Cyberneticists at war and peace: wrestling with ethical dilemmas of information

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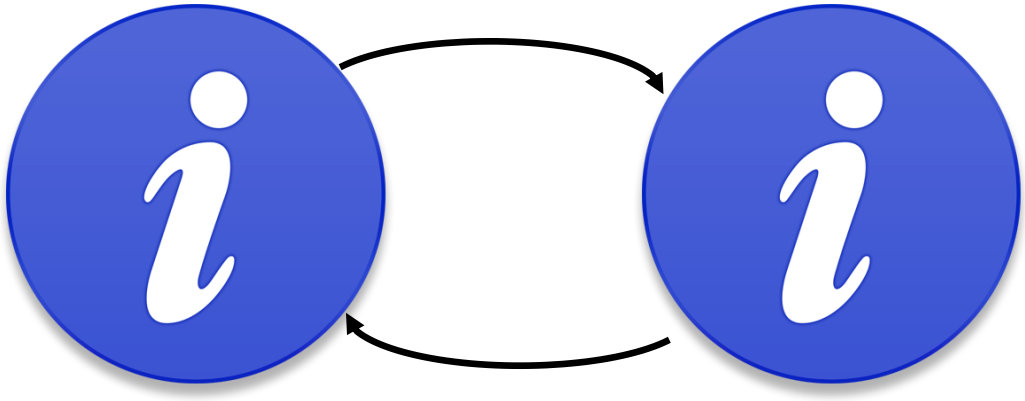
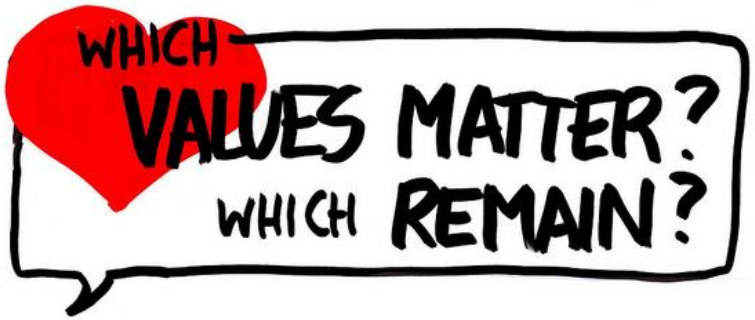


Cybernetics and information

- Almost doesn't need saying in this audience…
- Very closed linked concepts since their inception
- Subtitle of Wiener's book: **Communication** and control (in the animal & machine)



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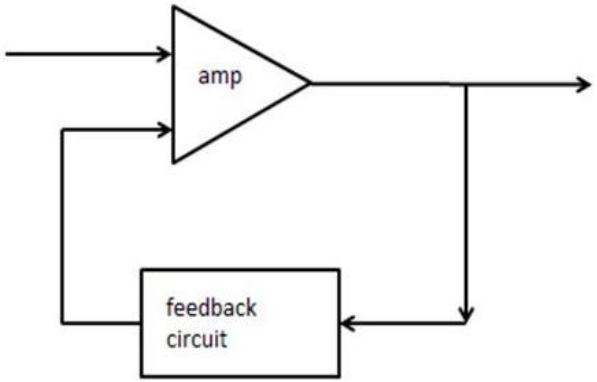
Cybernetics and values

- Cybernetics is sometimes derided as amoral
  - many cyberneticians have long had strong values
  - aware of their work's power both for harm and for good
- This paper is part of a larger piece of work examining values in systems & cybernetics



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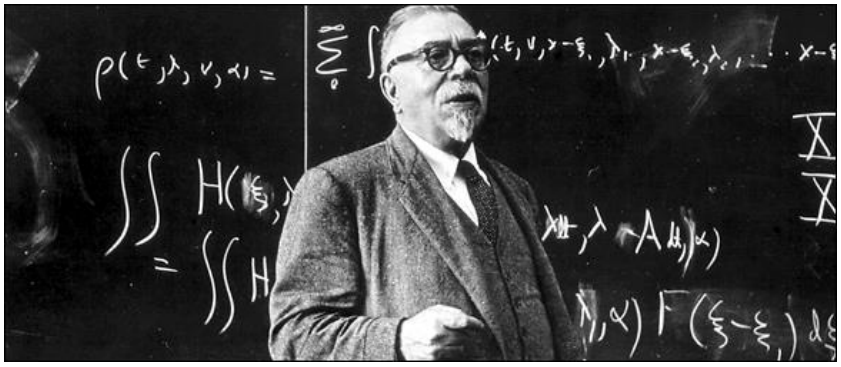
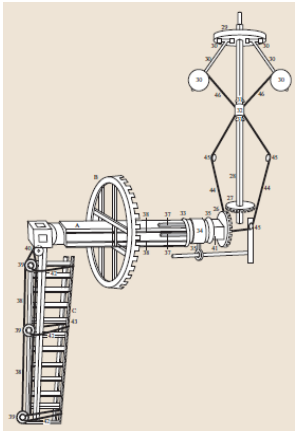
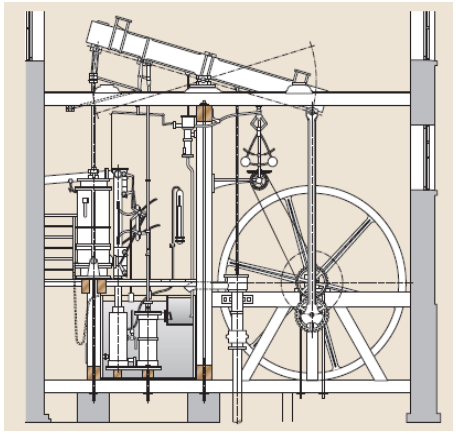
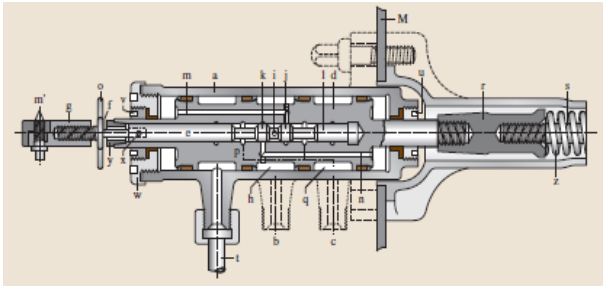
Four snapshots









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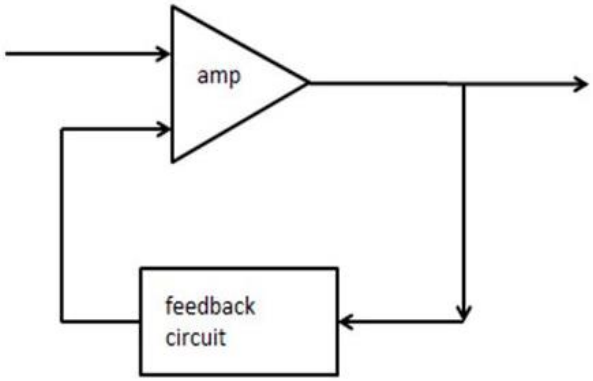
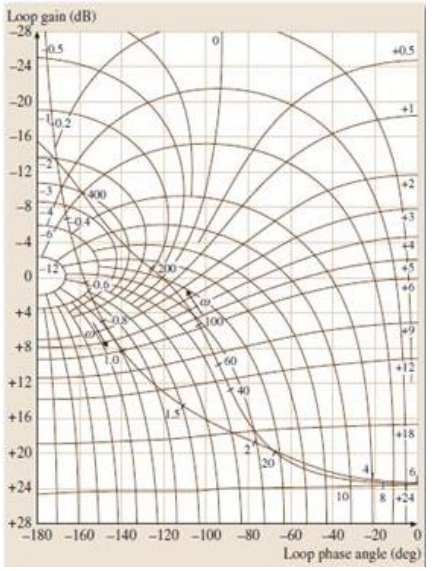
What is automatic control?

- Essentially, forcing a physical quantity to behave in a prescribed manner – either to remain constant, or to change as desired
- Long history: antiquity, windmills, steam engine and turbine governors, ship steering, torpedo control, gun control, process plant, computer disk drives, …
- Often involves feedback, a satisfactory theory of which emerged only in the 1930s and 1940s





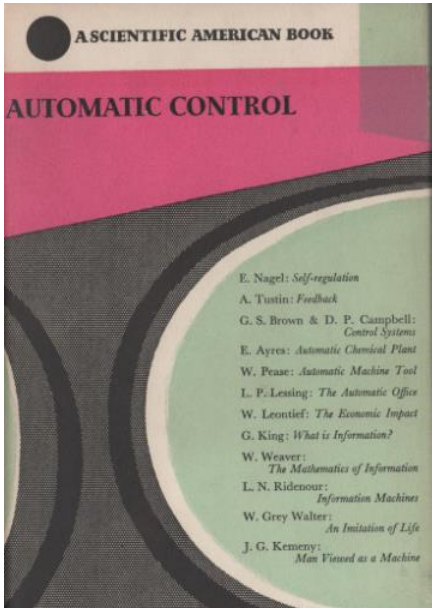
Second World War

- Emergence of discipline of “classical control” – essentially the design of feedback loops
- Driven by high-performance gun servos
- Recognition of wider applications … cybernetics
- USA, UK major players
- USSR, Germany less advanced

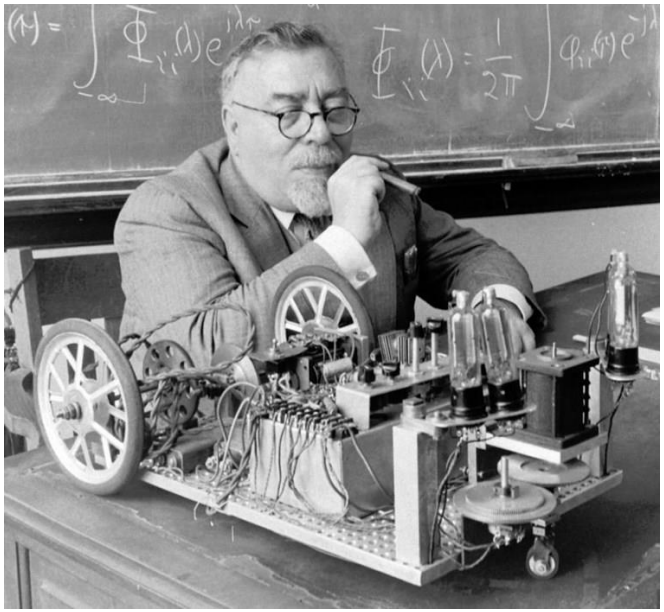
The crucial question is not whether control of social transactions will be further centralized. The crucial question is whether, despite such a movement, freedom of inquiry, freedom of communication and freedom to participate actively in decisions affecting our lives will be preserved and enlarged. It is good to be jealous of these rights, they are the substance of a liberal society. The probable expansion of automatic technology does raise serious problems concerning them.

Nagel

3/12 articles in this book were about information!

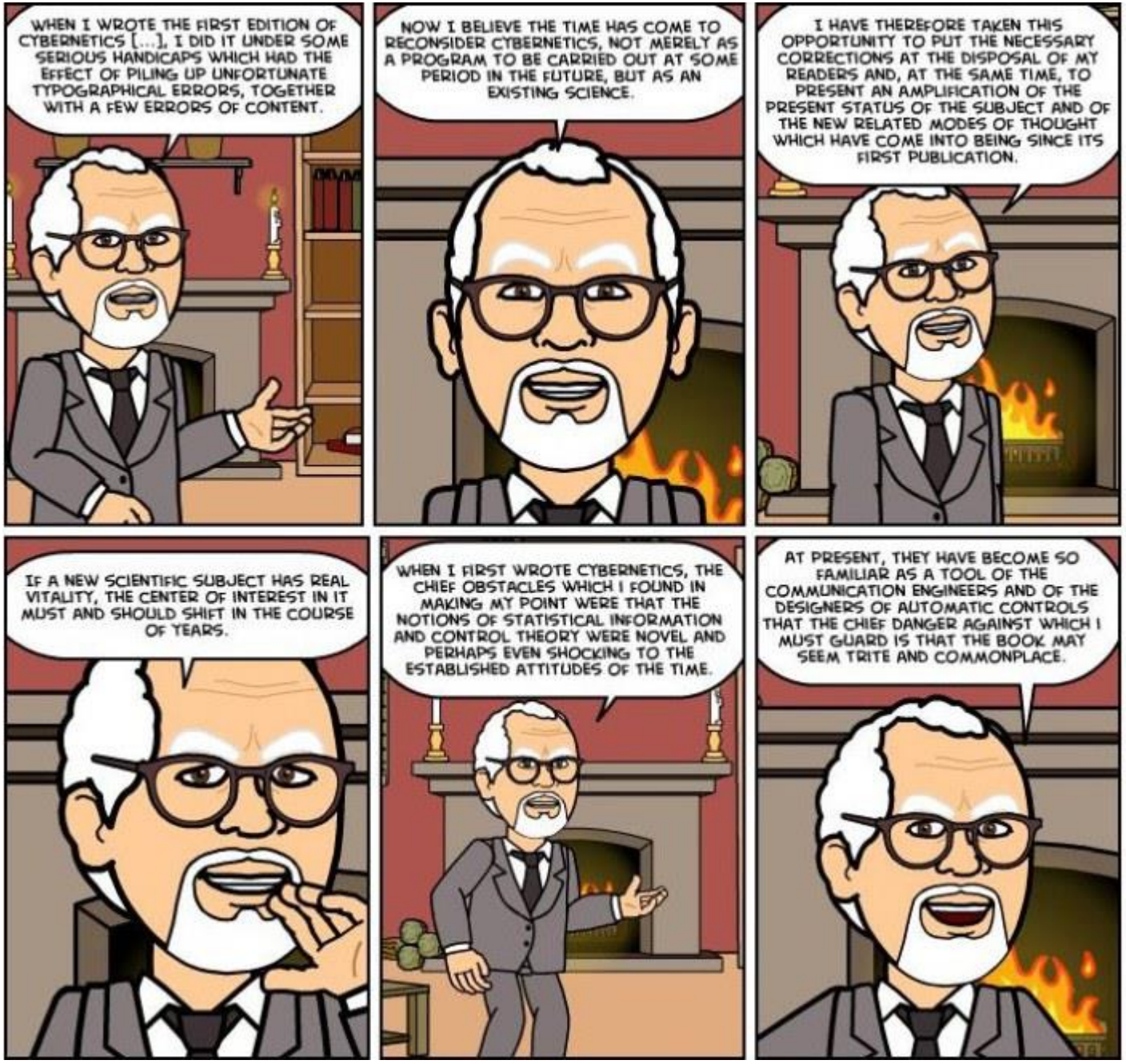


Norbert Wiener's view of the dangers

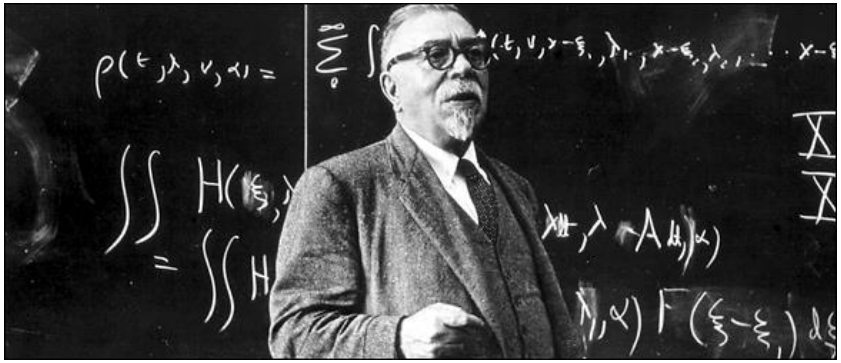


the modern industrial revolution is [...] bound to devalue the human brain at least in its simpler and more routine decisions. […] the average human of mediocre attainments or less has nothing to sell that it is worth anyone's money to buy.

In: *Cybernetics: or control and communication in the animal and the machine*



https://ijploum.wordpress.com/2013/02/04/cybernetics-the-comic/



Wiener and the military (1)

- Work in 1940s on statistical control and feedback, applied to anti-aircraft gun control
- “Several ideas came to my mind which I thought might be of military use, for we were all impressed by the catastrophe and were certain that we would be involved in it sooner or later”
  - n.b. work remained theoretical, not used in practice

Wiener and the military (2)

- Wiener horrified by atomic bomb
  - the experience of the scientists who have worked on the atomic bomb has indicated that in any investigation of this kind the scientist ends by putting unlimited powers in the hands of the people whom he is least inclined to trust with their use (*Atlantic Monthly,* 1947)
- Refused to take any subsequent military funding
  - Financially difficult in US (esp. MIT) at that time
  - Led to significant McCarthyite investigation by FBI
- Wrote several works on the social impact of cybernetics
  - Human Use of Human Beings; God & Golem, Inc.

Hermann Schmidt and German "Proto-cybernetics"

- Nazi Party member 1938 - 1945 (opportunistic?)
- Asked to chair VDI committee on control engineering 1939
- Workshop in October 1940
- Included presentations on blood circulation and human motion
- Post-war marginalisation

Immediate post-war period

- Much German interest in “technology and society; the social responsibilities of the engineer; application of control / cybernetics ideas to social and biological systems
- Schmidt himself concerned specifically with speaking and writing on the implications of his ideas for anthropology, ethics, philosophy, and so on

Schmidt's engineering world view

[the engineer's] technological world is no wall separating him from nature, but a bridge upon which nature and intellect [*Geist*] meet, a world in which nature and intellect have joined forces through the work of our hands – a world, like that of language, that we have set between us and nature through our own creative power, and a world that is thus much closer to us than unspoiled nature

Lessons from Schmidt

1. Fascinating story in this core area of 20th century technology.
2. It reminds us that technological developments are deeply intertwined with the cultural history of people and places.
3. It sensitizes us to the anglocentric nature of many accounts of technological developments during a period in which the hegemony of the English language became established in many disciplines, and the United States emerged as uncontested technological superpower.

Heinz von Foerster & the Biological Computer Lab

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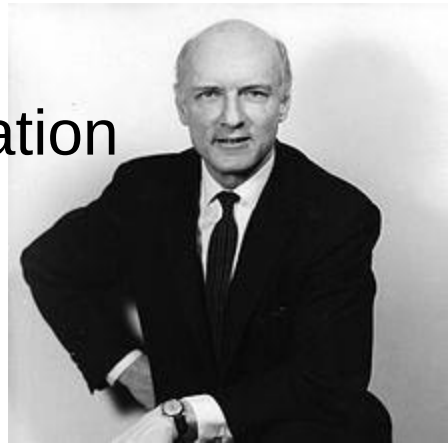
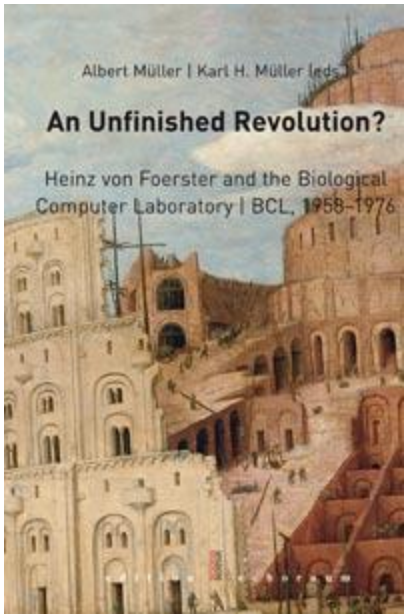
- Von Foerster – physicist, Viennese, part-Jewish, worked in Berlin during WW2 on obscure but important projects
  - "I am Viennese. That is the only label that I have to accept. I come from Vienna; I was born there, that's an established fact"
- Moved to US in late 40s, wrote transcripts of Macy Conferences 6-10
- Took up post at Illinois, established Biological Computer Lab to carry on McCulloch's 'experimental epistemology'
- Hugely influential – brought together many celebrated cyberneticians, trained next generation
- Home of 'second-order' cybernetics



The ‘fall’ of the BCL

- Story told by Stuart Umpleby (*Cybernetics and Human Knowing*, 2003)
- Funding of BCL from US Dept of Defense
- Mansfield Amendment: 1970 law (by liberal senator) denying funding from DoD to non-military work, to decrease military influence following Vietnam protests
- Von Foerster offered chance to reposition BCL work towards military application, but unwilling to do so (unlike many AI researchers)
- BCL shut in 1976
- In later life, von Foerster wrote about ethics: ‘act always to increase the number of choices’



Conclusions (1)

- Our examples in this paper from concerns around military applications, but can readily be applied to information issues in a range of fields
  - e.g. surveillance by governments and corporations upon individuals
- Strong work in information ethics, particularly Floridi, but dates back to 1980s at least (and strongly inspired by Wiener & von Foerster)

Conclusions (2)

- Cybernetics has never been an ethically-neutral disciple; ethics present from the start
  - independent of discipline, nation, political system
- There is no such thing as ethically neutral information: the gathering, analysis and distribution of information is inherently tied up with ethical issues
  - An attempt to ignore the ethical concerns all too often leads to the privileging of those in positions of power