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Science as Anarchy

Fragments of a Manifesto

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“We are not depressed; we’re on strike. [...] From then on medication and the police are the only possible forms of conciliation.”

– The invisible committee, “The coming insurrection”

”Science is an essentially anarchic enterprise: theoretical anarchism is more humanitarian and more likely to encourage progress than its law-and-order alternatives”

– Paul Feyerabend, “Against Method”

People who swear by quantum physics and pursue its consequences in all domains are no less bound politically than comrades fighting against a multinational agribusiness. They will all be led, sooner or later, to defection and combat.

– The invisible committee, “The coming insurrection”

Destroy All Figures of Authority

Authority suffocates the creative drive of science. Trust no one, destroy personality cults, dismember individual mythologies! The bureaucrats are the scientist’s worst enemy. They poison the ground where science takes roots. Where bureaucracy is allowed to exist science will die. Bureaucracy cannot be argued with, only destroyed. A more subtle and much more difficult form of authority to confront is that which emerges internally to science: the cults of personality that grow like weed around the nicer achievements of research have the sole effect of suffocating their creative momentum, transforming a fluid and genuinely innovative impetus of ideas into a rigid and oppressive force that prevents new ideas from developing away from an accepted orthodoxy of establishment. There is no room in science for personality cults. Boycott conferences: they are but thinly disguised temples consecrated to the cult of this or that fetish, aimed at reinforcing mob thinking, pledging alliance to one or another master. No gods no masters! Do not allow anybody, on the basis of ”reputation” alone to confidently preach others about things they in truth know nothing

about: having a valuable specific expertise does not confer to anyone universal authority. Always question anyone's assertions, no matter how loudly and emphatically pronounced. Everybody has equal right to existence and should be guaranteed equal room for expression. The validity of results is decided by careful scrutiny not by appeal to authority principles.

Such are the slogans of our imaginary manifesto of the anarchical scientist, or of the scientific anarchist, you choose. However, having said this, one needs a more careful reflection on why hierarchical structures still survive and thrive within the scientific community. Why do so many scientists fall so easily prey to the temptation of personality cults? Why do they welcome the imposition of authority which is so seemingly extraneous to the functioning of scientific thought? Why do they form gangs that marginalize and attack those members of the community who refuse to accept the proclaimed sainthood of this or that famous name?

Perhaps a good place where to start such a reflection is a little known booklet called "The tacit dimension", which contains the text of the Terry Lectures delivered at Yale in 1966 by physical chemist turned philosopher Michael Polanyi. The booklet has been recently republished by the University of Chicago Press. While I certainly disagree with many of the conclusions of the book and with the overall tone of Polanyi's reflections, it still does contain some very important insights precisely on the problem of structures of authority within the scientific community. The point that Polanyi stresses in his public address is the background of hidden, implicit knowledge, difficult to pin down and describe precisely, which plays a crucial role in the advancement of science. He starts by recalling Plato's Meno paradox, by which it is seemingly impossible to identify precisely the question one wishes to investigate if one does not already know what one is looking for. Formulated in more modern terms than in Plato's original dialog, this refers to that very important component of scientific progress which is not solving a well known problem, but finding the problem one wishes

mosphere of ideological pressure, where the validity of scientific theories is no longer established by the careful work of that delicate structure of voluntary refereeing process that self-regulates the functioning of science as a collective. Exposing science to blog discussions means to leave it open to statements of authority and personality cults, to the violent impositions of those who are the loudest, the most outrageous, the most vitriolic acrobats of the blogosphere, with no respect for that careful, silent and invisible, but very crucial self-regulatory mechanism which is the essence of the scientific commune.

Blogs play a very important role as grass-root journalism, as a place for the type of political discourse that is otherwise excluded from the business controlled media. I think they contribute essentially to healthy forms of debate within the society, but they may not constitute the best place for scientific debate itself. The difficult self-correcting process by which science improves itself is too delicate a dynamical equilibrium to be given in the hands of those people whose main intent is to show off the size to which their egos (and occasionally other equally irrelevant parts of their anatomy) can be inflated. It may be a good idea to reserve the blogging skills of scientists to create a venue for a healthy, if animated, discussion the sociological, philosophical, and political aspects of the scientific community and keep the discussion of science itself where it belongs, in the natural environment in which it flourishes, the scientific commune and its diffuse, invisible, collective, anti-authoritarian power organization.

I remain reasonably optimistic though about the basic and deeper functioning of the scientific community and its self-correcting mechanisms, and I believe that probably over time those blogs whose sole purpose is to promote one's ego will die out and the ones that have a honest focus on a more balanced discussion of actual scientific information will survive and possibly become integrated into the accepted modes of scientific debate.

it gave mankind the means for total self-annihilation. However, there is an alternative to being forever locked in the grip of this war/aggression mentality. There is the possibility of cooperation, of a shared common good, one that transcends the individual egos and their primal needs for recognition.

The Monsters of the Ego

The early days of psychoanalysis tended to depict the ego as the healthy rational mind and the unconscious as the realm of the "monsters of the id". Far from being the case, the ego is the tyrannical monster that enslaves our creativity, our potentials for invention, and hijacks it at the service of its own infinite narcissism. The unconscious is the realm of the mind that supplies us with dreams, with ideas, with beauty. Narcissism is the worse enemy that stands in the way of the development of durable interpersonal relations based on true mutual understanding, on the capacity for listening and appreciating another person's mind, of sharing knowledge, thoughts, ideas, in other words, of what we usually call progress. The narcissistic needs of the ego are infinitely regressive and they stand in the way of all forms of creativity, but most of all of science, which is by its very nature a very humbling form of self awareness, which confronts us with the magnitude of reality and the insignificance of the personal ego.

The fact that the science functions primarily as a collective enterprise and as a self-correcting process which is de-localized and largely anonymous is important in preventing the monsters of the ego to undermine its achievements. As a simple and concrete example, although I myself blog about my life as a scientist, I am profoundly skeptical of the growing tendency to hijack the nature of scientific discourse away from its natural venue, which is that of peer reviewed professional publishing and divert scientific discussions into the public blog arena. The danger is to create an at-

to solve, in such a way that it is interesting, doable, and likely to have a significant impact on science. We all know from the very start of our careers how difficult it is to resolve the tension between finding a problem that is doable *and* interesting *and* that has not yet been solved by someone else. In Polanyi's words, the modern version of Plato's paradox is the following:

It is commonplace that all research must start from a problem. Research can be successful only if the problem is good; it can be original only if the problem is original. But how can one see a problem, any problem, let alone a good problem? For to see a problem is to see something that is hidden. It is to have an intimation of the coherence of hitherto not comprehended particulars. The problem is good if this intimation is true; it is original if no one else can see the possibilities of the comprehension that we are anticipating. To see a problem that will lead to a great discovery is not just to see something hidden, but to see something of which the rest of humanity cannot have even an inkling. All of this is commonplace; we take it for granted without noticing the clash of self-contradiction entailed in it.

— Michael Polanyi, "The tacit dimension"

I have quoted this text extensively since here I do agree with Polanyi's conclusion that the Meno paradox is the origin and justification for the survival of hierarchical structures of authority within the scientific community. However, while the author welcomes the permanence of such structures I personally, as an anarchical scientist and scientific anarchist, call for their prompt and irreversible dismissal. To understand why the problem so clearly outlined in the text above can be seen as the justification for the persistence of power structures, one can again recall the experience that all of us scientists have faced, of how difficult it is to navigate precisely that

part of the scientific enterprise: finding one's way through Baudelaire's "forest of symbols" and perceiving hidden structures before they can be organized into precise statements and rigorous arguments. This process is uncertain and frightening: one can easily end up investing an enormous amount of time and energy developing an idea that turns out to be a red herring. One can easily corner oneself into a blind alley by chasing some fleeting ghosts that appear to promise rewarding results only to vanish into one's own scientific twilight. It is no wonder that most people are, more or less openly, scared of this perspective. That is what creates the wish for the savior, the hero that will come to the rescue of the lost voyager, pointing to the right path across the wilderness. It is fear that instills in humans the worship of authority: it was the lurking shadows in our ancestral darkness that generated religions, and it is the uncertainty and dangers of the road that make courageous explorers turn into sheepish followers. Some scientists appear to be especially good at spotting patterns, at sniffing out where the interesting stuff lies buried. They see the hidden connection that escaped detection even though it was under everybody's eyes. Naturally, due to the fears just described, others prefer to group together in the crowded space surrounding the people who appear to know where they are going, so as not to risk losing one's way in the forest. By doing so they sanction and contribute to create a hierarchy structure, a cluster of power and authority bestowed upon a person who is invested with the task of deciding for others. This is extremely dangerous, in my opinion (not in Polanyi's one and that's where we profoundly disagree) because people voluntarily relinquish their own authority over themselves, and in order to justify their own weakness they readily impose their chosen god on all those others who would have happily continued to wander around their own voyage of exploration without delegating it onto anybody else to set the course for everyone.

Instead of blindly delegating to others to make decisions as to what is interesting, new, and relevant, it would be much more use-

Of Science as War

"As a humanist, I love science. I hate superstition, which could never have given us A-bombs."

— Kurt Vonnegut, "Armageddon in Retrospect"

"The catastrophe is not coming, it is here. We are already situated within the collapse of civilization. It is within this reality that we must choose sides."

— The invisible committee, "The coming insurrection"

Since so much of the interpersonal relations within the scientific community are based on aggression, let us stop pretending that we are a peaceful lot. One may begin to wonder, if the whole point becomes that of perfecting the art of war and confrontation, why not to just go over openly to those who do that for a living. Perhaps, instead of agitating our pacifist banners on the front, while continuing to think in terms of tactics and battles in our daily practice of human interactions within the community (competition, priority claims, verbal aggression) we should just sell off completely to the military and to the financial sharks of capitalism and start acting out openly the true nature of a scientific community we idealize in words and revile in acts. It is too easy to start feeling that all feelings of love, passion, affection, dedication only weaken our stance, because they only make us more easily vulnerable to attacks, and that rage remains the only successful motivation for the pursuit of scientific discoveries, an all encompassing, all consuming rage. Perhaps what we see happening within the scientific community is just an enactment of a deep truth about the human nature that brings people to choose aggression over cooperation, the same justification that is used over and over to justify the existence of capitalism as an economic system. If this were truly the case, then perhaps the making of the atomic bomb should be regarded as the greatest scientific achievement of mankind, precisely because

sonal ego, thus betraying the fundamental spirit of science as a collective. Naturally they fear the one thing that has the power to dethrone them. They fear books and encourage others not to read them simply because books provide a liberating vision of the broad landscape, they restore proportion, they deflate egos. Books provide all people, equally and democratically, with the same opportunity to acquire a broad landscape of knowledge, sufficient to guide their own path, with no further need to hide behind the worshipping of figures of authority to whom decisions of intellectual worthiness are constantly delegated. People who have been cast into this role rarely reject it. More often than not, they adapt to it with complacency because it flatters the ego. Naturally, they begin to fear the loss of this supremacy role. So beware of the motives behind the behavior of people who enjoy a position of authority and have started to fear the true democratic, collective, and anonymous life of the scientific commune.

The true nature of the "hidden dimension" is the dimension of reading, the broadest form of interconnectedness of the human race as a whole and the only real sustaining structure for an ideal society based on a loosely connected network of anarchist communes. The written word is the only form of communication that crosses barriers of time and space, cultural divides, conflicting sociological structures. An enterprise like science, which is by its very nature transcending all divisive aspects and which constitutes the true unifying force of the human race, can only benefit from a form of communication that is also by its very nature inclusive and decentralized, democratic and anti-authoritarian, and which provides us with a diffuse network of knowledge, a safety net which is the only guiding light to find the path of progress hidden within the forest of symbols.

ful to try to better understand what it is that gives to certain people a better feeling for the hidden dimension, a better compass to navigate uncharted waters. I come back to precisely this point in the next chapter of my imaginary manifesto.

Before getting to that, I still want to make some remarks on why I consider that figures of authority should have no place in the scientific enterprise and why I think that the latter is in essence a perfect model of a society organized on the basis of anarchist principles. I would like to quote again an interesting passage from the same source:

I would call it the "principle of mutual control"... each scientist is both subject to criticism by all others and encouraged by their appreciation ... This is how "scientific opinion" is formed, which enforces scientific standards and regulates the distribution of professional opportunities. It is clear that only fellow scientists working in closely related fields are competent to exercise direct authority over each other, but their personal fields will form "chains of overlapping neighborhoods" extending over the entire range of science.

— Michael Polanyi, "The tacit dimension"

It is hard not to see in this structure of diffuse and self organizing power, this decentralized form of authority by consent and mutual collaborative criticism an echo of the anarchist vision of the communes as basic diffuse organizational principle of the society, with the "chains of overlapping neighborhoods" of competence connecting them into a larger organizational form, built from the ground up, from collectives, communes, loose associations, coordinated into an emergent large scale correlational principle which is self regulating and does not need the imposition of nation states, gods or masters. The natural functioning of the scientific community

is based on the principle of peer reviewing as the basis for establishing the validity of scientific results, on the anonymous unpaid voluntary work of the large number of referees who donate their time to the purpose of contributing to the collective functioning of the community, to the advancement of what we call science. This is the best historical realization of the self-structuring principle of society that the anarchist movement predicted. It is strictly incompatible with the idea of a proclaimed figure of authority who dictates the canons of truth.

The Written Word As Sanctuary

The only genuinely democratic venue for scientific communication is the written word. Unlike the spoken interactions, which are entirely dominated by relations of dominance and subservience, by prejudices and prevarications, the written communication is non-aggressive, open to everybody equally, and not colored by personal bias. The internet archives are open to anyone to post results and read other people's results: no written paper screams louder than others, none prevents others from speaking, none is allowed a greater room for expression at the expense of all others. Within the context of written communication, nobody can disrupt another person's presentation with continuous interruptions, nobody can use their position of authority to suppress others. Beware of critics of the written word, because they are usually motivated by the fear of losing a dominance position gained through the continuous practice of verbal aggression. The collectivity of books is the best antidote against the cults of personality and the worship of authority figures. The scientific mind thrives in the plurality of opinions, in multitude. Books are our best weapon in the fight for self expression and freedom from the oppression of authority. The broad landscape of human knowledge is humbling, and precisely this humbling effect is what protects us from the monsters of the

ego, what makes us free to think and enjoy being part of that multitude of thoughts, each of us a dwarf, collectively a giant. The humbling vision of our own individual place in the vast aggregate that constitutes human knowledge is what sets us free to be truly creative and not driven by narcissism and self indulgence. Truly creative and original thought is such precisely because it feeds on knowledge, on the common heritage of mankind, on the experience of our shared collective mind.

This second installment of my imaginary anarchical scientist's manifesto brings me back to the question of the "tacit dimension" and an attempt to understand that special quality some people seem to have that makes them able to see structure where none is apparent, to have a more developed intuition for where things seem to go, where the hidden spring of water lies in the apparent desert. Instead of leaving this mysterious quality lingering unexplained on the verge of a semi-mystical interpretation, as Michael Polanyi does in his lectures, I would like to put forward a simple explanation and refreshing explanation: this special talent, so envied that people are ready to invest it of an aura of embodiment of divine (and therefore unquestioned) authority, has mostly to do with the degree of connectedness. Once again, those who are able to see farther are those who are able to climb upon the shoulder of giants, which is to say, have the broadest and more diversified knowledge. In other words, instead of worshipping a naive cult of personality of people with an undeniable strong sense of intuition, cultivate within yourself that same capacity by broadening your horizons: reading books, not necessarily immediately relevant to one's own current research topics but bordering on other "overlapping neighborhoods" of the map of scientific knowledge, is the most important activity for a scientist!

Those famous scientists who, like Feynman, scorn the reading of books have evidently suspicious motives: at the personal level they enjoy having created a niche for a cult of personality, with a court of followers constantly engaged in the pleasing of their per-