

# Health, Technology and Society: Perspectives on Health Technology

## Lecture Outline

### TECHNO-OPTIMISM

- Technocracy
- Bell and Post-industrial Society
- Technological Determinism

### (Critical but not totally pessimistic)

- Beck's Risk Society
- Foucault and the Rise of disciplinary Society
- Women, Feminism and Technology
- Social Construction of Technology and Actor-Network Theory

- Some Case Studies

- Some Sci-fi novels and films

### TECHNO-PESSIMISM

- Heidegger's Philosophy of Technology
- Weber on Rationalization and Disenchantment of the world
- Ellul on Autonomous Technology
- Marcuse, Habermas and Critical Theory

- Huxley and Brave New World
- Postman on Technopoly
- Fukuyama and Our Posthuman Future

- Illich and Medical Nemesis
- Tenner on Technology and its Revenge

## Recommended Reading (1):

- ◆ Winston, M. (2014). "Introduction: Children of Invention Revisited". Pp.1-26 in Winston, R. & Edelbach, R. (eds.). Society, Ethics, & Technology. Australia: Wadsworth Cengage Learning.
- ◆ **TECHNO-OPTIMISM vs. TECHNO-PESSIMISM**

## TECHNO-OPTIMISM

- ◆ Techno-optimists tend to emphasize technology's benefits; they believe that science and technology are not the cause of society's current ills; they do not believe that technology needs to be controlled or regulated; and they have faith in "technological fixes" that will solve outstanding social problems (Winston, 2014, p.13).

- ◆ **Technological Imperative:** the belief that technology is always good, so any existing technological intervention should be used (Weitz, 2017).

## Technocracy

- ◆ **Technocracy** is a theory of rule by technical experts
- ◆ Republic of Plato (c.428-348 BCE)
- ◆ emphasized the knowledge in rule and used mathematics as a model of intellectual knowledge and a means of training rulers (themselves philosophers) (Dusek, 2009, p.39-41)

## Bell and Post-industrial Society

(Daniel Bell, 1973, cited in Giddens, 1997, p. 526-7)

“People working in higher-level white-collar occupations specialize in the production of information and knowledge. The production and control of what Bell calls codified knowledge- systematic, coordinated information – is society’s main strategic resource. Those who create and distribute this knowledge – scientists, computer specialists, economists, engineers and professionals of all kinds – increasing become the leading social groups, replacing the industrialists and entrepreneurs of the old system. On the level of culture, there is a shift away from the ‘work ethic’ characteristic of industrialism; people are freer to innovate and enjoy themselves in both their work and their domestic lives” (Giddens, 1997, p.527)

## Technological Determinism

- ◆ The claim that technology causes or determines the structure of the rest of society and culture
- ◆ E.g. **Marxism**
- ◆ Society is a system that divided into two major parts:
  - ◆ Infrastructure – the base - the economic system (economic mode of production), is composed of the forces of production (including means of production such as technology), and the relations of production
  - ◆ Superstructure – the rest, e.g. family, religion, state, school
  - ◆ Infrastructure has a major influence over the superstructure and the society as a whole

## TECHNO-PESSIMISM

- ◆ Techno-pessimists, by contrast, tend to emphasize the risks and costs of technological changes; believe that many social ills are attributable to technology; and think that technology needs to be controlled or is incapable of being controlled. They do not have faith in “technological fixes” to solve social problems, instead emphasizing moral or political solutions (Winston, 2014, p.13).

## Heidegger's Philosophy of Technology

- ◆ Martin Heidegger (1889-1976)
- ◆ Modern Technology “enframes” everything with its orientation; all of nature becomes a “standing reserve”, a source of energy. We become so entangled in the technological or instrumental way of thinking (1954, cited in Dusek, 2006).

## Weber on Rationalization and Disenchantment of the world

- ◆ Max Weber
- ◆ **Disenchantment** is the cultural devaluation of religion in modern society.
- ◆ **Rationalization** means the organization of social and economic life according to principles of efficiency, on the basis of technical knowledge (Giddens, 1997, p.574)



(image from rampages.us)

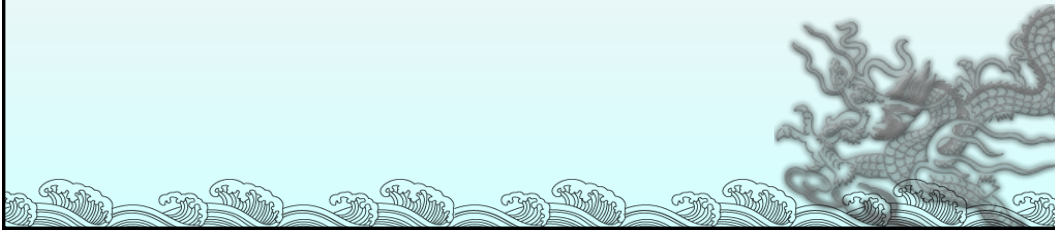
E.g.

- **Bureaucracy** (centralized hierarchical structure of administrative system governing large institutions)
- **Fordism** (mass production of standardized products by employing assembly lines)
- **McDonaldization** (Efficiency, Calculability, Predictability, Control) (Ritzer, 1993)

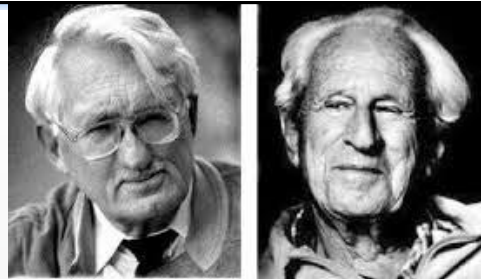


## Ellul's Autonomous Technology

- ◆ Jacques Ellul
- ◆ The technologists and engineers who develop technology lack understanding of the social impact of technology and are often naive about the means of controlling it (Dusek, 2006, p.105).



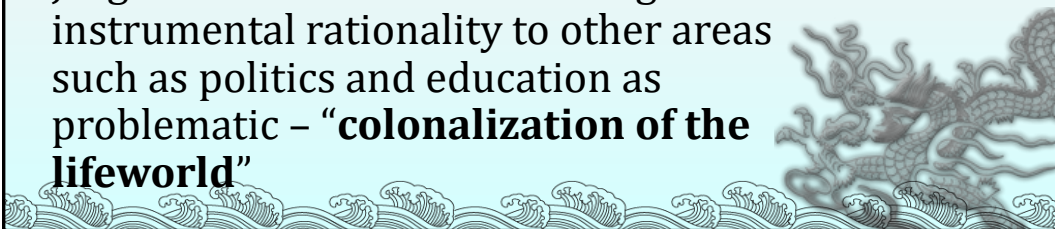
## Marcuse, Habermas and Critical Theory



Jürgen Habermas

Herbert Marcuse

- ◆ Herbert Marcuse: In One-Dimensional Man, Marcuse argued that in industrial societies, technology is designed to reproduce a system of domination and control
- ◆ Jürgen Habermas saw extending instrumental rationality to other areas such as politics and education as problematic – “**colonialization of the lifeworld**”



## Postman on Technopoly

- ◆ Neil Postman on the surrender of Culture to Technology
- ◆ “the submission of all forms of cultural life to the sovereignty of technique and technology” (1993, p.54)

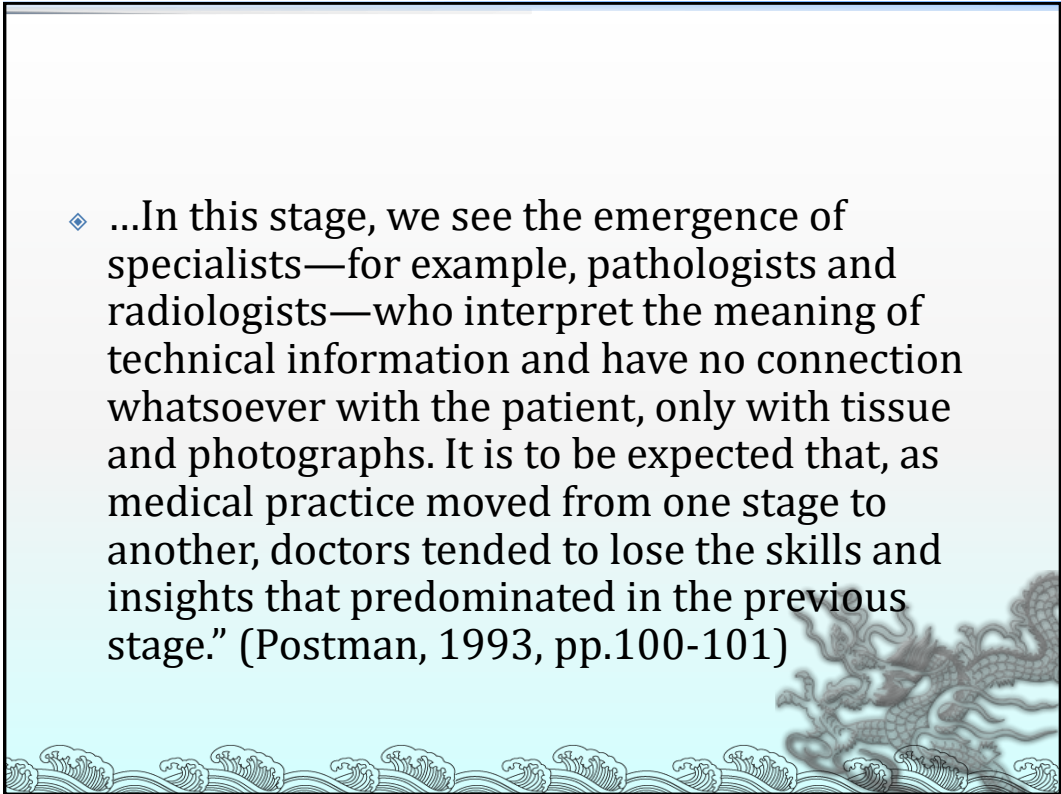
(images: Wikipedia)



“Medical practice had entered a new stage. The first had been characterized by direct communication with the patient's experiences based on the patient's reports, and the doctor's questions and observations. The second was characterized by direct communication with patients' bodies through physical examination, including the use of carefully selected technologies. The stage we are now in is characterized by indirect communication with the patient's experience and body through technical machinery....



◆ ...In this stage, we see the emergence of specialists—for example, pathologists and radiologists—who interpret the meaning of technical information and have no connection whatsoever with the patient, only with tissue and photographs. It is to be expected that, as medical practice moved from one stage to another, doctors tended to lose the skills and insights that predominated in the previous stage.” (Postman, 1993, pp.100-101)



Lifestyle 生活副刊 | 世爭政權 | 財經 | 職場 | 健康 | Foodie 地圖 | 玩機 Guide | Shopping 攻略 | 會員專區

19/12/2016

### 別讓床邊醫學消失！醫療高科技檢查「非萬能」

#經醫談

專科 台灣(疾病)全身骨體檢查專家  
[medic.com.hk](http://medic.com.hk)  
 包括磁力共振、低劑量肺部電腦掃描、英國血管造影檢查、結腸袋、80項血液測試，只需1/3普通價格

五年前，我右前臂內側的皮下，長了一粒堅韌的東西，像杏仁般大小，有點痛，這逐漸變大，令我有點不安，當時我十分信任一位私家醫院家庭醫學專科醫生，便往他處求診。

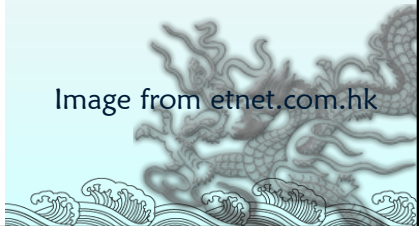
我忘記他怎樣檢查那粒東西，只約略記得他說要清楚了解它是甚麼的話，接受磁力共振檢查吧，應該不用注射顯影劑的。我問費用如何，他好像跟我說大約四千至五千元，心裏想，既然之前接受磁力共振檢查膝蓋也差不多這個費用，便接受他的建議。




隱約記得到了磁力共振後，職員才告訴我需要注射顯影劑輔助，沒辦法，已到了檢查室，要用顯影劑就用吧，然而，收到賬單那一刻，嚇了我一跳，心裏大叫肉痛，單是磁力共振檢查，費用是9,190元（那張收據我還留著），還有診金250元，最「驚嚇」的，不是檢查報告顯示那粒東西是甚麼惡性腫瘤之類，而是依然不清楚它是甚麼！

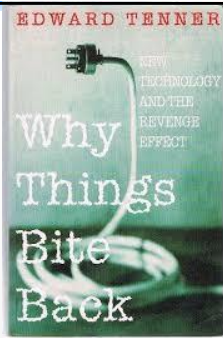
Chiang So-ting: “Don’t let bedside medicine (skills) disappear!”  
 (etnet, 19/12/2016)

Image from etnet.com.hk





## Tenner on Technology and its Revenge



Ed Tenner  
PHOTO CREDIT: Michael Lionstar

- ◆ Edward Tenner
- ◆ “A revenge effect is when a technology produces a result the opposite of what was intended. ... Going to the hospital to get well can expose one to more disease than staying away. Intensive use of antibiotics has promoted the development of more resistant viruses” (cited in Gill (n.d.); images from [abebooks.co.uk](http://abebooks.co.uk) & [paw.princeton.edu](http://paw.princeton.edu))

- ◆ “Probably the most fundamental revenge effects of contemporary medicine are systematic tendencies, not the dead ends and errors of therapeutics. The problem of today's medicine, and main revenge effect of new therapies, is that contrary to our expectations of technology, the more advanced it becomes, the more it demands in vigilance and craftsmanship.... In medicine the increased potential hazards of diagnostic and therapeutic equipment, complex procedures, and the possible interactions of drugs require an unusual degree of attention. The proof is the surprising frequency of serious errors in medical practice“ (Tenner, 1997, p.42).

## Leading causes of death in the United States<sup>a</sup>

1. Heart disease (~614 000 deaths per year)
2. Cancer (~591 000 deaths per year)
3. Medical errors (~440 000 deaths per year)

<sup>a</sup>Source:

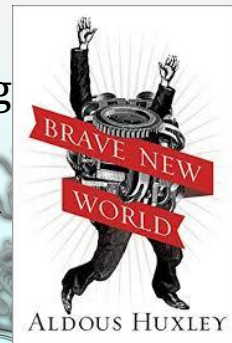
- <http://www.cdc.gov/>
- *Journal of Patient Safety* 2013, 9:122–8

## Six common surgeries often done unnecessarily (USA Today [19 June 2013])

- ◆ Cardiac angioplasty, stents
- ◆ Cardiac pacemakers
- ◆ Back surgery, spinal fusion
- ◆ Hysterectomy (surgical removal of the uterus)
- ◆ Knee and hip replacement
- ◆ Cesarean section

## Huxley and Brave New World


“Brave New World is a dystopian novel written in 1931 by English author Aldous Huxley, and published in 1932. Largely set in a futuristic World State of genetically modified citizens and an intelligence-based social hierarchy, the novel anticipates huge scientific developments in reproductive technology, sleep-learning psychological manipulation, and classical conditioning that are combined to make a utopian society that goes challenged only by a single outsider” (Wikipedia, 2018).




## Fukuyama and Our Posthuman Future

- ◆ Francis Fukuyama argues that “biotechnology may propel us into a future in which some of our most basic political values will be thrown into question. In particular, he raises the specter of a future society in which advances in medicine and biotechnology enable the wealthy to endow their children with socially desirable characteristics that will give them a competitive advantage over other people...”

- ◆ ...these competitive advantage will be 'bred into the bone' and passed on from one generation to the next through the use of new reproductive technologies. We may arrive at a point sometime in the not-too-distant future in which it will no longer be possible to claim that 'all persons are created equal' because we will know for a fact that some are not ---they are genetically engineered to be superior” (Winston, R. & Edelbach, 2014, p.306)

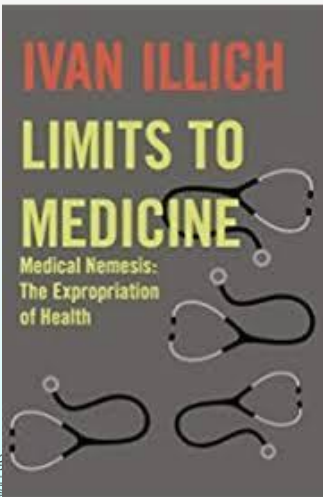


## Illich and Medical Nemesis



◆ Ivan Illich: Modern Medicine and the expropriation of health

- ◆ **Clinical iatrogenesis:** “includes not only the damage that doctors inflict with the intent of curing or of exploiting the patient, but also those other torts that result from the doctor's attempt to protect himself against the possibility of a suit for malpractice” (1976, Ch.1) (images: Wikipedia; Amazon.com)







◆ **Social latrogenesis:** “On the one hand defectives survive in increasing numbers and are fit only for life under institutional care, while on the other hand, medically certified symptoms exempt people from industrial work and thereby remove them from the scene of political struggle to reshape the society that has made them sick “ (1976, Ch.1).

◆ (image from [medium.com/@KevinRedmayne](https://medium.com/@KevinRedmayne))

◆ **Cultural latrogenesis:** “they destroy the potential of people to deal with their human weakness, vulnerability, and uniqueness in a personal and autonomous way... occurs when people accept health management designed on the engineering model, when they conspire in an attempt to produce, as if it were a commodity, something called ‘better health’” (1976, Ch.1).



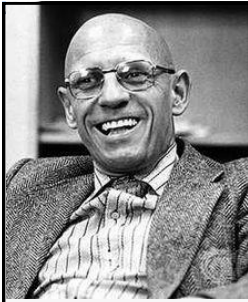
## ◆ Critical but not totally pessimistic perspectives

### Beck's Risk Society

- ◆ “Any society in which the risks from potentially dangerous modern technologies are interwoven with the economy and thus are commonplace and accepted” (Ulrich Beck, 1992, cited in Weitz, 2017, p.38).
- ◆ environmental and health risks, especially genetic technology.
- ◆ Health risks: Food safety, Pandemics, etc. (Demmey, 2005)
- ◆ We will return here in later lectures.



(image from [economicsociology.org](http://economicsociology.org))



## Foucault and the Rise of Disciplinary Society

Michel Foucault

“At the core of Foucault’s picture of modern disciplinary society are three primary techniques of control: hierarchical observation, normalizing judgment, and the examination (e.g., of patients in hospitals)” (Gutting & Oksala, 2018).

(Image from Wikipedia)



- ◆ Madness and Civilization (1961)
- ◆ “modern man no longer communicates with the madman ... There is no common language: or rather, it no longer exists; the constitution of madness as mental illness, at the end of the eighteenth century, bears witness to a rupture in a dialogue, gives the separation as already enacted, and expels from the memory all those imperfect words, of no fixed syntax, spoken falteringly, in which the exchange between madness and reason was carried out.
- ◆ The language of psychiatry, which is a monologue by reason about madness, could only have come into existence in such a silence”  
(Preface to Madness and Civilization (1961) )

- ◆ The Birth of the Clinic (1963)
- ◆ **Clinical Gaze** – “denote the dehumanizing medical separation of the patient's body from the patient's person” (Wikipedia, 2018)
- ◆ “a new type of medical perception and experience. Physicians who observed bodies carefully could potentially penetrate the illusions of outdated theories and see the hidden ‘truth’ of disease. In the process, practitioners gained much power and status, because no-one could challenge their stories of illness. The patient’s own experience or perception became less important than the doctor’s judgment” (Science Museum, n.d.)

## Foucault's Biopolitics

- ◆ Refers to the nation states' active use of disciplinary mechanisms to regulate, control and optimize population processes – fertility, birth, health, sexuality, morbidity, life span, etc.
- ◆ Example: China' population policy: focused on location, quantity and quality of its population

## Women, Feminism and Technology

- ◆ **Feminism:** A collection of movements aimed at defining, establishing, and defending equal political, economic, and social rights and equal opportunities for women.
- ◆ **Feminist theory:** An extension of feminism into theoretical or philosophical discourse that aims to understand the nature of gender inequality. *(image from Wikipedia)*





- ◆ “Investigates the aspects of technology that particularly impact women in their traditional roles as mothers and homemakers, through *reproductive technology* and household technology... how science and technology might be if women had more say in the directions of research and development” (Dusek, 2006, pp.154-155; Lecturer’s emphasis).

- ◆ E.g. Household technology may not shorten the working hours of wives and mothers nor changing domestic sexual division of labour

(images from [womenandtechnologyproject.com](http://womenandtechnologyproject.com),

- ◆ [slideshare.net](http://slideshare.net))

L//P

Liip Techday 2009  
Memi Beltrame: Mind the Gap - On Gender and Technology

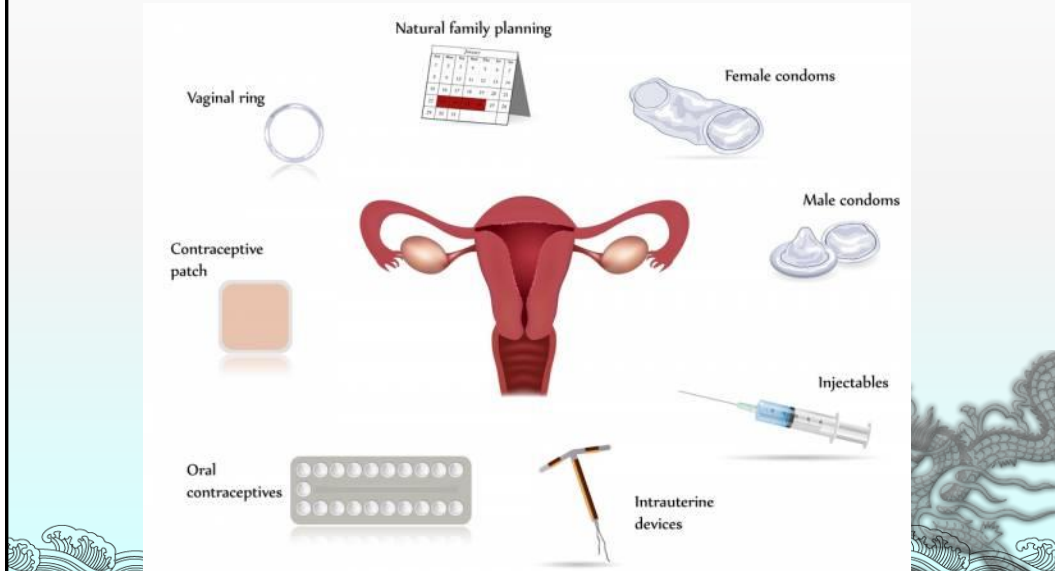
#### General household tools



Associated with women



E.g. Reproductive technology may provide women more choices but also subject them to greater control (images from: [breakingmuscle.com](http://breakingmuscle.com), [princetonivf.com](http://princetonivf.com))



## Conclusion: The Social Construction of Technology

- ◆ **Social Construction:** the process through which groups decide which potential technology should be pursued and which should be adopted. This concept in turn leads us to question who promotes and who benefits from the social construction of any given technology (Weitz, 2017, p.\_\_)



## Latour's Actor-Network Theory

- ◆ Technology is not passive but plays an active role in shaping networks, relationships and power between humans and technology
- ◆ **Actant:** each part of a network is referred to as an actant. There can be human actants and non-human actants, such as machines or technological devices

(Bruno Latour, 1979, cited in Barry & Yuill, 2016)

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- Winston, R. & Edelbach (2104). "Our Posthuman Future". in Winston, R. & Edelbach, R. (eds.). Society, Ethics, & Technology. Australia: Wadsworth Cengage Learning.

## Reading (2)

- ◆ **Michael Davis (Textbook pp. 127-144):  
“Constructing the professional  
responsibility of Engineers”.**

