

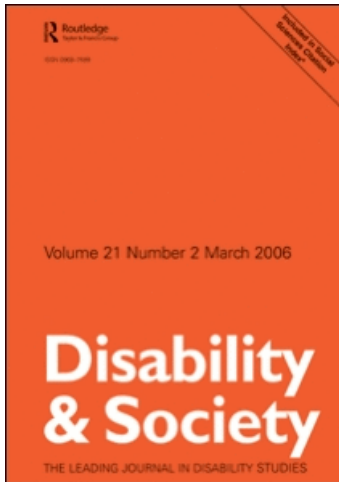
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### Chemical and electromagnetic exposures as disability barriers: environmental sensitivity

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## **Chemical and electromagnetic exposures as disability barriers: environmental sensitivity**

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This paper proposes that chemical and electromagnetic exposures pose technology-related disability barriers for people who have acquired sensitivities to them and that these barriers should be integrated into our understanding of disability. I discuss pervasive chemical and electrical exposures as products of industrialism that first engender impairments and then act as disability barriers to those who develop intolerance to them. I also remark on unique aspects of environmental sensitivities in the context of the social model.

**Keywords:** multiple chemical sensitivity; chemical sensitivity; chemical intolerance; chemical hypersensitivity; electrical hypersensitivity

### **Introduction**

In this paper I propose that chemical and electromagnetic exposures are causes of impairment, then, subsequently, disability barriers to participation in industrial culture. I explore these exposures primarily within the social model of disability. I discuss some current critiques and suggested extensions of this model and mention some unique aspects of chemical and electromagnetic barriers, which first impair and then disable persons within industrial culture.

Although disability predated industrialization, industrialization changed the face of work and exposed workers to new dangers. Oliver (1990) stated that the concept able bodiedness emerged in relation to industrial machinery and factory-imposed discipline/wage labor. Disability was the ‘pathology’ that prevented a portion of the population from plugging into wage labor. Although Finkelstein (2005) hoped that emergent technology would allow opportunity and liberation for disabled people, Barnes, Mercer, and Shakespeare (2005) said that ‘the amount and variety of impairment rises as a society becomes technologically and economically complex and “advanced”’ (p. 56) and cited an unsafe environment as one of the major causes of industrial disease and injury.

### **The impairment**

One characteristic of all modern public spaces in industrialized countries is that the occupants are increasingly exposed to a myriad of chemicals, even if chemical use is not related directly to an establishment’s major activity. Abberley (1987), while

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making the point that disability is socially and politically engendered, said, 'Mirroring impairment caused by the process of production is that attributable to the willing or unwilling consumption of its products' (p. 10). Chemical exposures common to most workplaces and public spaces in industrialized nations include pesticides, paints, vehicular emissions, heating system emissions, copier fumes, off-gassing from remodeling or reconstruction, and contaminants from other workers' personal care products, including perfumes. Many of these personal products are largely comprised of heavy industrial solvents. In the USA there are now perfumes for children and dogs, and even perfumed vehicle tires that emit a fragrance as they roll.

Denison (2007) pointed out the irony of widespread chemical use juxtaposed with a lack of relevant toxicological knowledge: 'government must effectively prove beyond all reasonable doubt that a chemical poses a risk before it can take any action to restrict its production or use' (p. 5). Only now are industrial countries making efforts to screen chemicals that have been in use for decades, as evidenced by the High Production Volume (HPV) Chemical Challenge in the USA, Canada's Domestic Substances List (DSL) Categorization, and the European Union's ambitious Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), which will mandate that producers register and provide safety data for approximately 30,000 chemicals (Denison 2007).

In addition to chemicals, people are commonly exposed to a host of electromagnetic field sources, including cell phones and other wireless technology, office equipment, fluorescent lighting, and other sources, which a body of initial studies has implicated as health risks (Firstenberg 2004a, 2004b).

These modern chemical and electromagnetic exposures are the topic of litigation, media attention (occasionally), and a number of integrative authoritative reports that have implicated them as causes of impairment. For example, a report issued conjointly by Breast Cancer Action and Breast Cancer Fund in the USA (Evans 2006) has pointed out that less than one breast cancer victim in ten has a genetic predisposition to the disease, and implicated ionizing radiation and the following synthetic chemicals as causal: xenoestrogens (endocrine disruptors) such as bisphenol-A, diethylstilbestrol (DES), polyvinyl chloride (PVC), dieldrin, and household products; solvents; aromatic amines; 1,3-butadiene from internal combustion engines, petroleum refineries, and tobacco smoke. Others chemicals cited as probable causes include polycyclic aromatic hydrocarbons, organochlorine pesticides, dioxins, and ethylene oxide used to fumigate surgical instruments. Miller (1996, 1999) proposed that toxicant-induced loss of tolerance to chemicals is a major cause of modern illness (impairment) and that nothing less than a complete paradigm change on the level of that associated with an acceptance of germ theory will generate an understanding of our changing health patterns and the causes of disease.

The present homogenized approach to the products of industrialization includes the presumption that ever increasing toxicants in the air, food, and water are normal and tolerated by all. 'Risk assessment', however politely worded, belies our apparent concern for 'citizens' and acknowledges some collateral damage for some people. However, numbers are assumed to be low enough to be 'acceptable'. Peter Montague described this process thus: 'The first thing you do with a risk assessment is decide how many people you are allowed to kill ... You put a bag limit on citizens' (Hutado 1999). Even children are not exempt from this expectation. For example, In the USA, although some states now have laws mandating 'buffer' zones around schools, most

allow agricultural chemicals to be sprayed immediately adjacent to schools, with no required safe zone/barrier whatsoever.

Indeed, the amount of toxicants released in the USA is cited in such tremendous amounts (i.e. billions of pounds) that one would assume that someone had forgotten that bodies are living, breathing organisms. However, everyday life in industrial capitalist countries now involves imbibing poisons and looking attractive while doing so: 'people with capabilities have increasingly turned themselves into shop window dummies ... whose sole purpose is displaying a commodity for sale' (Finkelstein 2005, 20).

Although some health advocates and researchers in the USA have drawn attention to children's environmental health problems (Center for Children's Health and the Environment, <http://www.childrenenvironment.org/>; Transande, Landrigan, and Schechter 2005), the likelihood of a timely policy or paradigm change does not appear to be good within industrial capitalism. Environmental laws in the USA have been considerably weakened by the former Bush administration, despite the urgency of environmental indicators and increasing industrial accidents and toxic torts. Hence, in industrial countries there is a disconnection between the toxicology literature (which has in some cases found negative effects on lifeforms of exposures as low as one millionth of the allowable exposure) and public policy and behavior. For example, pregnant women are advised by the American Medical Association not to eat 'commercial fruits and vegetables' treated with pesticides. Yet organic food is difficult to find and expensive and the US Food and Drug Administration (FDA) has made continual efforts to weaken organic standards in the interests of agribusiness. Oliver (1990) cited Borsay in saying that 'the same societal forces which manufacture disability also mitigate against a structural response' (p. 97), and this resonates particularly with regard to chemicals and electromagnetic frequencies (EMFs).

Chemical and electromagnetic exposures have radically changed the quality of life for those who are victims of accidents, heavy air emissions, and low-level chemical exposures in the workplace. Accidents are exemplified in the USA by the exposure of civilians to unsafe levels of toxins in the vicinity of the Twin Towers on 9/11, despite the government's assurances that the area surrounding the terrorist attack was safe. Johnson and Starzman (2006) examined impairment effects in a large variety of persons exposed to the asbestos and other toxicant-laden debris from the collapse of the World Trade Center through interviews with rescue and clean-up workers, persons with apartments in the vicinity (whose homes became contaminated with toxic dust), and persons who escaped the catastrophe but were still temporarily exposed. The more extensive the exposure, the more serious and far-reaching were the resultant health effects, with many persons completely disabled through serious breathing difficulties, pneumonia, debility, and an inability to expend physical energy or engage in work.

Some of these people who had very large chemical exposures and others who had experienced lower level chronic exposures have become sensitized to low levels of chemicals and register symptoms upon re-exposure, with a spreading of chemical triggers over time (Ashford and Miller 1998; Randolph and Moss 1982). This impairment has been referred to by a number of labels, including multiple chemical sensitivity (MCS), chemical sensitivity, environmental sensitivity (ES), chemical hypersensitivity, toxicant-induced loss of tolerance, chemical poisoning, environmental illness, idiopathic environmental intolerance, and chemical injury. The condition's validity, the proper label, and causality have all been the subject of discussion and controversy

and the proposed name often reflects the bias of the user. For example, chemical injury puts the blame on chemical exposures (a barrier approach), while idiopathic environmental intolerance suggests that there is something unusual about the experimenter (medical/psychogenic approach). Electrical hypersensitivity is less understood and sometimes associated with chemical sensitivity, or may exist independently. In this paper I will use the terms chemical sensitivity, electrical hypersensitivity, and environmental sensitivity (to include both chemical and electrical sensitivities).

Household population surveys have identified between 12.6 and 33% of the US population as chemically sensitive (Caress and Steinemann 2003; Meggs et al. 1996; Voorhees 1999), with 2% reporting having lost their jobs because of sensitivities (Neutra, Kerutzer, and Lashuay 1999). Symptoms of chemical sensitivity involve multiple organ systems, range in severity, and include headache, confusion, dizziness, respiratory difficulties, eye problems, digestive disorders, cardiovascular effects, fatigue, and many others (Caress and Steinemann 2003; Sears 2007). Major incitants include combustion products, pesticides, paints, perfumes, cleaners, ink, etc. Many offending substances contain solvents such as toluene, benzene, and other petrochemical-based products. In fact, Theron Randolph, the founder of Environmental Medicine in the USA called chemical sensitivity 'the petrochemical problem' (Randolph and Moss 1982). About 3% of the US population report electrical hypersensitivity (Levallois et al. 2001).

A recent review of the medical evidence for ES commissioned by the Canadian Human Rights Commission concluded that 'The balance of scientific evidence and experience indicates that environmental sensitivities generally arise from physiological causes, although there are many neurological and psychological consequences' (Sears 2007, 26). Neurological or psychiatric effects may be direct toxicological reactions to incitants or the long-term consequences of living with a disabling illness for which almost no help, accommodation, or benefits exist (Gibson, Cheavens, and Warren 1996). Saito et al. (2005) provided validation that chemical exposures caused impairment in four persons with MCS, whose symptoms occurred only during chemical exposures, as detected by active and passive environmental air sampling. Hence, just as Hughes (2002) pointed out that new 'collateral damage' from capitalist production increased the pool of disabled people, I propose that modern everyday chemical and electromagnetic exposures are increasing the incidence of ES.

### **The disabling barriers**

Thomas (2004) pointed out that the 'landscape of social exclusion' is barriers to education, work, transport, housing, health, welfare, and recreation. Just as Hughes said that production lines were 'closed to "cripples"', any and all public spaces are at risk of being off-limits to those who must observe chemical avoidance. The presence of chemicals and electromagnetic fields in virtually every public environment excludes environmentally sensitive people from public access and disables them through isolation and loss of resources. The cultural failure to consider chemicals and EMFs as participation barriers leads to discrimination in work, medical care, and community access, and problems with finances, relationships, and identity for people attempting to avoid exposures (Gibson, Cheavens, and Warren 1996, 1998; Gibson et al. 2005). Gibson et al. (1996) found that over two-thirds of 268 persons with MCS had lost their employment as a result of their impairment and only 7% were working under conditions that they considered safe. Work accommodations were very difficult to come by

(Gibson and Lindberg 2007) and people become caught in a downward financial spiral. In the community persons are excluded from churches, malls, movies, and restaurants, and almost half reported being unable to go anywhere where they would encounter perfumes (Gibson, Cheavens, and Warren 1996). The spraying of poisons for insect control keeps persons indoors; toxicants in cleaners and other commercial products keep people out of grocery stores; pesticides in parks prohibit park use; perfumes, cleaners and pesticides are barriers to continued education (Gibson, Cheavens, and Warren 1996). The effects/life impact of ES include joblessness, financial destitution, homelessness, ostracism from culture and family, lessened social support, low life satisfaction, and loss of identity (Doiron 2007; Gibson, Cheavens, and Warren 1996; Gibson et al. 2005; Gibson and Lindberg 2007; Gibson, White, and Rice 1997; McCormick 2001; Zwillinger 1997). Gibson, Cheavens, and Warren (1996) found that for some persons quality of life became so poor that 20% of 305 persons had considered suicide, 8.2% had planned it and 3.3% had made an attempt.

Physicians' offices are not exempt from the use of toxicants, including perfumes, pesticides, anesthetics, synthetic carpet materials, petrochemical heating substances and other incitants. That persons avoid even urgent medical and dental care attests to the seriousness of the barriers encountered. Engel et al. (1996) found that people with MCS delayed receiving medical and dental work because they could not tolerate the office exposures, and practitioners either refused to accommodate them or labeled their condition psychosomatic. In addition, some persons had avoided procedures such as root canal work, tooth extraction, bronchoscopy and colonoscopy without anesthesia due to their intolerances. I recently learned of a woman who cannot tolerate the office of her gynecologist and, consequently, has this very personal and intrusive examination outside the medical office in her car.

Begum (1996) found that many medical visits in her sample of disabled women were for medical reports and service authorization and pointed out that 'The medical model of disability means that GPs are often required to have an input on matters which many people would argue should not be in the domain of the medical profession' (p. 159). This medical mandate, combined with a lack of knowledge of toxicant-induced illness among providers, poses serious obstacles to social integration for people with ES and contributes to the disabling effects of chemical and electromagnetic barriers.

The downward spiral of increased sensitivity and loss of access and resources results for many in living in cars, trailers, tents, or on others' porches. Johnson (2000) and Zwillinger (1997) published photoessays of persons disabled by chemical barriers living in these 'unusual circumstances'. Despite the urgency of the situation, very little help has been forthcoming for this population. Doiron (2007) found a lack of services and a lack of understanding by service providers regarding this population. Hence, people are excluded from view, occasionally to 'dys-appear' (Hughes 2002) back into public wearing masks or carrying air purifiers, thus eliciting stigma from others. The process of cultural exclusion is invisible to others, who make attributions about the excluded person's mental health and character. Mandatory homogeneity of appearance is threatened not only by props such as masks, but, to a perhaps lesser degree, by persons' discontinued use of the poisonous products of Western culture, such as perfumes, hair dyes, polyester clothing, and other corporate requirements in the workplace and elsewhere.

The pervasive exposures that first impair and then disable sensitized people are present even in advocacy centers. Oliver construed the Independent Living Movement

as a ‘principal dimension of the disability movement’. Yet it is largely unavailable to chemically and electrically hypersensitive people. Gibson (2006) found that services for people with ES provided by Centers for Independent Living (CILs) in the USA and Canada were uneven, unpredictable, and depended upon the bias of the advocate the applicant dealt with. Part of the problem with CIL access was fragranced advocates. Hence, even people themselves (including other disabled people) with their fragrances, dry cleaned clothes, and active cell phones, have become barriers to those with chemical and electrical sensitivities. In a culture in which ‘Worth is reduced to appearance, performance, and superficial concepts of competence’ (Hughes 2002, 70), people use the products of technology in an uncritical manner. Siebers (2006) pointed out that ‘In a society of wheelchair users stairs would be non-existent’ (p. 174). Likewise, in a more natural culture many of these toxicants would be absent save for interference by imperialist nations exploiting new ‘markets’.

### **Decontextualization of the impairment**

In discussing the shortcomings of the British social model of disability and its dichotomous view of impairment (biological) and disability (social oppression due to barriers) Shakespeare and Watson (2002) stated ‘Understanding these processes of exclusion and discrimination is where the core focus of an empowering disability studies should lie’ (pp. 22–3). For chemical sensitivity these processes are engendered by the paradigmatic exclusion of chemicals as in any way problematic for health. In the USA in particular the chemical industry is very prominent, changes in law are much slower than in the European Union (EU), and much is at stake in terms of economics should ES be determined to actually exist by the powers that be. In the USA many look to the American Medical Association (AMA) for validation and education regarding ‘emerging’ impairments. However, it is much easier for this industrial capitalism-engendered discipline to use its powers to delegitimize the condition as psychosomatic and preserve business as usual. ‘In a cultural context viewing poverty as the absence of Western consumption patterns, and the ability to work as a natural resource, a pro-industry bias in health care insures that psychological causes of illness be sought before chemical-related causes’ (Gibson 1997, 482). Decontextualized, these technology-induced impairments neither make sense nor have any hope of resolution. In discussing women’s life experiences Kaschak (1992) spoke of drawing an artificial boundary between figure and context; context subsequently disappears – a perfect example of the use of the medical model of disability in not only controlling (Begum 1996) but orchestrating the cultural response to disabled people’s lives.

When physical impairment is acknowledged and attention is given to these conditions the focus is often on ‘repair’ of the individual. Barnes, Mercer, and Shakespeare (2005) discussed the pressure to overcome ‘disability’ through medical and rehabilitative techniques, whilst the environment is depicted as ‘neutral’. The same assumption of neutrality occurs with environmental sensitivities and even many persons with sensitivities have invested in the search for a ‘cure’. People watch with fascination for new pronouncements from prestigious environmental doctors and pay thousands of dollars for experimental interventions (Gibson, Elms, and Ruding 2003), placing their own behavior squarely within the medical model. Lax (1998) stated that chemical sensitivity must be understood within the context of industrial capitalism and Gibson (1997) described the message of the chemically sensitive person – that chemicals are

a source of injury – as a threat to the hegemonic ideology: ‘Because this message threatens the very underpinnings of a capitalist industrialized culture, it necessarily results in that culture’s attempt to silence, delegitimize, and pathologize the messenger’ (p. 481).

Susan Wendell (2006) pointed out that ‘many of the “special” resources the disabled need merely compensate for bad social planning that is based on the illusion that everyone is young, strong, healthy (and, often, male)’ (p. 246). Likewise when people request freedom from pesticides they call into question the unchallenged assumption that exposure to cholinesterase-targeting nerve poisons represents a ‘neutral’ environment. In industrial capitalism chemicals and electromagnetic fields are ubiquitous and the body of the ‘standard human’, i.e. the young, fit, abstract 160 pound male for whom the built environment is designed, is conceptualized as being impervious to chemical and electromagnetic intrusions. Castleman and Ziem (1988) provided detailed documentation of corporate influence in the establishment of threshold limit values (TLVs) for chemicals (the maximum level of exposure for a worker during an eight hour working day). Interestingly, the environment is not even chemically safe for this abstract man, as TLVs are based on that man at rest, despite the fact that no factory jobs are performed at rest. As soon as he moves his metabolism rises, he imbibes more emissions, and he is exposed to more than the legal limit of that chemical. Most laboratory and on-site testing of solvents has been done with participants in a resting state, even though solvent uptake is known to increase during exercise. However, a number of chemicals show performance detriments at levels at or below their TLV even with participants in the resting state, including 1,1,1-trichloroethane, tetrachloroethylene, acetone, and styrene. When activity is added, other chemicals show neurological effects at levels lower than in the traditional stationary paradigm, including toluene and xylene (Dick 1988)

Although the toxicology literature is producing a growing body of work that supports connections between toxicants and a number of modern diseases, such as cancer, neurologic dysfunction, behavior and learning disorders in children, and Parkinsons disease, and suggests connections with other impairments, it seems that not even clear associations such as that between ill health and environmental tobacco smoke (ETS) result in regulation (although several countries have partial or complete bans on smoking in enclosed public places). Likewise, numerous published studies of low intensity radio frequency radiation show electroencephelogram and attentional changes (Kolodynski and Koldynska 1996), increased melanoma (Hallberg and Johansson 2004), immune effects (Boscol et al. 2001; Chiang et al. 1989), increased incidences of brain cancers (Richardson et al. 2005), and an increase in human mortality in vicinities following the initial introduction of digital phone networks (Firstenberg 2004a). However, cell phone masts and other wireless technologies continue to multiply.

### **The social model of disability and environmental sensitivity**

Marks (1999) pointed out that although the social model is presented as a general theory of disability focused on the disabling environment, it preferences barriers to mobility over all others. Lee (2002) believed that the disability movement involved only a limited range of disabled constituents, omitting groups such as older people, the severely disabled, and persons with learning disabilities. Environmentally sensitive people comprise a group not conceptualized as disabled except by some activists in the ES community, and, as such, chemical and electrical barriers have received almost



no attention in the disability literature. Exceptions are Lipson (2000) and Gibson and Lindberg (2007). Marks said that ‘disability’ is ‘negotiated’ with the cultural institutions such as with law, work, and medicine. As such, environmental sensitivities are at a very early stage of this process and consequently suffer from a lack of inclusion, regardless of the disability model to which one subscribes.

The social model may offer some future hope for environmentally sensitive people, but to date has not included chemical or electromagnetic barriers in its discussions. However, whether the current social analysis could contain and situate ES in disability studies is open to question. Thomas (2002) would like the materialist perspective to be updated with reference to new capitalist economic developments and their influence upon disabled people and asked ‘What new divisions, exclusions and dependencies are opened up?’ (p. 48). Given the serious presence of the chemical industry in US law, economics, medicine, and other institutions, I believe that we must acknowledge its material influence with regard to both the engendering of sensitivities and the excluding of those who have been rendered sensitive. For example, chemical and electrical technologies are more than barriers to those with sensitivities in that they also pose the threat of further injury. Continued chemical and electrical exposures can exacerbate a condition, sometimes permanently, and thus are both barriers and causes of further impairment.

In addition, these exposures embody the threat and possibility of creating new impairments in persons not previously sensitized. In addressing the sequence from ‘abled to disabled’ Mitchell and Snyder (2006) stated that ‘To participate in an ideological system of bodily norms that promote some kinds of bodies while devaluing others is to ignore the malleability of bodies and their definitively mutant natures’ (p. 212). Chemical sensitivity perhaps represents a new and culturally situated reminder of the malleability of the body and the forms that it can take. As one example, an Australian farm worker has related his story of becoming quadriplegic as a result of one instance of being directly sprayed by pesticides in the field (Simmons n.d.). So, unlike some disabling barriers (e.g. steps), chemicals and electromagnetic exposures are also causes of impairment – the injurious factors that compromised the person’s access and facilitated entry into a disputed category.

It is perhaps significant that persons intolerant of toxicants and electromagnetic fields are not seen as disabled in industrial capitalism. Medical providers, disability organizations, and professional journals function within the current market economy as part of the industrial paradigm. Marks (1999) quoted Wendell that medicine has a tendency to ‘ignore, minimize the importance of, or deny outright’ phenomena of the body it doesn’t understand. Although there has been considerable discussion of ES in some medical and environmental health journals, numerous support groups and informative websites exist, and several hundred US physicians have focused on environmental medicine, forming the American Academy of Environmental Medicine, many aspects of industrial culture at large pay little or no heed to the growing numbers of persons who are unable to access resources that others take for granted.

The invisible nature of ES allows others, including those in the disability community, to ignore it. Temporarily able bodied people are free to pressure people into entering unsafe environments. If out of necessity, loneliness, or exasperation a person ignores his or her own limitations and enters an unsafe environment, this fact is then a further barrier to legitimization. Others not privy to the after-effects then negate the need to reduce the barriers. A frequent example described by many in my research involved running into a grocery store, attempting to avoid the detergent aisle while

buying quick necessities, and then getting out and 'riding out' the effects. One woman in my life impact research described traveling hundreds of miles to visit family for the holidays, only to be served her meal in the driveway in her van because family members were unwilling to forego their perfumes so that she could join them in the house.

Thomas (2004) wanted a 'deepening of a materialist theorization of disability' and attention to the 'psycho-emotional dimensions of disability' (p. 53) and, although some criticized this as leaving an opening for a 'personal tragedy' perspective of disability, said that we ignore important dimensions of disability if we do not discuss the internal. Thomas used the term 'impairment effects' to discuss the direct effects of particular impairments, in contrast to the exclusions and oppressions experienced as a result of impairment. Hughes (2002) said that disability studies had 'cut itself off from the possibility of developing a sociology of impairment' (p. 59). I believe that some discussion of impairment effects might be necessary for a full understanding of how barriers operate against persons with ES. There is a difficulty in completely separating the impairment from the disability for ES because exposures can permanently exacerbate the sensitivity, because of the uniqueness and often invisible nature of the disability and because the condition fluctuates and is more unstable than some disabilities (although Thomas pointed out that there are fluctuations in functioning for many disabled people). In addition, in that many reported the effects of exposures to be central nervous system related and that exposure symptoms often last for two to three days (and more for some individuals), there is repeated mental and physical suffering for many upon exposure.

Shakespeare and Watson (2002) cited Abberley's assertion that as impairment has social causes, it is part of disabled people's oppression. Shakespeare and Watson believed that this applies only to some impairments, but it would seem to apply for ES. These authors would like all dimensions of the disabled person's experience to be included in any study. Environmental sensitivity has characteristics of chronic illness, embodies some personal suffering, and engenders psychological consequences as a result of social isolation, lack of social support, and public ridicule.

I believe that, in some instances, personal experience narratives may articulate the footprint of systematic oppression in a way that political facts cannot. For example, in articulating the effects of hormone-disrupting toxicants on Arctic peoples Colborn, Dumanoski, and Myers (1997) described the situation of the Inuits on Broughton Island, who carry 'the highest levels of PCSs found in any human population except those contaminated in industrial accidents' (p. 108). Members of neighboring communities call them the 'PCB people' and refuse to trade with them, which has resulted in the collapse of their local economy. Hence, the Broughton Islanders are harmed in a very particular way by industrial pollutants and are at the intersection of politics, health, economics, and disability.

### **Environmental sensitivity activism**

Persons with environmental sensitivities have engaged in ambitious activism despite the incongruence of their message with the economics of industrial capitalism. People have formed support groups, educated in the community, hospitals, and workplaces, lobbied legislators, prepared materials for distribution, such as brochures, books, articles, and educational videos (Johnson and Starzman 1998, 2000, 2006), created housing projects designed for persons with ES, advocated for fragrance-free access,

and contributed to the policies of The Architectural and Transportation Barriers Compliance Board (Access Board), a US federal agency devoted to disability access (National Institute of Building Sciences 2005). A large number of web-based and in-person advocacy groups exists, as does an initial body of literature on the life impacts of the impairment.

## Conclusion

More so than other impairments, environmental sensitivities seem to implicate the products of technology as culpable and thus must be neutralized as threats to industrial capitalism. This neutralization has taken the form of psychologizing, ignoring, ‘studying’, and delegitimizing. Some attention from the field of disability studies may be instrumental in construing chemical and electromagnetic exposures as barriers and legitimizing a group of persons that has been ignored and excluded from public culture in industrialized nations. Finkelstein (2005) would like the concern regarding disability to be for ‘emancipation rather than problems in attaining adequate compensation for the possession of a “disability”’ (p. 15). Emancipation for people with ‘sensitivities’ would mean an understanding of the effects of our technologies and caution in their use. Indeed, environmental groups have long advocated the use of ‘the precautionary principle’ with regard to toxicants and the principle forms the basis of the response of the EU to environmental problems, e.g. the banning of persistent organic pollutants.

In my view the way forward in legitimizing environmental sensitivities and those who experience them would require the following three-pronged approach to action.

- (1) There must be some provision of safe zones and accommodations for people who currently cannot access necessities in public areas and private establishments such as health care, education, and businesses. Susan Molloy, a long-time US disability activist, believes that true integration of persons with ES in all contexts would be very difficult and although separate, these safe access zones would at least allow people with ES to access some services (personal communication). For example, advocacy and health care agencies could have accessible rooms where persons with ES could be seen.
- (2) The education of medical care providers, advocates, and agency staff is a priority if ES is to be recognized and persons are to receive ‘services’. Doiron said ‘It is important to find ways to educate the leadership in social service agencies so the staff can become informed of such less recognized health issues as ES/MCS’ (p. 138).
- (3) The context of ES must be understood, including ‘the multiple impacts of indoor and outdoor pollution and how it plays out in the socio-economic and health arenas’ (Doiron 2007, 138).

Environmental sensitivities are emerging in a number of differing populations of people, including Gulf War Veterans, 9/11 survivors in the USA, residents of sick buildings, and those who are subjected to long-term, low level chemical exposures. Environmental sensitivities should be contextualized as part of a larger problem of the dominant culture’s misuse of the air, water, and earth and the resulting environmental degradation, health impairments, and loss of cultural viability for those disenfranchised. I believe that toxicant exposure needs to be understood as a broad problem that

impairs people in a variety of contexts and violates human rights and that it must become a legitimate topic of study within disability studies and other health-related fields. A rights perspective would demand, for true inclusion, a complete revisioning of environmental policies, products, and the built environment, regardless of economic pressures. As Finkelstein (2005) said, 'The historical destiny now falls on disabled people, in alliance with others who have also been marginalized by people with capabilities, to return humanity to its mission in developing a truly supportive society' (p. 20).

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