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# ON THE DUAL USES OF SCIENCE AND ETHICS

## PRINCIPLES, PRACTICES, AND PROSPECTS

edited by

**Brian Rappert and Michael J. Selgelid**



Australian  
National  
University

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E P R E S S



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# Contents

Contributors . . . . .	vii
Acknowledgments . . . . .	xv
Abbreviations . . . . .	xvii

---

## Introduction

1. Ethics and Dual-Use Research . . . . .	3
<i>Michael J. Selgelid</i>	

---

## Part I: Dual Use in Context

2. Nanotechnology and Dual-Use Dilemmas . . . . .	13
<i>Jim Whitman</i>	
3. What Does Neuroethics Have to Say about the Problem of Dual Use? . . . . .	29
<i>Valentina Bartolucci and Malcolm Dando</i>	
4. Synthetic Biology as a Field of Dual-Use Bioethical Concern . .	45
<i>Alexander Kelle</i>	
5. Crops Agents, Phytopathology and Ethical Review . . . . .	65
<i>Simon Whitby</i>	
6. The Super TB Experiment: Evolution and Resolution of an Experiment with Dual-Use Concerns. . . . .	87
<i>Nancy Connell</i>	

---

## Part II: Ethical Frameworks and Principles

7. Moral Development and Ethical Decision-Making . . . . .	97
<i>Judi Sture</i>	
8. Responsible Dual Use. . . . .	121
<i>John Forge</i>	
9. An Expected-Value Approach to the Dual-Use Problem. . . . .	133
<i>Thomas Douglas</i>	
10. The Doctrine of Double Effect and the Ethics of Dual Use. .	153
<i>Suzanne Uniacke</i>	

11. Unknowns in Dual-Use Dilemmas . . . . .	165
<i>Michael Smithson</i>	
12. Moral Responsibility, Collective-Action Problems and the Dual-Use Dilemma in Science and Technology . . . . .	185
<i>Seumas Miller</i>	
13. Biosecurity and the Just-War Tradition . . . . .	207
<i>Koos van der Bruggen</i>	
14. The Precautionary Principle and the Dual-Use Dilemma . . . . .	223
<i>Steve Clarke</i>	

---

### **Part III: Ethical Practices**

15. Scientific Control Over Dual-Use Research: Prospects for Self-Regulation . . . . .	237
<i>David B. Resnik</i>	
16. Contrasting Dual-Use Issues in Biology and Nuclear Science . . . . .	255
<i>Nicholas G. Evans</i>	
17. Considering Contextuality in Dual-Use Discussions: Is There a Problem? . . . . .	275
<i>Louise Bezuidenhout</i>	

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### **Part IV: Ethical Futures**

18. Exploring the Role of Life Scientists in Combating the Misuse of Incapacitating Chemical and Toxin Agents . . . . .	293
<i>Michael Crowley</i>	
19. WHO Project on Responsible Life-Sciences Research for Global Health Security: Why Ethics and How to Strengthen It? . . . . .	331
<i>Emmanuelle Tuerlings and Andreas Reis</i>	

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### **Conclusion**

20. Ethics as ... . . . .	349
<i>Brian Rappert</i>	
Appendix A . . . . .	381

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# Contributors

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Valentina Bartolucci is a lecturer at the University of Pisa, Italy, and at the Marist college campus of Florence, Italy. Valentina is also Visiting Fellow at the University of Derby (UK). She maintains a close connection with the School for Social and International Studies at the University of Bradford, UK. Valentina has a degree in peace studies from the University of Pisa, an MA in conflict management and human rights from the Sant' Anna School of Advanced Studies, and a PhD from the University of Bradford. Dr Bartolucci has previously worked as a junior technical expert for the Italian Ministry of Foreign Affairs in Morocco, and as a consultant for various international organisations (in Italy, Burkina-Faso and India). She is currently offering consultancies on issues linked to terrorism, organised crime, migration, and American and Middle Eastern foreign policies for various national and international organisations as well as government departments around Europe. In recognition of her impact internationally, she was recently made a Member of the Aspen Institute (group '*I protagonisti italiani nel mondo*'). In 2011, she was nominated for the *Who's Who Academic Excellence*. Apart from her doctoral thesis on the governmental discourse on terrorism, Dr Bartolucci has written numerous articles in the fields of politics, critical discourse analysis, security and surveillance. Her research mainly addresses the foreign and security policies of the United States and other states, terrorism and counterterrorism, discourses on threat and emergency, and strategic communication as anti-terrorism. She has recently been awarded with a Fulbright Research Scholar Bursary for 2013–14 to be spent at Arizona State University working on 'public diplomacy as anti-terrorism'.

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Louise Bezuidenhout completed her PhD in cardiothoracic surgery at the University of Cape Town, South Africa, and has worked as a postdoctoral scientist in the department of cardiovascular sciences at the University of Edinburgh, UK. In 2008 she was the recipient of an EU scholarship for the Erasmus Mundus Masters of Bioethics program run by the Catholic University of Leuven, Radboud University Nijmegen and the University of Padova. These dual interests in science and bioethics led her to enrol for a PhD in sociology at the University of Exeter under Professor Brian Rappert, which she completed in 2013. Her research focused on the need for contextual sensitivity in life-science



ethics debates, particularly examining how scientists in developing countries interact with topical ethical issues such as dual use. She is currently a research fellow at the University of Witwatersrand in South Africa.

## Koos van der Bruggen

Koos van der Bruggen (born 1951) studied political science (international relations) at Radboud University Nijmegen (the Netherlands). He wrote his PhD thesis on criteria for the ethical judgment of nuclear deterrence at the Vrije Universiteit (Free University), Amsterdam. Dr van der Bruggen has been working at the Rathenau Institute, the Dutch organisation for parliamentary technology assessment, for more than 12 years. He was involved in research and debates on social and ethical aspects of technological developments (biomedical technology, genetics and military technology). More recently, van der Bruggen has been working at the Royal Netherlands Academy of Arts and Sciences (developing a code of conduct for scientists regarding issues of biosecurity) and Delft University of Technology (research on biosecurity and dual use). He was also the secretary of the Committee of Inquiry into the Dutch involvement in the Iraq War of 2003 (Davids Committee, 2009). At the moment he is working as an independent researcher on peace and security issues. Dr van der Bruggen has published (in Dutch and English) on just-war issues, on issues of ethics and technology and on biological weapons.

## Steve Clarke

Steve Clarke is a Senior Research Fellow in the Centre for Applied Philosophy and Public Ethics at Charles Sturt University in Australia. He is also a James Martin Research Fellow in the Institute for Science and Ethics in the Oxford Martin School and Faculty of Philosophy at the University of Oxford, and a Research Fellow in the Uehiro Centre for Practical Ethics, also at Oxford. He holds a PhD in philosophy from Monash University and has previously held appointments at the University of Melbourne, the University of Cape Town and La Trobe University. Steve is a broad-ranging philosopher who has published more than 60 papers in refereed journals and scholarly collections. His papers have appeared in such journals as the *American Philosophical Quarterly*, the *British Journal for the Philosophy of Science*, the *Journal of Medicine and Philosophy*, *Religious Studies* and *Synthese*. He is the author of two books (*Metaphysics and the Disunity of Scientific Knowledge*, Ashgate, 1998; and *The Justification of Religious Violence*, Wiley-Blackwell, 2014) and the co-editor of three books. The latest of these is *Religion, Intolerance and Conflict: A Scientific and Conceptual Investigation*, edited by Steve Clarke, Russell Powell and Julian Savulescu (Oxford University Press, 2013).

## Nancy D. Connell

Nancy D. Connell is Professor in the Division of Infectious Disease in the Department of Medicine at Rutgers New Jersey Medical School (RNJMS) and the Rutgers Biomedical Health Sciences. Dr Connell, a Harvard University PhD in microbiology, has made her major research focus the antibacterial drug discovery in respiratory pathogens such as *M. tuberculosis* and *B. anthracis*. She is Director of the Biosafety Level Three (BSL3) Facility of RNJMS's Center for the Study of Emerging and Re-emerging Pathogens and chairs the university's Institutional Biosafety Committee. Dr Connell has been continuously funded by the National Institutes of Health (NIH) and other agencies since 1993 and serves on numerous NIH study sections and review panels. She has served on a number of committees of the National Academy of Sciences—for example, the Committee on Advances in Technology and the Prevention of their Application to Next Generation Biowarfare Agents (2004), Trends in Science and Technology Relevant to the Biological Weapons Convention; an international workshop (2010), and the Committee to Review the Scientific Approaches used in the FBI's Investigation of the 2001 *Bacillus anthracis* mailings (2011). Current work is with the National Academies of Sciences Education Institute on Responsible Science, held in Jordan (2012) and Malaysia (2013).

## Michael Crowley

Michael Crowley is the Project Coordinator of the Bradford Non-Lethal Weapons Research Programme (BNLWRP) and is also a senior research associate for the Omega Research Foundation. He has worked for 20 years on arms control, security and human rights issues, including as executive director of the Verification Research, Training and Information Centre (VERTIC). He also acted as chairman of the Bio-Weapons Prevention Project. Prior to this he worked at the Omega Research Foundation exploring options for effective restriction of the development, trade and use of security equipment and technology employed in torture and ill treatment. He has also managed the Arms Trade Treaty project at the Arias Foundation in Costa Rica and worked as senior arms trade analyst at BASIC. He has also held several research and policy positions with Amnesty International, both in the UK section and at the International Secretariat. He holds a BSc in genetics from Liverpool University, and an MRes and PhD from Bradford University, where his doctoral thesis explored the regulation of riot-control agents, incapacitating agents and related means of delivery.

## Malcolm Dando

Malcolm Dando is Professor of International Security at the University of Bradford. A biologist by training, his main research interest is in the preservation of the prohibitions embodied in the Chemical Weapons Convention and the Biological Weapons Convention at a time of rapid scientific and technological change in the life sciences. His recent publications include *Deadly Cultures: Biological Weapons Since 1945* (Harvard University Press, 2006), which he edited with Mark Wheelis and Lajos Rozsa.

## Thomas Douglas

Thomas Douglas is a Uehiro Research Fellow in the Oxford Uehiro Centre for Practical Ethics, Faculty of Philosophy, University of Oxford, and a Junior Golding Fellow at Brasenose College, Oxford. He trained in medicine (MBCChB, Otago) and philosophy (DPhil, Oxford) and works in applied and normative ethics. His current research addresses the ethics of producing dangerous knowledge and of using medical technologies for non-medical purposes, particularly crime prevention. He has previously worked on organ donation policy, reproductive decision-making, slippery-slope arguments and compensatory justice.

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Dr Nicholas G. Evans is an Adjunct Research Assistant at the Centre for Applied Philosophy and Public Ethics, Charles Sturt University, Canberra. His dissertation focused on the ethics of censoring dual-use research in the life sciences through an examination of the history of nuclear science. Nicholas is the author of a number of articles on military ethics, the philosophy of science, and ethics, and has taught philosophy, military ethics and physics at universities around Australia. His research interests include emerging military technologies, public health ethics, concepts of responsibility and autonomy, and friendship.

## John Forge

John Forge is an Honorary Associate in the Unit for History and Philosophy of Science, Sydney University, having previously worked at the Universities of New South Wales, Wollongong, Griffith and Macquarie. His research ranged from the philosophy of physical science, especially explanation, in the early years, to science and ethics later on. Forge has authored numerous articles and six books, the latest being *The Responsible Scientist* (Pittsburgh, 2008), winner of the David Harold Tribe Prize for Philosophy and the Eureka Prize for Research Ethics; *Designed to Kill: The Case against Weapons Research* (Springer, 2012); and *On the Morality of Weapons Research* (Ashgate, 2014).

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Alexander Kelle is a political scientist by training and a Senior Policy Officer in the Office of Strategy and Policy of the Organisation for the Prohibition of Chemical Weapons in the Hague, Netherlands. He contributed to this volume while senior lecturer in politics and international relations at the Department of Politics, Languages and International Studies at the University of Bath, UK. Before moving to Bath, he held positions at Queen's University Belfast, the University of Bradford, Stanford University, Goethe University Frankfurt and the Peace Research Institute Frankfurt. His past research has addressed international security cooperation—with a view to chemical and biological weapons—dual-use governance of synthetic biology, and the foreign and security policies of Western liberal democracies.

## Seumas Miller

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## Brian Rappert

Brian Rappert is a Professor of Science, Technology and Public Affairs and Head of the Department of Sociology and Philosophy at the University of Exeter. His long-term interest has been the examination of how choices can be and are made about the adoption and regulation of security-related technologies—particularly in conditions of uncertainty and disagreement. Recent books by Rappert include *Controlling the Weapons of War* (Routledge, 2006), *Biotechnology, Security and the Search for Limits* (Palgrave, 2007), *Technology & Security* (ed., Palgrave, 2007), *Biosecurity* (co-ed., Palgrave, 2009) and *Experimental Secrets* (UPA, 2009). More recently he has been interested in the social, ethical and epistemological issues associated with researching and writing about secrets, as in his book *Experimental Secrets* (2009) and *How to Look Good in a War* (2012).

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David B. Resnik (JD, PhD) is a bioethicist and Institutional Review Board (IRB) Chair at the National Institute of Environmental Health Science, National Institutes of Health. He has published eight books and 200 articles on ethical, legal, social and philosophical issues in science, medicine and technology, and is Associate Editor of the journal *Accountability in Research*.

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Judi Sture is the Head of the Graduate School at the University of Bradford, UK, where she leads two doctoral research training programs. She lectures in research ethics and research methodology and is closely involved in devising and developing postgraduate and ethics policy and practice at the university and beyond. As a member of the Wellcome Trust Dual-Use Bioethics Group and associate member of the Bradford Disarmament Research Centre, she is engaged with colleagues from a number of UK and overseas universities in developing a bioethics approach to counter-biosecurity threats in the life sciences. Judi holds a BSc(Hons) in archaeology (University of Bradford), in which she specialised in the study of human skeletal remains, and a PhD (University of Durham) in biological anthropology, focusing on environmental associations with human birth defects. Her research in biological anthropology continues, including further work on developmental defects. She is currently engaged in analysis of skeletal remains held at the Museum of London and is working with the British Association for Biological Anthropology and Osteoarchaeology on developing ethical practice in the profession.

## Emmanuelle Tuerlings

Dr Emmanuelle Tuerlings has extensive experience on dual-use research, biosecurity and global health security. She carries out training and consultancy with a particular interest in public health. She was a scientist to the Biorisk Reduction for Dangerous Pathogens (BDP) program at WHO headquarters, Geneva, from 2004 to 2011, where she was leading the project 'Responsible Life Sciences Research for Global Health Security'. Before joining WHO, she was based at the Harvard Sussex Program, University of Sussex, UK. She also worked with several international and non-governmental organisations on issues related to dual-use biological technologies and their governance. She holds an MSc and a doctorate in science and technology policy from the University of Sussex (UK).

## Suzanne Uniacke

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## Simon Whitby

Simon Whitby works at the interface between life and associated science and national security communities to address the threat of deliberate disease in the context of rapidly advancing dual-use science and technology. Whitby's work contributes to the discourse on dual-use biosecurity and bioethics and thus on raising awareness at governmental, civil society, life science and industry levels about the ethical, legal and social implications of life science and associated science research. He has been actively engaged in building a worldwide capability in dual-use bioethics to engage life and associated science communities in awareness-raising programs about the importance of responsible conduct of life-science research. Significantly, he has developed a novel and innovative online distance-learning masters-level train-the-trainer program as well as short courses in applied dual-use biosecurity/bioethics.

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Jim Whitman is Professor of Global Governance in the Department of Peace Studies, University of Bradford, and Director of Postgraduate Studies for the School of Social and International Studies. His latest book, *Governance Challenges of Nanotechnology*, will be published by Palgrave in 2014.