Ian Hacking – Special Issue

Guest Editor's Introduction

Ian Hacking: The Style of Scientific Thinking & Doing in the Historiography of Science

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Ian Hacking was born in Vancouver on February 18, 1936. At 17, he enrolled at the University of British Columbia (UBC), studying mathematics and physics, and completed his BSc there in 1956. During the summers, he worked for the British Columbia (UBC) forest service and later as a geophysicist trainee with Mobil Oil and Shell in Alberta. Obtaining a Commonwealth Scholarship to Trinity College at Cambridge University in the United Kingdom opened up new opportunities for him. Already interested in profound mathematical questions, he became a student of Casimir Lewy, under whose supervision he obtained his Ph.D. in Moral Sciences (1962). He went on to become a Stone Research Fellow of Peterhouse (Cambridge, 1962-1964), and in 1964, he returned to Vancouver and took up an assistant professorship at UBC (1964-1969). At that time, Hacking began his prolific intellectual career, which would eventually include more than a dozen books and the publication of numerous articles in scholarly journals and mainstream media such as *The Globe and Mail*, *New Republic*, *The New York Review of Books*, *The London Review of Books*, etc.

His works reveal his way of doing philosophy by taking a look at the rich complexity of the world and following the paths his particular, restless curiosity marked out. It was the same curiosity that put Hacking in direct contact with thinkers and researchers from various disciplinary fields. On the one hand, those fields enriched his philosophy because he considered that the objects about which the philosophy reflected had to be sought outside the philosophical field itself, but on the other, they were also influenced by the philosopher's reflections. Hacking received respect and recognition not only in the human and social sciences but also in the natural sciences. He was a Visiting Fellow at All Souls College Oxford, a Guggenheim Fellow, and a Killam Fellow. He was a Fellow of the Royal Society of Canada, the British Academy, the American Academy of Arts and Sciences (1991), and a Companion of the Order of Canada. He won the Isaak Walton Killam Prize from the Canada Council for the Arts (2002), the Gold Medal from the Social Sciences and Humanities Research Council of Canada (2008), the Ludvig Holberg Memorial Prize (2009), the Austrian Commendation of Honour for Sciences and Arts (2012) and the Balzan Prize for Epistemology and Philosophy of Mind (2014). In 2005, the French journal *Le Nouvel Observateur* named Hacking one of the 25 most outstanding thinkers in the world.

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A brief review of some of his most renowned books and articles reveals the diversity of topics Hacking addressed throughout his extensive intellectual career. He wrote texts inciting rich, new critical reflections, such as those in this special issue.

While in British Columbia, his first books appeared. Thus, in 1965, he published *Logic of Statistical Inference*, theoretically framed in the debate between frequentist statisticians and neo-Bayesians. That text represented the first philosophical attempt to analyze how statisticians draw inferences from data.

In 1969, after a teaching stay at Makerere University College in Kampala (Uganda, 1968-1969), Hacking was offered a lectureship at Cambridge (1969-1974). Five years later, he moved to Stanford University in Palo Alto, CA, USA (1974-1982) as a Fellow of the Center for Advanced Study in the Behavioral Sciences. At that time, Hacking developed theories and studies, such as his those on probability, that significantly impacted the views of scientists. He showed an early interest in investigating how we came to live in a universe of possibilities in which we think of everything in terms of probabilities, a world of probabilities that did not exist in the seventeenth century. In *The Emergence of Probability* (1975) – the French version of which won the Prix Risques-Les Echos (2003) –, Hacking turns to historical detail to explain how this change in our conception of the world and ourselves came about. He shows how during the seventeenth century, and as a result of a radical change that occurred very quickly from preceding Renaissance conceptions, probabilistic reasoning developed as opposed to a deterministic view of reality, "[...] around 1660 a lot of people independently hit on the basic probability ideas. It took some time to draw these events together but they all happened concurrently" (Hacking 1975, 11-12). His central idea is that the specificity of the notion of probability is the duality and recurrent tension between, on the one hand, probability in epistemic terms, which aims at assessing reasonable degrees of belief (warranted by factual evidence) and, on the other, in statistical terms, connected with the tendency exhibited by some devices to produce stable relative frequencies of long duration. Although Michel Foucault is explicitly mentioned only twice, the influence of *Les Mots et les Choses* (1966) is evident when Hacking describes the methodology he employed in the research that gave rise to the text. The same happens in *Why Does Language Matter to Philosophy?* (1975a), in which, by presenting how language has mattered to philosophy, a historical dimension clearly appears in the analysis, an approach generally foreign to analytic philosophers. Although the purpose of the text is to analyze what is happening in the present, Hacking needs a historical perspective that helps to understand the present and how and why we have arrived at our present conceptions, starting from an account of their origins. According to the philosopher himself, this interest in context was due to the impact of his early reading of Foucault's book.

At Stanford, Hacking continued cultivating his interest in experimental physics, stimulated by contact with researchers such as Francis Everitt, who was preoccupied with testing Einstein's Theory of General Relativity at the time. As a result of that interest, in 1983, Hacking published the book for which he perhaps originally became best known in the field of Anglo-Saxon analytic philosophy: *Representing and Intervening.* Its fundamental aim was to reverse the traditional hierarchy of theory over experiment and to show that experiment has a rich life of its own, independent of theory. Learning of an experiment conducted at Stanford that involved spraying electrons and positrons on to a ball of niobium to detect the presence of fractional electric charges and which gave rise to his famous phrase "So far as I'm concerned, if you can spray them then they are real" (Hacking 1983, 23), Hacking addressed the defense of a scientific realism of entities based on manipulation, to show the importance of experiment and intervention in science, of doing, as opposed to the auxiliary role of representation and theory.

In 1982-1983, Hacking participated with Nancy Cartwright, Lorenz Krüger and Lorraine Daston, among others, in an international interdisciplinary group of more than twenty researchers who met at the Center for Interdisciplinary Research in Bielefeld (Germany) to

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study the probabilistic revolution. That participation resulted in the publication of *The Taming of Chance* (1990). Their central idea is that "the taming of chance" results from the application of the law of large numbers that made it possible, from the years 1820-1830, to think of the world in non-deterministic terms at the micro-social level, in the framework of a statistical probabilistic model that develops the consequences of the idea of stable relative frequency, presented in their two preceding books (Hacking 1965 and 1975). It was from his treatment of social material, such as bureaucracy, crime, suicide, diseases, thoracic measurements of soldiers, etc., that he elaborated the probabilistic world. Through this foray into political-administrative history, Hacking shows the links between, on the one hand, the evolution of the use of statistics and the emergence of an autonomous style of statistical reasoning, and on the other, the transformations of the state, whereby the organization of official statistics offices makes this avalanche of numbers possible and thus the incorporation of long-term frequencies into the normal daily practice of institutions and social actors. In highlighting the role of statistical offices, Hacking confronted the problems of classification and nomenclature that he developed in later work on the notion of class in general and fundamentally of classes in the human sciences.

Hacking then took up this topic of probability in *An Introduction to Probability and Inductive Logic* (2001), dealing with probability and induction, including numerous historical accounts of how both ideas developed and conveying his view of the structure of these logical ideas. He also pointed out the importance of the book's final chapters as a contribution to the philosophical problem of induction.

After that year in Bielefeld, Hacking was appointed Professor in the Department of Philosophy and the Institute for the History of Philosophy of Science and Technology at the University of Toronto (1982-2004), an institution that was his home base for two decades and where he received the title of University Professor in 1991.

Prompted by his interactions with researchers in the social and human sciences, Hacking became interested in the question of how people are classified and how specific labels, such as juvenile delinquent, hyperactive child, refugee woman, etc., emerge and propagate through culture. To the project on *making up people* initiated by articles from the 1980s, such as "Making Up People" (1986) and *The Taming of Chance*, were added his texts from the 1990s: *Rewriting the Soul: Multiple Personality and the Sciences of Memory* (1995), *Mad Travelers: Reflections on the Reality of Transient Mental Illness* (1998) and *The Social Construction of What?* (1999). In the first book, for which he received the Pierre Janet Prize (1995), he analyzes the emergence of the sciences of memory, the new meaning of the concept of trauma and the emergence of multiple personality disorder (MPD) and child abuse as concepts and as objects of scientific knowledge. He was interested in elucidating the conceptual background that made possible the debates on memory and abuse and that led to the emergence of the disorder in nineteenth-century France when memory supplanted or secularized the soul in the scientific study of personality. In that context, the concept of trauma was crucial in making memory a scientific problem between 1874 and 1886. *Mad Travelers*, originally written as a chapter in *Rewriting the Soul* that turned out to be too long, deals with the story of Albert Dadas, the original *fugueur*, who inaugurated an epidemic of compulsive travelers (*fugueurs*) that experts called the syndrome of ambulatory automatism. Although it had always been known, it was only at that time that the "*fugueur*" condition became a disease in the psychiatric manual. So, was it a real mental disorder? Or was it an artifact of psychiatry? It was not Hacking's interest in that text to discuss whether the illness was real or constructed but, instead, to provide a schema (*ecological niche*) with which to understand the possibility of the emergence of so-called transient mental illnesses. Finally, in *The Social Construction of What*, a text whose leitmotiv was to analyze the abuse of the expression 'social construction', Hacking returns to some of the cases addressed in previous works, child abuse for example, and includes others that he developed later, such as autism and racism. He analyzes how these *kinds of people* are constructed and how concepts and

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objects change throughout history. He frames all of that within the discussion of the human sciences and their peculiar relationship with their objects; the discussion of the *interactive kinds*, proper to the human sciences – and opposed to the indifferent kinds of the natural sciences –, and of the *looping effect* through which people react to the descriptions that these sciences make of them, act on such descriptions and, as a consequence, force the categories to be revised. This type of looping implies that, in the human sciences, objects have a *historical ontology* (*Historical Ontology*, 2002).

In this special issue, in the article "Making Up a Mimic: Interacting with Echoes in the Age of AI", Jennifer Fellows reflects on that topic of the interaction between people and the tools and devices that embody AI. While these machines are actually indifferent kinds, they have been designed to fool us into believing they are interactive kinds. Interacting with these devices that mimic interactive kinds, even though they are not, is having negative consequences for people because while they give us a new way of making people and affect people's self-understanding of themselves and consequently bring about change, they are not affected at all by the loop effect. "When we interact with machines as though they, too, were interactive kinds", the author argues, "we will only ever succeed in changing ourselves. In such environment, we are continuously looping back upon ourselves".

In the 1990s, Hacking also published his now classic works on the *styles of scientific reasoning* (Hacking, 1992, 1992a, 1992b). In 1975, those articles were preceded by *The Emergence of Probability*, a text in which, even without naming him, the first sketches of his thinking on this subject appeared and constituted a historical example of a style of reasoning. In 1982, Hacking had also written "Language, Truth and Reason", where he pointed out that his notion of style of scientific reasoning was based on the styles of scientific thinking identified by the historian Alistair Crombie. Despite taking it as a starting point, Hacking wanted to distance himself from Crombie's notion insofar as he intended his concept to refer not only to thinking but to manipulation, not only to representing but to intervening, not only to the mental and private but to the public. However, it was only in the articles of the 1990s that Hacking consolidated his characterization of this "[...] new analytical tool that can be used by historians and philosophers for different purposes". (Hacking 1992, 1). Finally, in 2009, he published *Scientific Reason*, which referred to the historical roots of scientific reason, developed a long-term, philosophical and anthropological vision and emphasized that cognition and culture are two dimensions that provide the space to understand it. Concerning Crombie, he also remarked that his main innovation – inspired by Foucault – is the idea that long-lasting styles are interrupted by what he called crystallization (Hacking 2009, 11): a point of no return, a radical change that introduces new objects and criteria for truth or falsehood of the statements about these objects.

Crystallization is usually associated with certain legendary, pioneering figures such as Robert Boyle in reference to the laboratory style, for example. As a historiographical source in his analysis of the laboratory style of thinking & doing, Hacking takes Schaffer and Shapin's book, *Leviathan and the Air Pump: Hobbes, Boyle and the Experimental Life* (1985). Thus, in this special issue, Maria de los Angeles Martini, in her article "Ian Hacking's rewriting of *Leviathan and the Air-Pump*", analyzes Hacking's appropriation of Shapin and Schaffer's work as a rewriting of the history of seventeenth-century English experimental philosophy. Her analysis focuses on the contingency/permanence tension with the aim of probing the two historiographical narratives as attempts to overcome what Richard Bernstein calls "Cartesian anxiety." Throughout the text, Martini examines the philosophical commitments implicit in Shapin and Schaffer's history; Wittgensteinian-inspired finitism underlies those authors' realization of the "mundane" history of science. She analyzes Hacking's appropriation of Fernand Braudel's *longue durée*, in his quest to configure a historical philosophy of science that energizes permanence, and she reconstructs his rewriting of seventeenth-century English experimental philosophy as a narrative that places materiality at the center of the contingent of permanence.

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Finally, she addresses the notion of form of life as a nuclear point in how Hacking and Shapin and Schaffer seek to move beyond Cartesian anxiety.

The so-called "styles project" constitutes one of the most critical aspects of Hacking's work, if not the fundamental one. In that sense, for example, in his text, "Making Sense of Hacking: Styles, Metaphilosophy and Naturalism", Jack Ritchie proposes the notion of style of reasoning as a key tool to understanding the broad structure of Hacking's work. According to Ritchie, "Hacking is engaged in an incredibly ambitious project that he called Philosophical Anthropology", which can be "pursued through his idea of styles of reasoning". Despite its ambitious nature, the styles project grants Hacking two fundamental things: on the one hand, "a way of distinguishing science from non-science", and on the other, "a structure that helps us understand why certain philosophical questions emerge, and, sometimes, a diagnosis of why in contemporary philosophy those questions are misguided". From the notion of style of reasoning, Ritchie classifies Hacking's works into three categories: those that "attempt to explain the general idea of styles of thinking"; those that "investigate aspects of a particular style (or sometimes combinations of styles) including its history"; and, finally, those that "work on subjects in which the six styles of thinking do not stably apply". In closing, he proposes that the label "naturalism" might better fit Hacking's work as someone concerned with using the empirical sciences, up to and including history, to address philosophical questions.

Despite the centrality of the styles project in Hacking's work and his widespread notion of style of reasoning in the history and philosophy of science, its characterization has not yet been sufficiently systematized and theorized, and the individualization of styles continues to generate controversy. In his paper "What is a Style of Reasoning?", Luca Sciortino addresses the question of which ways of thinking can be considered styles of reasoning, discusses the idea of the necessity of necessary and sufficient conditions for the existence of a style of reasoning, and proposes considering the category styles of reasoning as a category based on prototypes, in which its members are determined by their degree of similarity with prototypes such as the style of statistical reasoning.

For their part, Joseba Pascual-Alba and Jaume Navarro, in "Hacking on Unity, or how to pluralize the History and Philosophy of the Sciences", analyze the Canadian philosopher's dual (and plural) conception of the unity of science, understood as "singularity" and "harmonious integration". Regarding the latter, the authors argue that the concept is precisely "the plurality of styles what allows some general and peculiar kind of unity of the sciences, thus achieving unification by integration". By understanding integration as a pluralistic notion of unity, Hacking would liberate the notion of unity from monism. Applying this dual notion of unity, Pascual-Alba and Navarro reveal how some notions of scientific unity that have been defended in the philosophy of science are more plural than might initially be thought. Finally, they use this analysis to show that the notion of special sciences implies a hidden monism with the assumption of general science, which can be identified neither historically nor philosophically.

In 2000, Hacking was the first Anglophone elected to a permanent position at the *Collège de France* (Paris). In a way, that appointment represented a recognition of his persistence in trying to build bridges between the analytical and continental traditions. Trained as an analytic philosopher and always considering himself part of that tradition, several of Hacking's works, however, have a prevalently historical approach resulting from the profound influence exerted on his thought by philosophers of the continental tradition, in particular Michel Foucault. Hacking held the Chair in the Philosophy and History of Scientific Concepts at the *Collège* until his retirement in 2006.

After retirement from Toronto, he was a professor of philosophy at the University of California Santa Cruz (2008-2010) and in 2011, he was a visiting professor at the University of Cape Town.

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Hacking's last book, *Why is There Philosophy of Mathematics at All?* (2014), represented a continuation of his early interests, reflected in one of his two Ph.D. completion papers, derived from the Wittgensteinian philosophy of mathematics with the title "Proof". The 2014 book conflates old claims such as *doing* in the sciences (Hacking thought of mathematics as activities grounded in the body, both hands and brain, carried out by human communities in specific times and places, and which, applied, can be used in the material world); the influence of Wittgenstein (who notably emphasized the different activities that are understood as mathematical); and his more recent proposals that human beings have certain cognitive capacities, certain inherited abilities that have evolved and that, exploited in a given time and place by a group of people, became part of the system of the world, in our standards of "*good reasons*" (Hacking 2014, 142).

On May 10, 2023, Hacking passed away in Toronto.

Hacking was not a philosopher of grand theorizations. As he once defined himself, he was a philosopher of particular cases who used the richness of examples and small stories to draw conclusions. He was an incredibly profound thinker who, on the one hand, transformed the history and philosophy of science but who, at the same time, contributed to the public debate on fundamental questions of human life.

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