

Opinion Page

Mario Bunge's 99th Birthday

Michael R. Matthews, School of Education, University of New South Wales,
Australia, m.matthews@unsw.edu.au

The 21st September 2018 is an occasion for the international HPS, HPS&ST, and physics communities, and others, to join with Mario Augusto Bunge and his family in celebrating his 99th birthday; and to wish him all the best through the coming year to his hoped-for 100th birthday. Few philosophers have the good fortune to live to such an age; fewer still at 98 years are publishing articles on 'Gravitational Waves and Space-Time' (Bunge 2018).

Bunge was born on the outskirts of Buenos Aires on 21st September 1919. He held chairs in physics and in philosophy at universities in Argentina (University of Buenos Aires, Universidad Nacional de La Plata) and the USA (University of Texas, University of Delaware, University of Pennsylvania and Temple University) before his appointment as professor of philosophy at McGill University in Montreal in 1966. In 1981 he became McGill's Frothingham Professor of Logic and Metaphysics. He held that chair until his retirement in 2009, when he became the Frothingham Professor Emeritus.

In 1971 he received a Guggenheim Fellowship for 'exceptionally productive scholarship'. In 1982 he became a Prince of Asturias Laureate for Communication and



Humanities. The prize jury wrote:

Mario Bunge has contributed to analysis and laying the theoretical foundations in the field of Natural and Social Sciences with a long series of works, which have greatly influenced research carried out in these subjects both in Spain and in Spanish America.

In 2014 the International Society for General Systems Research awarded him the Ludwig von Bertalanffy Award in Complexity Thinking. He is one of just two philosophers in the Science Hall of Fame of the American Association for the Advancement of Science: the other being Bertrand Russell.

His own engaging and informative 500-page autobiography (Bunge 2016) can be seen [here](#).

Publications

Bunge has published 70 books (many with revised editions) and 540 articles. About one quarter of his publications have originally appeared in Spanish, the balance in English; with many translated and published in both languages.

Beyond these 'home' languages, Bunge's books and articles have been published in Portuguese, German, Italian, French, Polish, Russian, Chinese, Arabic, Japanese, Farsi and Hungarian translations. For example, his ground-breaking *Causality: The Place of the Causal Principle in Modern Science* (1959) very quickly appeared in seven languages.

His publications encompass an inordinately wide range of fields: physics, philosophy of physics, metaphysics, methodology and philosophy of science, philosophy of mathematics, logic, philosophy of psychology, philosophy of social science, philosophy of biology, philosophy of technology, moral philosophy, social and political philosophy, management theory, medical philosophy, linguistics, crim-

inology, legal philosophy, and education. He is a polymath. In former times he would have been regarded as a Renaissance man.

His publications can be seen [here](#).

Impact

Bunge's corpus of scientific and philosophical writing is not inert; it has had significant disciplinary, cultural and social impact in North and South America, and elsewhere across the world, including China.

In 1989 the *American Journal of Physics* asked its readers to vote for their favourite papers from the journal, from its founding in 1933 to 1989. In the resulting 1991 list of most memorable papers, alongside classics from Nobel Prize winners and luminaries such as Bridgman, Compton, Dyson, Fermi, Kuhn, Schwinger, Wheeler, and Wigner, was Bunge's 1956 'Survey of the Interpretations of Quantum Mechanics' (Romer 1991). In 1993, the journal repeated the exercise, asking readers for the most influential papers in the journal's first 60 years. In this list, Bunge's 1966 paper 'Mach's Critique of Newtonian Mechanics' took its place alongside his 1956 article (Romer 1993).

His contributions to international physics began in 1944 when his 'A New Representation of Types of Nuclear Forces' was published in *The Physical Review*; they have continued to the present day, with his 'Gravitational Waves and Spacetime' being published in *The Foundations of Science* in 2017.

Below is a selection of appraisals of Bunge's work taken (except for three) from a 46-chapter Centenary Festschrift (M.R. Matthews ed.) scheduled to be published by Springer in 2019. The authors are distinguished researchers from the various fields in which Bunge has published.

Alberto Cordero, Peruvian/American philosopher of science, writing of *Bunge's publications, his many translations of English-language works into Spanish, his journal*

editing, and his academic 'community building':

No Latin American philosopher had achieved anything comparable before in cosmopolitan philosophy. Bunge is a citizen of the world, perhaps the most universalist of philosophers in the subcontinent. Bunge is nonetheless very South American, it is hard to imagine him growing up anywhere else but in cosmopolitan Argentina (Cordero 2016).

Bernulf Kanitscheider (1939-2017), philosopher of science, Germany:

Few extraordinary personalities have the chance to decisively shape the intellectual geography of a scientific epoch. Mario Augusto Bunge belongs to the small circle of important philosophers of science whose works have already become landmarks in the spiritual landscape of world philosophy (Kanitscheider, 1984, p.viii).

Marta Crivos, Professor of Anthropology, National University of La Plata:

Bunge's contributions turn out to be indispensable to the scientific training of generations of Argentinians. Since his classic *La ciencia, su método y su filosofía* [1960, revised edition 1963], his work has been the required reference in introductory courses for a wide range of scientific disciplines. Even from viewpoints that criticise his ideas, the reference to Bunge has proved to be inevitable. Therefore, generations of students and professionals benefited from his work, making possible their access to a clear and persuasive presentation of the basis and the scope of the scientific endeavour, and the approach to the intricate relations that connect and differentiate the various branches of such endeavour to philosophy (Crivos, forthcoming).

Rögnvaldur Ingthorsson, philosopher, Lund University, writing of Bunge's *Causality and Modern Science* (1959):

it is arguably one of the best treatments of the causal realist tradition ever to have been written, one that defends the place of causality as a category in the conceptual framework of modern science. ... Bunge's critique of this particular aspect of the Aristotelian view cannot be overlooked in contemporary metaphysics (Ingthorsson, forthcoming).

Gustavo Romero, astrophysicist, Instituto Argentino de Radioastronomía:

Throughout more than 70 years Mario Bunge has researched the foundations of physics. Unlike many other philosophers dedicated to the philosophy of this science, Bunge has researched in physics and has been a university professor of physics. This has given him a unique insight and depth in his views on this field. ... Fifty years after its publication, *Foundations of Physics* (1967) continues to be a book of enormous depth and generosity (Romero, forthcoming).

Art Hobson, professor emeritus of physics, University of Arkansas, author of widely-read textbooks on quantum physics:

Everybody who wishes to understand quantum physics needs to read Bunge, especially quantum physicists. Most especially physicists enamoured of the Copenhagen view, and (even worse) "Quantum Bayesianism" etc., need to read his 2012 article. It is the best refutation I have seen of the huge amount of subjective nonsense about the meaning of quantum physics. Quantum physics is the study of quanta. It is the not study of our observations. Photons and electrons are real objects with real states; neither quanta nor their states are figments of our measuring instruments (Hobson, forthcoming).

José María Gil, linguist, Universidad Nacional de Mar del Plata:

Very differently from Chomsky, Bunge (1983, p.92) suggests that linguistics needs to get in touch with biological reality by testing hypotheses against what is known about the brain from neuroscience. Bunge also considers that linguistic knowledge must be represented in specific neuronal systems. In this sense, neurological research sheds light on the highly complex processes of linguistic production, linguistic understanding, language learning, and even disorders of speech. Bunge emphasizes that language has to be materially represented in the brain because it has been widely confirmed by aphasiology that brain damages caused by stroke, injury or other motives produce linguistic deficits (Gil, forthcoming).

Henry Mintzberg, Cleghorn Professor of Management Studies, McGill University:

It is rare to find a renowned philosopher writing about management, rarer still in a way that captures its essence so well. Mario Bunge has labelled the field “management technology”, by which he meant, not the technology of management, but the field of management as a technology rather than a science. If only many of the established scholars in the field, who call themselves “management scientists”, had taken Bunge’s distinction to heart, the field would have avoided many dead-ends. Working across fields in Bunge’s way is not nearly as common as should be the case: Mario Bunge has been a model for profound scholarship in management studies (Mintzberg, forthcoming).

Harriet Hall, retired colonel, US Air Force, Flight Surgeon, Chief of Aerospace Medicine, and Director of Base Medical Services, writes of Bunge’s *Medical Philosophy: Conceptual Issues in Medicine* (2013):

Bunge explains that whether doctors recognize it or not, medicine is firmly based on the philosophical principles of materialism, systemism, realism, scientism, and humanism. Without materialism, both diseases and therapies would be taken to be purely spiritual. Without systemism, every disease would be attributed to an independent module. Without realism, diseases would be viewed as either imaginary or as social flaws. Without scientism, either nihilism or dogmatism would prevail, and all the achievements of biomedical research of the last 500 years would be consigned to oblivion. Without humanism, all medical practice would be mercenary, and there would be no public health care (Hall 2014).

Tuukka Kaidesoja, a Finnish philosopher, who has written extensively on philosophy of social science has provided a detailed appraisal of the parallel work of Roy Bhaskar, the founder of the 'Critical Realist' programme in social science, and Mario Bunge's writings, and concludes:

Roy Bhaskar and Mario Bunge have both developed influential realist philosophies of social science. Both of them use the ontological concept of emergence and advocate a doctrine of emergent materialism in their social ontologies. ... I argued that Bunge's perspective on emergence enables one to conceptualize levels of organization in complex systems including social systems, while Bhaskar's account of levels of reality is problematic (Kaidesoja 2009, p. 318).

These positive appraisals are characteristic of reviews of Bunge's core research endeavours. The same pattern is seen in reviews of his contributions to political philosophy, moral philosophy, philosophy of technology, economic theory, and education. Consequently, it is no surprise that *Antonio Martino, professor of philosophy* at Universidad de Lanus, Buenos Aires, in a private communication writes:

the popularity of Bunge in Argentina reaches unthinkable levels. Doctors, lawyers, pharmacists, in short any person who has a profession

and aged more than 40 years knows it (I do not say anything about those under 40 because I hardly frequent them).

Systemism

Beyond breadth, Bunge's work is noteworthy for its coherence and systemicity. Through to the mid twentieth-century most significant Western philosophers were systematic philosophers. There was an assumption that the different areas of their philosophical inquiry had to be mutually coherent: that their epistemology, ontology, ethics, politics, philosophy of mind, religion, anthropology and even educational philosophy and practice had to all fit together, be consistent, and inform each other.

But in the past half-century and more, the pursuit of systemic philosophy, 'big pictures', 'grand narratives' or even cross-disciplinary understanding has waned, with fewer and fewer scholars having serious competence beyond their own narrow field of research. As philosopher Susan Haack wrote:

Our discipline becomes every day more specialized, more fragmented into cliques, niches, cartels, and fiefdoms, and more determinedly forgetful of its own history (Haack 2016, p.39).

Indeed in 'postmodern times' the pursuit of a big picture or a grand narrative is widely thought to be in principle flawed or quixotic: do not bother to look as there is nothing to find. Especially since Lyotard's 1984 denunciation of the 'grand narrative programme' it is widely held that all philosophical questions and pursuits should be local: that epistemology, ethics, politics and other fields could not and should not be universal but be avowedly local, meaning constrained, and judged by local cultural norms and practices of the discussants (Lyotard 1984). This is one of the core convictions, if one might loosely use the term, of postmodernism.

Bunge defied this trend. In his typically confident and direct way he writes:

A philosophy without ontology is invertebrate; it is acephalous without epistemology, confused without semantics, and limbless without axiology, praxeology, and ethics. Because it is systemic, my philosophy can help cultivate all the fields of knowledge and action, as well as propose constructive and plausible alternatives in all scientific controversies (Bunge 2016, p.406).

Bunge's systematic philosophical orientation was already in place when, at the age of 37, he made his international philosophical debut at the 1956 Inter-American Philosophical Congress in Santiago, Chile. Willard Van Orman Quine, in his autobiography, mentions attending this congress, and the only thing he thought worth recording was:

The star of the philosophical congress was Mario Bunge, an energetic and articulate young Argentinian of broad background and broad, if headstrong, intellectual concerns. He seemed to feel that the burden of bringing South America up to a northern scientific and intellectual level rested on his shoulders. He intervened eloquently in the discussion of almost every paper (Quine 1985, p.266).

Twenty years after this international debut, Bunge's philosophical system was laid out in detail in his monumental eight-volume *Treatise on Basic Philosophy* (1974-1989). Individual volumes are devoted to Semantics, Ontology, Epistemology, Systemism, Philosophy of Science, and Ethics. His *Political Philosophy: Fact, Fiction and Vision* (2009) was originally planned as its ninth volume. No other modern philosopher has written a philosophical treatise as comprehensive as Bunge's eight volume work; indeed, few other philosophical treatises of any comprehensiveness have been written in the past century.

Bunge has applied his systems approach to issues in logic, mathematics, physics, biology, psychology, social science, technology, medicine, legal studies, economics, and science policy. For instance, his systemism has led him to detailed criticisms

of economic theory (Bunge 1995). Concerning one of the most influential theories of modern economics, he writes:

Rational choice theory has been a theoretical and practical flop ... it is not rational enough, ... it adopts ontological and methodological individualism ... it is far too ambitious ... it is triply ahistorical ... its hypotheses are empirically untestable ... its spread is a tragi-comic episode (Bunge 1999, p.100).

Engagement

Bunge has had a life-long commitment not just to research, but also to the social and cultural responsibility of academics; he has never been seduced by the 'Ivory Tower' option, comfortable though it would have been at many stages of his life. Bunge believes that philosophy needs to engage with life and the world; it has a practical aspect. This amounts to, as he writes:

serious reflection on action and its conceptual concomitants, from moral issues arising in daily life to the general principles guiding policies, projects, and actions in engineering, medicine, education, the law and politics. For example, the debates on gender discrimination, torture, prison, war, the distribution of wealth, the duties and limits of the State, the treatment of animals, the negative side of technological advances, and more belong in practical philosophy (Bunge 2016, p.379).

In 1938, aged 20 years, Bunge was admitted to the Universidad Nacional de La Plata, where he studied physics and mathematics. Shortly thereafter he founded a Worker's School, the Universidad Obrera Argentina, which was the first such in Latin America. Within two years it had 1,000 students enrolled and a teaching staff of 60. Both students and teachers came to class after their working day. In his autobiography, Bunge writes of this initiative that:

Back when starting university as a student in 1938, I realized that, since my compatriots were paying for my studies [higher education was free in Argentina], I had a duty to repay them. I decided to found the Universidad Obrera Argentina (UOA). I wanted this school to teach both vocational and humanistic studies to adult workers. This modest activity alerted three very different institutions: The Social Order division of the Federal Police, the Order of the Calatrava Cross, and the Construction Union.

We offered elementary courses in mechanical, electrical, and chemical engineering, as well as a 2-year course in the humanities and social sciences for union activists. This course included labor law taught by Arturo Frondizi, who eventually would become President of Argentina (Bunge 2016).

Its liberal and socialist principles, and its effectiveness, prompted its closure by the government five years later in 1943.

This commitment to applied philosophy and social renewal characterised the rest of Bunge's 80 years in the academy. In 1944 he founded the journal *Minerva* in order to facilitate the development of contemporary, science-informed, modern philosophy in Latin America. As Bunge said:

I had the idea of organizing a sort of rationalist common front to fight irrationalism, in particular existentialism. This pseudo-philosophy had started to rule in the Latin American schools of humanities: it rode on the fascist wave and hid behind the phenomenological veil (Bunge 2016, p.105).

During this period, when in his mid-20s, he and others worked with Enrique Gaviola (1900-1989) to establish the *Asociación Física Argentina*. From 1942-1944, Bunge was Secretary General of the *Federación Argentina de Sociedades Populares*

de Educación. During this period, he wrote his first book, *Temas de Educación Popular* (1943), dealing with the principles and practice of popular (workers) education. In addition to his own book and article writing he has taken on the demanding role of editing different journals and book series: *Exact Philosophy*, *Episteme*, *Ciencia de la ciencia* and *Methods*. In 1971 Bunge founded the International Society for Exact Philosophy. In 1976, he assisted in the formation of an association for the promotion of modern philosophy of science in Mexico *Asociación Mexicana de Epistemología*.

Beyond scholarship, Bunge has had immediate influence through his teaching, of by now thousands of students, and in turn through several succeeding generations of them.

Bunge does not believe that scholarly light should be kept under a bushel. He is very well-known, verging on famous, in the Hispanic world. In the popular press he features in about 1,000 entries, either as author or being interviewed.

Bunge's life-long commitment to Enlightenment-informed, socially-engaged, systemic philosophy is manifest in his being asked by the *Academia Argentina de Ciencias Exactas, Físicas y Naturales* to draft its response to the contemporary crisis of anthropogenic global warming. In a Manifesto subsequently circulated to numerous international organisations, Bunge wrote:

Science is fingering us, not nature, for many of the recent climate changes. But, of course, science alone cannot solve a problem that is both technological and social. As Pope Francis has stated, the increasing magnitude and frequency of climate calamities requires scientifically grounded, systemic, radical, and quick responses. For one thing, since climate is not regional but global, all the measures envisaged to control it should be systemic rather than sectoral, and they should alter the causes at play – mechanisms and inputs – rather than their effects. ... The required radical redesign of our social behavior can only be achieved by new technologies together with top-down regulations jointly with bottom-up voluntary actions. In other words, the current

climate crisis calls for both technically competent governments and selfless NGOs willing to give pride of place to the climate crisis.

Bunge is one of the most accomplished, informed, wide-ranging and influential philosophers of the modern age. He is a dual physicist and philosopher of the first-rank, and also a tireless communicator who for 80 years has been concerned with the ramifications of scholarship and clear, informed and consistent thinking for public life and government policy.

Many people, in many countries, both inside and outside of academic life, wish him the best of health and spirits; and fondly hope to celebrate his centenary birthday in September 2019.

References

- Bunge, M.: 1995, 'The poverty of rational choice theory'. In I. C. Jarvie & N. Laor (eds.), *Critical Rationalism, Metaphysics and Science* Vol. I Dordrecht-Boston: Kluwer Academic, pp. 149-168.
- Bunge, M.: 1999, *The Sociology-Philosophy Connection*, Transaction Publishers, New Brunswick, NJ.
- Bunge, M.: 2012, 'Does Quantum Physics Refute Realism, Materialism and Determinism?', *Science & Education* 21(10), 1601-1610.
- Bunge, M.: 2016, *Between Two Worlds: Memoirs of a Philosopher-Scientist*, Springer, Dordrecht.
- Bunge, M.: 2018, 'Gravitational Waves and Space-Time', *Foundations of Science*, 23(2), 399-403.
- Cordero, A.: forthcoming, Mario Bunge's Scientific Approach to Realism. In M.R. Matthews (ed.) *Mario Bunge: A Centenary Festschrift*, Springer, Dordrecht.

- Crivos, M.: forthcoming, Bunge and a path toward a scientific anthropology. In M.R. Matthews (ed.) *Mario Bunge: A Centenary Festschrift*, Springer, Dordrecht.
- Gil, J.M.: forthcoming, On Bunge's requirement of neurological plausibility for a linguistic theory'. In M.R. Matthews (ed.) *Mario Bunge: A Centenary Festschrift*, Springer, Dordrecht.
- Haack, S.: 2016, *Scientism and its Discontents*, Rounded Globe Publishers, London.
- Hall, H.: 2014, Review of Mario Bunge *Medical Philosophy*, *Skeptical Inquirer* January/February.
- Hobson, A.: forthcoming, Mario Bunge on Quantum Physics.
- Ingthorsson, R.: forthcoming, Mario Bunge's Relevance for the Current Revival of Causal Realism. In M.R. Matthews (ed.) *Mario Bunge: A Centenary Festschrift*, Springer, Dordrecht.
- Kaidesoja, T.: 2009, 'Bhaskar and Bunge on Social Emergence', *Journal for the Theory of Social Behaviour* 39(3), 300-322.
- Kanitscheider, B. 1984, Introduction to the German Translation of Bunge's 'The Mind-Body Problem'. In Bunge, M., *Das Leib-Seele-Problem. Ein psychobiologischer Versuch* (pp.VIII-XII). Tübingen: J.C.B. Mohr Verlag (Paul Siebeck Verlag).
- Mintzberg, H.: forthcoming, An underlying theory for 'Management Technology'. In M.R. Matthews (ed.) *Mario Bunge: A Centenary Festschrift*, Springer, Dordrecht.
- Quine, W.V.O.: 1985, *The Time of My Life: An Autobiography*, Bradford Books, Cambridge MA.
- Romero, G.: forthcoming, Physics and philosophy of physics in the work of Mario Bunge. In M.R. Matthews (ed.) *Mario Bunge: A Centenary Festschrift*, Springer, Dordrecht.

Romer, R.H.: 1991, Editorial: Memorable papers from the *American Journal of Physics*, 1933–1990, *Amer. J. Phys.* 59 (3), 201–207 (1991). <http://web.mit.edu/rhprice/www/articles/MemorablePapers.pdf>

Romer, R.H.: 1993, Sixty years of the American Journal of Physics—More memorable papers, *Amer. J. Phys.* 61 (2), 103–106. <http://web.mit.edu/rhprice/www/articles/MoreMemorablePapers.pdf>