

## Lecture: 35

### Course Title: Science, Technology and Society

Emergent research suggests that networks and research fields are sometimes connected to broader social movements, such as environmentally oriented reform movements within the natural science or feminist reform movements within primatology (Frickel, 2004a; Frickel & Moore, 2005; Haraway, 1989). Research now underway is exploring the dynamics of “scientific and intellectual reform movements” and how social movement theory can be relevant to understanding them (Frickel & Gross, 2005).

-Table-

Oppositional and Alternative Social Movements		
Social Movement	Oppose Existing Technologies	Develop Alternative Science and Technology
Health	Antismoking, antivaccine	Health – care access, embodies health movements
Environmental	Antinuclear, anti-GM food, environmental justice	Organic food, recycling and remanufacturing, green chemistry
Peace/weapons	Disarmament	Nonviolent defense
Information/media	Median reform	Alternative media, open source

1

### Biotechnology – Application in Agriculture, Healthcare and Environment

#### HEALTH SOCIAL MOVEMENTS

Prior to the test decades of the twentieth century, when huge disease-based patient advocacy movements emerged around AIDS and breast cancer, the primary popular mobilizations in the health arena were based on increasing access to health care (e.g., health insurance and government programs) and public health works (e.g., sanitation systems). In the late twentieth century, social movements responsive to the movements for civil rights and women’s rights developed wings specifically directed towards increasing access to health care, changing the quality care, and reforming the caring

---

<sup>1</sup> [The Handbook of Science and Technology Studies, Third Edition ...](http://mitpress-ebooks.mit.edu/reader/handbook-science...studies.../491)  
[mitpress-ebooks.mit.edu/reader/handbook-science...studies.../491](http://mitpress-ebooks.mit.edu/reader/handbook-science...studies.../491)

professions. For example, U.S. women mobilized to gain greater access to reproductive technologies and control over reproduction (Clarke, 1998; Wajeman, 1991).<sup>2</sup>

An intense focus on the biosocial body emerged in the context of the second wave women's movement, which linked self-identity, health, sexuality, and reproductive status (Boston Women's Health Book Collective, 1971). That focus, which was unique to health-related and sexual rights social movements, provided a model as well as an organizing base for HIV/AIDS, breast cancer, and other mobilizations around specific diseases. The AIDS, breast cancer, CAM and feminist health movements developed extensive epistemic challenges to health research in arenas such as clinical trials methods, alternative therapies, and the modernization of research funding to include patient advocates (Epstein, 1996; Hess, 2004a; Treichler, 1996; Klawitter, 2002). Research on embodied health social movements has some parallels with environmental and other technology – oriented movements, so some of the findings can be generalized to other social movements where science and technology issues are salient.<sup>3</sup>

Embodied health social movements often face and challenge a “dominant epidemiological paradigm” based on a biomedical model widely believed to represent consensus knowledge about a disease, its etiology, and its treatment (Zavetoski et al., 2001; see also Clarke & Olesen, 1999; Kroll – Smith & Floyd, 1997). Some movements have challenged diagnostic criteria as well as disease categories such as homosexuality (Fausto – Sterling, 2000; Terry, 1999) or schizophrenia (Crossley, 1998, 2006), and others have challenged the safety of standard preventative or therapeutic measures such as vaccines (Blume, 2006). The challenges are particularly acute in cases of presumptive diseases – such as postpartum depression (Taylor, 1996), Gulf War – related diseases (Zavestostki et al., 2001) and multiple chemical sensitivity (Dumit, 2006) – where there is no expert consensus regarding the existence of the disease, in contrast with diseases for which the existence is undisputed, such as breast cancer, in the case of breast cancer activism, the goal has centered on the less epistemically challenging issues of increasing research spending on treatment, diversifying treatment choices (Casamayou, 2001; Lerner, 2001) and, to a lesser extent, promoting prevention through nutrition and reduced exposure to carcinogenic chemicals (Epstein et al., 1998). Such activism has yielded significant changes in the “regimes of practice” that breast cancer patients experience in the clinical setting (Klawiter, 2004). The medicalization of breast cancer prevention has embroiled the movement in scientific and regulatory controversies over the value of movement action on this issue has necessitated a broadened theoretical framework that includes the pharmaceutical industry, regulatory policy, design controversies over clinical trials, clinical standards differences, and the doctor – patient relationship (Fosket, 2004; Klawiter, 2002; Wooddell, 2004).<sup>4</sup>

---

<sup>2</sup> *ibid*

<sup>3</sup> *ibid*

<sup>4</sup> Quoted in *ibid*

The various movements for complementary and alternative medicine usually involve scientific controversies over the etiology and treatment of recognized diseases, but they provoke intense political confrontations with the medical profession, regulators, and medical research community (Johnston, 2004). The movement for CAM cancer therapies in the United States exhibits two general features shared with other pro –or alternative “technology- and product – oriented movements, “such as movements for sustainable agriculture, renewable energy, and open source software: (1) opposition to a specific technology or product combined with support for an alternative, and (2) a mix of grassroots social movement and advocacy organizations with professional and/or industrial reform movements that involve scientists and/or entrepreneurs (Hess, 2005, 2007). Professional reform movements generally do not use extra-institutional strategies, but they are often sympathetic with social movements that do, even if they operate at some distance from them (Frickel, 2004a; Hoffman, 1989; Woodhouse & Breyman, 2005). The organizational mixture of the CAM movement is one factor behind the medical mainstream’s range of organizational responses, which include avoidance, compromise, acquiescence, manipulation, and defiance (Goldner, 2004)<sup>5</sup>

### **Medical Ethics & Contemporary Challenges**

The increased usage of high technology, the breakthroughs in scientific research, the adoption of team medicine, and the easy access to data have rapidly brought major changes to the delivery of health care and have created a host of new moral dilemmas for which there are no easy solutions. However, answers must be found because the very concept of value free medicine is unworkable, and because health care practitioners are forced into the process of making choices with which we as individuals and a society can live. The rapid advances in medical and biological sciences have raised new bioethical questions. Given the ever-increasing demand for global responses to ethical issues, traditional Medical ethics has changed greatly in the last century. In the contemporary setting, medical ethics does not merely present the admirable character of physicians or represent the rules of etiquette in the field of medicine: on the contrary, it is a practical discipline that provides a structured approach for identifying, analyzing and resolving ethical issues in clinical practice. Medical ethics is an applied branch of ethics or moral philosophy that attempts to unravel the rights and wrongs of different areas of health care practices in the light of philosophical analyses.

### **Changing ethics in medical practice: a Thai perspective**

We use such terms in medico-clinical context: reproductive technology, organ transplantation, cosmetic & gender reassignment surgeries, the cyborg.marketability of human body parts and increased atomization of medicalized body. Rather than Cartesian picture of fragmented body we have here phenomenological and Merleau Pontian approach to lived body,labour process fragments the body,in English workers have long been referred to as ‘hands’[Dickens 1994].Anatomized for anatomybodies as research

---

<sup>5</sup>Quoted in *ibid*

objects, demand for corpses & their parts( focusing on consent),within the medical marketplace the tendency to exploit the body of the poor. We need only consider recent contexts as Tuskegee, Nuremberg military & prison based research&pharmaceutical trials in the Third World to expose a clinical and related scientific propensity to prey on the disenfranchised. Persons are transformed into valued objects through their involvement in medicalresearch,expanding market for human tissues, increase in commercialization of body, of genetic testing, gene patenting,body reduced to ‘source of raw materials for salable products’, we are witnessing the global expansion of human body shop.<sup>6</sup>

Medico-clinical dehumanization assumes a host of forms, where even living bodies are quickly fragmented and transformed into scientific work objects.van Kammen(1999) illustrates, for example that male & female bodies are regularly reduced to their perceived reproductive capacities and limitations in the context of fertility drug testing.In turn,Sered & Tabory (1999) uncover how patients in an Israeli breast cancer clinic are routinely dehumanized and thus experience a medicalized form of “social death”(See Patterson 1982),<sup>7</sup>their names (and thus identities) transformed into mere numbers on a chart. In their attempts to preserve the sense of humanity patients generate “treatment” rather than illness narratives<sup>8</sup>.

Environmental movements not only challenge the epistemic assurance of governments and scientists but also encourage the development of alternatives, in the 1970s, proponents of appropriate technology – sometimes also called alternative technology or intermediate technology - argued that technologies embodied elite political values, and they developed and promoted technologies appropriate for communities (Kleiman, forthcoming). In poorer countries, appropriate technology ideally required low capital; used local resources; was labor intensive and small scale; could be controlled by villagers; and could be controlled, produced, and modified by villagers in ways that brought people together and were environmentally sound (Darrow & Saxenian, 1986). There have been many debates about the politics of appropriate technology (Boyle et al., 1976; Illich, 1973; Kleiman, forthcoming; Lovins, 1977; Riedijk, 1986; Willoughby, 1990); the key point is that the movement drew attention to the politics of technology design (Winner, 1986). The legacy of the appropriate technology movement today is, in

---

<sup>6</sup> **Social and cultural issues in human tissue use in South Africa**Mary Elizabeth-Anne de Haas, BA (Soc Sci) (Social Work), BSocSci (Hons) (Social Anthropology),<http://www.ajol.info/index.php/sajbl/article/viewFile/69973/58043>

<sup>7</sup> Patterson, Orlando 1982: The Constituent Elements of Slavery; In: Patterson, Orlando 1982: Slavery and Social Death. A Comparative Study, Cambridge, Massachusetts, S.1-16.

<sup>8</sup> Sered & Tabory 1999;cf Kleinmann 1988).” The Commodification of the Body and Its Parts

developing countries, one of low – tech, locally controlled development projects, and, in wealthy countries, advocacy around renewable energy and sustainable agriculture.<sup>9</sup>

---

<sup>9</sup> [The Handbook of Science and Technology Studies, Third Edition ...  
mitpress-ebooks.mit.edu/reader/handbook-science...studies.../491](http://mitpress-ebooks.mit.edu/reader/handbook-science...studies.../491)