

ON INERTIA:
RESISTANCE TO CHANGE IN INDIVIDUALS,
INSTITUTIONS AND THE DEVELOPMENT OF
KNOWLEDGE

Bart Zantvoort

ABSTRACT: The term ‘inertia’ is often used to describe a kind of irrational resistance to change in individuals or institutions. Institutions, ideas and power structures appear to become entrenched over time, and may become ineffective or obsolete, even if they once played a legitimate or useful role. In this paper I argue that there is a common set of problems underlying the occurrence of resistance to change in individuals, social structures and the development of knowledge. Resistance to change is not always irrational or problematic; it is also necessary to allow stable personal identities and social structures to survive in a constantly changing world. I offer a historical and theoretical framework for the question of inertia. Finally, I argue that philosophy has often seen its task to be the critique of ossified, inert or obsolete ideas and social structures, but that it has neglected the positive dimension of resistance to change.

KEYWORDS: Inertia, resistance to change, stasis, entrenchment, institutional change, critical philosophy

INERTIA AND RESISTANCE TO CHANGE

In a scene from the popular TV-series *Breaking Bad*, chemistry teacher-turned-meth cook Walter White and his partner in crime Jesse Pinkman discuss the old recreational vehicle which they had been using as a mobile drugs lab. Why, with all the money they were making, did they hang on to this dangerously decrepit old vehicle?

Jesse: 'Why'd we keep it? Why did we have to have the world's shittiest RV?'

Walt: 'Inertia?'

Jesse: 'Yeah... inertia.'¹

This exchange points to a common experience, something which most of us will have occasion to observe in ourselves or in others: Why do things refuse to change, even when the need for change seems obvious and indisputable? Why are people sometimes unable to change, even when they might desperately want to?

When used in a social, political or psychological context, the term *inertia* is often used to describe a kind of irrational or counterproductive resistance to a change which is considered to be necessary, desirable or unavoidable. According to Freud, there is an 'inertia inherent in organic life': the human organism is inherently conservative and will only change when forced by external circumstances.² This kind of inertia, however, is not limited to the individual or psychological level. It is even more common to speak of the inertia of governments, of bureaucratic organizations or even of whole societies. For example, in a recent 'Manifesto for Europe' published in the *Guardian*, French economist Thomas Piketty criticizes the inertia of EU institutions.³ In literature and public discourse, government, laws and institutions sometimes become almost synonymous with bureaucracy, and bureaucracy is immediately identified with inefficiency, lack of flexibility and an inability to adapt to new developments. Like individuals, institutions and other social structures seem to be inherently inert: instead of smoothly and gradually adapting to changing environmental, technological or social circumstances institutions long outlast their usefulness, only to suddenly crumble under their own dead weight.

The concept of inertia is used in everyday language to talk about resistance to change in individuals as well as in political and social structures, and in academic discourse it is applied, in one way or another, in fields as diverse as sociology, psychology, organizational studies, economics, political theory and philosophy. But in all these fields this concept is often used rather vaguely, without a clear theoretical grasp of what is implied in it, or how its use in different contexts and academic disciplines is related. In fact, as soon as we start to work out what we mean by inertia, it turns out we run into all sorts of theoretical difficulties. 'Inertia' and 'resistance to change' are sometimes used interchangeably. More often, inertia is used in a negative

¹ 'Gliding Over All', *Breaking Bad*, Season 5, Episode 8. Directed by Michelle MacLaren, produced by Vince Gilligan. AMC, 2 September 2012.

² Sigmund Freud, 'Beyond the Pleasure Principle', in Peter Gay (ed.), *The Freud Reader*, London, WW Norton & Co, 1989, pp. 612-613.

³ Thomas Piketty, 'Our Manifesto for Europe', *The Guardian*, February 5, 2014, <http://www.theguardian.com/commentisfree/2014/may/02/manifesto-europe-radical-financial-democratic>.

way, to mean a 'bad' kind of resistance to a desirable or necessary change, while resistance to change can also be neutral or even positive. But how do we distinguish between 'good' and 'bad' changes, and good and bad kinds of resistance? What determines whether a change (whether it is on an individual, institutional or political level) is rational or desirable? And what, or who, determines what forms of resistance are appropriate, legitimate or justifiable in specific instances? The use of the concept of inertia immediately raises such normative questions, and use of the more neutral 'resistance to change' only obscures this unavoidable normativity.

To make this a little more concrete: when Piketty claims that the institutions of the European Union are inert, what does this mean? Obviously, it means that he thinks change is desirable, necessary and possible, and that the EU fails to institute those changes which he thinks are desirable. But what if an EU official comes up and says, 'Look, Mr. Piketty, you may think the changes you propose are a good idea, but they're really not, for reasons x, y and z?' Or: 'Yes, that does seem like a good idea, but unfortunately under the current circumstances it is impossible?' It seems that, in many cases, inertia is merely in the eye of the beholder: whether we think a particular agent or institution is irrational in resisting change depends on whether we think change is rational or desirable. The irrational resistance of the one is the reasonable caution of the other; how, failing a clear standard of rationality, are we to judge which one is right?

This also points to another problem. It is clear that resistance to change can also be a good thing: an individual or an institution can't constantly adapt to all changes in the environment or to every passing fancy. A reasonable level of institutional inertia provides the necessary stability, continuity and legitimacy which allows institutions and society to function.⁴ At the same time, it also seems that there are cases where institutions do become obsolete and resist change against better reason. If we deny this, then we would have to admit that all courses of action, all individually held beliefs or institutional arrangements are reasonable or legitimate for precisely as long as they persist in being, and their passing away is the only sure sign of their being wrong. But, given that resistance to change can be necessary as well as irrational, how do we distinguish between the two? When does legitimate resistance to change become irrational inertia?

One problem with the concept of inertia is that it is used in different ways in different academic disciplines and in different contexts. Another problem is that its meaning is unclear: does inertia mean things merely persist in being as they are, or

⁴ Michael Hannan and John Freeman, 'Structural Inertia and Organizational Change', *American Sociological Review*, vol. 49, no. 2, 1984, pp. 149–64.

does it mean they actively resist change? In this paper I will begin to address these problems by offering a unified account of inertia in the development of individuals, social structures and in the development of knowledge. Firstly, I will briefly describe what is usually meant by inertia on these three levels. Secondly, I will explain why the concepts of inertia and resistance to change are especially important for the way we think about ourselves and about society. I will do this by arguing that, since the beginning of the modern age, there has been a fundamental shift in the way we think about the world: we no longer think about reality in terms of a fixed, natural order, but rather in terms of processes of generation and decay. For this reason, the notion of resistance to change plays an important role in explaining the stability of social structures as well as the persistence of personal identity. Finally, I will argue that philosophers have often seen resistance to change or inertia as problematic, and have cast themselves in a ‘therapeutic’ role: they seek to overcome illegitimately fixed or ossified ideas or social structures by showing that these structures are objectifications of a more complex, more dynamic underlying reality. However, the dominance of this ‘critical’ tendency in philosophy has neglected the positive aspect of resistance to change and social stability and has led to a one-sided appreciation of the phenomenon of inertia.

WHAT IS INERTIA?

The term ‘inertia’ is used primarily to refer to the physical phenomenon first described by Kepler, Galileo and Newton: the tendency for a body to persist in a state of motion or rest unless there are forces acting upon it. It is also used to talk about resistance to change in individuals or society, however. In this case, it is used in quite a different sense: physical bodies do not resist change, they merely persist in motion in the absence of forces; when people talk about the inertia of an institution, however, they usually mean things stay the same when there are, in fact, forces working towards change. When applied to society the notion of inertia has a normative content which is absent in the physical context. Saying a person, an institution or a society in general is inert is to make a value judgement: it implies the claim that it, or they, could, and should be different. When talking about social inertia people do not give an objective analysis of a situation; rather, they talk about what is possible and desirable.

The notion of inertia or resistance to change has come up in many academic disciplines, including philosophy, sociology, psychology, political theory, economics and organizational studies, but it has not really been examined in a systematic way.⁵ In

⁵ For an overview of research on inertia and resistance to change in economics, organisational studies, cognitive psychology and political theory see Roberta Patalano, ‘Resistance to Change: Historical

the following I will distinguish between three kinds of inertia: inertia in individuals, inertia in social and political structures, and inertia in the development of knowledge and concepts. These three levels are often examined in isolation in the relevant academic disciplines. I will argue, however, that they are meaningfully connected, and that a general theory of inertia and social change would provide a common framework from within which questions about, for example, psychological or social inertia could be better understood.

On the level of inertia in individuals, the example from *Breaking Bad* is a case in point. People become ‘stuck in their ways’: they hold on to their beliefs and ways of thinking against countervailing evidence, and they continue to act as they have always done even when other ways of acting have become possible and sometimes more appropriate. In more extreme cases psychological resistance becomes the object of psychoanalysis or other forms of psychotherapeutic treatment, which try to change irrational or destructive behaviours and beliefs. Hegel links inertia to anxiety: people resist change because they are more familiar with the status quo, and change leads to uncertainty and fear.⁶ The causes of and reasons for resistance to change in individuals are multiple, however. People are creatures of habit: they learn and internalize behaviours, which can then be applied repeatedly, even when changed circumstances have made a different response more appropriate. But habits are not just sources of inertia; they are also a necessary element in learning-processes and the formation of skills.⁷ Another reason for inertia in individuals lies at the border between the individual and the social: people can be unable to change because they feel they have to conform to a social role; they depend on publicly available concepts and norms

Excursus and Contemporary Interpretations’, *Review of Political Economy*, vol. 23, no. 2, 2011, pp. 249–66. Stephen Jay Gould writes about ‘stasis’ and what he calls ‘punctuated’ development in evolutionary theory (*The Structure of Evolutionary Theory*, Cambridge MA, Harvard University Press, 2002). Connie Gersick applies Gould’s notion of ‘punctuated equilibrium’ to resistance to change and revolutions on six levels: individuals, groups, organizations, science, biology and physics (‘Revolutionary Change Theories: A Multilevel Exploration of the Punctuated Equilibrium Paradigm’, *Academy of Management Review*, vol. 16, no. 1, 1991, pp. 10–36).

⁶ Georg Wilhelm Friedrich Hegel, *Phenomenology of Spirit*, trans. A.V. Miller, Oxford, Oxford University Press, 1977, p. 51.

⁷ This dual aspect of habit has a long tradition in the philosophical literature. As Hegel writes, ‘while on the one hand man is freed by habit, he is also enslaved by it.’ (*Hegel’s Philosophy of Subjective Spirit*, J.M. Petry (ed.), vol. 2, Dordrecht, D. Reidel, 1979, p. 401). See also Felix Ravaisson, *Of Habit*, Bloomsbury, 2009 and Clare Carlisle, *On Habit*, Routledge, 2014. As Bourdieu argues with his notion of ‘habitus’, habit in this sense should not be seen as purely a matter of individual learning, but as the confluence of individual action and routine social practices. For Bourdieu, too, habitus is necessary to give structure and substance to social life, but at the same time can cause dogmatic beliefs and social distinctions to be reproduced without being questioned. See Pierre Bourdieu, *The Logic of Practice*, Stanford University Press, 1992.

which the individual alone is unable to change; or they are subject to what psychologists call ‘groupthink’: the tendency of people in groups to suppress dissenting opinions and ignore evidence which goes against shared assumptions.⁸

With regards to the inertia of social and political structures, countless examples could be given. Institutions, laws and ideas are developed at a certain moment in time, and in response to specific circumstances and social problems. Because institutions have a tendency to isolate themselves from their environment and to perpetuate themselves under changed conditions they can also become obsolete, and continue to function according to an outdated logic when the reason for their existence has long disappeared. Francis Fukuyama calls this form of institutional inertia political decay: ‘The conservatism of societies with regards to rules is ... a source of political decay. Rules or institutions created in response to one set of environmental circumstances become dysfunctional under later conditions, but they cannot be changed due to people’s heavy emotional investments in them.’⁹ And, just as inertia in individuals can be a result of social factors, social inertia is also influenced by individuals in many ways. One example is the desire for security and stability, and the anxiety engendered by change. As Machiavelli puts it:

There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things. Because the innovator has for enemies all those who have done well under the old conditions, and lukewarm defenders in those who may do well under the new.¹⁰

Finally, the question of inertia in the development of knowledge, concepts and ideas can also be approached in many ways. The history of ideas is a complicated amalgam of everyday language and common sense, religious beliefs, political ideologies, philosophical systems, as well as technological and scientific knowledge. The notion that systems of knowledge can become obsolete, that ways of thinking can continue to exist and assert themselves against better evidence is commonplace. Francis Bacon already formulated the effect of what would now be called ‘cognitive bias’:

The human understanding when it has once adopted an opinion ... draws all things else to support and agree with. And though there be a greater number and weight of instances to be found on the other side, yet these it either neglects and despises, or else by some distinction sets aside and rejects, in order that by this

⁸ Irving L. Janis, *Groupthink: Psychological Studies of Policy Decisions and Fiascoes*, Boston, Cengage Learning, 1982.

⁹ Francis Fukuyama, *The Origins of Political Order: From Prehuman Times to the French Revolution*, New York, Farrar, Straus and Giroux, 2011, p. 44.

¹⁰ Niccolò Machiavelli, *The Prince*, Simon & Brown, 2011, pp. 47–48.

great and pernicious predetermination the authority of its former conclusions may remain inviolate.¹¹

Again, conceptual inertia clearly influences and depends on the behaviour of individuals, and it is also connected with social and political factors in many ways. A program of systematic research into this phenomenon would have to take into account the many complex interactions between these various levels. The most famous investigation into resistance to change in the development of scientific knowledge is Thomas Kuhn's *The Structure of Scientific Revolutions*: Kuhn argues that scientific progress is not continuous and gradual, but that scientists adhere to 'paradigms' which lead them to overlook, ignore or even unconsciously repress countervailing evidence, until the body of evidence contradicting the paradigm has grown so overwhelming that a revolution occurs, leading to a new paradigm which manages to integrate more of the evidence.¹²

So far, I have only given a rough sketch of the various issues involved in thinking about inertia in individuals, society and the development of knowledge. One thing that all these examples have in common is that, despite the generally negative connotation of the term inertia, resistance to change in all these cases has a positive as well as a negative side, and these two aspects are deeply connected. In individuals, habit can lead people to get stuck in outdated, ineffective or even self-destructive ways of thinking and acting, but in normal circumstances it also allows them to repeatedly and efficiently perform complicated sequences of actions. Similarly, in institutions a certain amount of institutional inertia is necessary to provide them with the stability and legitimacy they need to function effectively.¹³ Resistance to change can become a problem when change seems desirable or necessary, but it also lends stability and predictability to individual and social life. In the rest of this paper, I will argue that this double character of resistance to change is a necessary result of the way we experience the world, which is bound up with the transformation of our world-view in the modern age.

CHANGE, REST AND RESISTANCE

The nature of inertia and resistance to change in individuals and in society can only be understood, I will argue, in light of a fundamental shift in the way we view change and stability in the natural and social world which took place in the second half of the last millennium.

¹¹ Francis Bacon, *The New Organon and Related Writings*, Prentice Hall, 1960, p. 50.

¹² Thomas S. Kuhn, *The Structure of Scientific Revolutions*, Chicago, University of Chicago Press, 1996.

¹³ Hannan and Freeman, 'Structural Inertia and Organizational Change'; P. Pierson, 'Increasing Returns, Path Dependence, and the Study of Politics', *American Political Science Review*, vol. 94, 2000, pp. 251-67.

The opposition of change and rest has marked the Western philosophical tradition from its beginning. As Alain Badiou explains it in *The Subject of Change*, we can speak of two basic hypotheses with regards to the ultimate nature of reality, one represented by Parmenides and the other by Heraclitus.¹⁴ Parmenides famously claimed that all is one and eternal: since it is impossible for what is to pass over into non-being, or for what is not to come to be, all change is an illusion. Heraclitus, by contrast, held that everything always changes. Socrates recounts Heraclitus' position in Plato's *Cratylus* as follows: 'All things are in motion and nothing at rest; he compares them to the stream of a river, and says that you cannot go into the same water twice.'¹⁵ According to Badiou the subsequent history of philosophy, starting from Plato and Aristotle, can be represented as a series of attempts to reconcile this basic opposition. From this point of view, the fundamental aim of philosophy has been to explain how stability and change, identity and difference can coexist.

The Aristotelian worldview, which held sway throughout the middle ages, and continued to exert a strong influence into the early modern period, still privileged stability or rest over change and motion. According to Aristotle, change was the result of the alteration of the accidental properties of enduring substances, and all material entities on the earth tended towards their natural place of rest. Since rest was primary, change and motion were things that needed to be explained. Aristotle famously had difficulties explaining why propelled objects continue to move after they have left the hand or the sling which gave them their motion: since there is no longer anything directly exerting a force upon them, why do they not immediately come to a halt?¹⁶

From the sixteenth century onwards, however, a number of revolutions in science, politics and philosophy started to call into question this primacy of rest over change. First, the Copernican revolution dispelled the earth from its stable resting place at the centre of the universe. The development of physics, chemistry, biology and geology brought to light that everything, from physical elements, to living beings, to our planet, is subjected to processes of change, decay and constant transformation. Solid objects turned out to be hives of activity at a microscopic or sub-atomic level, and eventually even time and space turned out to be relative. In politics, a series of political and social revolutions – from the Dutch revolt against the Spanish Crown in 1572, to the Glorious Revolution in England, to the American and French Revolutions – threw the

¹⁴ Alain Badiou, *The Subject of Change*, New York, Atropos Press, 2013, pp. 32–39.

¹⁵ Plato, *Cratylus*, 402a. In Plato, *The Dialogues of Plato*, trans. B. Jowett, vol. 3, Oxford, Oxford University Press, 1892, p. 62.

¹⁶ Aristotle, *Physics*, David Bostock (ed.), trans. Robin Waterfield, Oxford, Oxford University Press, 2008, p. 229.

established social order into disarray.¹⁷ In philosophy, the critique of received religion and traditional authority undermined the belief in eternal essences, god-given social hierarchies and an immutable natural order. The elevation of critical reason over dogmatic faith culminated in the Enlightenment and Kant's critique of dogmatism. Eventually, reason itself seems to have fallen prey to its own critical tendencies, leading to its auto-deconstruction in the second half of the twentieth century. As I will explain in more detail further down, these developments led to a gradual inversion of the relation between rest and change: today, it seems reasonable to say that change has become primary, and rest and stability are now in need of explanation.

From the nineteenth century onwards order and stability came to be seen as being fleetingly imposed on a reality which is itself in constant flux. This primacy of change is perhaps best expressed in Nietzsche's famous statement that reality is 'in all eternity chaos,'¹⁸ or in Lord Kelvin's first formulation of the second law of thermodynamics: 'The existence in nature of a *universal tendency* towards the degradation of mechanical energy.'¹⁹ The question which now faces us is this: if everything is always changing, and if everything is subject to an inevitable process of loss of energy and decay, what becomes of stability and identity? How do we explain the stability and persistence, not just of personal identity, institutions, social structures and laws, but of physical objects and natural laws? To put it again in Nietzsche's words, how do we explain the existence of 'complex structures, relatively enduring, of life in the midst of becoming?'²⁰

Under the Aristotelian worldview, rest is in no need of explanation: things are the way they are because it is in their nature to be so, and it is only when things depart from their natural state of rest that we need to find a reason to explain this movement. Conversely, under a modern worldview, it is rest, stability and identity which need to be explained. What are the forces which hold together the particles in the nuclei of atoms? How do complex systems emerge in a world characterized by increasing entropy? How do states maintain themselves in existence against forces of internal

¹⁷ Hannah Arendt, *On Revolution*, New York, Penguin Books, 2006. Arendt stresses the importance of the American and French revolutions in transforming our understanding of history and the political realm. However, many crucial developments, such as the idea that sovereignty can reside with a political body constituted by popular consent rather than with a monarch, or the notion of abstract freedom as opposed to particular liberties, can be traced back at least as far as the formation of the Dutch Republic. See Jonathan Israel, *The Dutch Republic: Its Rise, Greatness and Fall 1477-1806*, Oxford, Oxford University Press, 1998.

¹⁸ Friedrich Nietzsche, *The Gay Science*, trans. Walter Kaufmann, New York, Vintage, 1974, p. 168.

¹⁹ Ilya Prigogine and Isabelle Stengers, *Order Out of Chaos*, London, Heinemann, 1984, p. 115.

²⁰ Friedrich Nietzsche, *The Will to Power*, trans. Walter Kaufmann, Vintage, 1968, p. 380 (translation altered).

dissent and external opposition? How do people cope with a constantly (and, as Hartmut Rosa claims, ever more rapidly)²¹ changing social and technological environment? When change becomes normal or ‘natural’, stability becomes the exception; and resistance to change becomes a necessary prerequisite for the maintaining of identity.

This view of change and stability has important consequences for the way we think about inertia. At first glance, individual, social or political inertia seem like bad or undesirable things. It quickly becomes clear, however, that some forms of resistance to change are necessary: because societies and individuals have to deal with constant changes in the social, technological and natural environment, processes of resistance to change or active self-maintenance are needed to provide stability and to ensure the enduring existence of social, organic and material structures. But how do we distinguish between necessary self-maintenance or justified instances of resistance to change on the one hand, and irrational, illegitimate or unnecessary forms of resistance to change on the other? If we admit that resisting change and refusing to adapt to every change in the environment are essential features of, for example, social institutions, but we also admit that institutions often refuse change too much, or for bad reasons, and can become outdated or obsolete, how do we decide when an institution becomes inert?

While it is common to think of inertia in individuals or in political systems as an accidental feature and a failure of normal adaptational development, I argue that we have to see it instead as an unavoidable correlative of the necessary process of self-maintenance and self-reproduction which allows individuals and institutions to persist in a changing world. In order to make this point more clear, I will now describe the shift from the primacy of rest to the primacy of change in more detail, both in the history of science and in the history of philosophy.

²¹ Hartmut Rosa argues that modernity is characterized by ever-increasing speeds of social and technological change, and that this acceleration leads to political and personal problems: political systems are unable to keep up with rapid changes in the economic sphere, and suffer a consequent loss of ‘steering’ power; individuals suffer a loss of a stable sense of identity and face an ever-increasing pace of life. He also devotes a section of his book to inertia, and admits that social acceleration can be accompanied by phenomena of stagnation or slowdown. For Rosa, however, these forms of inertia can only be ‘reactive’ or ‘residual’: They either serve to make more acceleration possible, or they are mere remnants of old social forms which have not been accelerated yet. ‘Social acceleration represents one, if not the, fundamental tendency of modernity. ... The process of modernization indeed proves to be a ceaseless displacement of the balance between the forces of movement and those of inertia in the favor of the former’ (*Social Acceleration: A New Theory of Modernity*, New York, Columbia University Press, 2013, p. 304).

FROM REST TO CHANGE I: CLASSICAL DYNAMICS AND THERMODYNAMICS

In *Order out of Chaos*, Ilya Prigogine and Isabelle Stengers describe the transition from Newtonian classical dynamics to the new science of thermodynamics which started to develop in the nineteenth century. Newtonian physics described a ‘clockwork universe’, a stable world characterized by eternal physical laws, which was exemplified by the regular revolutions of celestial objects. But the study of heat, pioneered by Fourier and Carnot, and spurred on by technological inventions during the industrial revolution, revealed that many processes in nature are dissipative and irreversible. From the point of view of thermodynamics the model of the universe is not that of a mechanical clock, which keeps running indefinitely once set in motion, but that of a heat engine which is gradually running out of steam.²² The discovery of the laws of thermodynamics certainly marked a great shift in our understanding of nature. It is important to realize, however, that within the context of the shift from the primacy of rest to the primacy of change, classical dynamics must not be seen simply as an affirmation of stability and eternal laws over against the irreversible change of thermodynamics. Instead, it was an essential step away from the earlier Aristotelian-Ptolemaic worldview towards a modern, dynamic view of nature.²³

As noted above, the Copernican revolution dispelled the notion that the earth is at rest at the centre of the universe. This discovery had two major consequences. Firstly, it put into question the central place of the earth, and by extension humanity, in the cosmological order: slowly, people came to realize that the earth is not the privileged place of God’s creation, but just another clump of matter in deep, dark space. Secondly, the earth could no longer serve as a fixed point of reference relative to which motion and rest could be defined. This set in motion a process by which such fixed points of reference were progressively eliminated: from the sun at the centre of the solar system, to Newton’s concept of ‘absolute space’ defined by the stars which he considered to be fixed, to the very notion that time and space themselves are fixed and reliable frames of reference.

From the nineteenth century onwards, the scientific study of heat and the behaviour of gasses and fluids completely changed the Newtonian view of the universe. It led to the conclusion that in all natural processes energy is irreversibly lost; that therefore time is not reversible, but has a definite direction; and that the universe is not

²² Prigogine and Stengers, *Order out of Chaos*, p. 111.

²³ Besides physics and chemistry, on which I focus here, many other sciences contributed to this shift. Geology and biology played a crucial role: Geology by establishing the age of the earth and the fact that mountains, continents and oceans are constantly created and destroyed, and biology by demonstrating that species do not form an immutable order but develop and become extinct in time.

an eternally stable ‘clockwork’, but is characterized by a necessary increase of disorder or ‘entropy’.²⁴

The impulse towards the formulation of the laws of thermodynamics was given by Carnot’s work on the maximum efficiency of heat engines, such as the steam engines which powered the industrial revolution. Further work by Clausius and William Thomson (Lord Kelvin) demonstrated that, in the process of converting differences in heat into work, energy in the form of heat is irreversibly lost. By generalizing this principle, Kelvin came to the conclusion that there is a ‘*universal tendency* toward the degradation of mechanical energy.’ This law, which has become famous as the second law of thermodynamics, was formalized by Clausius and defined in terms of the concept of entropy: ‘The entropy in the world tends towards a maximum state.’²⁵

The concept of entropy has become commonly associated with the idea that there is a natural tendency towards disorder in the universe, and has been much used and abused in popular discourse as well as in philosophy. But entropy has a very specific meaning in thermodynamics, and we should be careful not to illegitimately or metaphorically extend it to other fields. Entropy is a measure used to express the second law of thermodynamics, which holds that any isolated system (i.e. a system which exchanges no energy with the outside) spontaneously evolves towards *thermodynamical equilibrium*, a state in which no measureable change occurs and thermal, mechanical, radiative and chemical potentials have reached their maximally stable state. Another way of saying this is that, in an isolated system, entropy always *increases*, which means that (as long as no energy is put into or taken out of the system), differences within the system (for example differences in temperature, or of the distribution of molecules) tend to be reduced. The second law of thermodynamics thus implies that within any given system, or between systems which are connected, there is a tendency to a ‘levelling off’ of differences such that the system is increasingly less capable of producing work. While the total amount of energy is conserved, the distribution of energy in any system tends to become more homogeneous.²⁶

The second law of thermodynamics shows not only that in all natural processes energy in a ‘usable’ (that is, highly concentrated or differentiated) state is invariably lost through friction and heat exchange, but also that isolated systems - systems that do

²⁴ It must be noted that the identification of entropy with disorder is problematic, for a number of reasons which cannot be explained here in detail. For more information, see Peter Atkins, *The Laws of Thermodynamics*, Oxford, Oxford University Press, 2010, p. 52.

²⁵ Prigogine and Stengers, *Order out of Chaos*, p. 113-115.

²⁶ For a more extensive explanation of the second law of thermodynamics and entropy see Prigogine and Stengers, *Order out of Chaos*; Atkins, *The Laws of Thermodynamics*; Herbert B. Callen, *Thermodynamics and an Introduction to Thermostatistics*, New York, Wiley, 1985.

not gain energy from the outside - spontaneously tend towards a maximally homogeneous state. Its discovery radically undermined the Newtonian image of a stable and eternal universe, and reinforced the idea that change is natural while rest is an exception: if thermodynamic systems (including organic systems, such as humans, as well as planets and stars) naturally tend to run out of energy and crumble away into indifference, their fragile existence can only be maintained through a constant input of energy and the existence of processes which resist the natural decay of the system.

FROM REST TO CHANGE II: CRITIQUE, GENEALOGY, DECONSTRUCTION

The development towards a greater emphasis on change, dynamic processes and instability in science is paralleled by developments in philosophy. Analogously to the distinction between rest and change, philosophy itself can be divided into two theoretical tendencies. The first is what we could call positive philosophy: the *positing* or putting forward of theses about reality, the attempt to say what reality *is like*. Aristotle is perhaps the best example of this kind of philosophy, and his form of questioning - 'What is time?' 'What are the basic principles of reality?' etc. - its typical method. The second we could call, following Kant and Hegel, critical philosophy: most broadly construed, it consists of the critical 'destruction' of the concepts posited by positive philosophy, and especially, after Kant, of the critical analysis of the very possibility of positing true concepts, that is to say, the investigation into the methods and limits of our reason.

In the two centuries since Kant, despite various counter-movements, philosophy has increasingly identified itself with its 'critical' pole. This goes especially for the continental tradition, where the notion of critique - of reason, morality, society, power; of metaphysics, onto-theology, logocentrism, colonialism, gender - has become the dominant form of philosophical thought. But analytic philosophy, too, contains a strong 'critical' tendency, evidenced especially in the focus on language and logic and in various forms of 'quietism'. Attempts at a positive description of reality have either been left to the sciences, or, in the antiscientific and antirationalist strands of continental philosophy, descending from Heidegger, have been declared dangerous or deceptive altogether.

Besides Kant, let me mention three exemplary (but by no means exhaustive) moments in the history of critical philosophy: Nietzsche's notion of genealogy; the Marxist and Frankfurt school critique of Enlightenment rationality, perhaps best exemplified in Adorno and Horkheimer's *Dialectic of Enlightenment*; and Derrida's 'deconstruction'. Nietzsche combined a critique of conventional morality and metaphysical principles. He pioneered the idea that what we believe to be true or right is the result of an 'active forgetfulness,' a wilful repression of the historical origin of

these beliefs, and that bringing this origin to light can show us what they really are: truths, mere metaphors, and morality, the result of struggles for social power.²⁷ The *Dialectic of Enlightenment* has a wonderfully subtle double thrust: on the one hand, it criticizes the Enlightenment ideal of reason, arguing that its deployment has led to social domination and a perverse form of technological rationality. On the other hand, it also tries to show the positive potentials inherent in Enlightenment principles, potentials which, according to Adorno and Horkheimer, have thus far been inhibited by capitalist techniques of social control.²⁸ Derrida's notion of deconstruction, with roots in Heidegger and countless branches in American social theory, is perhaps most succinctly expressed in his *Structure, Sign and Play in the Discourse of the Human Sciences*.²⁹ According to Derrida, a 'structure' (this can presumably be a structure of meaning, concepts or discourse as well as a social, political or economic structure) is 'organized' and 'fixed' through reference to a 'centre,' a master-concept or element relative to which all other elements in the structure can be defined. Such a centre (of which the concept of 'God' is the prime example in the history of Western thought) serves to 'limit ... the *play* of the structure': it gives the structure coherence and stability, thereby serving to prevent the 'anxiety' which limitless play, change or difference would provoke.³⁰ But modern philosophy - for Derrida, the big names are Nietzsche, Freud, Heidegger - has given rise to a 'decentring' movement: reflection on the nature of 'structurality' shows that the centre is *not* fixed, but that it can only fulfil its organizing function if it is itself put into play, if it is subjected to the changes and contingencies of the structure.³¹ What has become known as deconstruction consists of the application of this theory to specific authors, texts or concepts: it shows that a concept or principle which we took to be fixed, true and regulative with regards to a specific domain of meaning is in fact relative, derivative or contingent.

What Nietzsche, Critical Theory and Derrida share is the notion that thought diagnoses illegitimately fixed, 'ossified' or inert concepts or structures, and by doing so

²⁷ For Nietzsche's writings on active forgetfulness, the relation between concepts and objects and truths and metaphors see 'On Truth and Lie in an Extra-Moral Sense', in *The Portable Nietzsche*, trans. Walter Kaufmann, Penguin Books, 1977. For his writings on history and morality see *On the Genealogy of Morals and Ecce Homo*, trans. Walter Kaufmann, London, Vintage Books, 1969.

²⁸ Max Horkheimer and Theodor W. Adorno, *Dialectic of Enlightenment*, trans. Edmund Jephcott, Stanford, Stanford University Press, 2007.

²⁹ Jacques Derrida, 'Structure, Sign, and Play in the Discourse of the Human Sciences', in *Writing and Difference*, London, Routledge, 2001. Derrida was notoriously reluctant to define deconstruction. The term is first mentioned in *Of Grammatology*, but I find 'Structure, Sign and Play' a useful introduction into many of Derrida's main ideas.

³⁰ *Ibid.*, p. 352.

³¹ *Ibid.*, p. 354.

brings to light the essential historicity, contingency or relativity of concepts or things which we thought to be fixed and eternal. Philosophy calls into question dogmatic 'truths', stable identities or oppressive social structures, and thereby helps overcome them.³²

We can see, therefore, how modern philosophy, in conjunction with science (as well as a wider range of social, political, economical and technological developments), has contributed to the shift towards the primacy of change which I have discussed above. French philosophers such as Foucault, Derrida and Deleuze, and the various forms of 'post-modernism' they helped inspire, were especially influential in this development. The philosophies of 'difference' and 'otherness' attacked an older tradition, seen to be dominated by a misplaced emphasis on identity, truth and a metaphysical understanding of rationality. They criticized not just specific philosophical theorems, dogmatic beliefs or social institutions, but the very idea of universal rationality and the ability to make grounded normative claims; not just specific truth-claims and identities, but the idea of truth and identity in general. Derrida, for example, does seem to claim that *all* structures are subject to a necessary 'decentering'. But if it is possible to show that all truths are historical, all identities constituted by difference and all political structures the result of a violent imposition, how do we explain the fact that stable identities and social structures nonetheless exist and persist? When change is taken to be the natural historical and social condition, as it is for much of recent philosophy, the question becomes: how do conceptual and social structures reproduce and perpetuate themselves? How do they resist pressures to change and maintain themselves in existence? This is where the question of inertia becomes crucial, since it asks: How can relatively stable structures persist under conditions of a continuous dispersal?

The philosophies of difference and the various movements of social critique were reactions to the dogmatism, authoritarianism and inertia, real or perceived, of the society and the philosophical tradition which they confronted. But it is hard to avoid the sense that the scales have tipped too far in the other direction, and that the dominance of the critical or de(con)structive tendency in continental philosophy has given rise to pernicious effects. The frustration with and reaction against this dominance can be seen in the renewed interest in materialism, universalism and realism in a number of popular philosophical movements, such as speculative realism and accelerationism. Two problems in particular which are relevant to the issue of inertia could be highlighted. Firstly, overemphasising the critical function of

³² This is especially true of critical theory - Nietzsche and Derrida are much more agnostic with regards to the aim or social efficacy of philosophy.

philosophy and social theory leads to a neglect of its positive function. Even if change, contingency and historicity needed to be given a more prominent role in the way we think about reality, this should not blind us to the fact that identity, objectivity and stable social structures are necessary preconditions both for thought and social life. To avoid getting stuck in an endless criticism of existing structures and descending into irrelevance, critical self-reflection should be balanced by the attempt to actually describe and shape these structures. Secondly, this neglect of positive theory can lead critical philosophy to an overinflated image of its own power. Critical theory sometimes sees itself as a form of social therapy on a psychoanalytic model: it ‘treats’ society by theoretically ‘working through’ its pathological contradictions, as if bringing social conflicts or pathologies to consciousness is enough to get rid of them. As Deleuze and Guattari put it, however, nothing has ever died of contradictions.³³ If it is true, as the critical model suggests, that social structures perpetuate themselves in the face of change, and survive by actively resisting this change, social theorists may well theorize in vain. Social structures maintain themselves with a real force; therefore, real force is needed to dislodge them.

The emphasis on the critical side of philosophy, which shows how concepts, ideologies or social structures are inherently contingent and historical or exclusive and violent, fails to account for the positive aspect of these structures. It fails to account, on the one hand, for really existing inertia – for what Hannah Arendt calls ‘the curious and sometimes even weird longevity of obsolete bodies politic’³⁴ – and, on the other hand, for the positive and necessary role that stable, self-perpetuating and self-maintaining structures and institutions play in providing society with a sense of continuity, identity and legitimacy. A more balanced view of social-historical development would therefore have to take into account both the positive and negative aspects of inertia and resistance to change. In particular, it would have to account for the fact that the very same structures, ideas and institutions which at one point in time may be necessary, legitimate or effective may become illegitimate, inert and obsolete at a later moment.

CONCLUSION

The phenomenon of inertia should not be seen in isolation as a particular problem for psychologists or professional ‘change managers’. I have offered an outline for a unifying account of inertia, understood as irrational or undesirable resistance to

³³ Gilles Deleuze and Felix Guattari, *Anti-Oedipus: Capitalism and Schizophrenia*, trans. Robert Hurley, Mark Seem, and Helen Lane, Penguin Classics, 1983, p. 151.

³⁴ Arendt, *On Revolution*, 107.

change, in individuals, social structures and the development of knowledge. As I have pointed out, similar concerns underlie questions about resistance to change in various academic disciplines, such as psychology, economics, political theory and international relations and philosophy. These various fields of investigation would benefit from a cross-disciplinary approach to the question of change and resistance to change at the different levels I have described.

The relation between inertia, resistance to change and the reasonable self-preservation of social structures remains to be worked out in more detail. Identifying inertia with resistance to change is problematic, because the perpetuation of obsolete ideas or social structures need not necessarily take the shape of an active process of resistance. Often, the status quo is preserved precisely because of a lack of action or reflection, because prevailing habits, ideas and hierarchies are not called into question but accepted as inescapable or self-evident. Conversely, not all instances of resistance to change constitute inertia. As I have argued, resistance to change is necessary to allow stable personal identities, social structures and conceptual frameworks to exist in a changing world. People and institutions perpetuate and maintain themselves in existence through a variety of more or less active, more or less automated processes of selection, rejection or resistance of and to changes in the environment. Part of what I have argued here is that these two aspects – self-maintenance necessary for the survival of identities and institutions, and irrational inertia – cannot be strictly separated, since what is necessary and rational from one perspective may be irrational from another, and what is useful or legitimate at one point in time may be obsolete and inert at another. This normative aspect of the notion of inertia remains to be explored. In particular disciplines such as psychology or organizational studies this question is often side-stepped: individuals are inert when their reluctance to change causes them difficulties in the way they are integrated in their social environment, and organizations are inert when their resistance to change causes them to be inefficient or fail to turn a profit. But on a more general level, such as the development of political and social institutions which cannot easily be subsumed under a larger framework that determines their rationality or irrationality, or the question of the development of ideas, knowledge and science, what constitutes ‘irrational’ resistance to change, or if such a thing could even be defined, remains an open question.

Finally, as I have argued here, this question can only be considered from within a broader perspective on social-historical change and its relation to material processes as well as the development of ideas and knowledge. Arguably, philosophy has been too concerned with critiquing ossified, obsolete or dogmatic ideas and social practices, and has lost sight of the positive dimension of resistance to change and the self-preservation of social and ideational structures, as well as the dynamic nature of their development

and decay. In order to criticize obsolete ideas or self-perpetuating systems of power, we have to understand the historical processes which lead to their formation, their legitimization and delegitimization, and how institutions and ideas which were once effective or adequate can become entrenched and inert.

BIBLIOGRAPHY

- Arendt, Hannah, *On Revolution*, New York, Penguin Books, 2006.
- Aristotle, *Physics*, David Bostock (ed.), trans. Robin Waterfield, Oxford, Oxford University Press, 2008.
- Atkins, Peter, *The Laws of Thermodynamics*, Oxford, Oxford University Press, 2010.
- Bacon, Francis, *The New Organon and Related Writings*, Prentice Hall, 1960.
- Badiou, Alain, *The Subject of Change*, New York, Atropos Press, 2013.
- Bourdieu, Pierre, *The Logic of Practice*, Stanford University Press, 1992.
- Callen, Herbert B., *Thermodynamics and an Introduction to Thermostatistics*, New York, Wiley, 1985.
- Carlisle, Clare, *On Habit*, London, Routledge, 2014.
- Deleuze, Gilles and Felix Guattari, *Anti-Oedipus: Capitalism and Schizophrenia*, London, Penguin Classics, 1983.
- Derrida, Jacques, 'Structure, Sign, and Play in the Discourse of the Human Sciences', in *Writing and Difference*, London, Routledge, 2001, pp. 351-370.
- Freud, Sigmund, 'Beyond the Pleasure Principle', in *The Freud Reader*, Peter Gay (ed.), New York, WW Norton & Co, 1989, pp. 594-626.
- Fukuyama, Francis, *The Origins of Political Order: From Prehuman Times to the French Revolution*, New York, Farrar, Straus and Giroux, 2011.
- Gersick, Connie J.G., 'Revolutionary Change Theories: A Multilevel Exploration of the Punctuated Equilibrium Paradigm', *Academy of Management Review*, vol. 16, no. 1, 1991, pp. 10-36.
- 'Gliding Over All', *Breaking Bad*, Season 5, Episode 8, AMC, 2012.
- Gould, Stephen Jay, *The Structure of Evolutionary Theory*, Cambridge MA, Harvard University Press, 2002.
- Hannan, Michael and John Freeman, 'Structural Inertia and Organizational Change', *American Sociological Review*, vol. 49, no. 2, 1984, pp. 149-64.
- Hegel, G.W.F., *Hegel's Philosophy of Nature: Being Part Two of the 'Encyclopaedia of the Philosophical Sciences' (1830)*, Oxford, Clarendon Press, 1970.
- Hegel, G.W.F., *Phenomenology of Spirit*, Oxford, Oxford University Press, 1977.

- Hegel, G.W.F., *Hegel's Philosophy of Subjective Spirit*, vol. 2, Dordrecht, D. Reidel, 1979.
- Horkheimer, Max and Theodor W. Adorno, *Dialectic of Enlightenment*, Stanford, Stanford University Press, 2007.
- Israel, Jonathan, *The Dutch Republic: Its Rise, Greatness and Fall 1477-1806*, Oxford, Oxford University Press, 1998.
- Janis, Irving L., *Groupthink: Psychological Studies of Policy Decisions and Fiascoes*, Boston, Cengage Learning, 1982.
- Kuhn, Thomas S., *The Structure of Scientific Revolutions*, Chicago, University of Chicago Press, 1996.
- Machiavelli, Niccolò, *The Prince*, Simon & Brown, 2011.
- Nietzsche, Friedrich, *The Will to Power*, New York, Vintage, 1968.
- Nietzsche, Friedrich, *On the Genealogy of Morals and Ecce Homo*, New York, Vintage, 1969.
- Nietzsche, Friedrich, *The Gay Science*, New York, Vintage, 1974.
- Nietzsche, Friedrich, 'On Truth and Lie in an Extra-Moral Sense', in *The Portable Nietzsche*, London, Penguin, 1977.
- Nietzsche, Friedrich, *Beyond Good & Evil: Prelude to a Philosophy of the Future*, New York, Vintage, 1989.
- Patalano, Roberta, 'Resistance to Change: Historical Excursus and Contemporary Interpretations', *Review of Political Economy*, vol. 23, no. 2, 2011, pp. 249–66.
- Pierson, P., 'Increasing Returns, Path Dependence, and the Study of Politics', *American Political Science Review*, vol. 94, 200, pp. 251-267.
- Piketty, Thomas, 'Our Manifesto for Europe', *The Guardian*, 5 February 2014, <http://www.theguardian.com/commentisfree/2014/may/02/manifesto-europe-radical-financial-democratic>.
- Plato, *The Dialogues of Plato*, vol. 3, Oxford, Oxford University Press, 1892.
- Prigogine, Ilya and Isabelle Stengers, *Order Out of Chaos*, London, Heinemann, 1984.
- Ravaissan, Felix, *Of Habit*, London, Bloomsbury, 2009.
- Rosa, Hartmut, *Social Acceleration: A New Theory of Modernity*, New York, Columbia University Press, 2013.