

Bodies, Technologies, and Aging in Japan: Thinking About Old People and Their Silver Products

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Abstract Contemporary Japan is known both for its high tech culture and its rapidly aging population, with 22 % of people currently 65 years and older. Yet there has been little attention to the material culture of the elderly. This paper explores the way aging bodies, official ideology, and consumption of what are called “assistive devices” and “life technologies” come together in the experience of frail old people who depend not only on human caregivers but on “things” such as walkers, kidney dialysis machines, and electric massage chairs. It begins to consider the questions: What technology to aid failing bodies is available, and to whom? How does the advocacy of independence create new forms of consumption? How do “things” mediate ideological change regarding elder care and help to create new understandings of self and one’s relation to others? Data come from interviews conducted in 2003–2007 as part of a study of elder care in Japan under the public long term care insurance system that began in 2000. These interviews point both to acceptance of the technology as a way to avoid over-dependence on caregivers, and to resistance to the limitations of aging and to its 21st century definition by the state.

Keywords Assistive devices · Elderly · Japan · Long term care · Meanings of technology

Well, in the last 20 years, I’ve had a bad knee.
That’s made me walk with a cane, so I look like a cripple....
I’m more slowed down—it hurts my ego. Because inside, that’s not really me.

Percy, age 92
in Kaufman (1986:10–11)

We as academics can strive for understanding and empathy through the study of what people do with objects because that is the way the people that we study create a world of practice.

Miller (1998b:19)

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This paper is a call for a reconsideration of the experience of very old age through greater attention to the material culture that surrounds elderly people needing assistance in their activities of daily living (ADL). I focus in particular on “silver technology,” the things that welfare workers and gerontologists refer to as “assistive devices” such as hospital beds, walkers, wheelchairs, portable toilets, hearing aids, and grab bars. Practitioners who work with old people attempt to ensure that those who are diagnosed as needing the assistive devices can get them, and they teach their clients how to use them properly for maximum effectiveness. They also sometimes need to add to their advice a dose of encouragement to make use of them at all. This instrumental focus is necessary to provide service to their clients, but it neglects the question of the meaning of the technologies that are an integral part of the daily lives of their users.

On the other hand, those who focus on material culture have been inclined to focus on dramatic new technologies, or have been interested in the importation of commodities to new settings. There has been little emphasis in the literature on old people as consumers of not only devices, but of the meanings they carry. My analysis begins to explore the ways such technology constructs low-tech cyborgs (Hess 1995; see also Loe 2010:320 on the blurred line between high and low tech when it comes to elders), and the ways the humans incorporate (or do not incorporate) the devices to create social and inner worlds of sense. In contrast to most writing about consumption, we need to ask about ordinary technologies that may not even be desirable, to see how society’s dramatic aging might alter the significance of objects, and to better understand the role of government and welfare workers in the marketing of not only material goods but also the ideas they carry.

Theorizing consumption requires moving to a complex understanding of how people meaningfully interpret and use material objects in a given social-political-economic context. The biomedical, gerontological, and policy approaches view these material goods as products to be made and distributed. They are interested in consumption primarily in terms of compliance, in other words, in their practical use as material objects but not in their cultural significance. Social scientists, on the other hand, understand consumption in more complex ways. As Kopytoff (1986) notes, “things” are continually circulating in ways that economists describe, but have periods in which they are taken out of this system and imbued with “cultural lives” in which they are co-constituted with their owner or user. From the owner’s perspective, in a postmodern or late capitalist world, consumption is about defining oneself by one’s “things,” consumption based on what often falsely appears to be choices (Giddens 1991). Taste and consumption, rather, are grounded in social class (Bourdieu 1984) and manipulated through marketing. Consumption is a process of receiving as well as sending social messages. As Appadurai (1986:31–33) points out, demand for “things” is “a socially regulated and generated impulse, not... a factor of individual whims or needs,” and can also be manipulated in the political process. Yet even in this literature, how old people use mundane technologies is not typically considered.

In recent decades, many social scientists have turned to the concept of embodiment as a way to bridge physical and social experience to better understand subjectivity. Yet Julia Twigg (2000:5–6) claims that the dominant model in gerontology has largely remained a disembodied one due to the reluctance of social gerontologists to reinforce a medical model centered on declining bodily functions, and to an increasingly “managerial” approach that emphasizes efficiency. Her work on care as a form of bodywork, and that of others such as sociologists Calasanti and Slevin (2006) and anthropologist Sarah Lamb (2000), and Grenier and Hanley (2007), have insisted on bringing the body back in to the social and cultural study of aging. There has also been a return in anthropology to an interest in material culture

and its relationship with human agents (Jones and Bolvin 2010; Fowler 2010; Crossland 2010). The interdisciplinary field of science and technology studies has asked about the interfaces among a physical technology, its creators, and its users.

Drawing on all of these streams, Kelly Joyce and Meika Loe edited a special issue in 2010 of the *Sociology of Health and Illness* which explores the relationship between old age and a variety of old and new technologies. They argue that, “Everyday technologies as well as biomedical interventions can be part of the way older adults pursue, maintain, and negotiate life. In this way, old people are cyborgs in contemporary life, blending machine and biology in both their personal identities and their relations to the external world” (Joyce and Loe 2010:171). Old people are seen not as passive users of pedometers in an exercise program (Copelton 2010), prototype robots (Neven 2010), walkers, or telephones (Loe 2010), but as social beings who creatively utilize these artifacts to accomplish personal goals, alter the devices to make them more suitable to their own needs, and negotiate identities.

Japan is an interesting space to bring these ideas together. A highly industrialized and commercialized economy, it is known globally for the development, production, and widespread distribution of advanced technologies, and has a long history of adapting technologies to local contexts. Japan is also the country with the world’s longest life expectancies at 86 years for women and 79 years for men in 2009, and highest proportion of the population over 65 years old at 22 % and rising. Medical care is based primarily on advanced biomedicine supported by universal health insurance. Additionally, beginning in 2000, there is a mandatory public system of long-term care insurance that has been directly relevant to an expanding market for assistive technologies.

In recent years, anthropologists of Japan have paid attention to the relation of material goods of Japanese popular culture to self-construction (cf. Kelly 2004). They have balanced ethnographic description of pop culture fans with the larger picture of socioeconomic implications and social messages of their choices. They have described the ways these acts of consumption and production contribute to the wider political economy and are implicated in the politics of Japan’s international soft power. Yet the material goods they discuss appear to be *desired* by their consumers (even if that desire is socially created). However assistive devices would appear to involve a more ambivalent sort of consumption. In contrast to most writing about consumption, we need to ask, what if the technological products to be consumed are widely imbued with *negative* social significance (Neven 2010)? What if they are seen as needed but not wanted, and if the consumers are not teenagers or middle-aged workers, but old people whose consumption is heavily government subsidized? What if the goods are available to all and thus scarcity cannot offer status except for the negative one of old age and frailty? What if the message of modernity carried by the assistive devices supports both the domestic economy and the international biotechnology market simultaneously?¹ The case of the Japanese elderly and their “things” raises important questions about consumption.

This paper asks that we consider old people in the ethnography of Japanese society and that as social scientists we consider the ways that elderly people make choices, create meaning, and participate in their social worlds as consumers of “things” rather than merely as consumers of social welfare services. Research by Bethel (1992) on nursing home life,

¹ This question comes from Miller’s (1998a) article on colas in Trinidad, and other work that set up a dichotomy in which Japan both fits and doesn’t, as seen in this paper when I discuss the “international” model of aging or international standards of aging in contrast to what might be considered stereotypically or “traditionally” Japanese.

Kinoshita and Kiefer (1992) on a retirement community, and Hashimoto (1996) on independent community-dwelling old people have laid groundwork for understanding the lives of old people as active agents. Ethnographic work in more recent years by Wu (2004), Traphagan (2000, 2003, 2004b), Robb-Jenike (2003, 2004), and Long (2008) suggest that this is a terrain characterized by changes in demography and policy, and by reinterpretations of the meanings of family, old age, and self. Although they are often notable in their absence from contemporary anthropological discussions of family and of consumption, and perceived as “problems” by policy makers, old people remain active agents despite their physical limitations through “things” as well as the social relationships that are affected by these devices (Loe 2010). We might view the devices as “things” that mediate a government-sponsored new ideology about the social category of “silver citizen,”² one that promotes international expectations of independence. I consider in particular the ambivalence some of our respondents expressed verbally and behaviorally about the technology as a reflection of the ambivalence they experience in their relationship with others as biological aging necessitates increasing dependence and thus continuing renegotiations of their status as persons.

The Long Term Care Insurance Program Study

Since 2002, I have participated in an interdisciplinary study of elder care under Japan’s public long term care insurance program which began in 2000.³ Members of the Japanese and American interdisciplinary research team conducted semi-structured and open-ended interviews with 15 families in a primarily working class ward of Tokyo and 15 families in Akita prefecture. In each family, we interviewed an elderly person who qualified for long term care benefits and his or her family

² This term is my own. “Silver” is the euphemism widely used in Japan to refer to old people and to the policies and institutions designed to meet their needs, such as “Silver Centers” to provide part-time employment for healthy old people; “silver cars,” which are wheeled walkers with seats, sometimes called rollators in English; and “the silver market,” that portion of the consumer market targeted to older, often retired people. (See Chéron 2011 on Japan’s silver market.). Although “silver products” are items and services associated with old people, their use is not limited to those of a certain age category, such as the use of wheel chairs by people with physical disabilities. “Citizen” here is used loosely as a way to capture the government’s interest in maintaining a population that can remain as independent of government support as possible for as long as possible, while recognizing that an increasingly large proportion of voters are over the age of 65.

³ The study was a 5-year longitudinal project with both quantitative and qualitative components. The first stage was a large-scale survey of family caregivers and care recipients who had been certified as eligible for long term care benefits in a largely working class ward of Tokyo and in a small city and surrounding area in Akita, a northern prefecture that has the second largest percentage of elderly in the country. Several months after the survey, we conducted semi-structured interviews with a subset of willing respondents, 15 care recipient-family caregiver pairs in each area. The interview sample was selected to include both men and women as care recipients, and a range of insurance system care levels and relationships to the primary family caregiver. Teams of at least two researchers visited the homes and spoke with both care recipient and caregiver, separately when possible, utilizing an interview guide but encouraging free conversation. Sessions lasted from one to two and a half hours. Informed consent was obtained for all interviews, which were audiotaped with permission. Interview topics included the nature of the care recipient’s health and daily living problems, daily life for the care recipient and caregiver, decisions about the use of medical and social services, family relationships, and the concerns and sources of pleasure for both care giver and recipient. We conducted follow-up interviews each year through 2007 for as long as the families were willing and able to participate, to track changes of status, learn about decision-making in conjunction with these changes, and hear about the participants’ experiences in greater depth. The members of the research group who conducted the interviews were: Asakawa Noriko, Asano Yūko, Izumo Yūji, Kodama Hiroko, Muraoka Kōko, Nishida Masumi, Nishimura Chie, Shimmei Masaya, Suda Yūko, Takahashi Ryūtarō, and Yamada Yoshiko

caregiver. Interviews were conducted with the same people each year for five years, or as long as the respondents were willing and able to continue to participate in the project. Discussions about the respondents' daily life and use of the long term care system almost always included the topic of assistive devices, but rarely focused on them. This article explores their understanding of assistive devices directly through their own words, or indirectly through the stories of caregivers or through caregiver or interviewer observations.⁴

The Social Problem of Aging and its Political Solution in Late 20th Century Japan

By the 1970s and 1980s in Japan, the dramatically increasing life expectancy and rapidly declining birthrate became obvious trends to government bureaucrats who began to frame aging not only as an individual problem for the citizen and his or her family caregiver (most often envisioned as a daughter-in-law), but as a social problem best addressed through government programs. They foresaw that demographic change of that magnitude would mean dramatic changes for Japanese society and increasing demands on governmental resources as the population of working-aged adults declined relative to the population that could call upon government health insurance and social service programs.

Although Japan would soon take the international lead in terms of demographic change, Japanese bureaucrats and welfare workers perceived Japan as “behind” in terms of rehabilitative medicine and social welfare policy. In particular, surveys in the 1970s and 1980s found that Japan had much higher rates of elderly people who were bedridden than did other developed countries, results widely reported in the media and included in national social welfare reports (Campbell 1992:116–117; Ushikubo 1998:128). A 1980s government campaign to achieve “zero-bedridden” resulted in the development of the fields of physical and occupational therapy in Japan,⁵ and the purchase of rehabilitation equipment by nursing homes and other facilities, which sometimes remained unused because there was not yet staff who knew what to do with the shiny new equipment (Ruth Campbell, personal communication). Although some people such as Maeda *et al.* (1989) noted that the category of “bedridden” was in part culturally created and defined (see Long 2005), the solution was still assumed to be better services and the adoption of rehabilitation technology.

⁴ Although I recognize that these sources are not identical and may not provide as clear a view of the care recipient's internal life as relying solely on self-reports, indirect sources such as caregiver interviews and observations provide important supplementary perspectives, especially in the situations in which the care recipient had mild dementia. The caregivers' stories and comments utilized in this paper were generally related to us in the presence of the care recipient.

⁵ For example, the first occupational therapists were licensed in Japan in 1966. In 1987 Japanese Association of Occupational Therapists (JAOT) had a membership of over 2,000, but by 2008 there were 32,940 members. The JAOT explicitly attributes the growth of the field to the needs of a rapidly aging society (JAOT n.d.) The table below shows the dramatic growth in the number of occupational and physical therapists employed in Japanese hospitals in the early years of the long term care system

Therapists employed in hospitals by year (full-time equivalent)

	2004	2005	2006
PT	25,949	28,509	31,386
OT	15,207	17,010	19,203

Family caregiving was also beginning to be discussed in public discourse as an undesirable burden. Although phrased in the moral language of filial piety, caregiving by daughters-in-law prior to 1945 had the material payback of property inheritance. Under new family law after 1945, the economic underpinning of caregiving no longer had a legal basis. Without that, and with increased nuclearization of the family, higher levels of education, and higher rates of employment of married women, caregiving has become for many an issue for negotiation (Traphagan 2003; Robb-Jenike 2003), either at the time of marriage or subsequently. When daughters-in-law were unavailable or unwilling, spouses, daughters, and even sons took on the role of family caregiver, but almost always, a single individual was designated to take on that role (Long 2008). In the early 1970s, Ariyoshi Sawako published a novel that depicted the burdens of caring for a demented elderly in-law (1972). It became a best seller and has been credited with the creation of a public consciousness that eldercare was a widespread experience, and that the challenges and difficulties could not be resolved through women's individual attempts to cope in one household after another across the country.

Yamato (2006) notes that from the 1980s, surveys documented increased reluctance of respondents to say that they expected or desired care from their children in old age, and they expressed increasing willingness to receive assistance from alternative family members and paid care workers. Government policies explicitly attempted to encourage this attitudinal change by promoting the de-stigmatization of institutional care. They publicized the results of surveys documenting pragmatic shifts in family caregiver away from the daughter-in-law and toward spouses and daughters. At the local level, municipal governmental agencies began or expanded programs to provide (insufficient numbers of) non-stigmatizing public care services such as home nursing, community-based rehabilitation facilities and day care centers. Along with the problems of an aging population related to public pensions, workforce participation, and medical insurance, the national government took up the issue of how the increasingly large numbers of frail elderly would be cared for in a society in which families were small, living space crowded, and women active in the labor market and more likely than in past generations to reject the expectation that caring for in-laws was their responsibility alone.

The policy response of the late 1980s was the creation of a program known as the Gold Plan that was intended to dramatically increase services and to change the public's negative images of professional and institutional care through the greater availability of services and technology, the professionalization of paid care workers, and new terminology (including new Japanese terms for the new types of elder care institutions and the use of loan words for "short stay," "day service," and "home helper"). The services and devices were promoted as ways to maintain independence, allow elderly people to remain in their own homes as long as possible, and provide the security of de-stigmatized, professionally run institutional options if needed. However the envisioned development of facilities in the Gold Plan could not keep up with the demographics and, as a tax-based program, revenue could not keep pace with the newly defined needs. After years of study and political debates, the government moved to German-style insurance-based model that went into effect in 2000. Under this program, benefits are defined not as government handouts, but as a right, based on the payment of premiums. Services are provided not only by government agencies but by a wide range of not-for-profit and for-profit organizations which compete within the third-party payer system. The benefits include not only home care, day service, and residential facilities, but also subsidies for equipment rental and home modifications such as installing grab bars, removing steps, and altering the home's toilet or bathtub. Thus, assistive care technology in support of the new ideology of elder independence became universally available to those defined as needing it. The equipment rental in the early years constituted about 2.5 % of long

term care program costs, with home renovation limited to a one-time payment (Ministry of Health and Labor 2008). The extent of the program's stimulus to the assistive device industry is suggested in Annual Health, Labor, and Welfare Report 2009–2010. At the end of 2000, the first year of the long term care insurance program, there were 3241 suppliers of rental care equipment. In 2009, the most recent year for which data is provided, there were 7319 such organizations, representing a 125 % increase in eight years (Ministry of Health and Welfare 2011). Statistics from the Annual Report on the Long Term Care Insurance Program indicate that from the end of the first year of the program in 2000, the number of users of care equipment nearly doubled in only 4 years, while the number of homes remodeled under the program increased by 143 % (Fig. 1).

As shown in Fig. 2, costs increased even more rapidly. After the revision of the program that took effect in 2006, the numbers and costs dropped briefly, but by 2008 had returned to approximately the same levels as prior to the revision and have continued to climb for equipment rental since.

Old people needing assistance and their family caregivers were brought into this expanding market as consumers through redefining experiences and needs, and through the specific instructions of government, medical providers and private social service providers. An example of the government's policy perspective is provided in an official English translation of the 2002 *White Paper on the Aging Society*. After encouraging the development of the pharmaceutical industry to compete globally, the document goes on:

When postwar baby boomers attain old age around 2015, the population aged 65 or older is estimated to reach 33 million, 11 million larger than that at present, and the ratio of older persons to the whole population will be 26.0 %. Toward the full scale of aging society, the New General Principles Concerning Measures for the Aging Society was resolved at the cabinet meeting in December 2001. The New General Principles show a basic attitude to modify the traditional stereotype image of older persons. Moreover, support of self-help in the old age, which enables diverse life style, is focused on as a cross-field subject.... (Cabinet Office 2002)

Each person eligible for benefits is expected to have a care manager. These are generally nurses, social workers, or experienced professional caregivers who must be certified for the job; they may be hired by for-profit or not-for-profit service-providing agencies, or start their own. Required to see each client at least once each month, their job is to develop, monitor, and adapt care plans. In this capacity, they are in a position to greatly influence the use of services and technologies, and in our interviews, beneficiaries or their family caregivers frequently mentioned the care manager's recommendation as a key factor in the decisions to adopt care equipment. In some cases, the care manager introduced them to technologies with which they were not familiar; in other cases, they supported a caregiver's desire for equipment use over the doubts or resistance of others in the family, or even the care recipient. As the system became established, participation was also frequently encouraged by friends and relatives, so that it quickly became normalized. As one local physician I interviewed noted, the insurance system care levels had within a few years become a way that family members and neighbors of old people compared in casual conversation not only the condition of their charge, but relative burdens of care. In our interviews as well, we heard people use such classifications to frame and describe their own and others' experiences, for example, "He's only a Level 1, so it's much easier than our neighbor. They have it rough since he's a Level 3."⁶

⁶ Loe (2011) notes that American old people also utilize such professional classification systems in thinking about their aging.

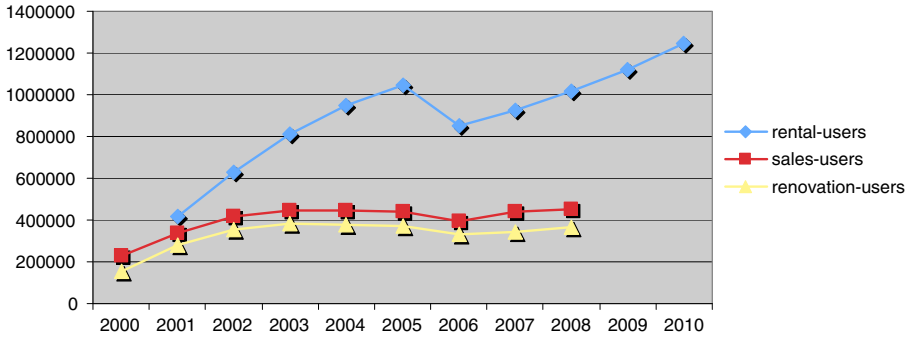


Fig. 1 User's of equipment and renovation. Source: Calculated from <http://www.mhlw.go.jp/topics/kaigo/toukei/joukyou.html>

The long term care benefits carry specific political and social messages about the nature of old age disability. Old age in Japan has never been the utopian dream portrayed by American gerontologists such as Palmore (1975). As individuals, old people have resisted the dependency (Long 2005) and loss of personhood (Traphagan 2000) implied in decreased physical and mental functioning. A Japanese version of the Parsonian sick role also held symbolic power: expectations that old people whose limitations presented impositions upon others should lie quietly, follow expert recommendations, and (appreciatively) depend on others, especially family members, to take care of them (*amaeru*). Certainly such sufferers should not demand a presence in the public sphere. It is these cultural assumptions that are directly challenged by the regular presence of professional home care and community care providers and the omnipresence of assistive devices in the lives of the beneficiaries. Rather, they convey (intentionally or not) that the “modern” or “internationally acceptable” old person refuses to accept his or her disabilities, that independence can be retained or recovered through activity and rehabilitation, that the elderly have moral and civic responsibilities to do everything they can to stay healthy and functioning, and that there is no shame in going outside the family for support in their efforts, but rather than they have a *right* to such support.

These messages resonate with the ideas of active personhood Traphagan (2000) describes for a village in northern Japan, and the commonly voiced desire to not be a burden on family in

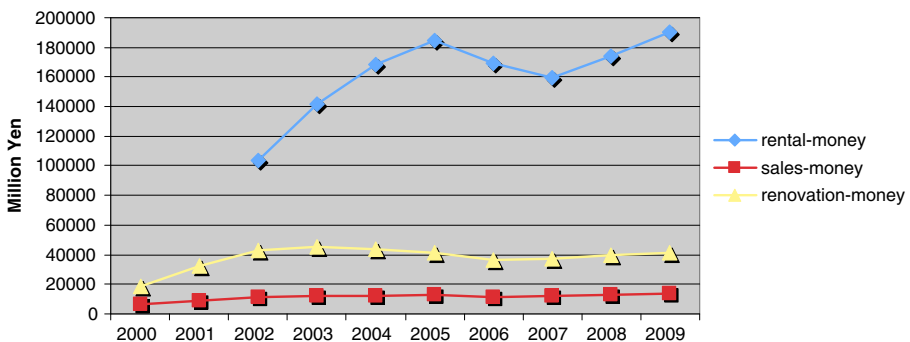


Fig. 2 Spending. Source: Calculated from <http://www.mhlw.go.jp/topics/kaigo/toukei/joukyou.html>

old age. The material impact of these ideas is reflected in results of biannual surveys by the Health and Welfare Information Association, sponsor of home care and rehabilitation equipment expositions and home care equipment catalogues. The association reports that shipments of portable toilets increased 10 % between 2000 and 2006 while the number of walkers nearly doubled. These items emphasize independence and mobility. In contrast, the surveys showed a decline in the number of wheel chairs, a step more passive than walkers, and beds that were shipped from manufacturers (Health and Welfare Information Association 2008). As Strathern (2004) notes, a society's remedies for human affliction depend on its concept of well being.

Assistive Devices in Aging Japan: From Silver Cars to Bathtubs

In our study, nearly all of the elderly participants receiving long term care benefits, regardless of gender or geographical location, began using assistive technology beyond eye glasses and hearing aids before or during the five years of our interviews. The two exceptions were people who at the time of the first interview did not need them (one person's physical condition was not severe enough, the other's was mainly difficulty due to dementia) and when they subsequently had greater need for help were admitted to residential facilities.

Technologies ranged from wheel chairs to full bathroom renovations. Many, for example, had wheel chairs that they used whenever they were out of bed and/or to go outside the home. Sometimes the wheelchair users also had small, wheeled tables that they used while in the chair. Others had canes or walkers. "Silver cars," wheeled walkers with seats and a basket or bag for personal items or small purchases, were also used to help people get around more securely. When it became necessary for the care of a bedridden person at home, all of the families we observed rented hospital beds. Others rented such beds in order to improve the old person's ability to get in and out of bed on their own. In one case, an old woman at a relatively low care level was able to take a trip with her daughter and family and rented a special foam mattress pad to take with her.

Portable toilets were also commonly rented through the long term care system. They often started out as a way to make it easier to go to the toilet on their own in the middle of the night. For example, one woman slipped on the floor on her way back to bed from the toilet and broke her hip; once she was discharged from the hospital, her family rented a portable toilet, though she continued to use the family toilet during the day. Over half of the families we interviewed had remodeled their homes, putting up grab bars, modifying the toilet, or eliminating barriers such as steps or room dividers that had created an uneven floor. The family bathroom, a room used for washing and bathing but separated from the toilet room, was an especially popular target of home modification activities. Because Japanese tubs are deep but small, getting in and out is a significant challenge for frail old people and their caregivers. Yet the bath remains a great source of pleasure for most.⁷ Improving the utility and safety of tubs in the US is frequently accomplished by installing grab bars, shower heads, shower chairs, and non-slip floor mats. However the symbolism and pleasure of the bath in Japanese culture often leads to more extensive replacement of the entire bath tub and remodeling of the bathing room; families we interviewed (as well as nursing homes we visited) often proudly showed us their newly modified bathing facilities (Ruth Campbell, personal communication).

⁷ For the history and cultural significance of Japanese baths, see Clark 1994. See also Traphagan 2004a regarding baths and the elderly in Japan.

Several passages from my fieldnotes provide an introduction to such technology in the daily lives of elderly people in our study. The first describes a home that had been renovated to accommodate an 80-year old woman with Parkinson's Disease who was moving from a rural area to live with her 55-year old daughter in Tokyo as her symptoms worsened, providing a sense of her material surroundings.

The home was a small condominium on the third floor of a multi-storied building in a very quiet neighborhood.... The building and apartment looked fairly new but the daughter said she's been here for 18 years; the outside had been renovated, and their apartment was just remodeled last year in preparation for her mother's moving in. The building has an elevator in the center large enough for a wheel chair.

... As we came in, there was a small kitchen to the right of the entryway, a toilet, bath, and other room (possibly sleeping space for the granddaughter?) on the left. We sat at a dining room table in a large room that had been two rooms, a sitting room and a tatami-mat room. Nice-looking wooden hand rails set off by the off-white walls were ubiquitous. When they remodeled, they also made it "barrier free" with no steps within the apartment (though a step at the entrance to [culturally] demarcate inside and outside remains) and no tatami, but rather a continuous wooden floor that made for a spacious, open, light room. Past the table was a living area with tv and across from that a hospital bed. In that area was a family altar with fresh flowers. There was also a wooden screen serving as a room divider that in its current position only partially hid the bed but could afford some privacy. There were many photos of grandchildren around, and pictures that the patient had colored at day care, some framed. There was a Tanabata [Star Festival] decoration the mother had made at day care hanging at the sliding glass doors that go out onto a small balcony where the older sister hung the laundry as we began the interview. The care recipient slowly walked over to where we had sat down and eased herself into the wheelchair to join us at the table. (#0007401, 2003)

The next situation illustrates a common adjustment to worsening health by increasingly turning to assistive devices. This woman who was 92 at the time of our first interview was being cared for by her 68-year old daughter-in-law. They had continuously co-resided from the time of the son and daughter-in-law's marriage. In our first year interview, although the daughter-in-law was interested in getting more help in caregiving, they did not make use of any of the care services offered by the long term care system other than the required visits from a care manager once a month. The daughter-in-law used a megaphone to make herself heard by the mother-in-law whose locomotion was largely on her own, though that sometimes meant crawling on the floor. Here is a description from the second year interview, when technology offered by the long term care system helped the 93-year old mother-in-law to maintain some very minimal ability to care for herself:

When we asked about changes since last year, she complained about being hard of hearing, and the daughter-in-law added that her legs are weaker.... She still uses the toilet herself during the day; at night she uses a portable toilet in her room. The daughter-in-law says there is no place for her and her husband to sleep down here, so they sleep upstairs, and the mother-in-law can push the bell to call them.... The daughter-in-law gives her a bath in the tub, using a chair. They still do not make use of formal long term care services other than the same care manager who still comes to check on the mother-in-law once a month, and they have rented a mattress for the bed through the system. The old one they had purchased, but the care manager told them it

would be cheaper to rent a new one through long term care, and recommended a new type that had come out.... [She uses a] hospital bed [but] has a problem slipping on the floor because they had put in new tatami. (#0006314, 2004)

By the time of our last interview, her health and ability to care for herself or even be cared for by her daughter-in-law had changed dramatically. Thus the technology she used had also changed, although her attitude toward it had apparently not:

As we walked in to the sitting room past where the mother-in-law's room was, there was no bed or futon or anything much in the room, and everything was clean and neat. The house, despite being on a rather noisy street, seemed very quiet. No grandmother. ...Part way through the interview [the daughter-in-law] showed us pictures of Mother-in-Law after she became bedridden—she had lost a lot of weight.... Last August she had fallen from bed. The portable toilet was next to the bed but she wanted to use the regular toilet, and she fell. She couldn't move after that.... Nothing was broken. She got a little better but gradually her bones became brittle and her muscles weakened. The doctor told them she would never recover. She, her husband, and her sister-in-law took turns spending the night next to her. They started using diapers, which had to be changed four times a day....[They decided they couldn't care for her at home any more, so admitted her to a residential elder care facility where apparently she spent much of the day in a wheel chair.]... Then she fell in April and had a cardiac arrest. She was totally ashen...At this point she remains in the medical facility in a private room. The daughter-in-law told us that her mother-in-law doesn't like hearing aids, and she also has all these IVs which hurt her so she pulls them out. She doesn't have any appetite so she's getting food by IV. If someone tries to feed her she spits it out. (#0006314, 2007)

That family moved, over the five year period of our study, from minimal use of assistive technology to reliance on life-supporting equipment. Most of our study participants were in between, as I described in my fieldnotes after our second year interview of an 83 year old man and his 81 year old wife who was his primary caregiver.

After we sat alone talking with the wife for a few minutes, there was an electronic beeping. She left and returned with her husband. He seemed to walk a little better than last year, but used a wheeled walker with a small seat. He was wearing a long-sleeved gray sweatshirt with collar and light green-gray knit sweat-style pants. His hair was cut close to his head and he was clean-shaven. He looks better than I remembered, but still has no teeth. His wife said he had new ones made but that they don't fit well. It is thus still very difficult to understand him and to hear him on the tape. (#3204409, 2004)

The extent to which people used these technologies varied in part with their physical limitations, in part with their own attitude, and in part on the relationships with and views of family members. Yet all of the people we interviewed at some point incorporated them into their daily lives. Eye glasses, hearing aids, and false teeth were most common, but I came to assume that wheel chairs, walkers, and portable toilets were part of the “normal” home environment of all but the most seriously disabled. Moreover, seeing the large numbers of old people in their own homes and in residential facilities who relied on walkers and wheelchairs, I was reminded of the literature in cyborg anthropology that stressed that neither the human nor the machine can be considered independent, but rather that it is the combination, the cyborg, that is the active agent in society.

If in cyborgs, the boundaries of body and machine are blurred, we can think about devices and equipment and machinery not just as self-extendors that carry meaning (per earlier research such as Csikszentmihalyi and Rochberg-Halton 1981; Belk 1988 & Rubinstein 1992), but as prothesis (Jean-Pierre Warnier 1999, as reviewed by Argenti 2000). Usually cyborg refers to a more sophisticated technological device with its human user, but anthropologists have seen it as a useful concept for low-tech “things” as well (cf. Hess 1995:374 on nose-plugs). Haraway (1991) argues that for humans to become a unit with a machine is liberating, and to the extent that assistive devices and life support technology allow the human to continue to function in some capacity that they could not do otherwise, we can extend her thinking to these elderly cyborgs of our study, the 88 year old plus her wheelchair, or the 97 year old with her IV lines.

On the other hand, in the case of the old people we interviewed, such devices were also a constant reminder that they could no longer function as fully human agents. Dumas and Turner (2006:152–153) suggest the need for a concept of physical capital, the loss of which in old age often leads to a loss of cultural and economic capital. It is not surprising, then, that many old people wish to be independent and to take care of themselves. In Japan, this ideal is strongly reinforced in the media as the international standard of a good old age, but also by older notions expressed in phrases such as, “I don’t want to be a burden,” or described by Traphagan (2000) in his analysis of *boke*, both of which suggest the loss of social and cultural capital.

Technologies of Ambivalence

Technology such as assistive devices thus occupies an ambiguous middle ground between dependence and independence (see also Loe 2011 regarding the ambivalence felt by American elders). Despite the cultural recognition of interdependence as a basic human trait (Doi 1973), there is also a widespread sense that there should be limits to dependency at different stages of the life course (Holloway 2010). Dependence is also seen as creating a burden, and those who have conducted research on older adults have consistently found tremendous concern that they not become a burden on family or other caretakers through dementia or physical frailty (Robb-Jenike 2004; Kawano 2010; Long 2005; Traphagan 2000). This strong desire to not become dependent on others in old age explains many visits to *pokkuri-dera*, popular Buddhist temples specializing in prayers for one’s own sudden death in contrast to an extended dying process that creates burdens on others (Woss 1993; Long 2003).

In a US study, Verbrugge *et al.* (1997) found that the efficacy of assistance was greater for equipment alone than for personal assistance or a combination. The authors suggest that is because equipment allows maintenance of autonomy and self-sufficiency. In a similar manner, our elderly study participants incorporated assistive technology into their lives as a way of trying to avoid even greater reliance on family members and to maintain their sense of themselves as full adult persons. But as the quote from Sharon Kaufman’s informant at the beginning of the paper expresses, there may be a gap between the old person’s sense of who s/he is or wants to be and the cyborg s/he has become. In depending on technology, the distinction between inner and outer selves is blurred. In depending on people, the self-other boundary becomes fuzzy. The ambivalence people feel toward these situations is symbolized by the unused portable toilet or the untouched call bell or the wheelchair left at the door while the old person crawls on the floor.

Attitudes toward assistive devices have changed dramatically since the 1970s. For example, clinical social gerontologist Ruth Campbell (personal communication) reports that in the mid-1970s, many people she interviewed indicated that wheelchairs only belonged in

the home's entryway. In addition to the difficulties navigating them in small homes with floor dividers between rooms, people classified wheelchairs as "outside" and not "inside" objects (cf. Ohnuki-Tierney 1984). Campbell believes that acceptance grew through a sense that using assistive technology had become common through combination of government policy that encouraged and paid for it and advertising by home care companies depicting youthful, attractive older people using it. It is therefore not surprising that in our interviews we heard different levels of acceptance of its normalcy and a variety of individual responses to the message-carrying ambiguous "things" available. The thoughts voiced by the people in our study, the elderly themselves and the caregivers speaking on their behalf can be loosely categorized as follows.

Silent appropriation Rausing (1998:190) suggests that the "normal" or optimal reaction to new things is silent appropriation, redefining the objects as already taken for granted. For some of the people in our study, this seemed to be the case; acceptance and incorporation of the devices into their lives seemed relatively unproblematic. They adopted the technology, normalized it as part of themselves, and thereby accepted its underlying ideology of independence.

- *My heart has been fine, thanks to the pacemaker.* (#0001600, 2004)
- *He walks around the building with a walker so he won't become "bedridden".* (#3204009, 2005)
- *She fell and broke her hip, and thus began her wheel chair life.* (#3204204, 2006)
- *It feels good to walk with the "silver car" (wheeled walker) because it stretches me. So my stomach is better and I have more of an appetite for dinner.* (#0004611, 2003)

Ambivalence and resistance Yet others met the technology encouraged by family members, social welfare workers, or care managers with more ambivalence and sometimes resistance, as we saw in the case of the old woman and her daughter-in-law discussed earlier. Nihei *et al.* (2008) conducted a small-scale study of the psychological impact of wheelchairs in Japan based on the potential dilemma of maintaining daily functioning versus reliance on wheelchairs for expanding their mobility. The concerns expressed by the twelve day care participants were about physical functioning and how others would respond to them as wheelchair users. In a study of use of rehabilitation services by old people in Japan, Ushikubo (1998) found that willingness to engage in rehabilitation activities was correlated with higher levels of independence in activities of daily living (ADL), the lack of pain, relatively high stamina, lack of depression, and lack of regressive behavior and dementia. Rehabilitation programs involve both the desire for greater independence and the use of technology, so these results are not surprising. But my analysis of the interviews suggests that there are multiple personal reasons for resisting the use of technology. As Copelton (2010) found in her study of the use of pedometers, people may experience the technology as getting in the way of desired social relationships. Some of the people we interviewed expressed a "traditional" preference for dependence on people over technologized, commodified care, or for passivity over active rehabilitation:

- *The grandkids spend time with her. We all go out to dinner together about once a month. The boys each take one of grandma's arms and walk her, so she likes to go out with them.* (#000001, 2005)
- *She has no appetite, and claims there is nothing that is enjoyable. She comes out for 3 meals/day but does spend much of the day lying in bed. It is tiring for her to sit in a wheel chair all the time.* (#3204204, 2004)

In contrast, others who resisted using the technology insisted on independence from both “things” and people:

- *He has hearing aids, but he won't put them in.* (#0001600, 2006)
- From field notes: He was ostensibly pushing the “silver car”, but was actually crawling down the hall. He is very hard of hearing and does not speak clearly, but he had his teeth in and did not seem as demented as his wife had implied. (#33204009, 2006)

These examples and others in our interviews suggest that ready incorporation of assistive devices is consistent with the desire of old people to take responsibility for their bodies, to maximize what they can do on their own so as to not be a burden, and to be active social agents. As Featherstone and Werner (1995:3) argue, technology has the capacity “to alter not just the meaning, but the very material infrastructure of the body. Bodies can be reshaped, remade, fused with machines, empowered through technological devices and extensions.” Through “things,” messages of independence and international selfhood are thus imprinted on the cyborg. For the human part of that human-technology combination, the devices represent what is considered necessary, desirable, and good (Clarke *et al.* 2003:2). For old people in Japan today, this means mobility, better health, and self-care. But these associations have been politically and culturally created. There exists no “natural aging” for humans.

Kaufman's (1986) interviews suggest that elderly Americans reliant on assistive technology view their “things” as both revealing the true self and hiding it from social view. Old people may use technology to resist frailty and use frailty to resist and negotiate with social institutions (Grenier and Hanley 2007). Some of our study participants were similarly more resistant to the care technology because they were rejecting the negatively viewed reality of aging, with its decreased cultural capital. They, and certainly many of the terminally ill patients I interviewed in the 1990s (Long 2005), might agree with Featherstone & Wernick (1995:17) that for those who are “weak, frail, or disabled, the body is not only a masking device which conceals and distorts the self which others interact with[.]n addition, the lack of mobility and functioning capacity may make the body seem to be a prison.” The devices are outward markers interpreted as inner weakness in the old person's capacity to be fully human, a weakness of self that they did not necessarily feel. Like the 93 year old in the first year interview, their avoidance of technological assistance announced to the world they were still “fighting” (*gambatte iru*)—a sign of being fully alive.

Resisting the message A few of the people we interviewed appeared to be more specifically resisting the new, international definition of aging promoted by the government, social welfare workers, and corporations manufacturing and selling the technology. They preferred reliance on family to the false independence of reliance on “things.” An elderly woman who had experienced a major stroke was angry that her husband did such a minimal job taking care of her despite her many years of supporting him and his career. Others became tired of “fighting,” as in the last stage of life of the woman who had not wanted to use any assistive devices or professional care services. When she was so frail that she could no longer resist, her family finally put her into an elder care facility despite there being “nothing broken; but the doctor told us she was never going to get better.” By refusing to help themselves through the available technology, they maintained a sense of agency, as in the case of another 97 year old woman during our fifth visit to her home. She had previously seemed to enjoy our visits and participated enthusiastically in the discussion, happily posing for pictures with the researchers and her daughter caregiver. But at the fifth year interview, she was “bedridden” in the next room, fed Ensure through a straw, and unable to get in and out of bed on her own.

We spoke at length with her daughter that day and went into the other room to give our regards to the mother. When the question of taking a last picture together arose, however, the woman who could no longer speak managed to very clearly communicate that she did *not* want her picture taken.

The Agency of Things

These responses and the differential incorporation of technological devices into their social and inner lives illustrate the ways that frail elderly people maintain agency despite frailty and disability in old age. Through things, they interpret and reflect, use them to mediate and renegotiate relationships, and redefine themselves as persons with continuing social value. Biographical work of self-creation involves the re-ordering and redefining of material things (Plath 2000; Kaufman 1986). Appadurai (1986:5) adds that, “Even though from a theoretical point of view human actors encode things with significance, from a methodological point of view it is the things-in-motion that illuminate their human and social context.”

We can recognize that in some sense the assistive technologies I have been discussing act as agents that define a new relation of self to others in altering the balance of dependency and burden. Utilizing the “things” provides greater independence from family caregivers and helps to maintain not only physical capital but cultural capital as well. The same “things” also constitute a continuous reminder of the dependency of old age imprinted onto the cyborg body. Yet refusing the markings of dependency (resistance) maintains the “burden” on others. Thus assistive devices impute meaning by marking the person as being at a culturally defined stage of life and force re-creation of the social self. They also carry messages about the kind of self one should become. The “international” or “modern” message of independence resonates with the already well-established value of not being a burden, and it thus acts to provide a consistency of self while becoming a cyborg. Likewise, resistance to using the technology based on preference for dependency on people over things confirms the continuity of one’s identity, with the effect of reaffirming Japanese difference from other countries. Adopting the technology engages new patterns of consumption and maintains one’s identity as an active participant in Japanese society. Questioning the technology challenges the state’s and professionals’ categorization and definition of old age. If, as Miller (1998a:181) claims, “the desire for particular commodities [is] often, like myth, an attempt to resolve contradictions in society and identity,” I would add that resistance to that technology similarly attempts to resolve such contradictions and assert citizenship and a sense of cultural belonging.

Conclusion About the Present; Reflections on the Future

Based on observations and interviews in Japan in the first decade of the 21st century, this paper has considered low-tech cyborgs consisting of old people plus their every-day assistive devices. But Japan is also the home of an advanced robotics industry whose scientists (with government support) and corporations have produced robotic pets like Paro and AIBO to entertain and keep company with old people.⁸ Prototypes of assistive robots

⁸ These have not necessarily met with commercial success, however. Sony’s robotic dog AIBO was intended to keep nursing home residents from feeling lonely, but when tested in both Japan and the US did not maintain the interest of the residents over time and was eventually pulled from the market. See for example, http://www.usatoday.com/tech/news/robotics/2006-02-01-goodbye-aibo_x.htm.

such as Twendy-One from Waseda University that can provide hands-on elder care already exist and are undergoing further development and testing (cf. Robertson 2007, 2010).

The intensity of technology development and marketing can be seen in the activities of such groups as the Japan Assistive Products Association (<http://www.jaspa.gr.jp>), the government's New Energy and Industrial Technology Development Organization (<http://www.nedo.go.jp/english/index.html>), and the Health and Welfare Information Association, a not-for-profit group whose main activity is the annual Home Care and Rehabilitation Exhibition.⁹ This caregiving technology exposition attracts not only family caregivers, but also home care service and institutional care providers which have dramatically increased in number since the introduction of the Long Term Care system. Products exhibited included not only the latest popular devices to assist with mobility, communication, feeding, bathing, and toileting, but also sensor technology for the surveillance of the "independent elderly" people living alone or in the next room. The organization also sponsors symposia, sometimes featuring international experts, and publishes "materials to provide the latest news on domestic and overseas health and welfare trends" (Health and Welfare Information Association 2009).

The designing, marketing, and distribution of these new products are a significant part of the Japanese economy today and in the future (German Institute for Japanese Studies 2008). Their consumption further changes the lives and identities of Japan's elderly people. They not only assist a frail old person to function better in activities of daily living, as the providers see it, or make caregiving easier. They also reinforce the message of the government-subsidized long term care system that a "good" old person minimizes dependence on people through dependence on technology, creating greater demand for care technologies of all degrees of sophistication. Associated Press coverage of the Home Care and Rehabilitation Exposition (Tabuchi 2007) reported marketing messages that reveal other cultural assumptions about aging and social relationships (see Joyce and Mamo 2006), for example, that the advertising slogan for a specially designed car with easy entry for the wheelchair-bound is, "A car that's more patient than your daughter." Note that it is the daughter, rather than the historically normative daughter-in-law who is the expected caregiver, but that even one's own daughter will not provide the desired type of care. Human "things" can never be merely products.

Dumas and Turner (2006:148) write, "We might speculate that if Foucault had written about age, he would have argued that gerontology is a science that offers the state an opportunity to exercise order over aging populations, and if possible to make them productive." Given the power of the state, the demographics of the continued aging of the population, the profits to be made on elder care technology, and the public openness to "internationalizing," we can expect the future to hold continued promotion of the ideology of independence and productivity (in the sense of taking care of themselves, freeing family caregivers for activity in the labor market and in consumption). The Japanese government has repeatedly make it clear through its pronouncements and funding that technology is to be the answer to the limitations of both the aging body and the ability of family caregivers alone to provide assistance in daily living. Like the low-tech assistive devices, the new technologies will carry cultural messages about modernity, internationalization, and consumption that alter behavior and selves as they merge with human bodies. We need to maintain a focus on these material things to fully study the experience of the aging body and to understand Japanese culture.

⁹ A video of this exposition can be viewed at <http://www.hcrjapan.org/english/video.html>. This event receives substantial media coverage in Japan and internationally. See for examples, Associated Press (2007) and Tabuchi (2007).

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