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Cybernetics, Anarchism and Self-organisation

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Abstract: The revival and reinvention of anarchist theory in the second half of the twentieth century shared the conceptual stage with the advent of cybernetics. Through a consideration of the works (among others) of Sam Dolgoff, John McEwan, Grey Walter, Paul Goodman and Gregory Bateson, I highlight a few key moments in which the new scientific concepts of systems, circular causality, and self-organisation found their way into anti-authoritarian theory. By untangling the multiple strands of this complicated encounter between anarchism and twentieth-century science, we can better understand the genealogy of contemporary notions around self-organisation, networks and horizontalism, avoid some of the pitfalls encountered by an earlier generation, and find inspiration in some of the avenues afforded by this intersection which are yet to be fully explored.

Keywords: *cybernetics, anarchism, self-organisation, Ward, Dolgoff.*

In 1972, the New York City anarchist and Wobbly, Sam Dolgoff, published his *Bakunin on Anarchy*, a seminal anthology that made a representative sample of Bakunin's work available to the English speaking public, much of it for the first time. Coinciding with the revival of interest among parts of the New Left for the classics of anarchist theory, Dolgoff's collection was, rather than a scholarly exercise, very much a book intended for and coming from a political movement.
Among the excerpts from *Statism and Anarchy* included in the anthology was the following passage:

> No state, however democratic – not even the reddest republic – can ever give the people what they really want, i.e., the free *self-organization* and administration of their own affairs from the bottom upward, without any interference or violence from above, because every state, even the pseudo-People's State concocted by Mr. Marx, is in essence only a machine ruling the masses from above, through a privi-

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> leged minority of conceited intellectuals, who imagine that they know what the people need and want better than do the people themselves. (Bakunin 1972: 355, emphasis mine)

Besides being a very succinct statement, circa 1873, of the anarchist critique of the state as an instrument of revolutionary politics, there is something very interesting about this quotation: *Bakunin himself never used the word self-organisation*. The original Russian text of Государственность и анархия (*Gosudarstvennost' i anarkhiia*) talks about организация (*organizaciya*) rather than Самоорганизация (*samoorganizaciya*) (Bakunin 1967: 20). The authoritative French translation, *Étatisme et Anarchie*, prepared for the International Institute of Social History's *Archives Bakounine* in 1967, renders the sentence in question as:

> Ainsi, aucun Etat, si démocratiques que soient ces formes, voire la république *politique* la plus rouge, populaire uniquement au sens de ce mensonge connu sous le nom de représentation du peuple, n'est en mesure de donner à celui-ci ce dont il a besoin, c'est-à-dire *la libre organisation de ses propres intérêts, de bas en haut, sans aucune immixtion, tutelle ou contrainte d'en haut* ... (Bakunin 1967: 220, emphasis mine)

It seems that Dolgoff's edition, therefore, deliberately puts the word self-organisation into Bakunin's mouth – an addition that the contemporary anarchist reader, habituated to the naturalised use of the term, is likely to fail to notice. While Dolgoff did not personally translate the fragment in question (he relied on Wanda Sweida and Nina Samusin for translation from the Russian original), another text in the anthology, *Lettres à un Français sur la crise actuelle* – which *was* translated by Dolgoff himself – displays identical additions:

> What should the revolutionary authorities – and there should be as few of them as possible – do to organize and spread the Revolution? They must promote the Revolution not by issuing decrees but by stirring the masses to action. They must under no circumstances foist any artificial organization whatsoever upon the masses. On the contrary, they should foster the *self-organization of the masses into autonomous bodies*, federated from the bottom upward. This could be done by winning the cooperation of the most influential, the most intelligent, and the most dedicated individuals in each locality, to ensure that these organizations, as far as possible, conform to our principles. Therein lies the secret of our triumph. (Bakunin 1972: 196, emphasis mine)

In the original, this passage reads:

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> Que doivent donc faire les autorités révolutionnaires? ... Elles doivent non leur imposer une organisation quelconque, mais en suscitant *leur organisation autonome* de bas en haut, travailler à l'aide de l'influence individuelle sur les hommes les plus intelligents de chaque localité, pour que cette organisation soit autant que possible conforme aux vrais principes. (Bakunin 1907, 97, emphasis mine)

Even greater liberty is taken in another passage:

> With the abolition of the State, *the spontaneous self-organization of popular life*, for centuries paralysed and absorbed by the omnipotent power of the State, will revert to the communes. The development of each commune will take as its point of departure the actual condition of its civilization. (Bakunin 1972: 207, emphasis mine)

The original French text does not even mention *organisation*:

> Comme *la vie et l'action spontanée*, suspendues pendant des siècles par l'action absorbante de l'État, seront rendues aux communes, il est naturel que chaque commune prendra pour point de départ de son développement nouveau, non l'état intellectuel et moral dans lequel la fiction officielle la suppose, mais l'état réel de la civilisation. (Bakunin 1907: 113, emphasis mine)

Dolgoff himself states in his prefatory remarks that the contents of the anthology 'have been freshly translated to convey not only the sense but also the spirit in which they were written' (Bakunin 1972, xii). But why did he find it necessary, or desirable, to rewrite Bakunin in terms of 'self-organisation' in order to express this spirit?

Dolgoff's productive mistranslation of Bakunin, from 'free organisation' to 'free self-organisation', is far from an accidental slip; on the contrary, this four-letter addition encapsulates an entire history of an encounter between, on the one hand, the tradition of anti-authoritarian political theory, and on the other, the *sciences* of self-organisation. While the term 'self-organisation' will become prominent from the middle of the twentieth century onwards in a whole set of scientific research projects working through a tangle of related problems in: neurobiology; in the thermodynamics of open systems; and in biochemistry, embryology and artificial life, the science of cybernetics will provide the most direct model inspiring Dolgoff to situate the notion of 'self-organisation' at the heart of his radical critique of power and domination.

An entirely plausible account of the way Dolgoff encountered and appropri-

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ated this scientific term and concept for his political project is easy to construct. The story goes something like this: Grey Walter (the father of British anarchist Nicholas Walter), in addition to his important neurological work and early experiments in robotics, was something of an anarchist himself – *Freedom*'s 1977 obituary referred to him as 'an anarchist fellow-traveller during the 1950s and 1960s' (F. 1977: 7). His idiosyncratic interest in anarchism led him to publish an article, 'The Development and Significance of Cybernetics' in Colin Ward's journal *Anarchy* in 1963, prompting a response later that same year in the same journal from computer scientist John McEwan, 'Anarchism and the Cybernetics of Self-Organizing Systems'. Dolgoff would pick up on this later article, citing it favourably in his 1970 essay 'The Relevance of Anarchism to Modern Society', which, while not using the term self-organisation, is nevertheless a kind of manifesto for cybernetic anarchism, re-evaluating the tenets of classical anarchist theory in the early years of the rise of the network society, which is deeply concerned with demonstrating the compatibility of the political project of self-management with the new technical models for decentralised, adaptive, and more efficient systems of self-regulation. And the rest, as they say, is history.

Before unpacking this story in a little more detail, it is worth explaining why this philological exercise is relevant to the anarchist project today. It is indicative of the success of this transfer of the term self-organisation from the science of cybernetics to the anarchist lexicon that the awareness of the origins of the term is nearly absent in the contemporary radical discourse that employs it.[1] Rather than a suggestive model or metaphor, self-organisation functions in many cases as a self-evident and self-sufficient axiomatic unit, a basic term of the normative ontology of radical political action. Consider, for example, the banner hanging on the occupied GSEE building in Athens in 2008, during the widespread and largely anarchist mobilisations following the police murder of fifteen-year-old Alexandros Grigoropoulos. On it, the text read 'Workers' self-organisation will become the bosses' grave' (General Assembly of Insurgent Workers: 2008). It would be difficult to argue here that there is really any reference in this banner text to the long discourse of self-organisation in the sciences – in the heat of the moment, this is a word pulled out of the lexicon proper to the revolutionary, a term at hand, comprehensible, fully naturalised.

Unpacking this naturalisation is not just a matter of identifying the scientific sources of self-organisation in radical political discourse. It seems highly unlikely that the sciences of self-organisation – which even among themselves can only in the loosest of terms be considered to be studying the same phenomenon – happened conveniently upon a concept whose application to the political domain is entirely unproblematic, a perfect match that could be neatly applied backwards onto Proudhon and Bakunin and projected forward onto the dynamics and aspirations

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of the anti/alter-globalisation movement and the current global wave of pro-democracy/anti-austerity protests. The pervasive adoption of the term self-organisation in the political domain points not just towards the flows of a lexical resource, nor just to the redeployment of a concept or a metaphor in a new context, but to a productive conflation of domains, an encounter between the 'scientific' and the 'political' that is far from a one way street. The history of the ways in which self-organisation has migrated across the boundaries of scientific disciplines and radical social movements is, rather than a linear genealogy, a multiply connected history of resonances and encounters.

The sciences are thus relevant to radical politics not just because we can identify the encounters in which these sciences were reread, appropriated, and inserted into radical discourse. We should also take seriously the status of the sciences of self-organisation *as sciences*, that is, as practices capable of telling us something we otherwise would not know about the behaviour of systems. These sciences, then, *as sciences*, can inform the project of political self-organisation, clarifying what this project might mean, and helping elaborate strategies for its implementation. Arturo Escobar, activist and scholar of social movements, has made this case quite forcefully in the context of the World Social Forum process:

> What I am suggesting is that in cyberspace and complexity we find a viable model of social life. This model is based on self-organization, non-hierarchy, and complex adaptive behaviour on the part of agents. This model contrasts sharply with the dominant model of capitalism and modernity, particularly in their incarnation as neoliberal globalization (NLG). This model is closer in spirit to philosophical anarchism and anarcho-socialism and may provide general guidelines for internationalist networking. The model of self-organization (SO), finally, constitutes an entirely different form for the creation of biological, social, and economic life. I suggest that the world's Left should consider this model seriously in its organizing, resistance, and creative practices. In the long run, this amounts to reinventing the nature and dynamics of social emancipation itself. (Escobar, 2004: 353)

Self-organisation is thus a concept that can be understood to provide a model for political organising, one that is not only appropriate to the historical moment (the age of networks), nor just uniquely effective (a supple, adaptive, complex mode of organisation adequate to the problems of a globalised world), but one that, as a way to name and specify what we mean by democracy, establishes at the heart of the political process the kind of social relations we want to emerge as a result of this very process. This is an example *par excellence* of what David Graeber and other participant-observers of recent social movements have termed 'prefigurative politics'

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(Graeber 2002: 72) – where one eschews (for instance) the canonical Marxist approach to social change involving necessary stages and a concomitantly deferred utopia realised in the post-revolutionary future when the state has withered away. Instead, in the prefigurative approach, the revolutionary process is made to resemble, as much as possible, the desired post-revolutionary society in its essential ethical attributes. A good example here is the emphasis on consensus-based decision making in recent social movements – far from being just an extreme procedural variant of majoritarian democracy, consensus (when it works) incorporates into the political process an ethic of communication and mutual respect (Gordon, 2008).

Yet self-organisation, understood as method and goal, as norm and instrument, while laying the foundations for a non-hierarchical, distributed logic and ethic of political practice, only does so in the abstract: we need to ask who or what is self-organising? And how successfully? If self-organisation is to be understood as radical democracy and horizontal self-determination, this is, in some sense, an idea without content – surely this maximally ethically consistent trajectory is going to meet resistance as it is realised in history. The principle of self-organisation is, in both successes and failures, necessarily manifested in concrete assemblages, always impure, subject at least in part to other tendencies away from the elegant prefigurative solution (in which the means are not only understood to resemble the ends desired, but because of this very resemblance the former are understood to be uniquely adequate to the task of realising the latter). A similar challenge exists for the investigation and theorisation of social movements: how do we avoid reifying self-organisation into something distinct from, above or behind, the actual immanent development of a self-organised social movement?

As an example, consider the practice of the general assembly, whose proximate origins are in Argentina's experience of financial crisis and popular revolt, but that has recently become generalised in the North American context in the wake of Occupy Wall Street. It is all too easy to for such assemblies to become rituals of democracy, where the assembly merely resembles what we envision democracy to be ('This is what democracy looks like'?), and the value of enacting the assembly is thus justified by the strength of this analogy, rather than in any concrete transformation of social relations: magical thinking for anarchists.

The historical project that traces the plural genealogies of self-organisation as it criss-crosses the scientific and political domains is thus useful as a way to de-familiarise and de-sediment a concept we may take entirely too much for granted. Focusing, as I do here, on the role of cybernetics is particularly salient, given the ways in which the re-elaboration of self-organisation in radical politics starting in the 1990s tended to run in parallel with a new enthusiasm for exactly the kinds of technology cybernetics would give rise to; recall that the boom-time of resistance

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stretching from the Zapatista uprising to Seattle and subsequent mobilisations coincided more or less exactly with the real deployment of the Internet. We can also recall (with all due scepticism) the role that technologies like Facebook and Twitter played in revolts from Tunisia and Tahrir Square to Wall Street and beyond. The wager here is that the political notions of 'self-organisation' that we find map so neatly onto the emergent behaviours of human beings interacting horizontally through globe-spanning electronic networks are themselves in part derived from concepts proper to the technological prehistory of these very networks. Cybernetics, which synthesised the post-World War II advances in computer science, feedback control, and information and systems theory into a generalised philosophy of technology, will provide particularly salient versions of what self-organisation might mean, especially as the so-called 'second cybernetics' turns its attention to the design of unpredictable, adaptive systems and the construction of human/machine/network interfaces.

BATESON AND GOODMAN FOR AND AGAINST SELF-ORGANISATION

It is quite clear that many of the leading anarchist writers of the post WWII period had a fairly extensive interest in the new sciences of complex emergent behaviours that were making their entrance into the conceptual milieu of the period, and in many cases, explicit contact with some of the luminaries of this scientific world. At times, radical political thinkers even seemed to be asking more from the sciences than the scientists were willing to offer. The sciences of self-organisation seemed to promise a thoroughly objective ground or confirmation for the political intuitions about the value of decentralisation and autonomy circulating at the time in the anarchist wings of the New Left.

Consider the exchange that took place in 1969 between anarchist Paul Goodman and Gregory Bateson. The psychologist and anthropologist Bateson, as one of the few non-technical participants in the Macy Conferences that launched cybernetics as a unified field of inquiry, was responsible for much of its reach and appeal outside of the narrow technical circles it might otherwise have been confined to. The two had likely met for the first time at the 1967 *Dialectics of Liberation* conference in London, and were in close contact with each other at least as early as 1968, when Bateson arranged for Goodman to teach a one semester, non-credit course at the University of Hawaii on the 'understanding gap' that would 'deal with characteristics of youth movements like the Narodniks, the Hippies and the New Left; difficulties of being an authentic workman or professional; possibilities of decentralisation in modern technological and urban conditions; the spirit and actuality of the American democratic process; growing up, education and schooling' (Bateson Papers, 1968a).

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In 1969, Goodman sent Bateson a manuscript entitled 'The Reformation' that was to form the backbone of Goodman's last book of social criticism, *New Reformation: Notes of a Neolithic Conservative*. In the manuscript, Goodman explicitly cites Bateson's own cybernetic epistemology and its appreciation for the unknowable and uncontrollable; a humility appropriate to our encounters with unpredictably complex systems. He goes on to extrapolate from this in the environmentalist direction Bateson himself followed at the 'Dialectics of Liberation', pointing towards the 'ecological wisdom of cooperating with Nature rather than trying to master her'. But underlying all of this for Goodman is a radical appreciate of decentralisation; he first poses this notion as a general principle of how complex systems can best function ('a complicated system works most efficiently if its parts readjust themselves decentrally, with a minimum of central intervention or control') and then transposes this claim to the ethico-political sphere ('a society that distributes power widely is superficially conflictual but fundamentally stable') (Goodman, 1969). Bateson objects to this generalised valorisation of decentralisation in his response:

> You say 'A complicated system works most efficiently if its parts readjust themselves decentrally, with a minimum of central intervention or control'. I know this thesis is central to much of your thinking but it is only partly true and I think you should spell out the components of truth and untruth in it. After all, the whole evolutionary history of the brain shows that there must be some advantage in centralization of control. But centralization has its disadvantages. The information available at the center can never be more than a summary description of what was happening at the periphery. The president can never read anything more than a 300 word summary of a 500 page government report. He can therefore never understand anything. No whole can be represented in any small part of itself. But what is useful about centralization is that it is at least possible to bring together at the center at least summaries of what is happening at mutually distant parts of the periphery. It is this that gives centralization an evolutionary advantage. It shows logically that you cannot decentralize without simultaneously reducing the periphery distances. This means reducing the total size of the system. (Bateson Papers, 1969)[2]

Interestingly, before embarking on a long and playful discussion on overcoming the dualisms of the dialectic, which would span many exchanged letters and veer off in half-serious digressions about theology and Spinoza, Goodman attempts to counter Bateson's arguments against decentralisation. His response accepts Bateson's information-theoretic critique of total decentralisation, but puts his own spin on it

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– rather than arguing, like Bateson seems to, that the centralised office and executive power of the President is necessary to deal effectively with a massive network of social relationships fundamentally incapable of representing itself to itself, Goodman envisions a centre grounded in co-present subsystems sharing communicative horizons, in which a local community would ask for information from the centre, rather than reporting to it. Besides arguing against Bateson's objections on the terrain of utopian imagination (where Goodman certainly has an unfair advantage!), he also tries to salvage the claims to a properly *scientific* truth for his judgements in favour of decentralisation, mobilising his own qualifications as a scientist by citing an experiment performed by Ralph Hefferline, one of Goodman's co-authors on the book *Gestalt Therapy: Excitement and Growth in the Human Personality*. As Goodman later describes this experiment in *New Reformation*, highlighting the counterproductive nature of explicit, centralised control:

> A subject is wired to suffer an annoying regular buzz, which can be delayed and finally eliminated if he makes a precise but unlikely gesture, say, by twisting his ankle in a certain way; then it is found that he adjusts more quickly if he is *not* told the method and it is left to his spontaneous twitching than if he is told the method and tries deliberately to help himself – he adjusts better without conscious control, either the experimenter's or his own. (Goodman, 2010: 45)

Goodman also challenges Bateson's account of the evolution of centralisation of control in the brain. He objects that the development of the brain represents the result of millennia of evolutionary selection, and thus its hierarchical position in the animal body as a centre of control is in no way comparable to the relatively short-lived experiments carried out by human societies. Here, Goodman characterises the presence of hierarchy as 'central social arrangements after circuited by ignorant whimsy or mere power' (Goodman, 1969). Biology, for Goodman, thus seems to be relevant for social thought only on the time scale in which complex and interconnected systems can develop emergent behaviour, but not on the longer time-scale of the emergence proper to natural history. It is the time-scale proper to spontaneous biological creation – and to the new technologies of electronic life that will seek to reimplement it – that is most relevant for the utopian imagination of decentralisation.

ROBOT TORTOISES AND NETWORKED ANARCHY

Developments of this kind of life-like technology, capable of learning, adaptation, and autonomy, provide the backdrop for the significant encounter between cyber-

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netics and anarchism I began sketching in the first pages of this article. This story begins with an article written for Colin Ward's journal *Anarchy* by neurologist William Grey Walter, a leading member of the British cybernetics circle centred around John Bates' Ratio Club (Holland, 2003: 2093).

Walter's primary research lay in the field of neurology – especially during the 1930s and 1940s, Walter was probably the most pre-eminent researcher in the new field of electroencephalography, producing new and more refined ways to measure the electrical activity of the brain. But his sideline in experimental robotics, carried out in the late 1940s and 1950s, is more intriguing for this article. Walter's 'tortoises' were very simple robots, designed to experimentally incarnate Walter's model of neurological function as a process whose main determinant is not the neurons themselves, but the number of connections between them. The 'tortoises' coupled a photo-sensing apparatus to a basic motor circuit that would rebound from obstacles it came into contact with, in such a way that they displayed emergent 'behaviours' arising out of the interactions between this basic coupling and a simple environment of light sources and obstacles.[3] Most notably, Walter experimented not just with his tortoises in isolation, but put his machines ('ELSIE' and 'ELMER') in contact with one another (each one given a headlamp to act not just as an obstacle but as a 'desirable' source of light for the other), generating unpredictable and highly suggestive forms of social behaviour. Time-lapse photographs taken in Walter's home laboratory record the traces of the strange dances of ELSIE and ELMER in their coupled operation.

Walter was immediately taken with the potential relevance of his robots surprisingly life-like behaviour to larger questions of social organisation, envisioning a non-linear model of emergent social dynamics:

> Simple models of behaviour can act as if they could recognize themselves and one another; furthermore, when there are several together they begin to aggregate in pairs and flocks, particularly if they are crowded into a corral ... The process of herding is nonlinear. In a free space they are individuals; as the barriers are brought in and the enclosure diminishes, suddenly there is a flock. But if the crowding is increased, suddenly again there is a change to an explosive society of scuffling strangers. And at any time the aggregation may be turned into a congregation by attraction of all individuals to a common goal. Further studies have shown that in certain conditions one machine will tend to be a 'leader'. Often this one is the least sensitive of the crowd, sometimes even it is 'blind'. (Walter 1957)

Personally, Grey Walter was a nonconformist, an atheist, and something of a showman – among other popular exposure in magazines and exhibitions, he worked

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his way (along with ELSIE and ELMER) onto the BBC in 1950, in the short feature 'Bristol's robot tortoises have minds of their own'. And most interestingly, Grey Walter was, according to his son Nicholas, also something of a political radical, with pre-war ties to British Communism until the mid 1940s, becoming more sympathetic to anarchism after the war (N. Walter, 1990). So it is perhaps not so surprising that this public intellectual and left-leaning spokesman for British cybernetics would be asked in 1963 to contribute an article to Colin Ward's journal *Anarchy* on the field and its potential relevance to the anarchist milieu.

The article that results, 'The development and significance of cybernetics', is, for all that, not terribly interesting (Ward, 1966). It begins with a popular rehash of the historical origins of cybernetics and its current state, including an overview of Walter's own experiments with ELSIE and ELMER as well as CORA. The major point Walter seems to want to make in his short article is that cybernetics is valuable because, although still in its infancy as a science, it allows us to make meaningful claims about the dynamics and organisation of systems regardless of the particular concrete substrate in question:

> ... observations on systems as diverse as the dark world within our skulls, the flashing lights of a busy city, the meanderings of an artificial animal and the lonely terror of a mental ward may illuminate one another to provide a general idea from which each in turn may benefit ... the cybernetic approach can both unify apparently remote concepts and dissolve away the aura of transcendental influence that surrounds such terms as 'intelligence', 'purpose', 'thinking', 'personality', 'causality', and 'free-will'. (Walter 1963: 87-88)

Writing largely as a scientist rather than any sort of revolutionary for most of the article, it is only in the last two pages that Grey Walter begins to consider the political ramifications of cybernetics, and even here his focus is on using it to explain characteristics of existing state systems, notably in a systems-theoretic analysis of the stability of Western democracy. Briefly, he interprets the checks and balances in the process by which such systems translate suffrage into governance, and in the particular case of the American political system, how the timing of Presidential and Senate elections can be seen as a 'delicate adjustment', in the 'timing of elections to match the natural period of oscillation'. For Grey Walter, 'the ingenuity of the American Constitution reflects the cybernetic insight of its originators and its survival with only minor amendments since 1787 indicates its basic stability' (Walter 1963: 88).

Only the concluding paragraph of the article deals at all with the question of anarchism, and again, Walter's refusal to engage with the politics of cybernetics

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instead of the cybernetics of politics is somewhat frustrating. Nevertheless, the passage is highly suggestive:

> In comparing social with cerebral organisations one important feature of the brain should be kept in mind: we find no boss in the brain, no oligarchic ganglion or glandular Big Brother. Within our heads our very lives depend on equality of opportunity, on specialisation with versatility, on free communication and just restraint, a freedom without interference. Here too local minorities can and do control their own means of production and expression in free and equal intercourse with their neighbours. If we must identify biological and political systems our own brains would seem to illustrate the capacity and limitations of an anarcho-syndicalist community. (Walter 1963: 89)

Grey Walter's identification of neural dynamics with anarcho-syndicalist politics only goes so far, but it points towards a tantalising suggestion, namely, that decentralised, self-organising societies might be productively looked at as a kind of distributed intelligence. Walter's suggestive concluding remarks open the door to theorising the social system itself as something intelligent, a general intellect that exists not as that which is shared (the discrete knowledges of individuals), but in the sharing itself, within and through the decentralised, non-hierarchical, communicative relationships that bring people together in a way that looks less like a party or state and more like a brain or neural network.

John McEwan, a computer programmer by trade, will take up this direction and latent possibility when he responds to Grey Walter's piece with an article of his own, published in *Anarchy* in September of 1963, and titled 'Anarchism and the Cybernetics of Self-Organizing Systems'. McEwan, who seems to have studied at least briefly with Gordon Pask and Stafford Beer, and who draws upon their British tradition of 'management' cybernetics – focused on organisational dynamics and social interaction, rather than, say, artificial neurons or anti-aircraft guns – to articulate a case for anarchy based in the scientific concept of self-organisation, or as he states himself, 'to suggest that some of the concepts used by cyberneticians studying evolving self-organizing systems may be relevant to anarchist theory, and that some of the conclusions drawn from this study tend to favour libertarian models of social organization' (McEwan 1963: 270). This perspective on the relationship between anarchism and cybernetic theory will go on to influence not only Sam Dolgoff's understanding of self-organisation, but also Colin Ward's. McEwan's article would continue to resonate nine years after its initial publication, achieving wider circulation in C. George Benello and Dimitrios Roussopoulos' seminal New Left collection from 1972, *The Case for Participatory Democracy: Some Prospects for a Radical Society*.

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What is interesting about the direction hinted at in Grey Walter's identification of neural and anarcho-syndicalist dynamics, and fully embraced by McEwan in his own intervention, is the way revolutionary politics is reformulated with respect to a new material foundation, emphasising emergent dynamics and grounded by the way these dynamics are being made both more apparent and more prevalent by the rising techno-scientific paradigm. Self-organisation, in McEwan's essay, is not a metaphor to be used to think or imagine the political more clearly; on the contrary, he genuinely believes in the effective applicability of models and experimental results from management science and computer-aided learning to the anarchist project. These models and results 'tend to favour libertarian models of social organisation' – and so we see something a like a shift away from a moral vision of anarchism, outraged at the scandal of domination, to one that would ground the desirability of an anarchist society in the superior productivity of anarchist organisational methodology.

For McEwan, following Gordon Pask's studies of self-organising group learning, effective group decision making happens when the group is a self-organising system; he cites with approval Pask's findings suggesting that the institutionalisation of roles and procedures (and the concomitant threat of institutionalised hierarchy) actually lowers the group's ability to collaboratively process and act on the information it receives. McEwan uses Pask's results in an analysis of why informal shop-floor organisation can be more productive than the same workplace organised from without by a management committee: the former can make use of feedback from the productive process itself to define and redefine its own self-organised structure, while in the latter situation 'isolation from the process in terms of which the success of their own activity is defined ... is generally typical of the committee situation, which leads to their common failure to exhibit self-organising characteristics, and frequent inadequacy as decision makers' (McEwan, 1963: 275).

McEwan then goes on to consider larger scale groups, here following the thinking of Stafford Beer, who applied Ashby's 'law of requisite variety' to arrive at the insight that any kind of top-down administrative structure is going to run into problems from a cybernetic standpoint: the 'controller' at the top of the hierarchy will necessarily have a vastly smaller 'variety' than the complex system under its command, and therefore will not effectively respond to this system's behaviour. Beer thus advocates decentralisation, but critically; the point is not to decentralise into completely autonomous units, because at that point you would no longer have a system at all, but rather, as in the living organism, to seek an optimal balance of functionally coherent units together with flexible coupling and decentralised communication.

Ultimately, McEwan asks the reader to consider two models: the first is that of the 'rigid pyramidal hierarchy, with lines of "communication and command" running

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from the top to the bottom'. Against what he sees as this dominant model for organisational philosophy, McEwan proposes an alternative, drawn 'from the cybernetics of evolving self-organizing systems', decentralised, redundant, flexible, able to learn and change its own structure in response to 'a complex unpredictable environment'. The argument, then, is that cybernetics fills out the vague premonitory outlines of an 'adequate' socioeconomic theory hinted at in the anarchist tradition. For McEwan, Kropotkin in particular understood the need for decentralised self-governance (instead of and against centralised government authority) in a way that had a 'vague and ambiguous' presentiment of the truth of cybernetics (McEwan 1963: 278). It is here that McEwan takes issue with Grey Walter's claims about the supposed cybernetic insights of the planners of American electoral democracy, insisting that it is only really with the advent of libertarian socialism that we see anything resembling a real grasp of the dynamics of complex societies and the modes of (self-)control appropriate to these dynamics.

It is easy to see why McEwan's analysis functions as a kind of template for much of the radical left appropriation of the idea of self-organisation. But it is also easy to see its limitations and blind spots. McEwan's article retains the prescriptive flavour of much anarchist social theory; one gets the sense of a project that starts from theory (whether cybernetic or anarchist) and sketches out a utopian design. He admits that, as an integrated system, an anarcho-cybernetic economy will necessarily not be an undifferentiated mass of equal individuals, but rather that it will still make use of hierarchies, which will inhere as structural principles somehow without domination or coercion, in a fashion modelled after the levels of articulation in an organic body. The ideal of self-organisation is proposed, its productive virtues extolled, but the political question of reaching this goal and fending off institutional ossification is hardly posed at all, and many questions remain unaddressed. Can we self-organise our own process of self-organisation? If, as McEwan notes, lines of communication and other connections drawing a mass together into a system are necessary for self-organisation to occur, where do these come from? Where does the will to self-organise, or to establish the basis for self-organisation come from? Is it endogenous to self-organisation itself? *Pace* Ashby's and McEwan's own arguments against management by external committees, if it comes from outside, can we really still be speaking of self-organisation? And finally, McEwan's political schematisation rests on a very simple binary, with the inefficient pyramid of bureaucracy on the one side and the decentralised world of freedom and spontaneous self-organisation on the other. Even as he draws on examples like that of the flexible organisation of an unnamed capitalist corporation to make his points, little attention is given to the possibility that self-organisation might be more politically ambivalent than he wishes to make out, that domination and oppression may fare just as 'well' (or better) without a centre.

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Nevertheless, despite (or because of?) these limitations, McEwan's understanding of self-organisation has been the predominant model for the appropriation of the concept of self-organisation in the radical left. To say this is not to place blame on McEwan, anarchism or even cybernetics, but merely to call attention to the contingencies and pitfalls in the history of the concept, whether these readers, like Colin Ward and Sam Dolgoff, were directly influenced by McEwan, or arrived independently at similar conclusions.

For his part, Colin Ward would make the cybernetic conclusions reached by McEwan one of the cornerstones of his reformulation of anarchist theory. Starting in 1966 with his article 'Anarchy as a Theory of Organisation' and continuing through his major overview of anarchism in the book *Anarchy in Action*, the theory of self-organisation is used to buttress a vision of anarchy not as chaos, but as a harmonious, spontaneously emerging social order in which decentralised bottom-up decision-making outperforms any solution based in hierarchy and central control. It is in this context that self-organisation is deployed: 'Anarchy is a function, not of a society's simplicity and lack of social organisation, but of its complexity and multiplicity of social organizations. Cybernetics, the science of control and communication, throws valuable light on the anarchist conception of complex self-organizing systems' (Ward 1973: 50).

Ward goes on to highlight Grey Walter's and McEwan's contributions to this confluence of anarchism, complexity, and self-organisation. Ultimately, self-organisation is used to articulate a kind of revolutionary politics without the need to make the revolution, valorising and prescribing what will come to be called prefigurative strategies, practices building small-scale alternative projects embedded in everyday life – a kind of maximally organic, rhizomatic movement without vanguard or central direction: The anarchist conclusion is that every kind of human activity should begin from what is local and immediate, should link in a network with no centre and no directing agency, hiving off new cells as the original ones grow (Ward 1973: 58).

Sam Dolgoff will take the ideas of McEwan in a slightly different direction, although, as we have seen in his arguably deliberate mistranslations of Bakunin, one not too far from Ward's theories of spontaneous social order. For Dolgoff, self-organisation works in a double fashion – on the one hand, it is always been the case that anarchists have been talking about self-organisation, and on the other hand, it is only with the advent of an increasingly networked world that self-organisation becomes the means of achieving an anarchist society. This is perhaps most clear in Dolgoff's pamphlet 'The Relevance of Anarchism to Modern Society', in which he cites the McEwan article discussed above. For Dolgoff, 'complex societies necessitate anarchism' (Dolgoff 1989), by which he means that as the scale of the social system and its degree of interrelatedness multiplies, the only option for this system to be able to

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self-regulate becomes one in which decision-making is devolved to the local level in a decentralised fashion. Citing Proudhon, Bakunin, and Kropotkin, Dolgoff makes the case that classical anarchism was always concerned with this kind of justification, but that this concern is increasingly relevant as technology continues to compress global society into a more and more complex, interconnected system. Thus Dolgoff attempts to ground the emergence of self-organisation in the emergence of self-organisation, not in a tautological sense, but as a kind of acceleration towards a threshold, at which the increasing complexity of modern society – itself underpinned by a decentralised proto-anarchism being built 'in the shell of the old' – leads to more complexity and interconnection, grounding a transition to a global anarchist 'order' beyond the crisis of state and capital, both unable to keep up with the pace of social and technological mutation and complication.

Thus, 'the increasing complexity of society is making anarchism MORE and NOT LESS relevant to modern life'. A critical part of this complexity is the development of a new technological regime more conducive to a networked, bottom-up economy. Dolgoff quotes Marshall McLuhan in this regard:

> ELECTRICITY DOES NOT CENTRALIZE BUT DECENTRALIZE ... ELECTRIC POWER, EQUALLY AVAILABLE IN THE FARMHOUSE AND THE EXECUTIVE SUITE, PERMITS ANY PLACE TO BE A CENTER, AND DOES NOT REQUIRE LARGE AGGREATIONS ... airplanes and radio permit the utmost continuity and diversity in spatial organization ... (pp 47-48) ... by electricity, we everywhere resume PERSON-TO-PERSON RELATIONS ON THE SMALLEST VILLAGE SCALE ... IT IS A RELATION IN DEPTH, AND WITHOUT DELEGATION OF FUNCTIONS AND POWERS ... (p. 225) ... IN THE WHOLE FIELD OF THE ELECTONIC REVOLUTION THIS PATTER OF DECENTRALIZATION APPEARS IN MULTIPLE GUISES (from 'Understanding Media', Dolgoff 1989, emphasis original)

Dolgoff reintroduces cybernetics in this context as well: 'We consider that the constructive ideas of anarchism are rendered even more timely by the cybernetic revolution still in its early stages, and will become increasingly more relevant as this revolution unfolds'. Not only does cybernetics supply the rigorous statement of anarchism's philosophy of organisation, but it also names the historical era appropriate to the realisation of these conditions.

How, according to Dolgoff, can cybernetics help realise an anarchist society? First, cybernetics points towards an economy in which labour power ceases to be the determining element in production:

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> There are, even now, no insurmountable technical-scientific barriers to the introduction of anarchism. The greatest material drawback to the realization of the ideal of 'To each according to his needs from each according to his ability' has been the scarcity of goods and services ... 'Cybernation, a system of almost unlimited productive capacity which requires progressively less human labour ... would make possible the abolition of poverty at home and abroad ...' In a consumer economy where purchasing power is not tied to production, the wage system becomes obsolete and the preconditions for the realization of the socialist ideal immeasurably enhanced. (Dolgoff 1989)

Dolgoff is quoting here from the 1964 statement issued by the 'The Ad Hoc Committee on the Triple Revolution', a collective tract endorsed by a total of thirty-two signatories drawn broadly from the left, including Linus Pauling, Tom Hayden, and James Boggs. The letter, sent to President Johnson and published in *Liberation*, sought to address the simultaneous crises posed by the civil rights struggle, the threat of nuclear annihilation, and 'cybernation' – the increasing possibility of automation and the concomitant problems of unemployment. On the latter issue, the signatories in essence proposed that 'cybernation' needed to be addressed politically, turning a potential economic disaster (a catastrophic rise in unemployment) into the establishment of a kind of social or guaranteed wage, in effect, as Dolgoff suggests, severing the link between wages and labour:

> There is no question that cybernation does increase the potential for the provision of funds to neglected public sectors. Nor is there any question that cybernation would make possible the abolition of poverty at home and abroad. But the industrial system does not possess any adequate mechanisms to permit these potentials to become realities. The industrial system was designed to produce an ever-increasing quantity of goods as efficiently as possible, and it was assumed that the distribution of the power to purchase these goods would occur almost automatically. The continuance of the income-through jobs link as the only major mechanism for distributing effective demand – for granting the right to consume – now acts as the main brake on the almost unlimited capacity of a cybernated productive system (Ad-hoc Committee, 1964).

Dolgoff however, true to his anarcho-syndicalist convictions, does not imagine the solution to the emergence of this new economic order capable of resolving the contradictions of cybernation coming from a political decision made at the highest levels of state power. Rather, he envisions a bottom-up process of transformation, the intensification and multiplication of the networks of popular, local, and decentralised decision making. Here the cybernetic revolution underway re-enters the argument, as the basis for building such a network on a global scale:

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The progress of the new society will depend greatly upon the extent to which its self-governing units will be able to speed up direct communication – to understand each other's problems and better coordinate activities. Thanks to modern communications technology, all the essential facilities are now available: tape libraries, 'computer laundromats', closed television and telephone circuits, communications satellites and a plethora of other devices are making instant, direct communication on a world scale accessible to all (visual and radio contact between earth and moon within seconds!). 'Face-to- face democracy' – a cornerstone of a free society, is already foreshadowed by the increasing mobility of peoples (Dolgoff 1989).

Dolgoff's valorisation of the communicative possibilities inherent in the widespread deployment of new media technology is by no means unfamiliar to the contemporary reader; such Utopian enthusiasm for the possibilities of self-organisation unleashed by the spread of new technologies of communication have proliferated and intensified, both inside and outside anarchist circles, over the intervening decades. The problem with the vision that Dolgoff (and McEwan) advances is that by framing the idea of self-organisation in technological terms, the content of anarchism becomes something given in advance. Self-organisation becomes less about a labour of co-creation oriented towards the production of something new in a strong sense – unpredictable, unprogrammed, and unforeseen, and more about the rescue and redemption of a latent tendency within the current historical moment. We cannot deny that Dolgoff is envisioning a massive, difficult, and total transformation of the existing society, and that he sees this transformation depending on people who will 'experiment with new, creative forms of social living' (Dolgoff 1989). But the program (the achievement of distributed, decentralised self-management) is given in advance: the historic mission of self-organised networks of producers communicating directly over the new communicative networks is essentially to do what they do now, better and more efficiently, free of the interference of the irrational establishment that holds back these forces of networked, democratic production. On the one hand, such a perspective fails to bring to bear a real theory of power on either technology or democracy; on the other, it makes of self-organisation something like a secret force at work at history. Rather than an adventure and project that we as anarchists commit ourselves to, self-organisation becomes the motive spirit at work in historical development, automatically labouring towards the emergence of an anarchist society.

As advances in communications technology have continued to mount, this kind of rhetoric, in which freedom is understood to follow from digital architecture, has likewise continued to proliferate. The same revolutionary narratives have been constructed around the introduction of video recording technology, the Internet, social networking, and ubiquitous mobile computing; and in each case, despite some

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impressive tactical successes, the larger trajectory of transformation to a more free and just society has been disappointing. Additionally, while it may be simple to acknowledge that to hold a technologically determinist view of the revolutionary process is a recipe for failure, what the genealogy of the idea of 'self-organisation' can help us realise is that what we take for a self-evident political concept basic to our normative political ontology is in fact partially transposed from parallel inquiries in the sciences. The unquestioned belief, tragically too often demonstrated by contemporary anarchist movements, in the power and efficacy of self-organised social movements to transform the world on their own terms perhaps as owes more than we might realise to a kind of borrowed faith in scientific objectivity and technological progress, rooted in the theory of complex cybernetic systems.

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REFERENCES

The Ad Hoc Committee. 'The Triple Revolution: Cybernation, Weaponry, Human Rights'. http://www.educationanddemocracy.org/FSCfiles/C_CC2a_TripleRevolution.htm,1964.

Bakunin, Mikhail Alexandrovich. *Oeuvres*, Paris: Bibliothèque Sociologique, volume 2, chapter 'Lettres à un Français sur la crise actuelle', 1907.

___. *Étatisme et Anarchie*, volume III of *Archives Bakounine*. Leiden: E.J. Brill, 1967.

___. *Bakunin on Anarchy, edited and translated by Sam Dolgoff*. New York: Knopf, 1972.

___. *Sur La Guerre Franco-Allemande At La Révolution Sociale en France, edited by Arthur Lehning*, volume VI of *Archives Bakounine*. Leiden: E.J. Brill, 1977.

Bateson, Gregory. Gregory Bateson archive at the University of Santa Cruz.

___. Letter, August 16th, Alan Yonan to Gregory Bateson, Box 13, Folder 559, 1968a.

___. Letter, Paul Goodman to Gregory Bateson, Box 13, Folder 559, 12, 1968b.

___. Letter, Gregory Bateson to Paul Goodman, Box 13, Folder 559, 18, 1969.

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Benello, George and Dimitrios I. Roussopoulos, *The Case for Participatory Democracy: Some Prospects For a Radical Society*. New York: Grossman, 1971.

Berman, Morris. *The Reenchantment Of The World*. Ithaca: Cornell, 1981.

Dolgoff, Sam. *The Relevance Of Anarchism to Modern Society*. Chicago: Charles H. Kerr, 1989.

Escobar, Arturo. 'Other Worlds are (Already) Possible: Self-Organization, Complexity, and Post-Capitalist Culture'. In *The World Social Forum: Challenging Empires*, eds Jai Sen, Anita Anand, Arturo Escobar and Peter Waterman, New Delhi: Viveka Foundation, 2004, pages 349-358.

F., A. 'Obituary: Dr W. Grey Walter'. *Freedom* 38, 10.

General Assembly of Insurgent Workers, 'Workers in Greece Occupy Union Offices', December 17, (2008), http://libcom.org/news/greek-workers-occupy-union-offices-17122008.

Goodman, Paul. 'The Reformation' Manuscript in the Gregory Bateson Papers at the University of Santa Cruz, Box 13, Folder 559, 1969.

Goodman, Paul. *New Reformation: Notes of a Neolithic Conservative.* Oakland: PM Press, 2010.

Gordon, Uri. *Anarchy alive! : anti-authoritarian politics from practice to theory*. London: Pluto Press, 2008.

Graeber, David. 'The New Anarchists.' *New Left Review* 13 (2002) 61-73.

Holland, Owen. 'Exploration and high adventure: the legacy of Grey Walter.' *Philosophical Transactions of the Royal Society* A, 361: (2003) 2085–2121.

McEwan, John. 'Anarchism and the Cybernetics of Self-Organizing Systems'. *Anarchy* 31 (1963) 270-83.

Rosanvallon, Pierre. 'Formation et desintegration de la galaxie "auto"', in *L'auto-organisation: De la physique au politique*, eds Paul Dumouchel and Jean-Pierre Dupuy. Paris: Seuil, 1983.

Ward, Colin. 'Anarchism as a Theory of Organisation'. *Anarchy*, 62: (1966) 97–109.

___. *Anarchy in Action*. New York: Harper and Row, 1973.

Walter, William Grey. 'Summary for the press of a lecture given at the Graduate Center for Psychotherapy, New York', Typescript. BNI Papers, Science Museum, 1957.

___. 'The Development and Significance of Cybernetics', *Anarchy* 25.

Walter, Nicholas. 'William Grey Walter: personal notes for Dictionary of National Biography', BNI Papers, Science Museum, 1990.

NOTES

1 Due to space limitations, I need to elide some of this history myself; in particular, I am not considering here the long use of 'self-organisation' in theoretical biology

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starting with Kant, nor am I dealing with the early twentieth century council-communist uses of the term that do seem to have been arrived at independently of any influence from the sciences. I am also largely focusing on the Anglo-American tradition; the story here is slightly different in, say, the Francophone world, due to the availability of the term 'autogestion' that does much of the work that 'self-organization' is put to in English. (See Rosanvallon, 1983 for an initial sketch of the terrain here.)

2 One of the reasons Bateson is such an interesting and problematic figure is precisely this ambiguity in his thought, which both seems to point toward a new epistemology and a radical utopian vision, but never quite gets as enthusiastic about 'self-organisation' as a general principle of social reformulation and refoundation as many of the other thinkers of second-order cybernetics examined above. For a good discussion of the ambiguities in Bateson's politics, see Berman 1981, 274-90.

3 This approach to robotics, eschewing a representational model of environment in favour of a biologically inspired self-organising network of relatively 'dumb' elements, has in the recent past come back into prominence, especially in the work of Rodney Brooks.

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