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Review article

Machinations: on Politics and Technology

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The Government Machine: A Revolutionary History of the Computer

Jon Agar

Cambridge Mass: MIT Press, 2003

576 pages, £35.95/\$52.00, 978-0-262-01202-7

Consent of the Networked: The Worldwide Struggle for Internet Freedom

Rebecca MacKinnon

New York: Basic Books, 2012

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I Technology and freedom

There are many discourses about technology, and little agreement about how to classify them.² Until lately, technology has been on the periphery of social and political theory. It was most salient in the metaphor of instrumental rationality. The principal figures of the mid twentieth century in the sociopolitical analysis of technology, Lewis Mumford and Jacques Ellul, had a maverick brilliance about them that was not readily assimilated by any conventional discipline. However, the central question in their work on technology was this: is technology an historical force capable of overriding human agency?³ Neither espoused technological determinism in a straightforward way (it is hard to find anyone who does⁴). But they both feared that we were adopting ways of looking at the world and making choices that, in effect, endowed technology with a kind of ersatz life of its own, such that it could seem to be a force with us in its grip.

In mainstream social theory one can trace such fears back to Weber (on the lifeless machine of bureaucracy, for instance) and to Marx (who uses vampire images to suggest the expropriation of the workers' life by the

system of industrial capitalism).⁵ One might see Carlyle and even Mary Shelley as anticipating these concerns, which have at root a Romantic opposition of the mechanical to the organic such as informed Coleridge's nightmares, as well as his literary theory and his social criticism. It then contributed to a tradition of nineteenth-century criticism of industrialisation to be traced in the work of Morris, Ruskin, Pugin, Gaskell, Dickens and others.⁶ Ellul and Mumford carried forward the nineteenth-century Romantic sense of the importance of metaphysical commitment and faith. Mumford's late, majestically disillusioned work, *The Myth of the Machine*,⁷ presents modern technology as the idol of a destructive death cult that can be traced to the Pharaohs. So besides the question of agency in relation to technology, there's a question of ontology: of the human and the vital as against the technological; of the quick and the dead.

At a distance of nearly half a century from their heroically opinionated work, Mumford and Ellul can look less like intellectuals than prophets crying in the wilderness. Though there was a good deal of more conventionally academic work being done on the history and politics of technology (especially by the Society for the History of Technology and by the growing Science and Technology Studies movement), Mumford and Ellul threw down the gauntlet to their successors. It has been a difficult challenge to meet. Reasserting human agency against 'the machine' is not as easy as it sounds.

Perhaps one of the reasons why pleas for the reassertion of human agency prove awkward has to do with underlying problems of definition, whether the plea is made in the manner of Mumford and Ellul, or in terms of policy analysis,⁸ or as part of a philosophically circumspect plea for 'focal' practices in order to sustain a sense of connexion and meaningfulness that activities that conform to the 'device paradigm' obscure,⁹ or as part of the agenda of the appropriate technology movement. Postmodern cyber-students are quick to challenge the opposition of human and machine or of organic to mechanical as false dualisms – often convincingly. But, with an eye on a longer running debate, there is perhaps also a problem of distinguishing structure from action in the sociopolitical analysis of technology. If ever there was a practice that tended to 'structurate', it is technology. We sometimes think of technology as all gleaming components and mechanism, but it is difficult to think of its creation and use without attending first to the way in which it articulates social relations and forces (often, though not always, in the form of interests), and then becomes the concrete

expression of a particular pattern of social organisation – as well as, of course, a means of enhancing agency. A society whose social change is in any significant degree expressed in changing technologies, as is the case with any industrial society, has put technology in an ambiguous position vis-à-vis structure and action. The adoption of a technology will be part of one or more actions – but the act of adopting it then prescribes corresponding forms of organisation. In other words, structure and action become entwined.

Many of the current historical and interpretative ways of thinking about technology can be classified in terms of their stance on structure and action, and on agency and ontology. Social constructionists, for example, are inclined to see technology as the expression of prior social and cultural interests.¹⁰ Constructionists tend to favour micro-studies. But it is harder to make the case for the primacy of human or social agency on the larger scale and in the longer term. The clearest contrast is with technological determinism, which ascribes to technology autonomous and decisive historical force, though it is scarcely ever espoused in its pure form. Yet the appearance of it calls for some explanation, for technological determinism haunts discussions of technology, without anyone altogether believing in it. In between, several positions challenge the ontological distinction between human and technological, including all manner of post-structuralists and post-humanists, along with actor-network theory in the manner of Latour.¹¹ And, of course, structuration theory has been among the approaches invoked in an attempt to bridge the gap between structure and action.¹²

One of the many problems with the structure/action dualism is the way it throws up questions about freedom. It poses questions about the scope of individual freedom to act, given structural conditions or constraints. At one level this resolves itself as a problem of metaphysical freedom to do with free will; at another it is, rather, a question of political liberty. How can a given political system, conceived as a structure of relations, also guarantee forms of liberty that may lead to the transformation of that structure, and thus possibly its capacity to guarantee the freedom to transform it? In different ways, these look like substantive questions. However, in certain respects they may be partly resolved into a methodological one: how to figure individual vis-à-vis collective life? Collective life tends to be represented in terms of structure, because to the individual intelligence that is doing the representing of other people in large numbers, to the extent that they are knowable, they are knowable in terms of perceived or ascribed

regularities and categories that flatten individual difference, and which tend to present themselves in terms of social form rather than transformation – for example, in terms of statistics or classes (the Marxist account of the proletariat as revolutionary agent being a conspicuous exception). There is a particular problem here that has methodological and substantive dimensions: how to reconcile a subjective experience of freedom that is at its liveliest at an individual level with the fact that in terms of the transformation of the historical conditions that shape each life, an effective exercise of freedom is likely to have to be collective?

Liberalism (after an argument with its Utilitarian progenitor) plumps firmly for individual freedom, trusting (in its more optimistic moments) that there are mechanisms of economics and opinion by which individual choices may be aggregated into historically desirable and in some sense collectively willed outcomes. But from the point of view of the individual, the immense mechanisms by which this is to be achieved can look forbidding. In particular they can look forbiddingly mechanistic and deterministic: the 'mechanism' of the market, the political 'machine'. Hence a fairly insistent liberal confusion of political liberty with free will, at least since Mill (who was haunted by the fear of determinism during his nervous breakdown). The freedom that is most palpable, and to which one defensively clings in the face of a mass society is the inner sense of freedom of an elaborated selfhood. Metaphysically this inner self may seek the assurance of free will; practically it is likely to seek the consolations of culture and consumerism. That combination affords some sphere of activity relatively immune from the influence of others. It is an expressive and private freedom, apt to recast properly civic freedom of speech as mere freedom of expression.

Machine images accordingly figure ambiguously in liberal thought: either as providentially contrived systems, and as symbols of progress and constructive cooperation; or as inhuman, inert, deterministic and threatening. The books under discussion here profess a concern not only with technology, but specifically with technology and politics. They address technology in relation to the processes of liberal democratic governance. In doing so they have to deal with the ambivalences that attend technology in that context: as fact and as metaphor, as object and as instrument of governance, and so on.

II Mechanical Thinking

Jon Agar's *The Government Machine: A Revolutionary History of the Computer* describes how the British civil service came to embrace the mechanisation of its processing of information. Agar is reflecting upon a special kind of collective agency: a state bureaucracy. In his account it is the bureaucracy's organisation of itself to process information that creates the space for, and possibly the idea of, the computer. Agar therefore claims that the computer's antecedents are not just devices such as the difference engine, but forms of organisation of people. Indeed, what Weber once dubbed the 'lifeless machine' of bureaucracy in this account evolves into the literally lifeless machine of the computer, with the bureaucracy's division of labour mirroring the computer's components.¹³ Agar makes much of the civil service's division in the wake of the Northcote-Trevelyan reforms of 1854 into an elite of generalists and a staff of 'mechanical' bureaucrats acting on the generalists' instructions. Agar's story implies that, before computerisation can take place, existing tasks and organisations have to be pre-adapted to it. Thus there appears to be a paradoxical adaptation to a machine that has yet to be created.

Though his earlier sketch of some of these themes in *Turing and the Universal Machine*¹⁴ was a tidier book, Agar's extensive delving into government papers to recreate the internal micro-politics of the civil service makes for a fascinating story and is a splendid corrective to the notion that bureaucracies are faceless and monolithic. He traces the emergence of a succession of expert movements within the civil service committed to the application of new information technologies to their work, and with an agenda formed by their various positions within the service: by, for example, tensions between different departments or between different layers of the hierarchy. It emerges that the likeliest supporters of mechanisation were not the generalists of the First Division, but figures one level down at Executive Officer level, who saw in mechanisation a cause particularly suitable for themselves in advancing their own claims to status. The Treasury espoused mechanisation in the mid-twentieth century largely because it saw in it an opportunity to extend its supervision of other departments, especially through the Organisation and Methods expert group which operated in the Treasury from the 1940s onwards. It sometimes resorted to bizarre methods to carry its point. Several of the proponents of mechanisation, who happened also to be amateur actors, once staged scenes of bureaucratic drudgery to convince the generalist elite that many civil service tasks were routine and thus capable of being mechanized.

An emphasis on the internal politics of the civil service may imply that the motives of the proponents of new technology were questionable. However, Agar argues that the civil service developed a degree of expertise in the systems available (initially punched card tabulators, but also, of course, such late nineteenth century information technology as card indices, files and ledgers) that made them effective agents not merely in administration (as one would expect) but also in the development of the technological systems. In his penultimate chapter, Agar argues that this expertise and effective agency have since been lost, leaving British government computer contracts a byword for incompetence and overspending. That is what comes of looking only at the bottom line, losing one's in-house expertise, and becoming dangerously dependent upon private sector contractors. It is a chapter where Agar, unable to draw upon the archive (because of the thirty-year rule) leans heavily on the work of Helen Margetts among others. As he recognises, that makes for a potentially awkward shift in the basis of his discussion. But it does suggest how the civil service he portrays in the mid-twentieth century might have changed in such a way as to forfeit its IT expertise and crucially its ability to shape the new technologies.

This narrative may be an example of how to reconcile two seemingly opposed positions in the socio-political analysis of technology: social constructionism and technological determinism. They are opposed precisely on the question of human agency. Much of Agar's story smacks of the rhetoric of social constructionism: in the concentration on particular groups, and the development and application of particular machines. But he combines it with two other elements: first the acknowledgement that in the end the groups he is looking at forfeited effective agency vis-à-vis the technologies they sought; and second that one can see the cultural and functional space the successful technologies open up in advance of their arrival. In Agar's terms, one needs to distinguish between discursive and material mechanisation, and recognise that discursive mechanisation in this case comes first.

Agar's story might be taken to imply that the appearance of the space for technologies opening in advance of their arrival is partly to be explained by people having to go backwards into the future, by which I mean that no matter what kind of future one commits oneself to, what one actually knows is, inevitably, the past, so one is always trying to steer on the basis of the path one has just travelled. Usually we embrace innovations in the first instance only in so far as they promise to help us to do what we are already doing, not to do something quite

different. Innovations that do not latch on to some pre-existing task in order to ease their way into the world are likely to languish unrealised. Hence the illusion of backwards causation.

Yet, as soon as a technology has spread, then its uses can change rapidly, especially if people are in a position to experiment with their use of it. One can see this effect in what happened to the etiquette and expectations governing early telephone use: they quickly gave way to new and more informal ways of using the 'phone – especially (to the surprise of the businessmen who conceived the phone as a business tool) when women used it to maintain informal networks of family and friends.¹⁵ There often comes a point when a technology seems to acquire a force of its own: when instead of having to accommodate itself to the pre-existing culture, and adapt itself to existing interests and needs, it gives the appearance of turning the tables and sweeping all before it. One way of interpreting Agar's story of the civil service and the computer is to see it as charting the swing about the fulcrum from IT having to prove itself in relation to existing organisations and tasks to its becoming, from the civil service point of view, axiomatically indispensable and less biddable.

One way of reading the book is, therefore, to see it as an extended case study that demonstrates how social constructionism and the appearance of technological determinism might be reconciled. Such a reading suggests that an optimum fit between technology and task will be comparatively short-lived. Even if the technology becomes increasingly sophisticated, there might still be a sense in which mutual adaptation of human and machine (to use a Darwinianly resonant term) can be balanced only for a while. Purely technical progress would then cease to be progressive in other respects.

For Agar, World War II furnishes a key example of this mutual adaptation at its most necessary and fruitful. Agar contends that World War II should be seen as an information war: as having been waged by and through the command and systematic processing of information. Indeed, both world wars advanced the role of information technology in government. The sheer scale of mobilisation for industrial war and the challenges of coordination that it posed persuaded Major Sidney George Partridge that, 'in any organisation the replacement of the human agent by the mechanical should be sought for and developed to as great an extent as possible...' (162) – and this was in 1916. The Second World War intensified the impulse to control through information-processing.

This tendency was partly because Britain's became something close to a command economy, with the government using its processing of data in lieu of market forces – though one wonders how effectively or efficiently it managed this task. Agar says more of the attempt than of how well it succeeded. However, he is at pains to banish the stereotypical contrast between the technocratically efficient Reich, and the inspired, make-do amateurism of the British. So he re-examines Bletchley Park not just in terms of a handful of geniuses and interesting personalities and Colossus, the prototype electronic computer, but as a whole information-system, in which files and huge registers of 'German scientific and technological terms' were accumulated. When seeking to crack a particular setting of the Enigma machine, this data had to be searched as quickly as possible for correspondences by using specially adapted punched card machines of a general type that the civil service had used for several decades. It was this system of files, data, and separate departments, each with a clearly defined function in relation to the others, into which Colossus fitted at the very end of 1943. Agar is at pains to insist on Bletchley as a production line of intelligence: 'Bletchley Park in 1944 was an industrialised enterprise: finely arranged division of labor, very high staff numbers, an emphasis on through-put, and innovative mechanisation at bottlenecks' (209). Colossus was no more than one part of that system, and Agar urges that Bletchley Park represented 'the industrialized production of information' (207) even before the computer materialised.

Bletchley Park is a crucial example for Agar. It is the clearest and earliest instance of the non-computerised organisation of information actually giving rise to a computer, in as much as Colossus was the technical product of ultimately government-supervised war work. By contrast, the organisation of air defence, which involved coordinating radar stations, searchlights, observers, various levels of fighter command and so on, is, Agar insists, of interest to him not because of the technology involved, but because of the organisation of the information, such that in contemplating standardised procedures and ways of recording data and then transmitting it through a system represented even at the time in flow charts, one can see why the idea of it as an information system began to circulate. But there is no necessary direct causal connection between these systems and the later appearance of computers to handle similar tasks during the Cold War – at least not the kind of connection one can see between Bletchley's organisation and Colossus. If there is a causal connection, it is of a kind that obliges one to ask questions about the nature of causation. The

readiness to design activities in terms of information systems is striking – and the attempt to extend this kind of information processing from special spheres, such as air defence or code-breaking, to the gathering of information for social governance more generally (which is what happened with the National Register and identity cards, and with the government’s gathering of information on social attitudes to enable it to adjust its message to the mood of the country) is startling – but not too startling if one reflects upon the pre-war publication date of *Brave New World* (1932), and the movements in scientific governance and social engineering that were already available for Huxley to reflect upon.

It is one of the few lacunae in Agar’s account of the development of the civil service that he says relatively little about the way in which instruments of governance and concepts of social science develop in response to the challenge of governing a literally mechanising society. It is the unsuspected social problems thrown up by the industrial expression of the free market mechanism, which many (following Smith) had hoped would prove self-regulating, that leads the machine metaphor to shift in some degree from the socio-economic system as a whole to the machinery of government in particular, as Agar outlines (27). Corrective measures were called for, and there was an impulse to make the correction a systemic and rule-bound one, rather than merely an arbitrary executive intervention. Hence the elaboration of social sciences – and not just in France (Agar suggests France was special in the way it developed sociology in response to information problems of governance). But mechanistic concepts can cast doubt upon several distinctions: their own literal truth as against their metaphoricity; the possible distinction between conceptual and literal mechanism; the distinction between mechanism and organism (of crucial importance in Romanticism and since, but difficult to sustain); and the distinctiveness of the human and the place of human subjectivity. One can see this, for example in the way John Stuart Mill plays off the machinery of government against the human material which inspires it, but which its operation in turn seeks to perfect or to form.¹⁶ In other words one runs into underlying problems of subject/object reflexivity. This sets up the preconditions for the convergence of literal and conceptual, and for the mechanistic order that one could have witnessed in the early nineteenth century, for example at Robert Owen’s New Lanark factory complex and model village.

III The Political Limits of the Internet

Industrialisation has generated practical problems of social governance of a kind difficult to solve within the rationale of socio-economic development on which industrialisation itself is posited – especially when society and economy are conceived as autonomically machinelike. The result is (a) a model of government that is increasingly conceived as congruently machinelike, in the hope of overriding the danger of its becoming exactly the kind of politically directive state that political economy warned against; and (b) forms of government that become hard to distinguish from industrial scientific management. Such forms of government create particular problems regarding selfhood, especially regarding its ontological distinctiveness and its freedom or agency. And it is within this formation of discourse and practice that many accounts of technology in relation to society and politics circle, repeatedly tracing the lines of the Gordian knot by which a palpable sense of inner freedom has become entangled with a manifest sense of (mechanical) determination. It is a plight that I have suggested was in some ways specific to liberalism, but it is not unknown elsewhere: Marxism, as liberalism's rival inheritor from the Enlightenment in some ways intensifies the underlying problem. Marxism flirts with technological determinism and denies it, invoking in some strands a concept of the human which has been volubly condemned by other strands. Either way, sociopolitical discussions of technology tend to continue to be haunted by the problems of agency and ontology.

The point about the twin problems of agency and ontology is not that one needs a neat solution to either one. Almost the reverse. One has to find a way of working with these problems that acknowledges those respects in which the problems defy definitive solution. Difficulties arise when one assumes a definitive answer to these questions. If it is not well founded (and possibly it cannot be), one merely charges down a cul-de-sac, or finds oneself going fruitlessly back and forth between alternatives. Agar enjoys some success in negotiating his way between the Scylla and Charybdis of these problems for two main reasons: first, a quick-footed methodological agility, alive to the way in which 'facts' might turn out to be super-cooled metaphors, so there is recognition of a degree of ontological uncertainty, especially generated by figurativeness; and second, that figurativeness is anchored in a firmly drawn historical context, which saves Agar's text from becoming the slave of footloose fancy. Uncertainly bounded metaphoricity arises within and in response to particular situations. In relation to political agency, two further features of Agar's material help him to strike an apt

balance. Firstly, he is discussing not people in general, but the civil service in particular: there is a palpable sense in which this group as a collective entity possesses effective agency, but an equally palpable sense in which their freedom to exercise it is directed or curtailed. Thus large and ungraspable problems about humanity's historical freedom are whittled down to something manageable by the choice of topic. Secondly, much of Agar's story concentrates on wartime, where it is possible to assume a certain civic virtue and unity of purpose, and where the problem of the individual's felt impotence before fast machine-like systems is qualified by a specially intensified identification with the common good.

But how can one frame these problems of agency and ontology in an enabling way outside such special conditions – i.e. in a way that saves one from merely projecting on the fabric of one's work liberalism's oscillation between favouring a mechanically understandable and perfectible universe, and dreading a mechanically deterministic one?

One possible answer to this dilemma, especially in the heady days of the early to mid 1990s, was sought in the internet. It would furnish an alternative polity for its 'netizens' and even an alternative model of for humanity itself, which in entering cyberspace would transcend the 'meat'. Several accounts of the internet have exposed the folly of such techno-utopianism. Rebecca MacKinnon's *Consent of the Networked* is valuable for its detailed and critical account of contestations around the world about access to and use of the internet – especially in China, where she grew up and where she was later CNN Bureau Chief at the turn of the millennium. MacKinnon's strengths include her reporter's eye for detail and an undeceived idealism that declines to respond to cyber-utopianism with cynicism.

However, some of the underlying concepts implied by her discussion raise questions. At times MacKinnon writes as if it were beyond dispute that the internet as such constituted public space. As the empirical side of the book makes clear, the internet was always constituted by a curious mixture of influences, which often pulled in different directions: governmental, commercial and academic interests, various open-source/digital-commons style movements, and a vast mass of often not so tech-savvy users dependent on whatever we're given. Related to the questions of whether the internet constitutes properly public space, and of how far it makes sense to speak of its constituting a 'digital commons', is a question about its relation to mundane reality. The main

possibilities here are: the internet as transcendent of material reality, the internet as a mirroring of reality, a reproduction of it, but different from it, and the internet as embedded in material reality. The first two of these positions sometimes overlap, but they're incompatible with the last. MacKinnon is at her best when she grounds her position on the last of these options, and explores ways in which we might 'actively use the Internet to exercise our rights as citizens and to improve our societies' (224).¹⁷ But she is also inclined to use formulae that sit more happily with the second option. Thus, for example, she speaks of 'citizens of the Internet' and takes over the dodgy neologism 'netizens' (223).

MacKinnon has no difficulty in disposing of such extravagant polemics as John Perry Barlow's 1996 'A Declaration of the Independence of Cyberspace' (232), which demands that the 'weary giants of flesh and steel' in the real world leave 'us alone' because 'You have no sovereignty where we gather'. He should try connecting on the day after the 'weary giants' quit running the telecoms infrastructure, generating electricity, and making and distributing computer hardware. Even ten years ago, Milton L. Mueller could see that the internet's 'status as a revolutionary force that disrupts existing social and regulatory regimes' was 'coming to an end'.¹⁸ Some of the terms MacKinnon uses reflect the mirror concept of the internet, and bring with them the uncertainty characteristic of this concept about whether the relation between the online and real worlds is figurative or literal.

For example, a chapter on 'Facebookistan and Googledom' starts with discussion of the analogy drawn by the Hong Kong scholar Lokman Tsui between Facebook and a paternalistic, authoritarian government (149). As MacKinnon herself realises, people are fond of comparing Facebook to a state, often by noting 'If it really were a country, it would be the world's third largest...' (150). But, at the risk of stating the obvious, the crucial thing to say about this is that Facebook is not a country - and nor is Google or Yahoo or Twitter or any other online system. Much of MacKinnon's acute and sceptical analysis implicitly recognises as much. But she is also drawn, every so often, to formulations that do not. She had earlier approvingly cited Lawrence Lessig's claim that 'software code and technical standards are for all practical purposes a new form of law, because just like laws, they shape what people can and cannot do' (25). But this is to stretch the concept of 'law'. One might as well say software code and technical standards are a new form of weather, because, like the weather, they shape what people can and cannot do. Of course, Montesquieu did elide law and weather in seeking to create a single

framework for understanding natural laws, law of nature and positive law. But what happens when what starts as an analogy suddenly hardens into an assertion of fact is a far cry from Montesquieu's exhilarating system-building. MacKinnon's discussion of Facebook and Google usefully examines the ways in which users find themselves at the mercy of agreements and procedures that they have next to no chance to negotiate, so their only option is to agree or to opt out. But one can opt out. Opting out of a state is a trickier business, as MacKinnon recognises, and becoming a completely stateless person doesn't just mean that one's life is a bit awkward: it means that pursuing any coherent plan of living becomes impossible. On the one hand, MacKinnon realises that 'A physical government's power over the individual is not in any way comparable to the power that any Internet company holds over any person' (150). On the other hand, at the end of the chapter that is exactly the comparison she draws in likening Facebook and Google to authoritarian Hobbesian sovereigns in need of a Lockean overhaul (164-5).

It's a dodgy comparison – not least because of its implication for the commons. The rights that Locke was most concerned to uphold against (among others) a Hobbesian sovereign were property rights. Admittedly, property for Locke means life and liberty as well as 'estate'. But it does include property as ownership. Locke's account of the origins of private property effectively generates a natural right to property which positive law cannot override, and creates a procedure whereby what is held in common may be justly appropriated by an individual.

It's tempting nowadays to appeal to Locke, because his version of natural rights anticipates modern concepts of human rights.¹⁹ But his individually possessed natural rights also inform a justification for appropriating the commons. Locke had no qualms, for instance, about furnishing a philosophical justification for the European appropriation of the New World: in his eyes it was effectively unoccupied and unclaimed. Lockean principles would probably promote the so-called tragedy of the digital commons, and lead one in a fatalistic, Hardin-esque way to accept it as inevitable. It might be better to stand aside from the analogy between the internet and any sort of polity, and explore ways of maintaining what's valuable in the 'digital commons' by drawing on such dogged and creative critics of Hardin's case as applied to the real world as the late Elinor Ostrum. Ostrum was tireless in devising ways in which people could manage common resources in a way that was to one side of the state, but she was thinking about the shared material and social

world, and she didn't simply wish the state away as some kinds of net idealism are inclined to do.

MacKinnon gets her version of John Locke to sound surprisingly communitarian by saying that he 'drew inspiration from a rebellious group of men known as "The Levellers"' (164). He learnt something from them, to be sure. But he was anything but a natural rebel himself, even if his principles could be used to justify the Glorious Revolution of 1688. What Locke really preached wasn't a right to rebel so much as the people's right to deal with a rebellion against their own authority by a government to which they had delegated power. Though Locke's principles have been influential, virtually no state has ever accepted them in full, for this would involve recognising absolute individual property rights. Any project involving a compulsory purchase order would be stillborn. Though MacKinnon claims that 'most people no longer accept' Hobbesian sovereignty (165), and that view looks fairly plausible from inside liberal democratic western polities, it's possible to argue that liberal institutions have been inscribed within sovereign states to whose ultimate character Hobbes is a better guide than Locke. Hence the continuing purchase of the realist tradition in International Relations theory. The breezier kinds of idealism associated with the internet have a way of ignoring the hard, Hobbesian facts of life in their blithe supposition that the internet transcends territorial borders and this worldly sovereignty. For the most part, MacKinnon's discussion recognises as much. She's especially illuminating on the way 'Networked Authoritarianism' practised in China actually works, explaining that it's not solely by repression, which would be uneconomic, and would deprive China of some of the economic benefits it seeks from the internet (34-50). But every so often the book's rhetoric flirts with a different, less coherent position.

IV Technology and the Rebirth of Tragedy: Arendtian Reflections

As soon as one recognises the ultimately this-worldly character of the internet, and the physical existence of its systems within specific territories, and, for all its air of boundlessness, its dependence on limited resources, one has to recognise also that its politics are, at best, the continuation of the politics of the world at large by other means. Andrew Blum's travels in search the physical stuff of the internet makes its situated, material character clear,²⁰ and every so often an argument crops up in the real world which acknowledges that materiality – as, for

instance, in the ambition of the Brazilian government, in the wake of Edward Snowden's revelations about the USA's electronic, global eavesdropping, to develop its own material infrastructure for e-mail and the like, physically located in Brazil under Brazilian jurisdiction.²¹

In a sense these conceptual confusions over exactly what kind of thing the internet is reflect ambiguities in liberal polities about public space. Especially from a civic republican point of view, the idea of public space is a tricky one in liberal states. On the one hand, according to Kantian prescription, it's the space in which we can all make unfettered use of public reason. On the other hand, in respect of any civic function, we're obliged on Kantian grounds to practise unquestioning obedience.²² Hence Eichmann's appeal to Kant. This may be one of the signs that the liberal polity is embedded in an ultimately Hobbesian state. Of course, we dislike the idea of unquestioning obedience; but the fate of whistleblowers suggests that Kant's insistence on unquestioning obedience in respect of all civic functions may not be very far from what we practise. Kant's bold assertion of the freedom of public reason starts to look as if it might be almost the opposite of what it seems: an assertion of the freedom not of public, but of private reason. Many of the rights most insisted on in liberal democracies are not positive rights of public participation; they are, in Berlin's sense, negative rights, and their effect is often to define zones of immunity from state interference, such as privacy. And the internet in some ways does more to expand the range of essentially private projects one can pursue, rather than to construct properly public space for debate and action on the part of an entire political community. Hence its tendency to gather people in clusters of the likeminded, and the unrivalled opportunities it affords for pornography. It makes all kinds of differences, but it doesn't, giddy rhetoric notwithstanding, transform the underlying problems of ontology and collective agency.

Hannah Arendt surveyed liberalism and the character of public action with a deeper scepticism about the benefits of modernity than Mill had entertained, never mind latter day internet-utopians. She was at once more optimistic and more sceptical than Tocqueville. The terms in which Arendt addressed the question of political action and historical freedom and weighed them vis-à-vis modernity are instructive. For Arendt political action is possible only insofar as people come together in debate and ultimately in common purpose. Though she evinces admiration for the works of *homo faber* in their place, they have no place here, save in creating the human world out of nature. For Arendt political action is

necessarily collective; but, though she speaks of people coming together in this way as having 'natality' (the capacity to initiate the new and to break from the hypnotising constraints of abstract social laws), she eschews a freedom that transcends history. Her warnings about the dangerous blandishments of unfettered rationality chime with Hayek's – especially the lessons he found in totalitarianism, that it preaches simultaneously (and impossibly) that we are subject to iron laws and that anything is possible. This was a contradiction to which, as Arendt was aware, modern liberalism and modernity in general were prone. It is an insight she sums up by warning us against leaving the planet. For Arendt we exercise our agency by engaging with each other within the human condition, where 'condition' has something of its etymological significance of speaking together, besides acknowledging the kinds of constraints that shape the exercise of our collective freedom, but without merely subjecting it to historical determinism.

How then to think about political agency, its creativity and its constraints? Without quite sharing her enthusiasm for the elitist ancient polis, it's worth keeping Arendt company for a moment in her Germanic fascination with classical Greece. It is possible that the Athenians looked to tragedy for part of their answer to this question. Many of the surviving Greek tragedies, especially those of Sophocles, may be read as dramatising the proper scope of different spheres of action. If (a big if) Greek tragedy can be interpreted as part of a programme of civic education in the scope of proper action, what is one to make of the increasingly technical character of much modern education? Possibly that a technical spirit is manifest in things other than technology per se, and that it is devoted to the conviction that our engagement with the world can be satisfactorily framed in terms of problems and solutions. This makes for a robust but limited optimism. No setbacks are final, no problems insoluble. Even the greatest disaster is merely a problem that has not yet been solved.²³ This approach thins the terms in which we might debate our futures. No setbacks need ever imply that we are embarked upon quite the wrong course: merely that we need to be more inventive and committed in our pursuit of it. In its own terms it is immune from fundamental challenge. And its own terms loom very large in policy-debate. On the one hand this makes the direction mapped out by the multiplication of technical, problem-solving resources peculiarly inarguable. Technical power of this sort is so much freer of the zero-sum constraints of many other forms of political power, that it appears folly not to pursue it. Whose life is so free of problems that they can

rationally be deemed not to endorse the further acquisition of these supposedly primary capacities for solving problems?

Among the things that this attitude of mind has no room for is the finality of death. This clears the way for the development of forms of politics grounded on the overriding value of life as such.²⁴ In a purely technical way this refusal to grasp death is expressed in various anti-death technologies, ranging from medical procedures to prolong life or to deny or defer the effects of ageing, to outright bids for immortality. But the attitude predates these technologies. Certain kinds of belief in a personal afterlife can furnish the means to express it. But, with Arendt's warnings in mind, we might do better to bring tragic wisdom about the fragility of our being and our scope for action to bear in our relations with technology.

Notes

- 1 This is an abridged version of an article, the full text of which also considers two other books: Andrew Barry, *Political Machines: governing a technological society* (London: The Athlone Press, 2001) and Chris Hables Gray, *Cyborg Citizen: Politics in the Posthuman Age* (New York: Routledge, 2002). The full text will be made available at <https://birkbeck.academia.edu/JamesBrown>. I am grateful to Sam Ashenden for constructive criticism of an earlier draft of this article.
- 2 However, for a useful survey, see Carl Mitcham, *Thinking through technology: the path between engineering and philosophy* (Chicago: University of Chicago Press, 1994).
- 3 See, for example, Jacques Ellul, *The Technological Society*, trans. by John Wilkinson (New York: Vintage Books, 1967) and Lewis Mumford, *Technics and Civilization* (New York: Harcourt Brace, 1934).
- 4 See Robert L. Heilbroner, 'Technological Determinism Revisited', in *Does Technology Drive History? The Dilemma of Technological Determinism*, ed. by Merritt Roe Smith and Leo Marx (Cambridge, Mass.: MIT Press, 1994).
- 5 See, for example, Karl Marx, *Capital* Vol. 1, trans. by Ben Fowkes (Harmondsworth: Penguin, 1976), p. 342.
- 6 See Herbert L. Sussman, *Victorians and the Machine: The Literary Response to Technology* (Cambridge Mass: Harvard University Press, 1968), and Bruce Mazlish, *A new science: the breakdown of connections and the birth of sociology* (New York: Open University Press, 1989), especially chapters 4-5.
- 7 Lewis Mumford, *The Myth of the Machine Vol. 2: The Pentagon of Power*, New York: Harcourt, Brace Jovanovich Inc, 1970).

- 8 See, for example David Collingridge, *The Social Control of Technology* (Milton Keynes: Open University Press, 1981).
- 9 Albert Borgmann, *Technology and the Character of Contemporary Life* (Chicago: University of Chicago Press, 1984).
- 10 See Wieber E. Bijker, Thomas P. Hughes, & Trevor J. Punch, eds, *The Social Construction of Technological Systems* (Cambridge MA: MIT Press, 1987).
- 11 See, for example, Bruno Latour, 'Where are the missing masses? The sociology of a few mundane artefacts' in *Shaping Technology/Building Society*, ed. by W. Bijker & J. Law (Cambridge Mass.: MIT Press, 1992).
- 12 Anthony Giddens, *The Constitution of Society* (Cambridge: Polity, 1984).
- 13 Max Weber, 'Parliament and Government in Germany under a New Political Order' in *Political Writings*, ed. by Peter Lassman and Ronald Speirs (Cambridge: Cambridge University Press, 1994), p. 158.
- 14 Jon Agar, *Turing and the Universal Machine* (Duxford: Icon Books, 2001).
- 15 Michèle Martin. *Hello Central? Gender, Technology and Culture in the Formation of Telephone Systems* (Montreal: McGill/Queen's University Press, 1991).
- 16 John Stuart Mill, *Considerations on Representative Government*, chapter 2, in *Three Essays* (Oxford: Oxford University Press, 1975). See also Agar's discussion of Mill in *The Government Machine*, pp. 30-1
- 17 See also the section of *Consent of the Networked* on 'Utopianism vs Reality', pp. 232-37.
- 18 Milton L. Mueller, *Ruling the Root: Internet Governance and the Taming of Cyberspace* (Cambridge, Mass.: MIT Press, 2002), p. 267.
- 19 Richard Dagger, 'Rights' in *Political Innovation and Conceptual Change* ed. by Terence Ball, James Farr & Russell L. Hanson (Cambridge: Cambridge University Press, 1989), pp. 292-308.
- 20 Andrew Blum, *Tubes: Behind the Scenes at the Internet* (London: Viking / Penguin, 2012)
- 21 Amanda Holpuch, 'Brazil's controversial plan to extricate the internet from US control', *The Guardian*, 20 September 2013 <<http://www.theguardian.com/world/2013/sep/20/brazil-dilma-rouseff-internet-us-control>> [accessed 20 September 2013].
- 22 Immanuel Kant, 'An Answer to the Question: 'What is Enlightenment?'' in *Political Writings*, trans. H.B. Nisbet (Cambridge: Cambridge University Press, 1991), p. 55.
- 23 Leon R. Kass, 'Introduction: The Problem of Technology' in *Technology in the Western Political Tradition*, ed. by Arthur M. Melzer, Jerry Weinberger & M. Richard Zinman (Ithaca: Cornell University Press, 1993).

- 24 Hannah Arendt, *The Human Condition* (Chicago: University of Chicago Press, 1958), pp. 311-20; cf Giorgio Agamben, *Homo Sacer: Sovereign Power and Bare Life*, trans. by Daniel Heller-Roazen (Stanford: Stanford University Press, 1998).