

SKETCHES OF ANOTHER FUTURE: CYBERNETICS IN BRITAIN, 1940-2000

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The title of my talk was the working title of my book on the history of cybernetics, which was finally published a couple of weeks ago, with the words cunningly permuted. Now it's called *The Cybernetic Brain: Sketches of Another Future*. From a marketing perspective 'brain' is good, apparently, while mentioning 'Britain' in a title is instant death. (Despite differing only by the magical letters IT—Britain = brain + IT.)

Let me start with a methodological remark which might help clarify what I'm trying to do here. I can think of two principal ways in which scholars engage with their objects. The usual one is a sort of *detached* stance. In science and technology studies, for example, different sciences are treated simply as neutral objects in the world. Our job in STS is to explain them, and the explanations are *ours*—we don't appeal to physical theory to explain the history of physics. This quasi-scientific mode of detachment is, I think, taken for granted in most work in STS. It's what lies behind the famous symmetry postulate of the strong programme: our analyses should be indifferent to the truth or falsity of the science we're studying—we shouldn't *care* about the science at all. This is the mode I operated in until, say, ten years ago—up to and beyond my book *The Mangle of Practice* (1995). But since then, I've drifted into a different mode, one that explores a sort of resonance between my overall understanding of how things go in the world and the object I've been studying, namely cybernetics. I still want to tell the truth, as best I can, about this object, but increasingly I've also found myself trying to learn from it and taken by an impulse to contribute to it, too. I've gone native. I don't apologise for that. I like this strange tribe of cyberneticians that I've discovered, and I'd rather be one of them than one of the rest. Deep down, I think I've always been one of them without realising it.

I can come back to that along the way, but for the moment I just want to emphasise that I'm not trying to give some detached *explanation* for the course the history of cybernetics has taken. What I try do at great length in the book and much more briefly in this talk is to *conjure up* in a perspicuous fashion what cybernetics was and is—and how that might inform how we go on in the future. Now for the talk itself . . .

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Cybernetics has always been a many-splendoured thing. In the 1948 book which put the word 'cybernetics' into circulation, Norbert Wiener cobbled together all sorts of disparate resources in sketching out his vision of intelligent and lively machines, resources which included ideas about digital computers, information theory, early work on neural networks, the theory of servomechanisms and feedback systems, and associated work in psychology, psychiatry, decision theory and the social sciences. All of these strands have continued to mutate, combine and fall apart in fascinating ways over the subsequent 60 years, and I sometimes think that everyone can have their own history of cybernetics—just pick out your favourite bits, or the bits you loathe. Certainly this talk is about the strands that speak to me. Over the past ten years, I've become increasingly fascinated by the history of cybernetics as it developed in Britain, and that's what I'm going to talk about. But I should say that even within British cybernetics, certain lines of work speak to me more than others, and my understanding of them is often not the standard one even amongst cyberneticians. So what follows is not just passive reporting; there's a creative element to it as well.

What's so interesting about British cybernetics? It appeals to me as *a different kind of science*, a different *paradigm*, from the modern sciences, and the best way to make the contrast is in terms of *ontology*, of understandings of what the world is like. Physics, for example, takes it for granted the world has a definite structure; that this structure is knowable; and that its job is to spell out that structure in words and symbols—to provide positive knowledge of how the world actually is. Cybernetics in Britain *was not like that*. In 1959, Stafford Beer defined cybernetics as the science of 'exceedingly complex systems,' meaning systems that are either so complex that we can never hope to understand them fully, or systems that continually mutate, so that today's knowledge is always becoming obsolete. If modern science is a science of the knowable, then, we would have to say that cybernetics was a *science of the unknowable*.

But how can one have a science of the unknowable—it sounds like a contradiction in terms: how can you have a science of something you can't know? What Beer had in mind, I think,

was that cybernetics should be a science of *getting along with* systems we can never fully understand. Getting along—*adaptation* to the unknown—was thus the enduring focus of British cybernetics, and the rest of my talk tries to put some flesh on that idea. What truly fascinates me about this history is not the *idea* of adaptation, but the range of weird and wonderful projects and objects in which it came down to earth, in all sorts of fields, from brain science and psychiatry (which were the original referents of cybernetics), through robotics and engineering, mathematics, biological computing, management and organisations, the arts, entertainment and music, education, all the way out to non-standard spiritualities (mainly Eastern ones, but also good old-fashioned British spiritualism). These projects are my sketches of another future; they're what my book is about. The details of any of them don't matter all that much today, but I want to emphasise that I see them as *a set of possible models for future practice* that differ interestingly and systematically from the hegemonic forms of modernity.

Today I can only discuss a few examples, and I'll focus largely though not entirely on ones that have some sort of *political* edge. If I had more time, I would talk more about the contrast between these examples and their more conventional equivalents, but in the interest of speed I'll take this as read. My examples are drawn from the work of Stafford Beer, Gordon Pask, Gregory Bateson and R D Laing. But we need to start with Ross Ashby, the doyen of British cybernetics.

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In 1948, the same year that Wiener's *Cybernetics* book appeared, Ashby built and demonstrated a machine called the homeostat. Intended as a model of the adaptive brain, this machine, more than anything else, gave form to the strand of cybernetics that interests me, so I need to say a bit about it, as a lead-in to my later examples.

ROSS ASHBY

4-HSTAT SET-UP

HSTAT WIRING DIAGRAM

The homeostat was a baroque electro-mechanical device that converted an input current to an output current, using resistors and electronic valves, a swinging needle that dipped into a pool of water with a voltage across it, a uniselector or stepping-switch and a post-office relay. The

details don't matter at all. What does matter is that a single homeostat was inert, but when connected to other homeostats, as in the photo, all sorts of electrical feedback loops were set up. Once connected to other homeostats, each homeostat would search for equilibrium, meaning a dynamic condition in which, in the face of perturbations, its input and output currents would tend to zero. This search, in turn, took the form of a *random reconfiguration* of its inner workings. If the output current went beyond some preset limit, the relay would trip and the uniselector would move to its next position, changing the resistance of the circuit or reversing its polarity. And this process would go on and on, the uniselector would continue reconfiguring the circuit, until the whole multi-homeostat set up achieved an equilibrium configuration, in which all the electrical currents flowing in the circuits tended to zero. The homeostat was thus what Ashby called an *ultrastable* machine—meaning one that, whatever the initial conditions, would come into a situation of dynamic equilibrium with its surroundings.

So what? Why did Norbert Wiener describe the homeostat as one of the great philosophical discoveries of the age? I suggest we see a multi-homeostat set-up as a piece of *ontological theatre*, as somehow *staging* the ontology of unknowability I mentioned earlier, just as a clockwork mechanism like an orrery stages the ontology of knowability and predictability of Newtonian astronomy. None of the homeostats in a multi-unit set-up ever *knew* anything about its environment (meaning the other units to which it was connected). Instead, each unit *explored* its environment, via its output current, and adapted to what it found there, by randomly reconfiguring itself until equilibrium was reached. Something like this, I take it, is the overall ontological vision of how the world is that lies behind all of the cybernetic projects I have been drawn to. The world *just is* made up of dynamic entities, exceedingly complex systems, that interrogate each other in a *performative* (not cognitive) fashion, and search for ways of adapting to whatever emerges.

I could, as it happens, also describe this performative interrogation and adaptation as a *dance of agency*, the key concept in my general analysis of what I call 'the mangle of practice,' and this is the nexus of my non-detached interest in cybernetics that I mentioned at the start. The mangle was, in the first instance, an analysis of practice in physics, but there was no suggestion that physics itself shares this analysis. It stages a different ontology, of fixed entities with knowable properties that science is to reveal. I had to read physics against the grain, so to speak, to arrive at my story. Cybernetics, in contrast to physics, explicitly stages and acts out a mangle-ish ontology, and thus, in a sense, returns my theoretical analysis to real-world practice, which is why it interests me so much. I want to see where the mangle as

theory leads when it comes back down to earth as action and objects. And, actually, I like what I've found—hence my earlier remark about going native.

Back to Ashby. The homeostat was, in fact, a first step in Ashby's quest to build a synthetic performative brain, which foundered in interesting ways with a project called DAMS in the 1950s (dispersive and multistable system). It also set up a series of problematics which have fed into present-day work on complex systems—in a line of descent which I trace in the book via Christopher Alexander's distinctive approach to architecture, Stuart Kauffman's theoretical biology and Steven Wolfram's cellular automata as the basis for his 'new kind of science.'

DAMS

THE LINZ CAFE

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I find cellular automata especially interesting as ontological theatre, because some of them exemplify processes of endless unpredictable becoming within a framework of extremely simple mathematical rules. They are the simplest instances I know of Beer's notion of exceedingly complex systems. I can't go further into that now, but I just want to add one comment before we leave Ashby behind. It is that the homeostat had two modes of behaviour. One was the one I've described so far, in which the machine was free to adapt to its environment; the other was one in which the inner circuitry of the homeostat was fixed. And Ashby in fact meditated on two different sorts of multi-unit configurations: *symmetric* ones, in which all of the units sought to adapt to one another, as I just described, and *asymmetric* ones, in which the circuits of one unit were fixed and the other units had to try to adapt to that. I mention this because these different set-ups could be taken as models for different forms of human action in the world, and this is where cybernetics starts to take on a political edge. Until 1960, Ashby's career was in psychiatric research, and he understood psychiatric therapy on the asymmetric model. The business of therapy was to make the mentally ill patient adapt to the doctor, and not vice versa. The doctor had to stand firm like a rock and force the patient through a set of homeostat-like reconfigurations until he or she ended up in a state resembling normality. This asymmetric model was what lay behind Ashby's vision of what he called Blitz therapy, which imagined treating mental patients with, for example, 'LSD, then hypnosis while under it, & ECT while under the hypnosis' (11/58).

Quite evidently, then, this asymmetric version of Ashby's cybernetics could function as an ideology for all manner of status quos, here reinforcing and even intensifying the existing hierarchical power relations of doctors and patients in the mental hospital. It was also Ashby's vision of war. But he was capable of thinking more symmetrically too. His vision of social planning, for example, entailed a symmetric and reciprocally adaptive back and forth between planners and plannees. This symmetric cybernetics is what one finds played out in later cybernetic projects, and these are my sketches of another future. Let me talk about some more examples now, touching in turn on management and organisations, art and architecture, and finally back to psychiatry, madness, transcendence and the 60s.

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PHOTO OF SB -- 60S

Stafford Beer was the founder of the field he called *management cybernetics*. His aim was precisely to configure organisations around the theme of adaptation to the unknown. Initially this led him and Gordon Pask into the field of biological computing. The idea was somehow to couple the adaptability of naturally occurring biological systems—which might be a colony of mice or insects, for example, or a swamp or pond ecosystem—to the factory in place of human managers: pull out the managers and plug in a pond instead. The idea here was that just like a collection of homeostats, a pond, a factory and the business environment could jointly search for a configuration of collective equilibrium and respond in a creative fashion to changes in any of the elements—which is just what one wants from human managers. This was an amazingly imaginative project which probably needs more explanation than I can offer here. What I want to stress about it is how utterly alien it is to anything one would normally imagine in the fields of management, engineering and computing. For me it is a striking example of the fact that *ontology makes a difference* in how we go on in the world. I don't think anyone could dream up such a project without already understanding the world as built from exceedingly complex systems. The project foundered, alas, in the early 60s, not on some point of principle but on the practical difficulty of getting ponds to care about us.

GP -- POND AS MICROPROCESSOR

From the 60s onwards Beer developed what he called the viable system model of adaptive organisation, the VSM. Instead of incorporating real biological material into the organisation, Beer's idea was now to *model* information flows and transformations within the organisation on the most adaptive biological system he could think of: the human brain and nervous

system. The organisation itself was to become a giant adaptive cyborg, partly human and partly nonhuman.

BODY/VSM

THE VSM DIAGRAM

The diagram indicates information pathways between five levels of the organisation, running from production units at level 1 to the board of directors at level 5, as well as between the various levels and the firm's environment. Much of Beer's attention focussed on level 3, which housed a set of operations research models of the organisation itself, and level 4, home for a big computer model of the firm's world, the wider economy, intended to predict the future under various scenarios.

The VSM, unlike biological computing, was an eminently practical approach to organisational design and was the basis for all of Beer's consultancy work from the 70s onwards. I can't get into details here, but I want to note that the most ambitious application of the VSM was to the entire Chilean economy under the socialist regime of Salvador Allende in the early 70s. Project Cybersyn, as it was called, went a long way in a couple of years before it was cut off by the Pinochet coup.

CYBERSYN CONTROL ROOM

From a political perspective, I should say that Cybersyn was subject to a lot of criticism when it became publicly known in Britain. Beer felt that the VSM allowed the greatest possible autonomy to individuals within an organisation, consistent with the organisation retaining a distinct identity. He even wrote a book called *Designing Freedom* spelling out that belief. Instead his critics claimed that in Chile he was implementing a technocratic monster of command and control. In a way, I think both sides were right. One can certainly see how the basic structure of information flows in the VSM could be harnessed to an authoritarian structure of surveillance and control. Beer, for example, regarded indications of difficulties flowing upwards from level 1 as 'cries for help,' but it is not hard to imagine them also as invitations for management reprisals. Against this—and what the critics ignored—was that Beer specified that the links between the various levels of the VSM, from the highest levels of management down to individual production units and the factory floor—should have the same form as Ashby's symmetric multi-homeostat set-ups—thus the reciprocating arrows linking systems 3 and 4 in the VSM diagram. Far from being an apparatus for hierarchical command

and control, the relation between levels was supposed by Beer to be a process of ‘reciprocal vetoing,’ of proposal and counterproposal, until some sort of equilibrium emerged which all of the parties could live with. Beer often pointed out how hard people found it to get the hang of cybernetic projects, and an associated tendency simply to overlook their key cybernetic elements, and Cybersyn seems to have been a case in point. Beer’s vision of the VSM in action was, in fact, the antithesis of command-and-control management, and this is the model I would like to remember as a sketch of another future.

(If a real-world example could help, think about British universities. Precisely what my own university lacks, at least, is any cybernetic 3-4 linkage between ‘management’ and faculty. The modern British university is the technocratic nightmare that the critics of the VSM could only imagine 35 years ago.)

SYNTEGRATION ICOSAHEDRON

In parallel with the VSM Beer also developed an approach that sought to give organisational form to homeostat-like interactions between individuals and groups in decision-making. ‘Syntegration,’ as he called it, is a complex process of many iterations, usually extended over several days, but crudely the idea is to assign participants to the edges of a notional icosahedron, and to organise a process of sequential discussions between the parties whose edges end at a common vertex, alternating in steps between the vertices at the end of each edge. In this way arguments can progressively echo all around the icosahedron, eventually taking an emergent form controlled by no-one in particular. Beer regarded this as a form of perfect democracy, and it is hard to argue against that.

So Beer’s management cybernetics brought Ashby’s ontological theatre down to earth in an explicitly political fashion, which was, in principle at least, very different from the usual hierarchical arrangements, and which instead thematised and implemented symmetric and constructive negotiations and adaptations between individuals, organisations and their environments. And I could throw in one additional and unusual point to round this off. Although he typically concealed this fact, Beer’s management cybernetics was drenched in a sort of non-standard spirituality. The early work on biological computing points to what I call a *hylozoist* awe and wonder at the agency of matter—the idea that everything we need is already there in nature, and that, for example, the long and difficult and very expensive history of computing has been an unnecessary detour: why devote so much energy to the precision engineering of silicon chips when your local pond will run the factory for you?

Beer understood the VSM, in turn, to be embedded in a great chain of being that stretched upwards from biological cells to the cosmos itself. One source of the appeal of the icosahedron was that it contained many versions of the mystical figure known as the *enneagram*, and Beer thought of syntegegration as giving rise to a genuine group mind, again located on a spectrum running from the yogic chakras up to a transcendental unity with the divine. Beer himself lived out these understandings, spending half of each year in a primitive stone cottage in Wales and teaching tantric yoga there.

SB AS GURU

SB -- MEDITATION

ENNEAGRAM

RECURSIVE CONSCIOUSNESS

As good modernists, many contemporary cyberneticians regret this confusion of the worldly and the spiritual, and most academics seem to grit their teeth when I mention it. Personally, I'm fascinated to find a way of thinking and acting in which the mundane and the spiritual run continuously into one another, rather than being assigned to separate and often antagonistic realms. It's a nice antidote to both scientific and religious fundamentalism.

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GORDON PASK

Now we can move from Beer and organisations to the arts and Gordon Pask. Pask built many weird and wonderful devices, all of which staged reciprocal processes of performative adaptation on the model of the homeostat—between people and machines, between people and people, and even between machines and machines. The first and best known is probably his so-called Musicolour machine from the early 1950s. Musicolour was an electrical device that turned a musical performance into a light show, and its key feature was that its internal parameters varied during a performance. Instead of a linear correlation between sound input and light output, the machine would adapt to the evolving features of the performance and eventually 'get bored' as Pask put it. It would cease to respond to repetitive musical tropes, thus encouraging the human performer to adapt to the machine and try something new—a beautiful example of ontological theatre and the dance of human and nonhuman agency.

MUSICOLOUR

Pask also built artworks in which interactive robots reciprocally adapted to one another, and worked with the radical playwright and producer, Joan Littlewood, to develop an interactive theatre in which the audience and the actors could collaborate in structuring how the action should evolve in any particular performance.

COLLOQUY OF MOBILES

INTERACTIVE THEATRE

But I want to focus on another project in which Pask was involved: adaptive architecture as exemplified by the so-called Fun Palace, a building that was designed in detail but never quite got built in London in the early 1960s. (The connection here again went through Joan Littlewood.)

We usually think of buildings as fixed entities, designed in advance to fulfil a specific function: homes, schools, prisons, museums, etc. In contrast, the designers of the Fun Palace insisted that they *could not know* its function in advance. Sometimes called a ‘university of the streets’ the Fun Palace was thus designed to support a multiplicity of uses—education, sport, theatre, the arts—and to be *reconfigurable in use*. The building was intended to *change shape over time* according to whatever uses people found for it. And Pask’s distinctive contribution to the project was again to devise a control system that would *get bored*, along the lines of Musicolour. Instead of simply accommodating itself to existing patterns of use, the building would find some other way to behave, thus inviting its human users to take advantage of novel opportunities, to find their own new ways to go on.

FUN PALACE

CONTROL DIAGRAM

Here then the entire assemblage of building and users acted out a version of Ashby’s multi-homeostat set-up in an open-ended dance of agency, collectively arriving at some mutually congenial equilibrium (at least for a time). This was the sense in which the Fun Palace was designed as a piece of adaptive and distinctively cybernetic architecture, and functions as

ontological theatre—at once exemplifying a cybernetic ontology of unknowability and performative adaptation and staging it in the real world, now in the form of a building.

Again, I hope the sense in which cybernetic architecture constitutes an interestingly different paradigm from both modern and postmodern architecture is evident, and there is one further point that I can throw in here. The basic idea was that the Fun Palace would adapt itself to a range of conventional activities (sport, politics, whatever), but a wilder aspiration also attached itself to the building, coming across the English Channel from the French Situationist International. This was the hope that new kinds of spaces like the Fun Palace would encourage the emergence of new kinds of people, *new kinds of self*—selves explicitly attuned to fluid experimentation with the unknown, nonmodern cybernetic selves more open to what the world has to offer us than the rigid modern self. This hope was never put to the test, but it connects back to Beer's spiritual practices and forward to my final example.

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GREGORY BATESON

I'm going to end where cybernetics began, with psychiatry. The dominant trend since WWII has been to see mental illness as material and organic and to treat it with lobotomies and electroshock up until the mid-50s, and increasingly since then with psycho-active drugs. Throughout this history, mental illness has been regarded as a simple defect to be erased if at all possible, and, amongst my cyberneticians, both Ross Ashby and Grey Walter took this picture for granted. But cybernetics also offered a quite different take on madness, which depended on a symmetric rather than one-sided notion of adaptation, and I want now to sketch out a few features of this symmetric version.

In 1957, Gregory Bateson, one of the founders of cybernetics in the US, suggested an association between schizophrenia, in particular, and the interactional impasses that he called *double binds*, and which he understood on the model of two homeostats collectively finding some unfortunate form of equilibrium and getting stuck in incapacitating forms of oscillation. Bateson further likened the double bind to the paradoxical instructions given by a Zen master to his disciple. Schizophrenia and its odd and disturbing symptoms might thus, he suggested, be seen as a confused form of Buddhist enlightenment. Centrally at issue here was, again, a notion of the *self* which went far beyond conventional ideas of the modern self into the realms of madness and ecstasy, of heaven and hell as Aldous Huxley put it. Bateson, we could say, understood the self as one of Beer's exceedingly complex systems, forever capable of

surprising us. Bateson also suggested seeing psychosis as a manifestation of an adaptive mechanism through which the self might disentangle its double binds and emerge somehow better adapted to the world. In an evocative phrase, he referred to this process as an ‘inner voyage.’

R D LAING

Bateson’s ideas were put into practice in the second half of the 1960s by the so-called Philadelphia Association, a group of psychiatrists led by R D Laing, at a large house called Kingsley Hall in London. Kingsley Hall was a commune in which psychiatrists and the mad, as well as artists and dancers, lived together. In principle, and in stark contrast to the conventional mental hospital, Kingsley Hall was a non-hierarchic institution. The psychiatrists did not prescribe drugs or electroshock or whatever. The aim was simply to provide a place where the inner voyages of sufferers could find sympathetic support and with luck come to a successful conclusion. There was no recipe for what that support should look like—the model was again a homeostat-like performative adaptation of the sane and the mad, a sort of open-ended and performative latching on, as in therapist Joe Berke’s animal games of fighting and biting with Mary Barnes, Kingsley Hall’s great success story. And on the model of symmetrically adapting homeostats, the idea was that the selves of the psychiatrists might also be transformed in this process. Kingsley Hall, as Laing once put it, was a place where the mad could teach the sane to go mad. Like the Fun Palace, but in a more intense and deliberate form, Kingsley Hall was intended as a space of emergence for new human possibilities.

KINGSLEY HALL

Kingsley Hall itself closed down in 1970, to be followed by a series of similar communities in Archway in North London in the 1970s, but the impulse gradually petered out. The Philadelphia Association still exists, but with different personnel who seem largely to regret their past. Before leaving Kingsley Hall entirely, however, it’s worth noting its resonance with a much larger cultural formation of its day, namely the 60s counterculture. The counterculture shared the antipsychiatric fascination with connections between madness and enlightenment, with nonstandard selves and ‘explorations of consciousness.’ And I want to note that Kingsley Hall was itself a major locus of the counterculture in Britain. The building was an important home for countercultural events and happenings, and the symmetric form of life staged there became a model for distinctly cybernetic ways of going on in other fields, including education and the short-lived Anti-University of London. The Philadelphia

Association sponsored the famous Dialectics of Liberation conference that ran for three weeks at the Roundhouse in London in 1967 and was perhaps the zenith of international countercultural political activity. And Laing and his friend, the writer Alexander Trocchi, articulated a very interesting notion of *meso-revolution*, envisaged as spreading outwards from places like Kingsley Hall. Here the idea was of revolution not as a total violent confrontation with the Establishment, but of the progressive growth of a sort of parallel universe, in which distinctly cybernetic institutions like Kingsley Hall and the anti-university might flourish, leaving their conventional equivalents to wither away. None of this came to pass, of course, but I want to remember it, and to include the counterculture in my sketches of another future. The 60s were the last time when nonmodern selves and other ways to live figured at all seriously in the popular imagination of the West.

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That's as far as I can go today with my scenes from the history of cybernetics, and I want to end with a couple of quick remarks on the theme of: so what? Why should we be bothered with this strange history?

My first answer is simply that the cybernetic projects and artefacts I've discussed are strikingly different from their more conventional relatives. Adaptive architecture is very different from any of its inert counterparts. Anti-psychiatry is a very different way of relating to the mad from the mainstream psychiatric drug culture. Both of these serve to conjure up images of the self that are very different from our everyday understandings of who we are today, but that were very familiar in the 60s. And then all I need to say is that *alternatives are good*. I think the more ways we have at our disposal for doing architecture or psychiatry, or robotics or management or art or spirituality, the better—the more adaptable we become in the face of a future which is, in fact, unknowable. That is why I like to think of these examples as sketches of another future.

But I could perhaps go a bit further. I can think of two ways of getting to grips with what these examples have in common. One is to talk about ontology and adaptation, as I have been doing. The other is to refer to the philosophy of Martin Heidegger. In his famous essay, 'The Question Concerning Technology,' Heidegger characterised the modern world in terms of what he called *enframing*—a never-ending quest to impose pre-conceived human plans on the material world and other people. I think he was right to do so, and also somehow right to see enframing as a great danger. The other side of enframing is a potential for disaster, as I think we've seen over the past few years: the destruction of New Orleans by Hurricane Katrina; the

obscene mess that is the War on Terror; the collapse of the banking system. And what recommends cybernetics to me, at least, is that it was *not like that*. None of the projects I've discussed today count as examples of enframing; they have instead the quality of a Heideggerian *revealing—poiesis*—a responsive openness to what the world has to offer us, for better or for worse. So my sketches of another future try to conjure up a different form of life from that of our hegemonic institutions, sciences and technologies, one of revealing rather than enframing, *poiesis* not *gestell*. I don't imagine we can or should renounce the stance of enframing entirely, but some visible alternative might serve to put it in its place and denaturalise it. That's what I would like to do, and that's the politics behind my effort to remember the history of cybernetics.