from a categorical framework wherein aging-as-natural provides sanctuary from a biomedical hand: I assert that anti-aging medicine practitioners and researchers think about aging as something that can be optimized and thus it is no longer relevant whether or not aging is natural. This article explores the category of ‘natural’ within Western (specifically United States) biomedicine and how this category has been operationalized. The medicalization of aging, difficulties in defining aging and the desire to not age are critical components in anti-aging medicine. This paper will focus on the shifting concepts of aging, health and disease within anti-aging medicine and within a framework of optimization.

In popular media and gerontological writing, anti-aging is almost always linked within the abundant histories of ‘pseudoscientific’ endeavors seeking a fountain of youth. This most recent thrust of anti-aging medicine has sparked intense and ongoing debate amongst ‘legitimate’ scientists in the field of aging. Additionally, the U.S. President’s Council on Bioethics has taken great interest in this topic to which the hundreds of pages of government transcripts attest. In an October 2003 report, the President’s Council notes that ‘it is only recently that biotechnology has begun to show real progress [...] bringing us face to face with the possibility of extended youth and substantially prolonged lives’ (Council Report 2003). As one highly esteemed biogerontologist told me, anti-aging work is different now because ‘we have the science. It is, will be, possible’ (A 2003).<sup>1</sup> So while on the one hand anti-aging medicine is condemned as quackery and even predatory charlatanism, it is simultaneously beginning to take on an air of real possibility and promise. This state of flux wherein much is at stake and up for grabs offers a powerful lens for revealing how it is that aging is a fluid, contested notion.

A crucial distinction—one noted as a policing of boundaries (Binstock 2003)—is made between those who are doing anti-aging science and those practicing anti-aging medicine. The anti-aging scientists revile the anti-aging medicine practitioners for insinuating or explicitly claiming that the biotechnologies *currently* exist to combat aging. Though

the views of the future of biotechnology vary, many gerontologists firmly state that no anti-aging interventions exist at this point (Olshansky, Carnes & Hayflick 2002a). While the anti-aging practitioners do not make a distinction between themselves and the scientists in terms of the end goal to combat aging, the anti-aging researchers take great pains to distance themselves from the practitioners. This paper attends specifically to the anti-aging medicine practitioners and how, for them, anti-aging medicine is about optimization and how aging-as-natural is no longer germane to their new practice of biomedicine.

The most extensive and accessed website for anti-aging medicine<sup>2</sup> proclaims it to be an 'extension of preventive health care [and] the next great model of health in the new millennium'. It is 'evidence based, clinically sound health care'<sup>3</sup> and 'involves the use of any technique, technology, medication or intervention for early detection, prevention, treatment or reversal of age-related disease' (Ronald Klatz quoted in Shelton 2000). Composed of a panoply of treatment modalities including nutritional supplements and exercise, hormonal manipulation (most specifically human growth hormone (hGH)), biomarker analysis, and chelation therapy along with predictions for cloning, organ regeneration, xenotransplantation, and genetic modulation, anti-aging medicine predicts significant shifts in the future of health, biomedicine and society along with dramatic promises for individual therapeutic results. While there is a continuum of belief among anti-aging medicine practitioners, the majority faction identifying as 'scientific' anchors this research.<sup>4</sup>

Anti-aging medicine looks to the future with hopes for biotechnologies that will dramatically lengthen lifespan. However, much of their work now focuses on lengthening healthspan, or, in other words, helping people be as healthy as possible for as long as possible. This is not particularly revolutionary and many 'mainstream' physicians claim to be doing the same. However, the ways in which this work is undertaken in anti-aging medicine veers in a dramatically different direction that locates an optimal body, regardless of age 'norms', as the biomedical goal.

Anti-aging medicine has, within the past decade and even more dramatically within the past five years, cultivated a significant audience of health care practitioners, scientists, patients, and potential patients. In

the United States, the American Academy of Anti-Aging Medicine (A4M) is an important piloting force. The A4M is a non-profit body that has organized a dozen conferences in the U.S. and five abroad (Spain, Mexico, and Singapore), credentials physicians and other health care practitioners in the specialty of anti-aging medicine, offers Continuing Medical Education units that the organization claims are supported by the American Medical Association, publishes articles, suggests resources, and lobbies against the 'gerontological bias'. Much of the education, lobbying, and recruitment work of the A4M is conducted on their voluminous website. According to this site, academy membership (practitioners, researchers, and general public) has grown from 6000 to 11500 in the past five years; currently one can search through 495 entries in the practitioner database to 'find an anti-aging medicine practitioner near you'. Adopting many mainstream biomedical forms of professionalization and expertise-assertion (such as credentialing and hosting conferences), the activities of the A4M are attempts at legitimizing anti-aging medicine as a medical specialty and locating themselves as the experts.

Anti-aging medicine and the A4M in particular are not currently recognized by the flagship of biomedicine in the United States, the American Medical Association (AMA), nor are their therapies covered by health insurance reimbursements. Anti-aging medicine has been the subject of U.S. government discussions as well as many media outlets, most notably, the journal *Scientific American*, which published an article and an on-line position paper standing in opposition to anti-aging medicine signed by 'fifty one of the top researchers in the field of aging' (Olshansky, Hayflick & Carnes 2002a, 2002b, 2002c). The rogue status of anti-aging medicine is advantageous to many anti-aging medicine proponents who consider their ideas a challenge to the mainstream (a revolution waiting to happen). However, anti-aging medicine practitioners see themselves squarely 'within science' as they use and assimilate research emanating from within the mainstream. Using scientific studies published in AMA sanctioned journals such as the *Journal of the American Medical Association*, the *New England Journal of Medicine*, and *Science*, anti-aging medicine draws from what is generally considered 'solid' biomedical research. Though these data are 'accepted', anti-aging proponents interpret and

harness these 'legitimate' findings differently than mainstream biomedical approaches to aging.

Anti-aging medicine proponents believe that they are launching a fundamental revolution in biomedicine. Practitioners expect to use a new interpretation of science to redefine health and aging. Take, for example, the following exemplary quote from an anti-aging clinic website:

Anti-aging medicine is a paradigm shift in how we think about health, disease and preventive medicine. Traditional medicine seeks to treat the complications of aging such as cardiovascular disease, type II diabetes, cancer and dementia [...] Anti-aging medicine seeks to change the process of aging in the first place [...] This is the ultimate preventive medicine.<sup>5</sup>

This article draws from over three years of anthropologic, ethnographic fieldwork; I have interviewed more than twenty-five anti-aging medicine practitioners (primarily medical doctors but also including chiropractors, doctors of osteopathy, nutritionists, and even an anti-aging therapist), gerontologists, and 'bench scientists' in the field of aging. I have spent hours in anti-aging medicine clinics and have been 'treated' as an honorary patient. Over the past three years, I have attended the yearly A4M conferences as well as local seminars hosted for the public by anti-aging clinics. I have crept, *ad nauseum*, over the multitudes of websites devoted to anti-aging medicine and have monitored the often hourly posts on anti-aging internet list-serves. I have become familiar with anti-aging medicine journals (*The Journal of Anti-Aging Medicine*, *The International Journal of Anti-Aging Medicine*, *The Journal of Longevity*) and the scores of books published by those arguing on behalf of and in opposition to anti-aging medicine. I have trailed the myriad US government discussions and media accounts of this movement. Much circulates about the notion of aging and a desire to not age.

## Definitions

The category of nature has been integral to the evolution of science and modernity. Though our present 'nature' is not universal (Escobar 1999, 4; Strathern 1980; Williams 1980), it carries as though it is. As the corpus of science studies literature critiques, nature is generally regarded as

independent from the parameters of space and time. It is subject to experiment and reducible to laboratorily configured components (Knorr-Cetina 1992; Latour & Woolgar 1986 [1979]). Nature is considered material in that it exists in the world, for certain and touchably so. We have made nature autonomous, separate from culture, from society (Gordon 1988a; Latour 1993 [1991]). In nature's separateness, it is also external to morality; nature initially appears neither ethical nor fraudulent, neither well-intentioned nor deceitful. But as much writing on the subject reveals, nature is not autonomous, amoral, pure or unsullied. And moreover, it is neither distinct nor distant from culture. Nature is precisely where values are hidden (Escobar 1999; Gordon 1988a; Haraway 1992, 2003; Lock 2000; Lock & Kaufert 1998; Martin 1992; Merchant 1990; Nelkin 1992; Toumey 1996). Nature has become 'the basis for truth itself' (Kleinman 1982, 8). In what is taken for granted as nature, as natural, lay ideas about our place in the world, our rights to the world, our expectations and obligations, our frames of life and of living.

An important thrust in this research confronts the nature/culture dichotomy stating that neither can be used as context for the other (Barad 2000; Callon & Latour 1981; Cambrosio, Young & Lock 2000; Franklin 2003a; Haraway 1997b; Jensen 2003; Rabinow 1996, 2000; Rheinberger 2000; Ridley 2003; Strathern 1992a). Nature is powerfully invested, irrevocably entwined in science, biomedicine and technology; these are neither irreducible from nor merely components of culture and are intrinsic to our understanding of nature. Alternatives to this dichotomy are being advanced in this literature to converge on the 'co-production of nature and society' (Cambrosio, Young & Lock, 2000, 10). Rabinow posits the notion of biosociality referring to the intermingling of nature/culture (Rabinow 1992) and Rapp expands on this to speak of bio-techno-sociality (Rapp 2000). Escobar's concept of technoscapes highlights the 'production of life, nature, and the body through biologically-based technological intervention' (Escobar, 2000, 57). Haraway invokes the idea of an 'apparatus of naturalcultural production' (Haraway 2003). Privileging the historical, geographical situatedness of the many 'co-productions', these terms reshape our attention to that elusive nature.

With the growth of the anti-aging medicine movement and the technologies this movement believes in and mobilizes great hope for, aging is another valuable place to think about the category of nature. Aging or rather, to age, is an action that generally refers to the increasing accumulation of years. It has come to be represented by a graph charting biological childhood development through a peak around age thirty to be followed by a slow decline until the post-fifty decade after which the decline becomes much more pitched. In popular vernacular, aging refers more specifically to this latter moment in the graph; scientists often refer to this as 'senescence'. In a presentation to the President's Council on Bioethics, Austad defines aging as the 'gradual and progressive loss of function over time' (Austad 2003). Aging is located as part of the natural life course; the expected experience of this biological graph. But defining biological aging precisely and comprehensively has long been problematic, political, and provocatively controversial.

Looking back to the seminal textbook for gerontology (the academic discipline of the study of age), *Geriatrics* by Dr. Nascher in 1914, we see that the originating assumption of the biomedical approach to aging was that aging was natural *and* special. Old age in this text was marked as a patently distinct yet normal part of the lifespan; that peculiarity has established the problematic and lingering contradiction between aging as natural or aging as pathology (Cohen 1998; see Achenbaum 1995 for a review of the history of gerontology; see also Birren 1999). In dealing with the difficulty in talking about aging and the decline associated with aging, a rhetoric of age-associated or age-related disease has emerged. Problems such as cancer and cardiovascular disease that occur more frequently in old age are labeled age-related. Aging itself is not the cause, *per se*, but rather a precursor or, at least, a mitigating factor. The distinction between aging and age-related disease is of utmost importance for gerontology. The rationale for this distinction balances upon the concept that because not every individual will experience the same age-related disease, aging itself could not be the cause. Thus, the idea of a universal experience locates nature. All humans age but not all humans suffer from diabetes or Alzheimer's.

However, for anti-aging medicine practitioners and researchers, because aging happens to everyone (barring 'untimely' accidental deaths

or intervening disease) aging is indeed universal. Aging is biological. And, most significantly, aging is the common thread in any age-related disease. Thus, cancer and heart disease become symptoms of aging and while not every individual may experience the same symptoms, aging is still the common thread. Whether a disease is or is not 'of nature' is inconsequential since the disease category speaks, instead, to sanctioned biomedicoscientific intervention.

The president of the A4M, Ronald Klatz, M.D., defines aging biologically in an effort to locate aging as the lynchpin of age-associated diseases. He writes:

There is a biologically controlled aging process, and it is designed to get Madame Calmet<sup>6</sup> and all of us in the end. If there were not such a thing as biologically controlled aging, then people who live on pure organic food, or reside on serene mountaintops, or chant mantras with the sunrise would be immortal. With their low-stress, high level of physical movement, and good diet, they shouldn't die of anything. But, of course, that is not the case. They all age, because aging is biologically based (Klatz 1998: 50).

Not only is age biologically based but it is also separated from purity in food, from serenity and natural beauty, and from spirituality. Clearly, one might counter many assertions in this quote: how do we know that chanting mantras is not a high stress activity, for instance. Nonetheless, the important point here is that for anti-aging medicine, aging does not happen solely because of any social force or so-called lifestyle choices. Aging is a universal, biological experience—one that we can do something about.

And aging is submitted as something that we *should* do something about. Dr. N asserts that the job of the anti-aging practitioner is 'to prevent, mollify, improve, diminish the risk associated with those anticipated illnesses'. He is frustrated with the 'the billions of dollars that are wasted on cardiovascular disease that we can intervene in before it occurs. Or the diabetic issues [...] and so forth and so on' (N 2002). The monies expended researching these so-called age-related diseases are funds mis-spent—like funding research on the cough when the flu is the obvious culprit. Aging is the universal, biological beginning point and, exercising an economic moral imperative, Dr. N asserts, the *right* place to concentrate our intellectual resources.



According to anti-aging medicine, the aging process is 'not inevitable'. That which is not currently fixable will become so as biotechnology continues to advance. Some anti-aging medicine proponents seek to dramatically extend life (predicting that the first 150 year old person has already been born) and others are less concerned with the amount of years lived than with the quality of the remaining years. Whether it is geared toward adding years to life or youth to years or both, the idea of a necessary decline with age is fundamentally rejected. The idea that aging is a universal, biological decline fertilizes such objectives.

## Medicalization

In profound and often highly routinized ways (Koenig 1988), biomedicine mediates between the natural and the social. In other words, it is through biomedicine that we learn what is and is not natural; in many ways, biomedicine midwives the category of natural. Medicalization is the 'process by which problems and behaviors become reinterpreted as illnesses, such that a mandate is given the medical profession to provide some type of treatment for them' (Arluke & Peterson 1981, 271). It is one process through which some thing that has been articulated as natural is transformed into some biomedical thing. A medical name is given to that thing and the thing gets to be disordered or syndromed or conditioned or diseased or even branded (Browner 1999; de Vries, Berg & Lipkin 1982; Fabrega 1982; Frankenburg 1993; Franklin 1995, 2003a; Gaines & Hahn 1985; Good & Good 1993; Gordon 1988; Haraway 1997a; Kleinman 1982; Marezki 1985). Menopause (Lock 1993a, 1993b), maternity and childbearing (Davis-Floyd 1992; di Leonardo & Lancaster 1997; de Vries et al. 2000; Franklin 1995a; Ginsburg & Rapp 1995; Lock 2000; Martin 1997; Nelson 2000; Squier 1999; Strathern 1992a, 1992b, 1995; Teman 2003), death (Kaufman 2000; Lock 1997; Ohnuki-Tierney 1997), genetics (Franklin 2003a; Goodman, Heath & Lindee 2003; Rabinow 1992; Taussig, Rapp & Heath 2003), Post Traumatic Stress Disorder (Dumit 2000), Alzheimer's disease and dementias (Cohen 1998), small breasts (Nader 1997), and atherosclerosis

(Mol 2000) are among some of the poignant examples of these medical considerations of previously or otherwise 'natural' or 'normal' conditions.

While the mainstream biomedical consensus is that aging is not explicitly a disease (Austad 1997; Butler 2000a, 2000b, 2002; Butler et al. 2000; Crews 1993; Jasmin 2000; Jean-Nesmy 1991; Kouchner 2000 among many others) old age is increasingly being medicalized (Abel & Browner 1998; Arluke & Peterson 1981; Blaikie 1999; Cohen 1994, 1998; Cole 1991; Fabrega 1982; Friedan 1993; Gullette 1997; Kaufman & Becker 1996; Latimer 1999; Lock 1993a; Lock & Kaufert 1998; Loustanau & Sobo 1997; Scheper-Hughes 1992 among many others). The medicalization of old age has been associated with a Victorian refusal of death and the inability to 'infuse decay, dependency and death with moral and spiritual significance' (Cole 1991, 33), with the changing family structure such that there are fewer children to care for aging parents (Arluke & Peterson 1981), with a quest for eternal youthfulness and 'the puritanical heritage of North America with its insistence on individual responsibility for a disciplined body' (Lock 1993a, 367). As a result of this medicalization and the difficulties in defining aging, the distinction between decline and disease is becoming increasingly awkward. Anti-aging medicine fills this problematic and contradictory space by asserting that it is no longer useful to think of aging in terms of nature; whether aging is or is not natural is bemoaned as an unproductive exercise.

The present situation with anti-aging medicine, steeped in the inertia of many significant histories (that of capitalism, increasing longevity in industrialized countries, the 'graying of society,' the aging of the U.S. baby-boomer generation, the development of new biotechnologies, the advance and incorporation [cooptation] of complementary and alternative medicine, the fitness morality or individual health responsibility, the increase in 'entrepreneurial medicine,' the U.S. ethic of happiness, a U.S. characteristic of problem-solving rather than coping) are converging to put forward a very, very real sense of aging as a targetable entity. The question of whether we can classify aging as a disease is, to anti-aging medicine proponents, strikingly, irrelevant. While the mainstream institutions dealing with aging seem to be interested in forwarding a sense that aging is very much NOT a disease, the anti-aging medicine

proponents are not even intrigued by the debate. Disease status is irrelevant. The category of natural is irrelevant too. For anti-aging medicine, aging is being medicalized in a way that bypasses nature or disease.

## Optimization / Perfectibility

Physicians who practice longevity medicine [a term used largely interchangeably with anti-aging medicine] interpret results much differently than traditional physicians. Traditional physicians in general ignore the progressive decreases in hormones, discounting it as being a part of the normal aging process. And anti-aging physicians do not contest the fact that there is a normal progressive decrease in all our hormones. But what we ask is, are these decreases healthy? (N 2002).

Acknowledging a normal or natural aging, Dr. N queries the relevance of such a framework. Health, or rather, healthiness is more germane to his practice of biomedicine than is the concept of the natural. It is significant that health is not attributed to nature. For him and other anti-aging practitioners, health is not a relative concept. There are no caveats to health. It exists as a pure entity whose touchstone is the optimal.

The new charter for aging is based on the same corpus of biomedicine as mainstream aging-biomedicine. However, there are important differences in the interpretation and operation of those studies.

Anti-aging is a different perspective; you try to keep [hormones] at the optimal level. So even if they may not fall out of the normal range, you're trying to keep the upper range of normal [...] the max of the range [...] Maybe [aging is] a syndrome. I would call it maybe, probably just a syndrome. We are interested in trying to slow it down by preserving certain substances in the body or certain levels in the body to the optimal level by replenishment so that the aging process gets slowed down (O 2001).

In Dr. O's hesitancy to categorize aging, he refocuses the discussion to *what can be done*. Criticizing mainstream biomedicine's 'goalposts' of normal laboratory markers, he shows how anti-aging medicine reframes the ranges in reference to optimal. The scientifically defined 'norms' for any particular age should be ageless.

For anti-aging medicine, aging is to be optimized; the aged/aging body is to be experienced in the best way a body can (not just the best

way an aged/aging body can) and biomedicine ought to consider its project not just disease treatment or even prevention but rather, that of optimization. These 'best ways' explicitly refer not only to the absence of diagnosable disease, but also to a body in its prime; it is this body that all bodies should aspire to. Dr. J states that 'the theory is if you're able to maintain a hormone level at the level of, let's say, a forty year old, a fifty year old, as we grow into the sixties and seventies and eighties, it will be beneficial' (J 2001). The founders of an anti-aging clinic in New York state, in the journal *Geriatrics*, that the optimal body is twenty-five years old (Raffaele, Livesey & Luddington 2000). Dr. S balances physiologic decline and psychological maturity such that 'somewhere in the teenage years, or maybe in your early twenties is when the anabolic process begins to degrade. [...] that means you're going backwards. That's getting old. I still want to be probably in my forties and fifties' (S 2001). While the exact age of the optimal body is still up for grabs, it exists nonetheless. And it exists in relation to a notion of health and hormone levels, testable reaction times, bone density, memory and vision/hearing/respiratory functions.

Rabinow's concept of biosociality proves exceptionally pertinent here. He writes that what the laboratories, research firms, corporations, funding sources and other forms of powerful science seek to know (for my purposes, aging) 'will be known in such a way that it can be changed' (Rabinow 1996, 93). Nature, he suggests, will become overtly artificial just as culture becomes natural. Critical to understanding anti-aging medicine is this notion of change but more importantly, of *changeability*. And quite more than of changeability is the direction of change toward optimization.

Foucault's 'Technologies of the Self' speak to a similar idea. These technologies 'permit individuals to effect by their own means, or with the help of others, a certain number of operations on their own bodies and souls, thoughts, conduct, and way of being, so as to transform themselves in order to attain a state of happiness, purity, wisdom, perfection, or immortality' (Foucault, 1994 [1982], 225). Invoking the long history of the desire to combat death (not *necessarily* aging) through immortality, Foucault highlights transformations. In the same vein, Elliot's 'enhancement technologies' (2003) refer to those technologies ranging from breast augmentation to prozac, that aim to make us more than what we think we

currently are. Rather, they help us work toward what we think we ought to be; this notion that man/humanity is perfectible has long been attributed to an American middle class (du Bois 1955; Taussig, Rapp & Heath 2003). The American right to (the fabled pursuit of) happiness (di Leonardo & Lancaster 1997; Elliot 2003) has grounded not only the belief in perfectibility but also the moral imperative to seek it.

Locating this idea of perfectibility further, we can cite the critical importance of individualism and free-choice which obligate us to consider the 'array of technically mediated choices [within] varied discourses of perfectibility' (Taussig, Rapp & Heath 2003, 59). The tension here between biotechnologies and choice results in what these authors refer to as 'flexible eugenics' which draw from Martin's notion of late capitalism's 'flexible bodies' (Martin 1994). Martin is concerned with the emerging sensibility of the 'complex systems model' that puts everything in flux, including the biomedico-scientific imagery of the 'innovative agile body'. For the flexible body, health and illness are becoming less and less definable. And as such, the 'technologies of the self' permit people to transform, materially and predictively, what is seen as natural (Taussig, Rapp & Heath, 2003, 65).

For anti-aging medicine, the failure to strive for perfectibility becomes rhetoricized within the notion of 'victimhood'. Dr. H protests that mainstream biomedical approaches to aging comprise 'the victim mentality of growing older; you don't really do so much about it because you just accept you have joint pain and all the other symptoms that are just part of aging. It is not a good model' (J 2001). The notion of 'just accepting' the aging process is a moral failure both by biomedicine and the individual. This sentiment was echoed throughout my interviews; biomedicine allows people to suffer too much. And people/patients themselves allow it, too. One physician left his practice of twenty-five years because he was 'sick and tired of everyone being sick and tired—especially when they didn't have to be'. He had to admit a patient for a foot amputation secondary to diabetes and he promised himself that it would be the last act of its kind. He wanted to prevent, not react, to pre-empt not repair. Anti-aging medicine was his way of helping people to be, as Elliot (2003) aptly calls it, 'better than well'.

Playing an important role in this shift is the predictability of the life course. Predictability is fundamentally intertwined with a particular, historicized imagination for the future (Fujimura 2003). Franklin writes of the mobilization of hope (Franklin 2003b), the language of promise. Similarly, in certain (wealthier, Western/Northern, capitalist, science-minded) societies, aging carries with it an expectation that we will live a predictable number of years and as such there is a sort of 'chronological standardization' (Cole 1991, 29). This predictability lends itself to reflecting on preventability; having an expectation of what is to come tenders a sense of being able to alter that which we do not fancy. Dr. N spoke of 'anticipated illnesses' such as diabetes and cardiovascular disease. These are maladies that biomedicine has indicated that we are likely to experience. The biological decline image of aging presupposes that aging is something we don't want—something we can be explicitly 'anti' about.

I am linking two concepts here. The first is that of optimization or perfectibility. The second concept is that of nature and the role that the category of the natural plays in these notions of optimization. What happens to nature now? Some authors see nature as collapsing (Rheinberger 2000). Ontologically, Rheinberger notes, there is no further use for the category and under the weight of emerging genetic technologies and life discourses; nature is an increasingly antiquated concept that clots our thinking of what it means to exist in these times. Strathern writes about being 'after nature', invoking a new relationship with ourselves and our thinking about the world. Drawing from her research on reproductive technologies, she stresses that once biology is 'under control' it is no longer nature. Once we have disciplined and domesticated/processed/tamed/commanded biology in our very peculiar scientific ways, then it no longer resembles that nature which we had endeavored to affect. 'If nature has not disappeared, its grounding function has' (Strathern 1992b, 195). But there is another 'grounding function' of this category of nature that comes into play here.

Nature and optimization are linked because the latter rejuvenates the former. Nature still matters, to be sure; it is, as Franklin notes, an important trope (Franklin 2003a). In this package of perfectibility, nature becomes the tillerman. For anti-aging medicine, it is more 'natural' to

seek perfection than it is to abide by what we have been ‘naturally’ given. This is not new nor is it news. Commanding or taming nature has come to signal a scientific manifest destiny. Anti-aging medicine proponents claim that we are made, we are human, precisely because we do go beyond what nature has ‘given us’. So, a grounding function of nature is intact—if we think of nature as the nature of a drive to better, to seek, to go the next step. It is our natural job to strive to (a certain image of) perfection.

[Anti-aging] doesn’t fill the normal aging paradigm of degradation and breakdown, systems breakdown, cellular breakdown. It doesn’t necessarily follow the paradigm of accepting age as a time event, age as a time of multiple chronic diseases. It basically [asks], isn’t it possible that we could live a long and healthy life without degrading so easily? It’s basically an attempt to (in the extreme) expand lifespan, as much as we’re able to do that. Some would suggest we could so theoretically. But in humans it hasn’t been proven, and so then it leads to improve the quality of life, long, long into aging and have a good health status as we age so that the candle kind of burns down brightly [...] before it goes out and doesn’t flicker for 30 years and so on, yeah? (N 2002).

## In closing

Anti-aging medicine practitioners are mobilizing a new interpretation of aging such that it takes shape as a target for biomedical intervention. Seeking to improve and to optimize human performance and experience, anti-aging practitioners fervently believe that there is a better model to mitigate the oft-bemoaned deleterious effects of getting older. Beyond simply a reaction to wrinkles and grey hair (the ‘vanity effects’), these practitioners seek to deal substantively with complaints of physical functional loss and accompanying pain. Holding to the notion that wisdom comes with age, they see no reason that wisdom ought to be the only good thing to come with chronology. Bypassing a concept of aging as a disease, aging is more directly medicalized in this paradigm. The moral, physical, biomedicoscientific goal is the optimal. For anti-aging medicine, nature or what-is-natural is naturally not good enough.

## Notes

- <sup>1</sup> To protect the confidentiality of interviewees, real names have been replaced with an initial.
- <sup>2</sup> The American Academy of Anti-Aging website, [www.worldhealth.net](http://www.worldhealth.net), was the most referenced site in a sampling study I conducted in 2000. In this study, I examined the presence of anti-aging medicine on line by sampling the 'blurbs' that search engines list as results. Here I found that over 33% of all blurbs referenced or was itself the A4M. No other anti-aging medicine site commanded such attendance on the internet.
- <sup>3</sup> [http://www/worldhealth.net/aboutanti-aging medicine/](http://www.worldhealth.net/aboutanti-aging%20medicine/) (09 December 2000).
- <sup>4</sup> This is, of course, a problematic cutoff point. I involved myself with practitioners who located their positions as scientific and who drew from 'accepted' and 'mainstream' science. This classification excluded those practitioners focusing on spiritually tuning the body's clock and those who condemn science as irrevocably corrupt and therefore unnecessary.
- <sup>5</sup> <http://www.CaliforniaAntiAging.com/home.asp> (09 December 2000).
- <sup>6</sup> Madame Jeanne Calmet was a French woman who enjoyed?/ suffered? a great deal of international notoriety for her longevity. She died in 2000 at the age of 122 (*Scientific American Special Edition: The Quest to Beat Aging*, Vol. 11, No. 2, Summer 2000: 9).

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