

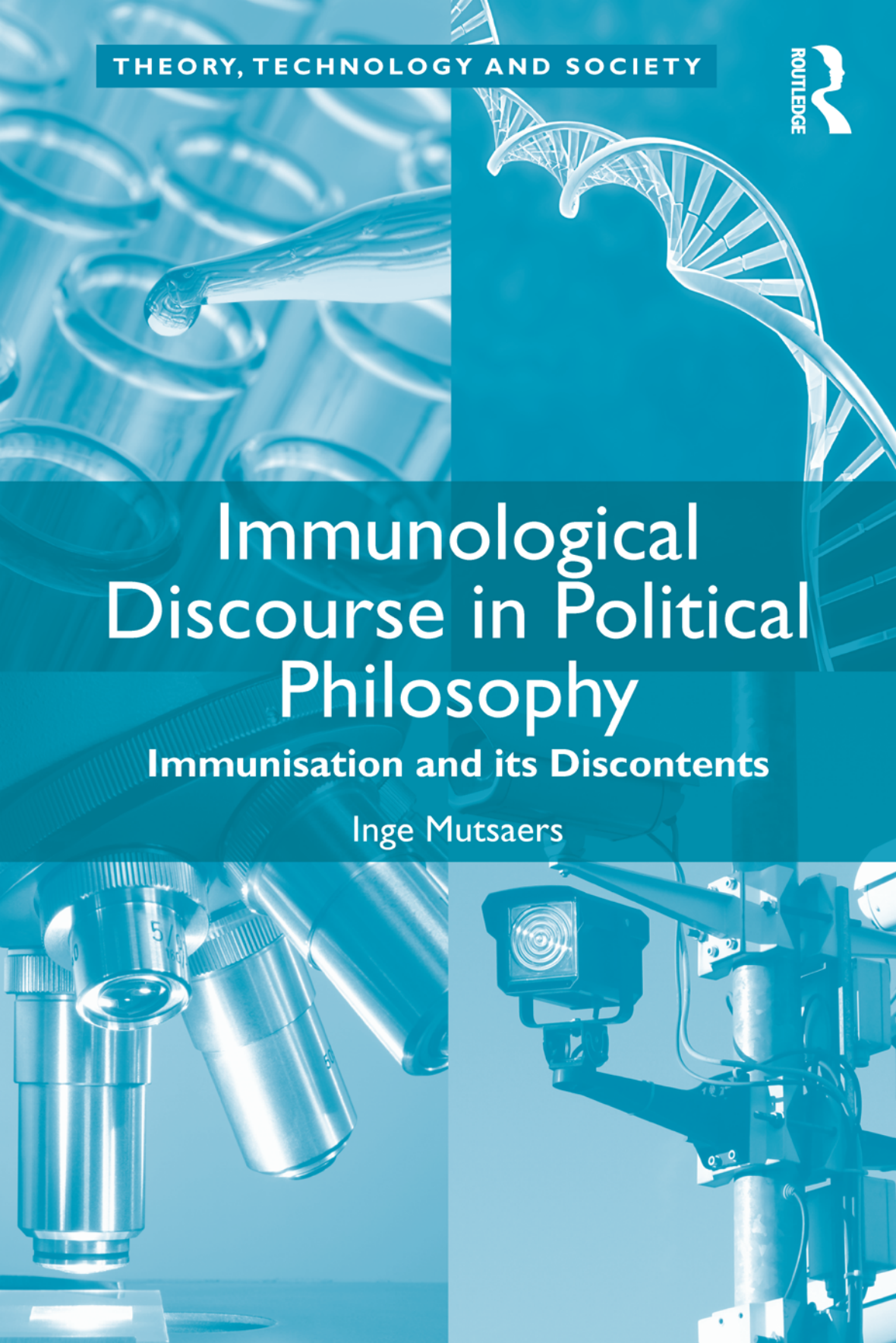
THEORY, TECHNOLOGY AND SOCIETY

ROUTLEDGE

Immunological Discourse in Political Philosophy

Immunisation and its Discontents

Inge Mutsaers



IMMUNOLOGICAL DISCOURSE IN POLITICAL PHILOSOPHY

Given the propensity of contemporary protection measures such as counterterrorism efforts and fierce protection strategies against viral threats, as well as physical and legal barriers against migration, a number of political philosophers, including Peter Sloterdijk and Roberto Esposito, have claimed that contemporary (political) culture can be characterised by a so-called ‘immunisation paradigm’. This book critically examines the intricate entanglement between biological immunological notions and their political philosophical appropriation, whilst studying the ‘immunisation response’ to recent viral threats, including the Swine Flu pandemic of 2009 and the lab-bred Avian flu threat of 2012, to analyse immunisation as a biopolitical strategy.

Offering insights into the polarising tendencies in contemporary political culture resulting from the appropriation of immunological concepts in political thought, the author also shows how political philosophers tend to build on purely defensive understandings of immunity. As such, *Immunological Discourse in Political Philosophy* constitutes a theoretically sophisticated critique of the ‘semantic trap’ caused by the use of immunological concepts in political philosophy. Arguing for a more versatile and less defensive immunological repertoire, which allows for the development of alternative and less polarised forms of political debate, this book will appeal to scholars of political theory, sociology, philosophy and science and technology studies.

Inge Mutsaers completed her doctoral work at Radboud University Nijmegen, the Netherlands, and is currently an independent researcher and policy advisor to the Dutch College of General Practitioners.

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Immunological Discourse in Political Philosophy

Immunisation and its Discontents

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 **Routledge**
Taylor & Francis Group
LONDON AND NEW YORK

First published 2016
by Routledge
2 Park Square, Milton Park, Abingdon, Oxon OX14 4RN

and by Routledge
711 Third Avenue, New York, NY 10017

Routledge is an imprint of the Taylor & Francis Group, an informa business

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British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

Library of Congress Cataloguing in Publication Data

Names: Mutsaers, Inge.

Title: Immunological discourse in political philosophy : immunisation and its discontents / by Inge Mutsaers.

Description: Farnham, Surrey, UK ; Burlington, VT : Ashgate, 2016. | Series: Theory, technology and society | Includes bibliographical references and index.

Identifiers: LCCN 2015025275 | ISBN 9781472461698 (hardback : alk. paper) | ISBN 9781472461704 (ebook) | ISBN 9781472461711 (epub)

Subjects: LCSH: Biopolitics—Philosophy. | Immunization—Political aspects.

Classification: LCC JA80 .M87 2016 | DDC 320.01—dc23

LC record available at <http://lccn.loc.gov/2015025275>

ISBN: 9781472461698 (hbk)

ISBN: 9781472461704 (pbk)

ISBN: 9781472461711 (ebk)

Typeset in Times New Roman
by Apex CoVantage, LLC

Contents

<i>List of Figures</i>	<i>vii</i>
<i>Acknowledgements</i>	<i>ix</i>
<i>Preface</i>	<i>xi</i>
1 Introducing the Relation between Biology and Politics	1
PART I BIOLOGICAL IMMUNISATION	
2 The Roots of Philosophical Immunity	23
3 Developments in Immunology	43
4 Immunisation against Viral Threats	57
PART II PHILOSOPHICAL IMMUNISATION	
5 Sloterdijk's 'Immunology of Spheres'	75
6 Alternative Immunological Concepts in Political Philosophy	95
7 General Discussion: Towards a Common Philosophical Immunological Repertoire	119
<i>References</i>	<i>135</i>
<i>Index</i>	<i>151</i>

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List of Figures

1.1	Overview of the interaction between biological ideas on immunity and philosophical use of immunological notions	17
2.1	The cover of the first edition of Hobbes' <i>Leviathan</i> published in 1651	28
4.1	Cartoon of Professor Adolf Mayer by Louis Raemaekers	61

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Acknowledgements

This book not only deals with immunisation, it is also explicitly the result of immunisation. During my research, I have been infected with the many interesting theories, perspectives, and approaches of (colleague) scientists. However, given the fact that every scientist has his own views on certain subjects and the truth, I've learned over time that – in view of the production and especially the completion of the chapters – it is equally important to immunise against certain inputs. This immunisation, moreover, proved to be an effective drug, in view of the healing or, rather, suppression, of my self-doubt. In addition, some sleep hygiene also proved indispensable in the completion of this book. Paradoxically, I even needed some immunisation against the interrelation with the subject itself. An overly close relationship with the topic one writes about also leads to problems of all kinds, such as writing blocks and insomnia. I have been carried away and inspired by the freedom of mind, the facile hand and imaginative writing style of Peter Sloterdijk. Analysing thousands of pages of his work, however, was sometimes accompanied by feverish despair. Despite the above immunisations, I have enjoyed countless interesting intellectual infections and personal affections from the following people, without whom this book would never have come about:

Serious thanks are due to Drs Hub Zwart and Laurens Landeweerd from the Department of Philosophy and Science Studies at the Radboud University Nijmegen. I am thankful to Drs Evert van der Zweerde and René ten Bos for interesting discussions about the direction of my research and for their constructive criticism. Dr Christoph Lüthy I am grateful to for valuable comments on Chapter 1. I would like to thank the Centre for Society & Life Sciences for funding this research. My debt to Dr Pieter de Vries Robbé, in particular for his support in the final consummation of the book, is incalculable. My friends and family I would like to thank for their indispensable support and encouragements in the process of finishing this book. Dr Stan van Pelt, finally, played a seminal role in the development of this book during the past five years, not only in terms of moral support but also as a critical reader of many drafts of this book.

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Preface

The past few years can rightfully be called the ‘years of immunisation’: think of the spread of Ebola, bird flu, Islamic State (Isis) terror, or returning foreign rebel fighters from the Syrian Civil War: they are all ‘threats from outside’ that threaten ‘us’ (Western citizens). In Western society, we try to make ourselves *immune* to the threats posed by these issues. The horrific attack on the editorial office of *Charlie Hebdo* in January 2015, however, showed painfully that even in 2015, we are still nowhere near being immune. Yet, we continue to strive for it.

The tendency to immunise ourselves is widely rooted in Western society. Think of dietary guidelines; the explosive growth of insurances; the large increase in surveillance cameras; increasingly stringent anti-immigration policies, and so on. But there are also more light-hearted things: baby onesies with sensors that monitor a baby’s breathing and movements; socks with LED lights that keep an eye on the baby’s heart rate and oxygen saturation level. And the list does not stop here. Each one of these measures must ensure the safety of ourselves and our children.

For the German philosopher Peter Sloterdijk (amongst other philosophers), these examples are a proof that ‘immunisation’ is one of the keys to understanding contemporary time. He draws a parallel between our own physical immune systems and immune systems that operate on political and social levels. These systems protect against all kinds of threats and intrusions, or at least against what we consider intruders.

For me as a biologist, Sloterdijk’s equation contains many clues for ‘rethinking’ the phenomenon of immunisation. I wondered what lessons we might take as a modern society from our body. The question is whether we (Western society) are currently choosing the right immunisation strategies in dealing with threats.

Throughout Europe and elsewhere, a growing desire is visible for what could be called ‘radical purity’. In recent years, several anti-European and anti-Islamic parties and movements have made significant gains. At different levels, groups are claiming their ‘own’ culture and identity. Pegida (Patriotic Europeans Against Islamisation of the West) for example, is a German right-wing anti-Islam political organisation that has been organising demonstrations against what it considers the Islamisation of the Western world. It calls for more restrictive immigration rules, particularly for Muslims. A second example is Golden Dawn, a far-right political party in Greece. According to Golden Dawn many problems in Greece are caused by illegal immigrants. Golden Dawn is directed against non-European, and particularly Muslim, immigration into the mainly Greek areas of southern Greece and Athens. The call of the Dutch right-wing political party PVV to close

all mosques as ‘the particular Dutch character, identity and culture ... through immigration ... are being destroyed’ (NOS, 26 November 2014) can be seen as a kind of immunological rejection (immune response) of PVV voters of having themselves ‘contaminated’ by Islamic culture. Attacks such as the attack on the editorial office of *Charlie Hebdo* in Paris are grist to their mill. They make the body politic that battlefield on which each attack must be followed by a resolute defence.

Several philosophers have been using immunological concepts to analyse and illustrate events as described above. They mainly use the immunological concepts to analyse the situations, but it is also interesting to investigate the extent to which immunological concepts might be helpful in developing alternative perspectives for action. To some extent, our body is a lot more intelligent in the way it deals with threats such as harmful substances and viruses than the manner in which the ‘body politic’ responds to external threats. As a biologist-philosopher I decided to confront biology and (political) philosophy in order to investigate what politics can learn from our immune system, without claiming that biology is the model *per se*, thus without promoting the (at times notorious) biologisation of politics.

Chapter 1

Introducing the Relation between Biology and Politics

Introduction

The mass media of the past decade have been filled with discussions about protectionist measures and the effectiveness of those measures. In response to the rise and rapid spread of the power and terror of the Islamic State (Isis), the US, along with a coalition, has waged an intensified air campaign against Isis brigades in Syria and Iraq since August 2014. The US-led air strikes in northern Syria gave rise to intense debate about whether the strategy of aerial bombardment was sufficient to interrupt the advance of Isis fighters, raising questions about the Western strategy for defeating the terror movement (Letsch, C. et al., 2014). A few years earlier, in 2013, there was much debate on the espionage activities on the part of the United States' National Security Agency (NSA) and other similar organisations. Allegedly in defence of its country, and notably in support of military operations against terrorism, the NSA had collected information on several political leaders of NATO allies, but also on people deemed potential Muslim 'radicalisers', potential terrorists, and so on (Schmidt, 2013). In response, some of the US's closest allies demanded explanations from the American government after disclosures about the scope and sophistication of the American espionage activities. The angry allegation by several European countries that the NSA was spying on their political leaders reveals the downsides of such activities (Sanger and Mazzetti, 2013). In tracking terrorists, the US has risked undercutting its cooperation with important partners.

Espionage and air strikes are not the only protectionist tendencies currently dominating the global scene. Other protectionist tendencies for example include security measures at airports and many other places, measures against viral threats, and new physical as well as legal barriers against migration. These convey the biopolitical tendencies of contemporary Western cultures. Not only human bodies as such, but also the political and legal entities they inhabit are seen as vulnerable in the face of emerging threats.

The German philosopher Peter Sloterdijk claims that *immunisation* is the core concept by which the most dominant political tendencies of today can be described. He draws a parallel between the immune system of the biological body – understood as a system that protects humans from disease – and an immune system that operates on a societal level. Processes of globalisation and technological development have resulted in increased perception of risks, resulting in an

obsession with safety, or, in Sloterdijk's words, with immunisation (Sloterdijk, 2004, p. 208). He claims that at all levels of society immune systems have become the central focus of concern (Sloterdijk, 2004, pp. 195, 208). A number of philosophers seem to agree with Sloterdijk's view. The Italian philosopher Roberto Esposito for instance, argues that contemporary society is characterised by an immunisation paradigm (Esposito, 2008, 2011). With this he means that the demand for protection progressively extends to all sectors and languages of life. In contemporary society, he claims, the 'immunitarian *dispositif*' has expanded from the sphere of infectious diseases to the political, judicial, technological and social sphere (Esposito, 2008, p. 52).

The immune system is a system of biological structures and processes within an organism that protects against disease. Both Sloterdijk and Esposito translate this biological notion into a philosophical category. Apparently, both philosophers agree that the notion of immunisation is increasingly relevant for assessing the contemporary's biopolitical situation. It articulates the current *Zeitgeist*. Other philosophers studying this phenomenon have included Jean Baudrillard, Byung-Chul Han, and Jacques Derrida. In part, they follow similar lines of argumentation, but make use of different biological immunological notions. This book will critically examine the use and usefulness of immunological models in contemporary political philosophy for assessing and analysing contemporary political culture. More particularly, it unravels the intricate entanglement between biological immunology and its philosophical appropriations.

This introduction will first outline a history of the conceptual exchange between biology and politics. Then, it will shift to the use of virological and immunological discourse in particular as reflected in the scientific, social-scientific and public realm. It will show how in the wake of social scientists (such as Donna Haraway), the immune system has attracted increased attention from philosophers as well. Before the philosophical immunological theories are discussed, some recent biopolitical developments will be briefly analysed, because they have played an important role in the increasing use of immunological discourse within political philosophy. In the last part of this chapter, an overview of the approach and research design is presented.

Biology as Politics / Politics as Biology

The co-mingling of political and biomedical languages builds on a long history. Throughout human history, there have been countless instances of interaction, 'contamination' and exchange of concepts and ideas between biology and politics. The human body, for example, has been a potent and persistent metaphor for social and political arguments. The ancient Greeks were already familiar with the idea of comparing the human body to the body of the *polis* (state). In *Timeaus*, Plato envisions a basic concordance between the macrocosm of the natural world and the microcosm of the human body. In *The Republic*, he makes an analogy

between the tripartite division of the soul and of the political state. The rational element of the soul is the psychological corollary of the guardian class, the spiritual part is analogous to military auxiliaries, and the diverse appetitive organs correspond to the productive forces, i.e. workers, farmers and peasant classes (Purshouse, 2006, p. 60). This basic method of comparing the body natural and the body politic influenced many later articulations of the body politic from the works of Aristotle to the writings of mediaeval thinkers such as John of Salisbury, and modern thinkers, of whom Thomas Hobbes and Jean-Jacques Rousseau are most renowned.

Just as the organic body is the metaphor for the healthy state, for Plato and others, sickness has functioned as a metaphor for disorder in the unhealthy state. Ancient Greek cities were thus not only plagued by sickness and death in the biomedical sense, they were also subject to a range of symbolic and metaphorical diseases. Apart from philosophy, this image can also be found in ancient Greek literature, in the works of, for example, Solon and Theogenis (Brocke, 2000, p. 24). In antiquity, the medical metaphor did not entail much anatomical detail: the body politic was notably articulated by distinguishing the head, as the seat of authority, from the rest of the body (Brocke, 2000, p. 25).

For ancient medical views of the body, the works known as the *Hippocratic Corpus* were an important source of information. In Hippocratic medicine, *nosos* was the term to describe disease in general (Lloyd, 1983, p. 100). Greek doctors apparently did not yet identify specific infectious diseases. According to the Hippocratic tradition, illnesses emerge as much from the imbalance of natural conditions (e.g. weather) as from the imbalance in the constitution of the individual's body (Cohen, 2009, p. 4).

John of Salisbury (1120–1180) described tyranny as a disease in the body politic. He proclaimed that the body politic, like the human body, is vulnerable to infectious diseases (John of Salisbury, 1990; see also Thacker, 2005). The Arab historiographer Ibn Khaldūn (1332–1406) provided for an alternative view on the body politic in which the body politic has a 'lifetime' including birth, childhood, adolescence, adulthood, old age and death. For Khaldūn, the human lifecycle is reflected in the life cycle of dynasties (Fromherz, 2010).

In modernity, Hobbes compared a range of illnesses (epidemics, fevers, parasites, even demonology) to political afflictions such as internal civil strife, dissent and disobedience. The absence of an absolute and secular sovereignty in the body politic leads to the 'infirmities' and 'diseases' of the body natural: 'Amongst the Infirmities therefore of a Common-wealth, I will reckon in the first place, those that arise from an Imperfect Institution, and resemble the diseases of a natural body' (Hobbes, 1998, p. 197).

After Hobbes, Locke described the breakdown of legislation in a similar vein in terms of dissolution and death (Locke, 1988; see also Thacker, 2005), and Rousseau noted that 'the body politic, like the human body, begins to die from the very moment of its birth, and carries within itself the causes of its destruction' (Rousseau, 1988, p. 194). The analogies between the human and the political

body reinforce a view on the body politic as a natural, organic phenomenon. The main task of the body politic was to preserve the life and health of the individual physical bodies that inhabit the political body. Accordingly, disease was the lens through which dissent in the body politic was interpreted (Thacker, 2005).

The comparison of society to a body or an organism works both ways: it also involves a comparison of the organism to society. In that case a concept of sociological and political origin is applied in order to explain the nature of disease. This reverse view also goes back to antiquity: in ancient Greece, Alcmaeon of Croton interpreted the disequilibrium caused by disease as revolt (Canguilhem, 2012, pp. 67–9).

Where in antiquity the natural body in general functioned as an analogy for political situations, in the course of history this metaphor has been ‘refined’ and has become increasingly specific. Political systems have been compared with specific bodily components, processes or diseases, and, vice versa, political theories have been used to explain specific biological concepts and processes.

The mutual comparison between bodies and societies gained momentum due to the discovery of cells as the basic components of bodily tissues. In 1665 Robert Hooke (1635–1703) discovered the cell. In the second half of the nineteenth century, when cell theory became more widely accepted, Rudolf Virchow (1821–1902), a German physician, anthropologist, and politician, used the metaphor of the liberal state in advancing his theory of the cell as the fundamental unit of life. He regarded organisms, first and foremost, as ‘multicellular’, and accordingly he saw the body as a ‘republic’ or a ‘unified commonwealth’ (Sontag, 1988, p. 7). Later on, Ernst Haeckel (1834–1919) adapted and further popularised Virchow’s metaphors and even spoke of a ‘Cell State’, and a ‘Republic of Cells’ to designate the body of a multicellular living being (Canguilhem, 2012, p. 68; Haeckel, 1883). In the liberal and socialist economies of the eighteenth and nineteenth centuries, an analogy was drawn between the social phenomenon of the division of labour and its effects on biology: physiologists spoke about the division of labour concerning the cells, the organs, and the devices that make up a living body (Canguilhem, 2012, p. 68).¹

The interpretation of social phenomena in terms of biological concepts, has, at times, also assumed pejorative connotations. No doubt the most notorious example is the uptake of Social Darwinism by the Nazis’ race-hygiene programs and their catastrophic consequences (Maassen, Mendelsohn and Weingart, 1994). The ideological danger of this use is not simply a danger carried along by a one-way-use of biological notions for political goals. In Darwin’s case, for instance, it was in fact the sociologist Herbert Spencer who coined the phrase ‘survival of the fittest’ when formulating his theory of ‘natural selection’. Thus, one of the most influential sociobiological theories was originally developed from social

1 Note that in later history, e.g. in nineteenth-century socialism or communism the ‘cell’ was also given a positive or constructive meaning (as a cell in the old and a cell of the new body).

notions, which were transferred into biology, and after that they were reified as laws of nature and reapplied to the interpretation of society (Maassen et al., 1994, pp. 193–229). Claude Lefort (1924–2010), a French philosopher and activist, also pointed to the downsides or risks of the organicist model of society. Thus, caution should be taken in attributing such hybrid bio-sociological concepts.

For Lefort, the ‘body politic’ with the king as its head is not merely a convenient metaphor. Rather it is the phantasmic means by which the nation becomes a unity (Flynn, 2005, p. 110). In Lefort’s view, at the foundation of totalitarianism lies the idea of the representation of the ‘People-as-One’ (Flynn, 2005, p. xxvi). In a totalitarian society there can be no internal division other than between the people and their enemies. Lefort insists on the fact that the constitution of the ‘One-people’ necessitates the incessant production of enemies. In order to ensure its proper functioning and maintain its unity, all the social conflicts that continue to exist are projected onto the outside, onto the evil Other, the enemy: Jews, mentally disabled people, gypsies, or homosexuals – those who are not really part of the people (Flynn, 2005, pp. 213–14). Based on this logic, Stalin launched his attack on the Jews of the USSR and Mussolini had declared that the bourgeois would be eliminated in Italy after World War II. Once these enemies are eliminated, new enemies need to be invented. Flynn shows how the pursuit of the enemies of the people is carried out in the name of ‘social prophylactics’ (Flynn, 2005, p. 214). What is at stake is the very integrity of the body politic. It continually constitutes its integrity through incessant campaigns of terror against the enemy or ‘the other’, against that which would disrupt ‘the phantasmic unity of the “People-as-One”’ (Flynn, 2005, pp. 214, 266).

Socio-cultural Dimension of Viral and Immunological Discourse

At the end of the nineteenth century, the discovery of microbes as the cause of disease, due to the pioneering efforts of Pasteur, Koch and others, had a profound influence on many other areas. In those days, as Michel Serres discusses in his book *Hermes IV: La Distribution* (1977), the language of contagion or infection began to function as an ‘infectious’ metaphor and turned up in scientific and public, as well as philosophical discourses (Serres, 1977, pp. 173–210). The trope of infection has functioned and still functions as an integral part of the discourse of cultural contact. Concepts from the field of infectious diseases, such as contagion, contamination, disease, epidemics, bacteria, etc., have always proved appropriate metaphors for travel, mobility, and migration (Kraut, 1994; Mayer, 2007).

In our time, metaphors of ‘contagion’ are still widely used. It seems that the ‘virus’ in particular has become a central figure in thinking and writing. It conveys the contagiousness, danger, unpredictability and potentially devastating effects of cultural objects and processes considered to be a threat to society. The virus as a trope is particularly used in contemporary discussions and reflections on terrorism,

but nowadays even ‘carriers of’ Islam (i.e., Muslims) are sometimes portrayed as viruses (Lupton, 1994; Mayer, 2007).²

Viruses and the protection measures against them have become a hot topic, not only for medical research but also for popular science bestsellers, quasi-scientific documentaries about plagues (locusts, bullfrogs, killer bees, etc.), action movies and science fiction novels. Popular science writing on viruses include Laurie Garret’s *Coming Plague* (1995), Peter Radetsky’s *Invisible Invaders: Viruses and Scientists Who Pursue Them* (1995), Richard Preston’s *Hot Zone* (1994) and, more recently, David Quammen’s *Spillover: Animal Infections and the Next Human Pandemic* (2013) amongst many others. Also, virus thriller movies like *Twelve Monkeys* (1995), *Outbreak* (1995), and *Contagion* (2011) have attracted major stars and large audiences.

With respect to science fiction novels, the story lines of these stories are often quite similar. For example, Michael Crichton’s novel *Andromeda Strain* (1969) tells the story of a scientific crisis, building on the idea of a deadly epidemic (a plague) caused by extra-terrestrial microbes (bacteria, not viruses) introduced from outer space into our life-world by spacecrafts and satellites. In the novel *Prey* by the same author, nanoparticles developed for microphotography have evolved into a deadly swarm. The idea is basically that under laboratory conditions, new microbial, viral or synthetic life forms may seem sufficiently ‘tame’, but once released in complex natural environments, these new entities start to evolve in unpredictable ways and containment is no longer possible. They pose a threat to human well-being and survival. The backdrop of these stories is the idea that we are heading for anthropogenic and technology-induced disasters, unless firm measures are taken to counter adverse events.

The authors almost invariably assert the momentous relevance of viruses to the present time (Schell, 1997). Virology has been a medical sub-specialism, or even a latent field for half a century, because the threat of viral infectious diseases seemed to be subdued by modern science. This has clearly changed. As Laurie Garret points out in her book *The Coming Plague*, changing social and environmental conditions around the globe have fostered the spread of new and potentially devastating viruses and diseases (Garret, 1995). There is a continued danger of emerging and re-emerging infectious diseases (such as AIDS, Ebola and SARS), while ‘old’ diseases, such as measles, have made dramatic comebacks (Morens, Folkers and Fauci, 2004; Zanetti and Zappa, 2010).

Virus discourse notably entered the cultural arena with the emergence of AIDS in the 1980s. The AIDS pandemic brought about a shift of attention, not only to the practical side of how to counteract the threat, but also towards the discursive side of coping with infectious disease. Several cultural critics and social scientists have

2 This is illustrated by the following quote from the American libertarian conservative radio host Neal Boortz: ‘Islam is a virus more deadly than the Swine Flu’ and ‘we’re going to wait far too long to develop a vaccine to find a way to fight this’ (<http://mediamatters.org/video/2006/10/18/boortz-islam-is-a-deadly-virus-and-were-going-t/136977>).

stressed the intricate entwinement between biomedical language and culture ever since. Susan Sontag's *AIDS and its Metaphors* (Sontag, 1988) is one of the most well-known books that studies the role of metaphors. It describes how metaphors and myths shape attitudes towards disease in society.³

Sontag was particularly worried about the use of aggressive military language in biomedicine and its stigmatising effects. In a similar vein, Paula Treichler wrote a historical paper about AIDS as 'the epidemic of signification'. In her paper she convincingly shows how AIDS as a disease with potentially devastating global effects, was both an epidemic of a transmissible lethal disease and an 'epidemic of signification', illustrated by the wide range of understandings of AIDS. Treichler argues:

AIDS is not merely an invented label, provided to us by science and scientific naming practices, for a clear-cut entity caused by a virus. Rather, the very nature of AIDS is constructed through language and in particular through the discourse of medicine and science; this construction is *true* or *real* only in certain specific ways ... (Treichler, 1987, p. 31)

Treichler thus stresses that we cannot avoid language to determine what AIDS *really* is. She argues that we must explore the site where the determination (significance) takes place, and that we must intervene at the point where meaning is created, namely in language.

In the 1980s, Donna Haraway, a prominent scholar in the field of science and technology studies, endorsed the power of biomedical language for shaping social experience, analysing the way in which the discourse of science serves to reinforce prevailing social and cultural stereotypes, so that we easily perceive them as 'natural'. In her essay *The Biopolitics of Postmodern Bodies: Constitutions of Self in Immune System Discourse* (Haraway, 1991, pp. 203–31), she studies the metaphor of the immune system – 'pre-eminently a twentieth-century object' – which reflects changing ideas about the qualities that comprise identity and selfhood (ibid. p. 204). In addition, she investigates the depictions of the immune system's relationship with the non-self. She builds on the poststructuralist insight that self/non-self distinctions are socially constructed ways of making sense of the world. She points to the fact that such distinctions are therefore deeply permeated by existing power relations, and are also subject to change. Accordingly, she considers the immune system 'the potent and polymorphous object of belief, knowledge and practice' (Haraway, 1991, p. 204). She thoroughly analyses new discourses on identity to see who is labelled as outsiders or non-selves. She thus describes the parallels between how immunity is conceived of by scientists and the influence and seepage of those ideas into other societal realms. Haraway specifically signals the

³ Apart from the role of metaphors in shaping attitudes towards disease, more generally, Lakoff and Johnson (1980) have written at length about the role of metaphors in shaping our perceptions and actions.

potential danger of the use of military metaphors for understanding the immune system by scientists and journalists. In her view, this use of military metaphors perpetuates outdated, aggressive, Cold War mindsets. Nevertheless, Haraway is optimistic about alternate interpretations of the immune system.

Haraway's analysis of postmodern culture incited an increased popularity of immunological language in the works of other social scientists and cultural critics. In the wake of Haraway, Emily Martin also investigated the prevailing conceptions by scientists and the public at large of the immune system. She did so in her book *Flexible Bodies: Tracking Immunity in American Culture from the Days of Polio to the Age of AIDS* (1994). Here, she traces the notion of immunity in a wide range of contexts and aims to show how beliefs about health, illness and the body are intensely interconnected with the diverse realms of everyday life. She is particularly worried about the consequences of the view of the body and the immune system as a series of interacting systems that are constantly changing (reflecting flexibility). This view has profound implications for how individuals are valued in society, for the organisation of work, and for the distribution and regulation of health care. In her view, too much weight is attached to 'flexibility', which is coming to be (over) valued. This results in the fact that some people are deemed more 'flexible' than others, who are less adaptable. In Martin's view, this underlies a disturbing new Social Darwinism (Martin, 1994; Anderson, 1996, pp. 1341–2).

David Napier, a social anthropologist, has developed an argument similar to Martin's. In his book, entitled *The Age of Immunology* (2003), he argues that the central assumption of immunology – namely that we survive through the hostile encounter between self and non-self – has become a pervasive paradigm in culture at large. In Napier's view, this has resulted in an increasing inability to negotiate with difference and has impoverished our (Western) culture (Napier, 2003, pp. 94–100).

In the wake of social scientists such as Haraway and Martin, the immune system has attracted increased attention from philosophers as well. Before the philosophical approach to the study of immune systems is discussed, some recent biopolitical developments will be examined that have played an important role in the increase of the use of immunological discourse within philosophy.

Biopolitics

In the eighteenth century, demographic, urban and industrial developments raised the issue of human 'populations' in biological and medical terms. In that period, the focus shifted to the *conditions* of existence of populations, which included issues such as housing, nutrition, birth and mortality rates, and various pathological phenomena (epidemics, endemic diseases, infant mortality, and so on) (Foucault, 1988). Under the influence of these changes, the body-metaphor ceased to be 'merely' a metaphor, and became an object of political concern. It was specifically Michel Foucault (1926–1984) who observed this change, writing: 'The social body ceased to be a simple juridico-political metaphor (like the one in

the Leviathan) and became a biological reality and a field for medical intervention' (Foucault, 1988, p. 134).

Foucault argued that a so-called somatocracy developed from the eighteenth century onwards. He considered somatocracy to be a regime that considers taking care of the body, corporeal health and the relation between illness and health as appropriate areas of state intervention (Foucault, 2004b/1976). Foucault stated that 'for millennia man remained what he was for Aristotle: a living being with the additional capacity for political existence. Yet, modern man is an animal whose politics calls his existence as a living being into question' (Foucault, 1979, p. 188). This 'biopolitics'⁴ – as Foucault termed it – involved a set of monitoring processes concerning birth rate, mortality rate, longevity, morbidity, and so on. Together with a series of related economic and political problems, these 'indicators' became valuable knowledge and targets of government control. Political authorities had the task of managing life in the name of the well-being of the population (Foucault, 2004a, pp. 239–64). As a result, a new type of medical practice developed whose main task was public hygiene, 'with institutions to coordinate medical care, centralise power and normalise knowledge' (Foucault, 2004, p. 244). Public hygiene also involved campaigns to raise hygienic awareness and to medicalise the population. Thus, state-sponsored biopolitical practices were installed that aimed at optimising the fitness of the population (Foucault, 2004, pp. 239–64).

Biopolitical power was concerned with both hygienist practices of education and domestic routines (to instil habits beneficial to physical and moral health), but it also aimed at the securitisation of the external conditions of health through town planning, sewage systems, clean water, etc. (Rose, 2001, p. 3). As a result, new economic mechanisms were introduced such as insurance, individual and collective savings, safety measures, and so on (Foucault, 2004a, pp. 243–6). The emergence of this new power regime coincided with similar developments in biomedical research.

During the heyday of nineteenth-century biopolitics, microbiology emerged as a research field, thanks to the pioneering efforts of Pasteur, Koch and others, culminating in the discovery of the virus around 1900. In the course of the twentieth century, due to the introduction of antibiotics and other medical innovations, the efforts to gain control over microbial and viral threats to the population's health became increasingly successful. Apparently, biopolitics had come quite close to realising its basic goals. In the 1960s and 1970s, it was frequently pronounced that infectious diseases had been conquered and were no longer major threats to

4 The theme of biopolitics appears in many of his works. In his lectures *Sécurité, Territoire, Population en Naissance de la biopolitique* at the Collège de France from 11 January 1978 until 4 April 1979, he defines biopolitics as follows: 'the set of mechanisms through which the basic biological features of the human species became the object of a political strategy, of a general strategy of power, or, in other words, how, starting from the eighteenth century, modern western societies took on board the fundamental biological fact that human beings are a species' (Foucault, 2009, p. 16).

health (Burnet, 1963, p. 3). The reason for this optimistic view can be traced to the advent of the sulphonamide drugs in the 1930s and penicillin in the 1940s, when hundreds of new antibiotics were discovered to treat infectious diseases such as gonorrhoea, syphilis, pneumonia, TB and typhoid fever (Lesch, 2007). This view was overly optimistic.

In recent decades the world has been confronted with an ever-increasing number of emerging and re-emerging infectious diseases, some of them causing true pandemics. Striking examples were the emergence of acquired immunodeficiency syndrome (AIDS) in the early 1980s and the more recent severe acute respiratory syndrome (SARS) in 2003 (Zanetti and Zappa, 2010). The emergence of these diseases and the resurgence of old ones like tuberculosis and cholera reflect various changes in human ecology, such as increased traffic and migration, intensive animal farming and food production, prophylactic doses of antibiotics and other drugs, and so on (Weiss and McMichael, 2004). It has become clear that the emergence of viral strains will continue to pose challenges to public health and the scientific communities (Cohen, 2000; Sasseti and Rubin, 2007). The recent Swine flu pandemic of 2009–2010 in particular has revived the most challenging debate on protection or ‘immunisation’ against infectious diseases. This fierce debate on how to immunise against often unpredictable viral threats is a paradigmatic example of the contemporary biopolitical situation. In my view, the contemporary situation can, in general, be characterised by three developments: a *medicalisation* of society, a strong focus on the (individual) biological body (*somaticisation*) and a *securitisation* of health issues.

Medicalisation

The first development, the increased medicalisation of contemporary society, was already signalled by Foucault. For Foucault, ‘medicalisation’ involved the authoritarian intervention of medicine in an ever-widening field of individual and collective forms of existence (Foucault, 2004b/1976, p. 10). It appears that health as such has been transformed into an object of medical treatment and industry including self-medication. Medical interventions no longer respond to patients’ wishes, their pain, or malaise.

Foucault believed that medicalisation was not something new. Medical authorities had always been concerned with other phenomena than just diseases, such as social behaviour, and traditionally functioned as agents of social control. Increasingly sophisticated technology has extended the potential reach of medicalisation as a form of social control, especially in the field of psychiatry. An example of this is the fierce debate about the DSM-IV and more recently the DSM-V classification system in psychiatry and the fundamental discussion on distinguishing the ‘normal’ from the ‘pathological’ (see also Canguilhem, 1989).

Many contemporary critics place pharmaceutical companies in the position once held by doctors as the supposed catalysts of medicalisation, which makes medical science part of global capital(ism). This effort is known as ‘disease

mongering’, a term introduced by health-science writer Lynn Payer. In her book *Disease-Mongers: How Doctors, Drug Companies, and Insurers Are Making You Feel Sick*, she argued that there is a ‘broadening of the definitions of diseases’ in order to increase the demand for pharmaceutical products and medical services (Payer, 1994). Others argue that our powerful tropism to medicines cannot be explained by simple classical supply-demand economics, but could have evolutionary roots. They warn that if public health policies do not take into account our strong evolutionary affection for drugs (*pharmophilia*), we will continue to overspend on and ‘overvalue’ drugs at the expense of nonmedicinal treatments and prevention strategies (Sullivan, Behncke and Purushotham, 2010).

Somaticisation

The medicalisation of society is closely related to a second development: an increased focus on our (own) bodies and related increase in self-medication. This so-called ‘somatic individuality’ has been extensively described by Niklas Rose in his book *The Politics of Life Itself* (Rose, 2001). In addition to the intensification and generalisation of health-promotion strategies throughout the twentieth century, a private health industry is evolving at a remarkable pace. Together with cutbacks on public health expenditure and an increased call from the state for self-management (the ability to cope for oneself), individuals are increasingly obligated to monitor and manage their *own* health. The hygienist political ambitions for a healthy population, as described by Foucault, are now accompanied by the aspirations and obligations of individuals themselves to be and remain healthy.

Since the second half of the twentieth century, the ‘will to health’ is not only directed at avoiding illness and premature death, but also involves optimisation of the health and fitness of one’s corporeality, such as beauty, success, happiness, sexuality, and more. This so-called ‘enlarged will to health’ has now been intensified and capitalised by self-health strategies such as health insurance, healthy food, dietary supplements, vitamins, cosmetic surgery, private health care, and so on (Novas and Rose, 2000; Rose, 2007).⁵ Rose shows how advances in medicine have affected conceptions of self. Selfhood has become intrinsically somatic, he argues, meaning that as a result of advances in biomedical technologies, including the molecular understanding of bodies and minds, people have become subjects who understand and judge themselves increasingly in biomedical (somatic) terms (Rose, 2001, pp. 17–22). People have long been responsible for the health and illness of their body, but as somatic individuals, we also have a ‘genetic’ responsibility: we must also know and manage the implications of our genetic constitution (Rose, 2007, p. 134).

Citizens have now acquired a form of what Rose calls ‘biological citizenship’, a universal human right to the protection of their ‘bare life’ (see also Agamben, 1998),

5 In Chapter 6, the downsides of this emphasis on personal health and fitness as described by Byung-Chul Han are discussed.

of their living vital (biological) body. Previously, legal, social and political rights were connected to the capacities and obligations of individuals as elements of a political association. Rose shows that it appears that now human beings have rights simply by virtue of their pure biological existence:

In the geopolitics of famine, drought, war and ethnic cleansing, in the vociferous anti-capitalist and anti-globalising movements, and in the local politics of health, it is now possible for human beings to demand the protection of the lives of themselves and others in no other name than that of their biological existence and the rights and claims it confers. (Rose, 2001, p. 21; see also 2007, p. 132)

Rose voices an experience that is shared by other intellectuals as well. Bryan Turner, for instance, argues in his book *Regulating Bodies* (1992) that the medical and demographic developments of the late twentieth century lend weight to the need for a new concept of modern societies as somatic. He defines the ‘somatic society’ as

a social system in which the body, as simultaneously constraint and resistance, is the principal field of political and cultural activity. Our present political problems and social anxieties are frequently transferred to the body. The body is the dominant means by which the tensions and crises of society are thematised: the body provides the stuff of our ideological reflections on the nature of our unpredictable time. (Turner, 1992, p. 12; 1996 [1984])

Turner demonstrates how bodily metaphors illustrate the fact that we still use the body as a convenient way for talking or thinking about the moral and political problems of our society. The contemporary use of immunological concepts also testifies to this development.

Securitisation

A third biopolitical characteristic considers the so-called militarisation of infectious disease and public health, and the concordant securitisation of human life. From the beginning of the twenty-first century, and related to the recurrence of emerging infectious diseases, a remarkable return of the militaristic language of classical germ theory has taken place (Cooper, 2008). In this period, the US, but several countries in Europe as well, were ‘plagued’ by terrorist attacks. The most well-known examples are the 9/11 attacks on the Twin Towers in 2001, and soon thereafter, the US was threatened by Anthrax attacks. Melinda Cooper (2008) has investigated how the (bio)terrorist threats, accompanied by the unexpected and unpredictable emergence of new infectious diseases, has resulted in a change in public health policies. In the US, but increasingly also in Europe, emergency response procedures applied to bioterrorism threats are remarkably similar to those developed for epidemics (emerging global infectious diseases).

Public health policy is looking for ways to protect against potential future threats, whether they come from terrorists or from nature itself (albeit a nature that is disrupted by human behaviour through global mobility and population growth). Cooper has shown how in 2000, the UN Security Council designated AIDS to be treated as a ‘military emergency’ (Cooper, 2008, p. 51). In such a context, the boundaries between biomedicine and war are increasingly and quite deliberately blurred. Cooper unravels the diverse developments leading to what she calls ‘the biological turn of the war on terror’, which involves an increased *militarisation* of infectious diseases and related to that an increased *securitisation* of human life (Cooper, 2008, pp. 74–100). She shows how security, defence and medicine are entangled in the single problem of identifying the threats to the ‘life’ of a population (Cooper, 2008, pp. 74–100; Thacker, 2005, p. 13). These three developments show how life becomes increasingly politicised (politicisation of life), while politics becomes increasingly concerned with the protection of *biological life* (biologisation of politics).

Immunological Discourse in Political Philosophy and Cultural Criticism

Foucault argued that in the eighteenth century the body metaphor ceased to be ‘merely’ a metaphor but the body rather became a field for political intervention (the birth of biopolitics). Some contemporary philosophers follow this way of reasoning and argue that immunisation is no longer a biological notion, which is ‘merely’ used as a metaphor in all sorts of practices, including politics and political philosophy. They rather consider it to be a paradigm. Their claim that there is a tendency towards an increased biologisation of politics and an increased politicisation of life is linked to the perceived hypertrophy of a security apparatus that – in all its forms – seems increasingly widespread throughout contemporary society. These trends and shifts are captured and thematised by Sloterdijk and others under the heading of immunisation.

In this book, several contemporary ‘immuno-philosophers’ will be discussed who have appropriated immunological notions for their political-philosophical theories or cultural criticism. From the 1980s, immune theories have been used by a range of social scientists and philosophers. Before Donna Haraway employed ‘an immune system discourse’ in her reading of postmodern bodies, Niklas Luhmann, for example, already positioned immunity at the heart of his systems theory in *Social Systems* (1984). Critical theorists like Agnes Heller and Mark Taylor continued to discuss immunity throughout the 1990s. This book will focus on philosophers such as Peter Sloterdijk, Roberto Esposito and Jacques Derrida, who have placed immunity truly at the centre of contemporary politics and culture.⁶

⁶ In 2003 David Napier published an anthropological study on how immunology – as the science that discriminates between self and non-self – has become a pervasive cultural paradigm. In his view, immunological ideas today provide the primary conceptual framework

For Sloterdijk, immunisation or the construction of immune systems takes place at the biological, political, psychological, and legal level. In other words, in his work immunisation becomes a core category of human existence. It is an integral part of the *condition humaine*, not only today, but also in former days. Nevertheless, as a result of globalisation and technological developments, Sloterdijk observes a remarkable change in the way humans immunise themselves against potential threats. In the following, the focus will be on Sloterdijk's views on immunisation as presented in his *magnum opus*, *Spheres* [*Sphären*] (Sloterdijk, 1998, 1999, 2004).

Esposito takes up immunity as way of coming to terms with the contemporary biopolitical situation. Within the broader discourse about the biologisation of politics, Esposito pays much attention to immunisation as a link between biology and politics (Esposito, 2008, 2011). In his view, the body is the liminal zone where the *immunitarian* intention of politics becomes tangible (Esposito, 2011, p. 113). Indeed, a vital function of the immune system of the body is to maintain the body's integrity in the face of external threats. In other words, the body's *immune system* is the frontline, both symbolically and materially, in the battle of life against disease and death. In Esposito's view, the prophylactic and sociocultural barriers that have been created in response to infectious diseases, the sociocultural barriers of immigration and antiviral programmes are not isolated issues. He believes that the question of immunity (inhibition, prevention, and fight against contagion) is placed at their intersection (Esposito, 2008, 2011). However, although no individual or social body can do without immunitary systems, they have grown out of proportion in Esposito's view, and are destroying the very (social) body they are meant to protect.

Similar to Esposito, Derrida gives immunity a more tragic characterisation. In a series of interviews on the 'events' of 9/11, he describes the events of 9/11 (as well as those occurring in Madrid and London) as marking a 'global autoimmunity crisis' (Borradori, 2003, pp. 20, 140). More than immunity, or immunisation, Derrida uses the term 'autoimmunity'. With this notion, he explicitly refers to the so-called autoimmune diseases, in which the body's immune system attacks and damages the organism's own cells and tissues. In Derrida's view, the contemporary political situation can be interpreted in the light of a similar self-destructive process.

In addition to discussing these three philosophers, this book focuses on two other contemporary thinkers: the German contemporary cultural theorist Byung-Chul Han and the French philosopher and cultural critic Jean Baudrillard. Han's immunological analysis of contemporary culture is considered to be an interesting

within which human relations take place (p. 3). He shows that the central metaphors of immunology are thus not exclusively the property of medical discourse. The problem, however, is that the immunological lens involves a *defensive* way of looking at the world. As a result, Napier argues that not only is diversity destroyed, but that it also eliminates the possibility of truly engaging with difference. According to Napier, we have unlearned the essential role that difference plays in our survival. Because this book focuses on immunology from a (political) philosophical perspective, Napier's *anthropological* study will not be discussed in detail.

supplement to the authors described above. Where Sloterdijk shares Esposito's idea about a ruling contemporary immunisation paradigm, Han, in contrast, considers contemporary culture as being characterised by a 'post-immunological paradigm' (Han, 2011, pp. 98–9).⁷ In his view, the focus on our bodily health, protection and performance rather results in neurological disorders such as ADHD, depression, and stress-related diseases like burnout. Here, contemporary society is not so much 'plagued' by infectious diseases, but rather by neurological disorders, which is why he speaks about a *post-immunological paradigm* (Han, 2011).

The fifth immuno-philosopher that will be studied is Baudrillard, because his use of different immunological notions (different from the notions employed by the other philosophers) can be considered a valuable perspective in the 'field' of immunisation studies. Moreover, apart from immunological notions, Baudrillard also employs virological terms for his analysis of the political culture of today. In general, he claims that the (over-)protectionist and prophylactic zeal towards the body also takes place at the societal level, at the level of the body politic. As a result, the social system, like the biological body, is losing its natural defences and is doomed to artificial immunity (Baudrillard, 1997, 2002).

Exploring Immunisation from a Biological and a Philosophical Perspective

This book will not investigate whether contemporary political culture is indeed characterised by an immunitary paradigm. Rather, the aim of this book is to critically analyse the appropriation and use of immunological concepts by the (political) philosophers mentioned in their assessment of the dynamics of contemporary political culture, culminating in a critical assessment of the conceptual adequacy of immunological concepts in political philosophy. I analyse how immunological models are used in political philosophy and how philosophical conceptions of immunisation relate to biological ideas on immunity.

The fact that some of the most important contemporary philosophers mentioned above came to work on the notion of immunisation indicates how significant that notion is today. They seem to agree that a philosophy that is to be capable of reflecting on its own era must engage with the question of immunisation. However, these philosophers are all working independently of one another and are following different paths of thought. Therefore, I analyse how they all give a personal interpretation of immunological notions. The book will focus on the part(s) of their work in which they employ immunological notions, although their immunological theories can only be partly isolated from the rest of their *oeuvre*. Although the aim of the book is to analyse and compare the immunological theories of several contemporary philosophers with quite different approaches and

⁷ This is particularly remarkable because of the fact that, until recently, he was a colleague of Sloterdijk's at the University of Art and Design in Karlsruhe. Despite his close connections to Sloterdijk, his ideas are rather divergent from Sloterdijk's analysis.

theoretical bases, their theories will be dealt with on the level of their key message. A comparative analysis is attempted mainly to reach a more consistent view of immunological thought in philosophy. This also necessitates an elucidation of the particular theories given the complex, idiosyncratic, and sometimes overly theoretical nature of the work of some of these thinkers.

For a fruitful philosophical debate on immunisation, it is important to study immunisation from a biological perspective as well. There have been many instances of conceptual trafficking between political philosophical and biological discourse throughout history. In this book, it will be shown how, for a conception of immunisation as a contemporary phenomenon, such a reciprocal confrontation can be illuminating. This reciprocal confrontation is particularly important because the biological conception of immunity is highly dynamic and open to revision. Moreover, political philosophical notions of immunisation build on these biological ideas. However, the question with which this book is concerned is the extent to which political philosophy could profit from recent insights regarding the biological complexity of the immunological model.

In philosophy, immunisation has also been given many denotations and interpretations. So far, however, a true philosophical debate on immunisation is actually non-existent. This book will argue that for the development of a valuable and relevant philosophical notion, it would be wise to start a thorough philosophical debate on immunisation. The philosophical concept would be more valuable if there was a common immunological discourse or at least a common understanding of immunological concepts. This book will instigate this most urgent philosophical debate.

In addition to a study of the biological immune system (biological immune theory or immunology), some of our – what will be called – *medical-political immunisation strategies* against recent viral threats will be studied. The response against viral threats embodies the intricate entanglement between biology and politics, and as such involves a biopolitical practice *par excellence*. This book thus combines a thorough systemic conceptual analysis of the concept of immunisation from both a philosophical and a biological perspective.

Using recent developments within biological immunology, an alternative for the existing tangle of immunological notions and theories within political philosophy will be proposed. In Figure 1.1, the ‘objects of study’ of this book and their interrelations are described. This book includes a study of the biological immune system (A), because the philosophical immunological theories (C) are inspired by and built on these biological insights from immunology (connecting arrow). Secondly, the medical-political immunisation responses against two recent viral threats are studied (B), because these strategies are a reflection of our biological and political (biopolitical) view on immunisation. This book also includes a thorough reflection on the philosophical use of immunological notions (C). Taking into account the results of A and B, the philosophical immunological theories will be critically analysed. In the course of the discussion, the use and usefulness of the philosophical immunological theories will be analysed. The book will thus sketch the consequences

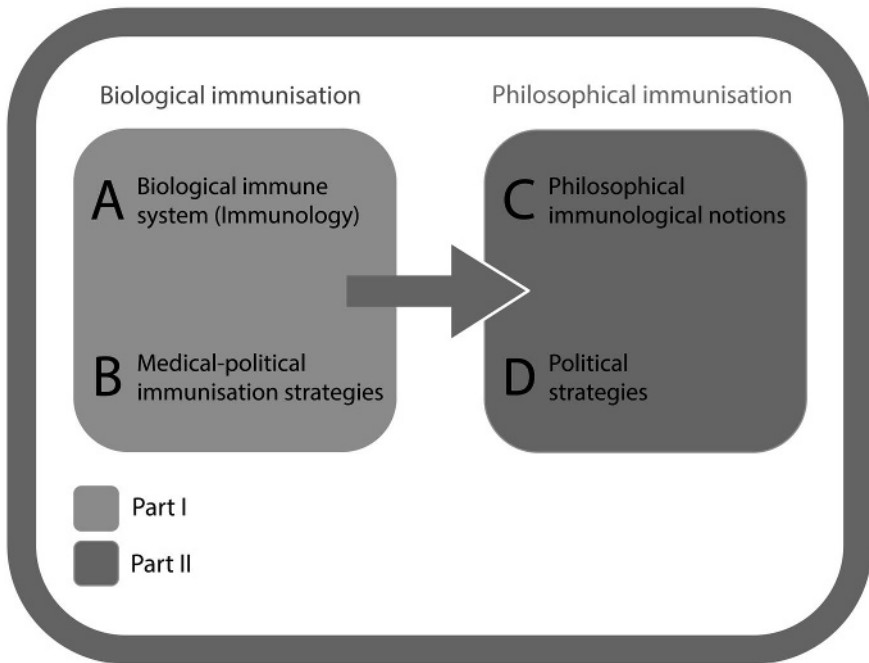


Figure 1.1 Overview of the interaction between biological ideas on immunity and philosophical use of immunological notions

Note: (The light grey topics are discussed in Part I of this book, the dark grey topics in Part II.)

of the philosophical use of immunological notions for both our political strategies in general (D) and our political strategies in the field of biomedicine (B).

In sum, the book will study immunisation both from a biological and a philosophical perspective. Part I describes immunisation from a biological perspective. Part II focuses on philosophical immunological theories, and the interaction between biological and philosophical immunological ideas. In the course of the next six chapters, I shall elucidate the notion of immunisation in its various forms, which will be outlined below.

Outline of the Book

Part I

Chapter 2 investigates the history of the notion of immunity against the backdrop of its contemporary prevalence and use within philosophy. We are inclined to think that immunity is a concept of biomedical origin that is now conveniently used as

a metaphor in the political realm in order to address political issues. This chapter will show how immunity has received meaning within different societal realms. Furthermore, this chapter will analyse how the contemporary philosophical interpretation of immunity relates to this historical development.

Chapter 3 takes a biomedical detour that discusses historical and contemporary insights on immune system functioning. This chapter builds on the works of Alfred I. Tauber, particularly his works on how the metaphor of ‘self’ is employed in immunology. In a context of studying pathologies, immunology originated as the science that discriminates between self and non-self. Within immunology, the workings of the immune system have also been subject to reconceptualisations and reinterpretations. Notions of autoimmunity and tolerance have proven that the immune system is far more intricate than a defence army that protects ‘the self’ against destructive invading ‘others’.

Chapter 4 studies the ‘immunisation strategies’ against some recent viral threats. The response against viral threats is a perfect case example for both our biomedical and political view on immunisation, since it embodies the intricate entanglement between biology and politics. This chapter studies the medical-political response to the Swine flu pandemic of 2009 and the potential Avian flu threat of 2011–2012. These viral threats have revived a most challenging debate on protection against infectious diseases. The response to the Swine flu pandemic has been ambivalent, on both the societal (political) and the scientific level. While some scientists warned against potential massive loss of human life and urged an immediate and large-scale vaccination, others accused them of unnecessary scaremongering, arguing that the pandemic would not be that severe. This chapter deals with questions surrounding the responses to these viral threats and the view of immunisation that these medical-political responses convey.

Part II

Chapter 5 thoroughly analyses Sloterdijk’s notion of immunisation, as described in his trilogy *Spheres*, in which he contends that human life has always been lived within immunising spheres. History, for him, is actually a succession of damage and repair of immune systems under the influence of societal dynamics. Throughout history, the scale and efficiency of immunising spheres have been gradually expanding. Sloterdijk’s ideas on how the processes of immunisation are related to and influenced by the processes of globalisation and modernisation will be analysed. Finally, this chapter will investigate the extent to which Sloterdijk’s ‘immunology of spheres’ actually relates to or corresponds with the recent biological insights described in Chapter 3.

Chapter 6 studies the use of immunological notions by other contemporary (political) philosophers: Esposito, Baudrillard, Napier, Derrida, and Han. Although these philosophers use different immunological concepts and ascribe different meanings to the concepts used, they broadly agree in their diagnosis of an ‘autoimmune crisis’ in contemporary culture. This chapter will critically examine

and compare the use of immunological notions by the different thinkers. How do Han, Baudrillard, Derrida, and Esposito give form (albeit in different ways) to autoimmunity and to what extent are their ideas interrelated? Moreover, the ways in which their philosophical interpretations of immunological concepts relate to the meanings of these biological immunological notions are investigated.

General Discussion

In the concluding chapter, the results of the previous chapters are brought together in order to discuss the implications and opportunities of using immunological models for assessing the dynamics of contemporary political culture. Inspired by recent developments in (biological) immunology, the agenda for a common versatile philosophical immunological repertoire will be presented. That repertoire should also include immunological notions that convey not only how easily life is threatened, but also our dependence upon others, of co-existence as a basis for our existence, biologically as well as politically. Exploring the use and usefulness of immunological models means unravelling the reciprocal ‘infection’ between immunology and political philosophy as ways of making sense of human lives.

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PART I
Biological Immunisation

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Chapter 2

The Roots of Philosophical Immunity

Introduction

Immunological notions are present in many different societal domains. Shortly after the dramatic events of 11 September 2001, President George W. Bush phrased his comments as follows: ‘Our nation has been put on notice: we are *not immune* from attack. We will take defensive measures against terrorism to protect Americans’ (Bush, 2001; my italics). More recently, in response to a shooting near the Empire State Building in August 2012 in which nine people were shot and one killed, New York City Mayor Michael Bloomberg stated: ‘New York City, as you know, is the safest big city in the country and we are on pace to have a record low number of murders this year but we are not *immune to* the national problem of gun violence’ (Strauss, 2012). Apart from the use of immunological terms and images in the political realm, the best-known examples of immunity and immunological discourse obviously emerge in the biomedical domain. With the Swine flu (H1N1) pandemic threat of 2009 in particular, biomedical immunisation (by means of vaccination for instance) has gained considerable attention. The immuno-philosophical studies mentioned in Chapter 1 focus on such protective developments and discursive formations. In view of the contemporary prevalence of immunological discourse in political philosophy and to be able to trace the nature and function of the immunological vocabulary of these philosophers, it is necessary to take a look at the history of the notion of immunity.

There has always been traffic and interference of concepts and metaphors between domains during certain periods. In the concise ‘genealogy’¹ of immunity that I shall attempt to give here, it will be shown that the term immunity comes from a legal and political background and has only received its (now dominant) biomedical significance relatively recently. To show this, the evolution of the concept will be traced from its juridical origins in ancient Rome, via (bio)political uses that prevailed during the dawn of modernity, up to immunity as a biomedical concept in the nineteenth century with the discoveries of Pasteur and others. In the

1 The goal of this chapter is not to give a complete history of the term immunity per se, but rather to point out the important (historical) shifts in meaning of the notion and *idea* of immunity. In some cases, the term immunity is not used, for example in Nietzsche’s ideas on religion as a vital illusion for preserving and protecting our lives. Nevertheless, his philosophy is important for the philosophical connotations that the notion of immunity has received in the course of history. Sloterdijk’s use of immunological concepts, for example, is greatly indebted to Nietzsche’s ideas.

nineteenth century, the idea of immunity also received a psychological connotation in the works of Nietzsche and Freud. These domains are not demarcated by rigid boundaries. The shifts in meaning that the concept of immunity has undergone will be analysed.

Finally, it will be shown how the history of immunity culminates in the development of immunity as philosophical notion. It will be outlined how immunity has been employed as a philosophical concept by Derrida, Sloterdijk, Esposito, Baudrillard and Han. In sum, it will be investigated how the notion of immunity has (re)appeared in different societal realms and it shall question how the (quite recent) philosophical conceptions of immunity as developed by Sloterdijk and others, relate to the historical development of the notion of immunity and the corresponding different interpretations of the concept.

History of the Concept of Immunity

Immunity as a Legal Concept

Today, legal battles over the immunity of certain political figures such as the former Italian Prime Minister S. Berlusconi or the Surinamese president D. Bouterse are at the centre of national and international debates. In October 2013, the detention of the Russian diplomat Borodin in the Netherlands who was accused of physically harming his young children, strained diplomatic relations between Russia and the Netherlands. In reaction to this, President Vladimir Putin demanded an apology from the Netherlands for violating the right to diplomatic immunity (Reporter, *The Moscow Times*, 2013). This demonstrates that immunity serves as an important concept in the realm of 'the political'. During the first stage of its conceptual history, immunity functioned almost exclusively as a political and juridical term.

The term immunity was coined about two millennia ago in ancient Rome. Its etymological roots lie in the Latin word *immunis*. The prefix *im* denotes that someone is exempt from or has received dispensation (Esposito, 2008, p. xi). The term *munus* signifies a range of possible social practices and obligations: various services, public functions, duties, gifts, favours, taxes, tributes (to the dead), rites, sacrifices, public offices and the like (Cohen, 2009, p. 40). An individual that is exonerated from certain responsibilities and obligations to the community (for example, taxation, prosecution, military service, or legal culpability) is said to be 'immune' (Cohen, 2009, p. 40; Esposito, 2008, p. xi). Roberto Esposito describes how *immunity* is coterminous with *community*. Immunity connotes the means by which the individual is protected from the 'expropriating features' of the community. Esposito writes: 'If *communitas* is that relation, which in binding its members to an obligation of reciprocal donation, jeopardises individual identity, *immunitas* is the condition of dispensation from such an obligation and therefore the defence against the expropriating features of *communitas*' (Esposito, 2008, p. 50).

Immunity applies to those members of the community who have been freed from obligations that concern everybody else. For example, the Roman emperor enjoyed immunity as '*tribunus potestas*'. Emperor Augustus was invested with the *tribunicia potestas* that gave him the power of veto, while at the same time he was made *immune* from the right of veto of the actual tribune of the plebs. The *tribunicia potestas* guaranteed his permanent inviolability and gave him the authority to convene the senate and the *concilium plebis* and to introduce legal bills (Lesaffer, 2008, p. 40).

The Roman army had a category of soldiers known as the *immunes*. These *immunes* were trained specialists (legionary soldiers) who were *exempted* from fatigue duties, i.e. the more tedious and dangerous tasks other soldiers were required to do, such as ditch digging and rampart patrol. They were expected to fight in the front ranks during battles (Roth, 1999, p. 91). Prior to becoming an *immune*, men were required to serve as *miles* (also known as *munifex*), a non-specialist regular soldier.

For almost two millennia, legal immunity defined both the necessity for and the limits of mutual obligations that form the relational space of 'the political' (Cohen, 2009, p. 45; Schmitt, 1922). It has organised the way in which we live together by defining those exceptions to the collective responsibilities that seem to define political rule (see also Agamben, 1998, 2005). Agamben has written at length about the dangers of a government's power to decide the state of exception. In supposed times of crisis, governments can extend their power to withdraw the guarantees of legal protection and entitlement. In this so-called 'the state of exception' constitutional rights are diminished, superseded or even rejected. Agamben is particularly critical of the United States' response to the attacks of 11 September 2001. On 13 November 2001, for example, the President of the United States issued the 'military order', which authorised the 'indefinite detention' and trial by 'military commissions' of noncitizens suspected of involvement in terrorist activities. This order radically erased any legal status of the individual, thus producing a legally unnameable and unclassifiable being (Agamben, 2005, p. 3). According to Agamben, the problem however is that the state of exception, which was meant to be a provisional measure, has actually become a working paradigm of government.

Today, in a globalising world increasingly marked by the economic permeability of national domains, what we now call 'diplomatic immunity' constitutes a crucial parameter of international law. Diplomatic immunity involves the *exoneration* enjoyed by official representatives of foreign states or international organisations from the jurisdiction of the country in which they are present (McClanahan, 1989). It also dates back to ancient times. In antiquity, the primary concern was the personal freedom and safety of diplomatic envoys (inviolability of the diplomat). Historians recognise that the practice of immunity was common to a wide range of cultures. Greek, Roman, Arabic, Persian, Indian, and various East Asian cultures practised immunity in varying degrees (Frey and Frey, 1999). Cicero, for example, stated that the rights of the ambassadors were 'fortified with the protection of

man and also entrenched around by Divine Law' and that ambassadors should 'be esteemed so sacred and venerable as to go unharmed, not only between allies, but also when confronted with the weapons of the enemy' (Ogden, 1997, p. 451). Others have described how, in the course of history, diplomatic immunity subsequently became courtesy, practice, precedent, right, and law (Frey and Frey, 1999). The *Vienna Convention on Diplomatic Relations* of 1961 and the *Vienna Convention on Consular Relations* of 1963 finally codified most modern diplomatic and consular practices, including diplomatic immunity, as an essential element of international law.

Immunity as a Biopolitical Concept

Against the backdrop of the English Civil War (1642–1646 and 1648–1649) and the Thirty Years' War (1618–1648), the notion of immunity received – what we would now term – a biopolitical connotation. In that period, Hobbes defined the body as human property and self-defence of this property as the first 'natural right' of human beings. Hobbes writes in *Leviathan*: 'of things held in propriety, those that are the dearest to man are his own life and limbs' (Hobbes, 1998[1651], p. 226). Hobbes argues that it is 'neither against the dictates of true reason for a man to use all his endeavours to preserve and defend his Body'. Accordingly, for Hobbes, the first foundation of 'Naturall Right' for any person is 'to protect his life and members' (Hobbes, 1983[1651], p. 47). Hobbes thus makes bodily defence a possessive imperative that politically protects the person as a person. Hobbes argues that the attempt at self-preservation is in principle destined to fail because of other basic natural impulses of humankind, notably the desire for expansion, the inexhaustible and acquisitive desire for everything. Therefore, humans are in principle condemned to perpetual conflict (Hobbes, 1998[1651], p. 142).

In perhaps the most famous passage of the *Leviathan*, Hobbes states that 'the condition of man ... is of a war of every man against every man' (Hobbes, 1998, p. 84). With this bellicose aphorism, Hobbes conveys the message that potential warfare must be regarded a basic constituent of the human condition in the natural state. With these two notions, of the body as property that must be defended and the notion of (potential) warfare as a natural state of human beings, Hobbes places the problem of the *conservatio vitae* at the heart of his thought (Cohen, 2009, p. 17; Esposito, 2006, p. 24).

According to Hobbes, people in the state of nature have complete rights both to defend themselves and to advance their interests. However, they have no natural rights of 'immunity' against attack by others because anyone holds the same complete rights to attack anyone else in order to defend themselves and advance their interests (Nathanson, 2010, p. 174). In order to gain 'immunity rights' against attack by others, people need to mutually agree to subject themselves to the authority of a sovereign.

In the *Leviathan*, Hobbes states:

The Athenians and Romans were free; that is, free Commonwealths: not that any particular men had the liberty to resist their own representative, but that their representative had the liberty to resist, or invade, other people. There is written on the turrets of the city of Lucca in great characters at this day, the word LIBERTAS; yet no man can thence infer that a particular man has more liberty or *immunity* from the service of the Commonwealth there than in Constantinople. Whether a Commonwealth be monarchical or popular, the freedom is still the same. (Hobbes, 1998, Chapter XXI, p. 143, my italics)

So no particular man has ‘immunity from service’ to the commonwealth in Hobbes’ view. In other words, no particular man is *exempt* from service to the commonwealth; that is, there are no immunes other than through submission to the sovereign. As a result of the subordination to a sovereign power, people are released from the natural state and receive a certain freedom and *immunity* from attack by others (the sovereign as a guarantee of self-preservation). Hobbes grants the sovereign complete *immunity*: the sovereign is unconditionally authorised to act as he sees fit. The sovereign can violate Natural Law, but it is up to God to judge those violations. Natural Law cannot provide grounds for the subjects to punish the sovereign, because the sovereign is not bound by the laws of the commonwealth. The complete *immunity* of the sovereign also results from the fact that he is not a party to the contract (Shreedhar, 2010, p. 96). Thus, Hobbes’ idea of immunity comes down to ‘sovereign immunity’.

Esposito argues that for Hobbes, the sovereign power acts as an immunisation force, which saves, insures, and preserves the organism by subjecting it to a condition, which simultaneously reduces its power to expand (Esposito, 2008, p. 46). From that point of view, one could argue that with Hobbes the idea of immunity as a (biopolitical) power to defend and preserve life is founded.

In Hobbes, the sovereign indeed is a power for ‘bodily defence’. Nevertheless, Hobbes uses the term ‘immunity’ predominantly in its legal meaning (‘being exempt from’). While individuals are not *exempt* from service to the commonwealth, the sovereign is exempted from bondage to the laws of the commonwealth (Esposito, 2006, p. 24). It seems that in Hobbes, immunity as *exemption* or *exoneration* (the traditional concept) and the more modern meaning of immunity (an immunising force) as *protection* or *self-defence* start to become intertwined.

Hobbes’ attention to bodily protection is also illustrated by the famous image printed on the cover of the first edition of the *Leviathan*, which depicts a monarch whose enormous body is composed of individual bodies, thus indicating that a political entity can be seen as consisting of individual bodies (Figure 2.1).

In the introduction to the *Leviathan*, Hobbes describes the state as an organism, showing how each of its parts functions similarly to parts of a human body:

that great LEVIATHAN called a COMMONWEALTH, or STATE (in Latin, CIVITAS), which is but an artificial man, though of greater stature and strength than the natural, for whose protection and defence it was intended; and in which



Figure 2.1 The cover of the first edition of Hobbes' *Leviathan* published in 1651

Source: Cover of Hobbes' *Leviathan*, Egerton 1910, The British Library

the sovereignty is an artificial soul, as giving life and motion to the whole body; the magistrates and other officers of judicature and execution, artificial joints; reward and punishment (by which fastened to the seat of the sovereignty, every joint and member is moved to perform his duty) are the nerves, that do the same in the body natural. (Hobbes, 1998, p. 7)

As we have seen in Chapter 1, it is an intellectual habit of long standing to regard a political entity, be it a city or a nation state, as an organism or a body. Indeed, this has been a dominant metaphor in the realm of political thinking ever since Plato and Aristotle and probably long before.

Immunity as a Biomedical Concept

The emergence of immunity as a biomedical concept originated in the nineteenth century, a period in which the health of the population and public hygiene developed as a central theme in Western Europe. In this period, military metaphors also began to infuse all aspects of medical discourse. Epidemics were widespread throughout Europe. Europe was plagued by diseases such as smallpox, typhus, influenza and measles, and these were no longer perceived as divine punishment, but as natural diseases.

In this period, society was not only plagued by epidemics (sudden, disruptive events causing massive deaths), but also suffered from what Foucault called ‘endemics’: illnesses that were more or less chronically prevalent in a population (Foucault, 2004a, pp. 241–4). Endemics involved permanent factors that affect (the strength and productivity of) a population. As such, endemics were difficult to eradicate (Foucault, 2004a, pp. 243–4).

By linking medicine with the desires of the state, medicine became a *political* as well as a *normative* discipline in the preservation and administration of human life. Medical doctors were not only responsible for teaching hygiene and giving advice about prudent lifestyles, but also for framing the optimal physical and moral relations between the individual and society (Foucault, 2004a, pp. 239–54).

Foucault argued that in the nineteenth century, medicine changed from simply being a collection of practices for curing the ill, into a concern with the healthy, building on a medical definition of the *model man* (Foucault, 2008, p. 57). Medicine reoriented its principal focus from that which is healthy to that which is normal. Theoretical knowledge about the organic structure and physiological knowledge was considered a key aspect of medical practice and was used as basis for prescribing interventions (Foucault, 2008, p. 58). Claude Bernard’s (1813–1878) theory about the importance of physiological knowledge of the *milieu intérieur* of the organism was an important impetus to this development (Cohen, 2009, p. 190).

The normal/pathological bipolarity was operationalised as a regulative ideal. This is specifically evident in the nineteenth- and twentieth-century concerns

with degeneration and social hygiene (Turda, 2009).² Owing to the prestige of the life sciences in which this bipolarity had its origins, it came to serve as a *model*, especially in the human sciences:

When one spoke of the life of groups and societies, of the life of the race, or even of ‘psychological life’, one did not only think of the internal structure of the organised being, but also of the medical bipolarity of the normal and the pathological. Consciousness lives because it can be altered, maimed, diverted from its course, paralysed; societies live because there are sick, declining societies and healthy, expanding ones; the race is a living being that one can see degenerating; and civilisations, whose deaths have so often been remarked on, are also, therefore, living beings. (Foucault, 2008, p. 58)

Just as ‘the body’ functioned as a trope for the social, now ‘disease’ functioned as a trope for the pathological in opposition to the normal. Or, as Turner argues: ‘[b]ecause the body is the most salient metaphor for society, it is not surprising that disease is the most salient metaphor of structural crisis. All disease is disorder – metaphorically, literally, socially and politically’ (Turner, 1996 [1984], p. 114).

The combination of medicine and hygiene was of considerable importance. In this regard, Foucault makes a distinction between the ‘medicine of species’ and the ‘medicine of social spaces’, referring to the separate modalities of medical practice (Foucault, 2008, pp. 19–41). The former was related to classifying disease, diagnosing and treating patients, while the latter was concerned with public health measures directed at preventing outbreaks of epidemic diseases. It also involved general measures of hygiene. ‘Medicine’ thus concerned both scientific knowledge of biological and organic processes, and political strategies. Medical knowledge could be applied both to the body and the population, both to individual biological processes and collective organisational processes. Therefore, it had both disciplinary and regulatory effects (Foucault, 2004a). The political concern with the well-being of the individual as a member of a population and as a vital asset for the state increased. This resulted in a strong medicalisation of society (Foucault, 2008).

The convergence of medicine and politics is also illustrated by the manner in which military metaphors entered biomedical language. After the French chemist and microbiologist Louis Pasteur (1822–1895) had discovered that microbes are

2 One should note, however, that although the bipolarity of normal/pathological appears to derive its authority as a regulative ideal for society from its medical origins, this fact should not obscure the contested and problematic nature of such an understanding within the practice of medicine, as Canguilhem has pointed out in his important work entitled *The Normal and the Pathological* (Canguilhem, 1989). He has shown how the attributions of a clear distinction between health and disease – which is the regulative desire of the bipolarity of normal/pathological in the political realm – is an understanding provoked by a social and cultural logic. It is not something mandated by medical knowledge.

the cause of disease, Robert Koch (1843–1910), a German physician, equated microbes with ‘invaders’ (Cohen, 2009, pp. 249–54). Following Bernard, Pasteur saw the internal environment of the individual organism as the relevant locus of disease. Subsequently, Koch discovered that specific ‘foreign invaders’ cause specific diseases (Pasteur, 1878, pp. 1037–43). This was also noted by the sociologist of science Bruno Latour, who claims that with Pasteur and Koch the microbe indeed was introduced simultaneously as a biological and political agent (Latour, 1988, p. 104).

Transporting the image of invading enemies from the geopolitical domain into the discourse on individual bodily health, Koch argued that if infectious diseases act *geopolitically* as invasive events, then bacteria must constitute an *invading force per se* (Koch, 1890a, p. 383). Accordingly, Koch reimagined medicine itself as a quasi-military practice in which the individual human body constituted the ‘battlefield’ on which a war is fought.³ Although Pasteur was acquainted with the term immunity, he did not use it for his own practices. Instead, he focused on how inoculations induced a ‘nonrecidivistic character’ (Cohen, 2009, p. 249). Here, he drew on the metaphor of *récidive*, a legal term that indicated a tendency to relapse into criminal and transgressive behaviour that (at least since the sixteenth century) also denoted a relapse into illness (thus illustrating the long history of understanding crime as disease and disease as crime) (Cohen, 2009, p. 248–9). The proliferation of juridical and military metaphors in medicine throughout the eighteenth and nineteenth centuries, and their widespread application to illness, accentuates the political and philosophical values embedded in medical concepts. As Fassin states: ‘[w]hen biomedicine speaks the truth it also speaks morals’ (Fassin, 2007, p. 84).

By the end of the nineteenth century, geopolitical notions influenced biology, as in the case of Pasteur and Koch. There was also traffic in the opposite direction, from biology to politics. A notorious example is the notion of *Lebensraum* (living space) coined by the German geographer Friedrich Ratzel (1848–1904) in his essay of the same title (*Lebensraum*, 1901). It was written in an era of imperialism during which various forms of ‘Social Darwinism’ were prevalent (Schmitt, 1995). Ratzel was highly influenced by Darwinian metaphors and ideas. According to Ratzel, the (alleged) Darwinian idea of the struggle for existence [*Kampf ums Dasein*] could be equated with a struggle for space. In his interpretation of Darwin, which inadvertently carried undertones of intentionality, all life forms on our planet were involved in this ceaseless strive for *Lebensraum*. The application of this idea to European geopolitics implied a biological theory of state formation and development (Dodds and Atkinson, 2000). Despite its notorious uptake by Hitler

3 ‘Und so lassen Sie mich denn diesen Vortrag schließen mit dem Wunsche, daß sich die Kräfte der Nationen auf diesem Arbeitsfelde und im Kriege gegen die kleinsten, aber gefährlichsten Feinde des Menschengeschlechts messen mögen und daß in diesem Kampfe zum Wohle der gesamten Menschheit eine Nation die andere in ihren Erfolgen immer wieder überflügeln möge’ (Koch, 1890b).

later on, it is still in use in certain hawkish wings of geopolitics. A contemporary mirror image of socio-biology – the use of political metaphors to talk about the body – can be found in the works of Rudolf Virchow and Ernst Haeckel, as described in Chapter 1.

The birth of immunology as a branch of microbiology forms a specific area of interest for the crossover between science and politics. The medical use of the term ‘immunity’ first appeared in 1775, when Van Swieten, a Dutch physician, used ‘immunitas’ to describe the effects induced by an early attempt at variolation (Moulin, 1991, p. 24). Variolation refers to an (obsolete) method of immunising patients against smallpox by infecting them with a mild form of the disease (*variola minor*), by controlled transfer of pus from one person’s active smallpox lesion to another person’s arm. Variolation has been practiced in Asia since the 1600s and in Europe and colonial America since the early 1700s (Stern and Markel, 2005).

At the time when the French physiologist Claude Bernard invalidated the Hippocratic idea of the *vis medicatrix naturae* – the healing power of nature – the decisive foundations for the discipline of immunology were laid. Bernard argued that it is the organism’s *interior* and its boundaries from the environment that provide an inner environment for normal physiological function. He considered the organism as a demarcated, interdependent yet autonomous entity (‘corporeal atomism’) (Cohen, 2009, pp. 191–205). He thus radically changed the inside/outside topology. The interior of the organism became the determining context of function (Tauber, 2012a). Although Bernard was important for the foundation of the discipline of immunology, most historians of science regard Elie Metchnikoff (1845–1916), a Russian zoologist, as the ‘father of natural immunity’ (Gordon, 2008; Kruif, 1926; Tauber, 1992). The intellectual origins of immunology in large measure revolve around his phagocytosis theory presented in 1883 (Tauber, 1992).

Metchnikoff is generally recognised as the first to understand the crucial role of phagocytic cells in host defence. For this contribution he shared the Nobel Prize with Paul Ehrlich in 1908 (Chernyak and Tauber, 1988, p. 219). Metchnikoff was primarily concerned with developmental processes (during embryological development) and the competition between cell lineages in those processes. He regarded the competition between cell lineages as analogous to the Darwinian inter-species struggle. In his view, during development the phagocyte acted as a regulating system that imposed order on the potentially discordant cellular elements (Tauber and Chernyak, 1991). In other words, Metchnikoff considered the phagocyte as being responsible for the ‘harmonising’ reactions. Metchnikoff dubbed the harmonising process ‘physiological inflammation’ (Tauber, 1994b, p. 134). Thus, for Metchnikoff, inflammatory processes were central for establishing organismal identity during embryological development. However, after the discovery of microbes as cause of disease in the 1870s, Metchnikoff recognised the role of the phagocyte in defending the host against invaders (Tauber, 1992, p. 219). He recognised the role of phagocytes in the response to infection. The phagocytes were capable of ingesting and digesting both microorganisms and cellular detritus (waste) (Tauber, 2003, p. 901).

Like Koch, Metchnikoff deployed a belligerent characterisation of the interaction between microbes and phagocytes: '[w]hen internal factors are powerless to prevent the development of morbid germs, a disease is set up; when, on the other hand they resist the invasion of the micro-organisms properly, the organism is in a refractory condition and exhibits immunity' (Metchnikoff, 1905[1901], p. 7, 8). In another work of his, he described how phagocytes 'combat' their enemies on the '*champs de bataille*', the battlefield of infection (Metchnikoff, 1887, p. 328). Metchnikoff argued that the critical (Darwinian) struggle in disease is between species and that the phagocyte had evolved as the principle factor used by the host to combat the pathogenic organism (Silverstein, 2003). In sum, Metchnikoff considered inflammation a process that plays a role in both the embryonic and the adult stage: it is the general process that defines the organism as an embryo and protects it as an adult. Metchnikoff considered establishing organismal identity (later termed the 'self') as the normal or primary activity of phagocytes; the fight of phagocytes against intruders he considered only a secondary effect (Tauber, 1994a, p. 134).

After World War II, with the discovery of autoimmune diseases⁴ and the process of immunological tolerance (the silence of the immune system upon encountering a pathogen), the attention of immunologists shifted to the original Metchnikovian question of how organismal identity was defined. As a result, in 1949, Sir Frank Macfarlane Burnet formally introduced the 'self' into the immunological lexicon (Burnet and Fenner, 1949). Subsequently, the self-terminology was accepted quite rapidly and even assumed an irrefutable status (Tauber, 1994a). In the 1970s, immunology was labelled as the science that discriminates between self and non-self (Burnet, 1969; Tauber, 1994a). Specifically, Burnet claimed that the immune system responds to the infectious non-self and not to the non-infectious self. In other words, the immune system destroys what is foreign (non-self), whereas it 'ignores' or tolerates the normal constituents of the organism (self). The host organism was thus perceived as a delineated or a given identity – following Bernard's ideas of the body as a demarcated autonomous entity – and immune reactivity defined its implicit boundaries (Tauber, 2012a).

Bernard's notion of the autonomous body and the notion of immunity were built on socio-political metaphors; philosophers and social scientists have built on immunology as paradigmatic for modern notions of identity. The body is depicted as the place of battle between the self and the (threatening) other. The warfare metaphors, so prevalent within the lexicon of immunology, dramatically confirm this self/other dichotomy (Tauber, 2012; Haraway, 1991; Martin, 1994).

As will be shown below, Sloterdijk is one of those philosophers who have further extended the notion of immunity. In his philosophy, Sloterdijk develops immunology into an onto-anthropology (see Chapter 5). Before turning to Sloterdijk's *Spheres*, the next section will first elaborate on the 'idea' of immunity

4 A condition in which the immune system attacks and destroys healthy body tissue (see also Chapters 3 and 6).

as a psychological concept as developed by Friedrich Nietzsche, one of Sloterdijk's primary sources of inspiration. Although Nietzsche does not literally use the term 'immunity', his ideas are clearly in tune with the developments in microbiology and immunology of his day. For a clear understanding of Sloterdijk's immunology, it is important to have an insight into Nietzsche's thought as well.

Immunity as a Psychological Concept

In the nineteenth century, with Pasteur, Koch and finally Metchnikoff, immunity became a biomedical concept, acting at the physiological level of the body. Throughout the development of the notion of immunity, medical-biological and political discourses came to be closely entangled. The military metaphors used in immunology have a long history and are closely related to medicine's political commitment in the nineteenth century. The biomedical appropriation of immunity as biological 'self-defence' also illustrates how biopolitics influenced the bio-logic of immune discourse (Cohen, 2004). The works of Nietzsche form an important philosophical parallel to this latter development.

In roughly the same period as the discovery of immunity as a biomedical concept and the development of immunology as a discipline at the end of the nineteenth century, Nietzsche was writing a series of aphorisms depicting the human mind as a kind of mental immune system in philosophical classics such as *Jenseits von Gut und Böse: Vorspiel einer Philosophie der Zukunft* (1886) (*Beyond Good and Evil: Prelude to a Philosophy of the Future*).

Nietzsche considered human consciousness as a protective device that functions as a cognitive filter and plays an important role as the generator of protective or curative illusions (Nietzsche, 1980[1886]). In his book *über Wahrheit und Lüge im außermoralischen Sinne* (1873) (*On Truth and Lies in a Nonmoral Sense*), Nietzsche conceived of consciousness as a shell, which functions to protect the human ego from the sinister and de-stabilising aspects of existence (Nietzsche, 1999). In this view, traditional truths as conveyed by religion, metaphysics and humanism, are protective illusions (Nietzsche, 1980a). These illusions protect individuals from the confrontation with the senselessness and the moral indifference of the universe.

Nietzsche recognised the protective function of thinking. He was ambiguous: the effect of allowing thinking to serve as a protective shell also carries with it self-deceiving aspects. He therefore believed that thinking had to free itself from the need for illusions and comforting or reassuring but false ideas. Nietzsche spoke about philosophising with a hammer, testing the mettle of our ideas and 'demolishing' our comforting ideas (Nietzsche, 1889/2009).⁵ Nietzsche's hammer is not just simply a

5 Similar ideas were subsequently voiced by Sigmund Freud as well, who pointed out that important scientific breakthroughs tend to entail narcissistic offences (Freud, 1917/1947), yet that we must allow our comforting but misguided ideas about ourselves to be challenged by and exchanged for true knowledge, however painful and humiliating this knowledge may be, such as the awareness that we are not at all as rational and autonomous as we like to think.

demolishing hammer (which is a common but serious misreading); rather, the idea of ‘philosophising with a hammer’ contains three elements. The first element is that it involves *testing*. The hammer is the diagnostic instrument of the philosopher as physician. By philosophising with a hammer Nietzsche aims at ‘sounding out idols’ (beliefs, ideals, values, truths) that are believed to be eternal and rule with the power of obviousness. Nietzsche touches the idols with the hammer, which functions as a tuning fork (the unmasking diagnosis). The second element involves *destruction*. The hammer is also an instrument of destruction. By touching the idols with the tuning fork, some will collapse. The destructive element consists in the fact that Nietzsche is of the opinion that idols need to be fought; his philosophy is of a polemical nature. Thirdly, the hammer is the instrument of the sculptor. This involves the *therapeutic* or healing aspect of the work of the physician of culture. Unmasking idols does not result in the appearance of an unveiled truth, an absolute reality. Nietzsche does not speak about a true and good nature, but rather about a ‘revaluation of values’: a re-establishing of values after the former ones have been criticised and overcome. This sculptor is thus not determining the ideal figure of humans, but urges us to constantly perfect or polish our own statue (van Tongeren, 2000, pp. 13–15).

If one follows Sloterdijk’s interpretation of Nietzsche, then Nietzsche aimed to look behind the ‘immunitary’ illusions created by individual and collective imagination, and show that they are illusory hallucinations. For Sloterdijk, Nietzsche’s ideas concerning the protective illusions people cherish in order to be protected from the unbearable truths harmonise with the immunological logic. Therefore, he considers Nietzsche the first ‘immunologist of culture’ (Sloterdijk, 1998, p. 23; Sloterdijk and Heinrichs, 2006, p. 217). For Sloterdijk, Nietzsche has brought about the immunological turn of thinking (Sloterdijk, 1999b, p. 558).⁶

Nietzsche made ample use of the biomedical lens in other contexts as well. In *Der Antichrist* (1889) (*The Antichrist*), he writes about the sick as the secret rulers whose appeal to pity drags the whole of society into decadence and degeneration (Nietzsche, 1980b Band 6, p. 134). In *Zur Genealogie der Moral* (1887) (*On the Genealogy of Morality*), he considers the ascetic ideals of the people that are tamed and dominated by the herd mentality the most threatening ‘disease’ of European culture (Groot, 1991, p. 49; Nietzsche, 1980b Band 5, p. 392). According to Nietzsche, people do not merely suffer from the disease itself, but also from the *attitude* towards the disease that accompanies it, making illness a fatal factor in European decadence, a curse that rested over humanity as such (Groot, 1991, p. 50; Nietzsche, 1980b Band 5, p. 411). The senselessness and moral indifference of suffering was what people struggled with (and still do), and so, a cause for disease was sought, which above all was to attribute a reason and meaning to disease. When there is suffering, Nietzsche argues, the doctor aims to reduce the physical harm,

6 ‘Nietzsche war es, der die immunologische Wende des Denkens vollzog und die Kultur im ganzen als Wettkampf zwischen verharmlosenden und steigernden Impfstrategien zu deuten began’ (Sloterdijk, 1999b, p. 558).

whilst the priest consoles the suffering individual (as a physician of the soul). Priests comfort people with stories about an ‘other-world’, where there is neither suffering nor evil, envisioning a metaphysical heavenly dome as a protective shell. In that way, suffering and sorrow attain meaning in service of a promised pleasure (Groot, 1991, p. 51; Nietzsche, 1980b Band 3, p. 56). Although the belief in an ‘other-world’ could be very alleviating, Nietzsche argues that one had to realise that that ‘other-world’ does not exist. He urges people to look at disease as a moment of crisis and decision, in which the *aporias* of existence become most explicit and tangible. In that moral sense, disease is first and foremost a way towards insight into reality or truth: into the unsustainability of a world of asceticism and of the childlike belief in an ‘other-world’ (Groot, 1991, p. 52).

The basic affinity between biomedical developments as emerging in the second half of the nineteenth century on the one hand and Nietzsche’s ideas concerning cognitive immunisation on the other has also been discerned by Michel Serres (1930). Serres describes this dynamic interaction between scientific developments in biomedicine [*la science de l’hygiène*] and cultural attitudes of purification [*société puritaine*].^{7,8} In his discussion of Nietzsche’s work, Serres points out how the dynamics of infection or contagion constitute an ‘infectious’ metaphor in their own right, that circulates in scientific and public as well as in political discourses (Serres, 1977, p. 173).⁹ He argues that Nietzsche’s work is structured by the same logic of microbiology that dominates the nineteenth-century microbiology of Pasteur and others (Serres, 1977, pp. 173–9).

Serres points out how Nietzsche’s book *The Antichrist* revolves around the dynamics of infection or contagion. He considers Nietzsche’s book even a *vademecum* for microbiology (Serres, 1977, p. 174).¹⁰ Like Pasteur, Nietzsche discovered secret pathogens, microbes, which are not only responsible for the fall of the Roman Empire in the past, but also for the cognitive and physical symptoms from which contemporary culture suffers. Nietzsche notably argues that humans are infected by the ‘parasite of Christianity’. This has caused a widespread

7 ‘Ceci est de la science, mais l’important aujourd’hui, est de dire quel fut l’impact sur le public, de ces recherches. Le monde, tout à coup, fut rempli de petits animaux nocifs. La science de l’hygiène tombait dans une société puritaine, et, tout à coup, l’expérience exacte désignait l’impur’ (Serres, 1977, p. 178).

8 ‘Il s’engraisse de nos terreurs et fait le nouveaux dieux. Le mal est le virus, le microbe, la bactérie, le pollen, tous ces invisible de l’air, il y a des Zeus qui détiennent la nouvelle foudre. Le croisade contre la pollution démobilise toute réunion politique. C’est un beau signe. Les premier témoignages qu’on ait de ce nouvel état des choses sont des œuvre de Freud et Nietzsche’ (Serres, 1977 p. 184).

9 ‘Il est centré sur la dynamique de l’infection ou de la contagion’ (Serres, 1977 p. 173).

10 ‘Le texte est daté par l’âge pasteurien’ (Serres, 1977, p. 174).

infection, even a cultural pandemic (Nietzsche, 2004, p. 159).¹¹ Carriers of this contamination, such as priests and theologians, have transmitted the disease to Western philosophy. Nietzsche writes:

the priest himself is seen as he actually is – as the most dangerous form of *parasite*, as the venomous spider of creation ... We know, our conscience now knows – just what the real value of all those sinister inventions of priest and the church have been and what ends they have served, with their debasement of humanity to a state of self-pollution, the very sight of which excites loathing, the concepts ‘the other world’ ... (Nietzsche, 2004, p. 138)

It is in this spirit that Nietzsche appoints himself as a physician of culture (*Arzt der Kultur*). He claims that microbiological and biochemical categories enable him to diagnose the actual condition of culture. As a result, in Nietzsche’s work the Pasteurian technique of vaccination or inoculation also plays a part, as the one who is able to endure the infection (by the Christian slave morality) and to survive it, becomes *immune* to this threatening and paralyzing cultural epidemic.

Immunity as Philosophical Concept and its Biomedical Foundation

It was not until the 1990s, that immunity truly appeared in political and cultural philosophy as a well-articulated term. Although several philosophers developed immunity into a truly philosophical concept, in doing so, they relied heavily on the biomedical notion of immunity, as will be shown.

From the philosophers studied in the context of this book, the first to use immunological terms was Jean Baudrillard, whose essay *Prophylaxis and Virulence*, later published in his collection *The Transparency of Evil* (1993), draws a parallel between the human body and the social body and describes the irrepressible inclination towards overprotection and purification in all areas of society. Baudrillard employs different biomedical terms for the description of the situation that overprotectionist measures have brought about, such as ‘virulence’ and ‘pathology of disinfection’, amongst others (Baudrillard, 1993, p. 69).

Shortly after, Jacques Derrida appropriated immunological concepts for his philosophical ideas. In his and Vattimo’s essay *Faith and Knowledge* (1995), collected in *Religion* (1998) – a book about the revival of religion, as testified to by a contemporary revival of churches, sects, and religious beliefs in many parts of the world – Derrida writes about immunity, or rather autoimmunity as a philosophical notion, using the notion of autoimmunity to think about the relation

¹¹ ‘The inference of all idiots, women and folk included, that a cause for which someone goes to his death (or which even engenders death-seeking epidemics, like the earliest Christianity) must be something of consequence – this inference has become an unspeakable hindrance to examination, to the spirit of caution and examination’ (Nietzsche, 2004, p. 159).

between religion and technological modernity. On the one hand, religions make use of the communication technologies of advanced industrial society; on the other hand, religion protests against those same developments, which seem to threaten its authority, its 'purity', or its power. Thus, the means of religion's survival form at the same time the risk of its destruction (Derrida, 1998, p. 51).

Derrida explicitly states that his notion of autoimmunity builds on the biomedical notion of autoimmunity. In *Religion*, he states:

It is especially in the domain of biology that the lexical resources of immunity have developed their authority. The immunitary reaction protects the 'indemnity' of the body proper in producing antibodies against foreign antigens. As for the process of auto-immunisation, which interests us particularly here, it consists for a living organism ... of protecting itself against its self-protection by destroying its own immune system. (Derrida and Vattimo, 1998, p. 73 n. 24)

The immunological perspective is also an integral part of Sloterdijk's historical anthropology. In his trilogy *Spheres* (1998, 1999, 2004), he fully develops his immunology, which constitutes the core of his philosophical approach to the *condition humaine*. For Sloterdijk, the concept of immunity applies to a broad range of phenomena, from insurance techniques and security measures to juridical, therapeutic, medical, and biological devices. With the notion of immunisation, he aims to bring bio-immunity, techno-immunity, and political and legal immunity together under one 'umbrella concept' (Sloterdijk and Heinrichs, 2006, pp. 220–21). Although Sloterdijk's immunology comes to full development in the third part of his trilogy, in *Weltfremdheit* (1993), he already opens up an immunological perspective. In that work, he draws the first instigations towards thinking in immunological terms about humans and coming into being. In *Weltfremdheit*,¹² he develops the idea of humans as inherently domestic beings that need to build a safe 'inside', safeguarding them against challenges and threats coming from the outside world (Sloterdijk, 1993, pp. 332–4; Zwart, 2013). In other words, our 'world-openness' is compensated for by a tendency to turn away from the new externalities that are looming on the broadened horizon (unworldliness).¹³ Sloterdijk seems to announce his *Spheres*-project when, in response to his question about where the impulses of worldliness should be directed at a time that admits of neither desert-principle (a psychological readiness to think away the world and its complexities [ten Bos, 2001, p. 9], nor any heavenly shelters, he argues that

12 Usually translated as 'unworldliness'.

13 In this context, Sloterdijk quotes Spengler who argued: 'Es gehört zu den letzten Geheimnissen des Menschen und des freibeweglichen Lebens überhaupt, das die Geburt des Ich und der Weltangst ein und dasselbe sind' (Sloterdijk, 1993, p. 53 quoted from Spengler, O. (1972). *Der Untergang des Abendlandes*. München: Deutscher Taschenbuch Verlag, p. 815).

the answer must be found in a cultural history of modernity.¹⁴ In short, living in self-domesticated spaces is the prelude to what he later (in *Spheres*) terms ‘immunisation’ strategies. In a few scattered instances, he even already employs immunological notions.¹⁵

Sloterdijk also relies on biology for drafting his philosophy. He explicitly states that his spherology is to be understood as a cultural medico-philosophical approach (*Kulturmedizinphilosophischen Ansatz*) (Sloterdijk and Heinrichs, 2006, p. 217). In his view, immunological thinking means that we are no longer practising philosophy in a traditional sense. Rather, what Sloterdijk is practising is ‘biosophy’ (Sloterdijk, 2004, pp. 25, 204). With the notion of biosophy, he points to the idea that philosophy and biology, or more specifically philosophy and immunology, should be combined, resulting in what he terms a ‘General Immunology’ (Sloterdijk, 1999a, p. 161). In the last chapter of his book *Du mußt dein Leben ändern* (2009) (*You must Change your Life*), in which he summarises his ‘General Immunology’, he also explicitly draws the parallel with biological immunity. The social immune system, he argues, refers to ‘supra-organismal cooperative dimensions of human existence’ (Sloterdijk, 2009, pp. 709–10).

In 2002, Esposito developed a philosophy that is completely structured around the notion of immunity. For Esposito, phenomena such as those mentioned in the beginning of Chapter 1 (the protective measures against immigrants, viruses, and terrorists) underscore the decisive development of an immunisation paradigm. Esposito is very much aware of the juridical origins of the notion of immunity and he explicitly links immunity to the theme of community accordingly. Nevertheless, in his analysis of contemporary political culture, he mainly builds on the biomedical immunological notions (including the notion of autoimmunity). The phenomena discussed above, for Esposito, reflect our permanent fear of ‘contamination’ and ‘its uncontrolled and unstoppable diffusion throughout all the productive nerve centres of our live’ (Esposito, 2011, pp. 2–3). Esposito believes that contemporary immunitary measures have actually grown out of proportion, which brings him to a diagnosis of the contemporary biopolitical situation as autoimmune. The immunitary systems are destroying the body politic they were supposed to protect (Esposito, Campbell, and Papparcone, 2006, p. 51; 2013, p. 61).

In 2011, Byung-Chul Han diagnosed contemporary culture as being characterised by a *post-immunological* paradigm. The notion ‘post-immunological’

14 ‘Wohin orientieren sich die monastischen und weltflüchtigen Impulse in einer Ara, die ihrem Selbstverständnis nach weder ein Prinzip Wüste anerkennen noch eventuellen Himmelfahrern Bürgerrecht geben kann? Ich zweifle nicht daran, daß für eine zureichende Antwort hierauf nicht weniger als eine Kulturgeschichte der Modernität nötig wäre’ (Sloterdijk, 1993, p. 110).

15 His remark ‘als seien die kollektiven Immunsystemen inzwischen fast völlig metaphysikresistent’ (1993, p. 215) corresponds with what he later terms the decline of symbolic immunisation strategies under the pressure of processes such as modernisation and globalisation (see Chapter 5).

involves an adaptation to the classical biomedical notion of immunology defined as the science that discriminates self from non-self. In order to convey the idea that society no longer really suffers from the burden of infectious diseases, nor from antagonistic tensions, he employs the notion of *post-immunology*. In Han's view, in contemporary culture, one rather suffers from neurological disorders, such as ADHD, depression, burn-out, etc., which are a result of our culture of performance pressure and highly competitive (working) climate (Han, 2011, 2013).

Conclusion

The contemporary prevalence and use of immunological notions in politics and (political) philosophy is the outcome of a long and complicated history. For more than two millennia, immunity has travelled to different societal realms and undergone corresponding shifts in meaning. In ancient Rome, immunity emerged as a juridical concept, indicating a status of exemption from certain duties or obligations. Subsequently, during the dawn of modernity, immunity emerged as a biopolitical concept. With Hobbes, the notion of immunity as exemption and the idea of immunity as host-defence (the obligation of the state to secure the preservation of the individual) began to become intertwined. In the nineteenth century, with the discoveries of Pasteur and Koch of microbes as 'invaders' of the body, immunity came to function as a biomedical concept, referring to mechanisms for securing the integrity of the human body from intrusions by microbial invaders. During the same period, in the writings of Nietzsche and Freud, immunity appeared as a theme within the psychological context as well, indicating how the mental system functioned as a protective system.

From the nineteenth century onwards – when biomedical understandings of immunity became dominant with the discoveries of Pasteur and Koch – a widespread extrapolation of microbiological concepts to other cultural domains occurred, as underlined by Serres. Taking into account the history of immunity and its prevalent uses in politics as well as philosophy, it becomes clear that the biomedical denotation of immunity has become dominant and has eclipsed its other meanings.

It appears that the contemporary philosophers who are subjects of analysis in this book mainly build on immunity in its biological sense. They transfer and translate the biomedical notion to the political-cultural level. In that way, their notion of immunity or immunisation (most prominently in the works of Sloterdijk and Esposito) brings together the various meanings and dimensions (juridical, political, biomedical, psychological) into one comprehensive view of immunisation as a paradigm of contemporary political culture.

Given the complicated history of the notion of immunity, it could be argued that immunity is actually a 'hybrid', in a sense similar to that intended by Bruno Latour (Latour, 1993). In *We Have Never Been Modern*, Latour dwells on the construction of systems that mix politics, science, technology, and nature. This chapter has

shown how, in the case of immunity, it is also very difficult to keep politics and biology in their separate mental chambers. The biomedical notion appears to be highly influenced by (bio)politics. The military notions as used in immunology as well as the first biomedical definition of immunity as ‘host defence’ testify to this influence. Although (some of) the philosophers reveal awareness of the hybridity of the term, in their usage of immunological notions, they seem simply to adopt the biomedical term and apply that construction in their analyses of culture and the development of their political theories. As a result, their political and cultural theories are themselves built from analogies and immunological terms and metaphors from the science (immunology) that originally took those metaphors from culture (see also Tauber 2012a, p. 103). Later in this book, (Chapters 6 and 7), the limitations that might be involved in the translation of biological notions into philosophical theories will be further explained.

Finally, even though the immuno-philosophers all build on the biological notion of immunity, surprisingly there is virtually no debate between biologists (immunologists) and philosophers on the notion of immunity. Therefore, the question remains of the extent to which the immunological notions as employed by the philosophers could profit from such a debate. Later in this book, it will be shown how political philosophy could profit from recent insights in (biological) immunology. The conceptual surplus present in immunology can be instrumental in deepening the political philosophical analyses (Chapters 5, 6 and 7). Moreover, there is also virtually no debate between the philosophers themselves, all of whom develop their own immunological theories and their own understandings of immunological concepts. The next chapter will prepare for these necessary dialogues by first analysing recent biological insights on the workings of the immune system.

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Chapter 3

Developments in Immunology

Introduction

In the previous chapter, it was shown how the notion of immunity has developed from a juridical notion, to a biopolitical, a psychological, and a biomedical notion. Contemporary philosophical immunological theories build on the biomedical interpretation of immune system functioning. This chapter therefore takes a biomedical *detour* that discusses historical and contemporary insights on immune system functioning. These biomedical insights on the immune system are instrumental in the analysis of the contemporary philosophical immunological theories that will be discussed in Chapters 5 and 6. In those chapters, the extent to which the use of the philosophical immunological terminology corresponds with the immunological interpretations of these terms will be analysed. In this way, it can be assessed how far the immuno-philosophers exploit the conceptual richness of (biological) immunology (see Box 3.1 below for definitions of immunological terms used in this chapter).

The history of (biological) immunology dates back to the discoveries by Pasteur and Koch. Their pioneering work provoked the elucidation of the bacterial aetiology of infectious diseases. Immunology, often defined as the study of host defence, developed together with microbiology, as the study of the offenders. Metchnikoff (1845–1916), a Russian embryologist, is considered the founding father of immunology. As we have seen, he stated that immunological processes had a role in embryological development, and as such in establishing organismal identity. He argued that during embryological development, cell lineages were inherently in a Darwinian conflict for establishing their hegemony, postulating that phagocytic cells served as a ‘police system’ that imposed order on the disharmonious elements of the organism (Tauber, 1999a, p. 462).

In the first half of the twentieth century, however, the issue of the role of the immune system in establishing organismal identity was initially ignored. The role of the immune system in defence against pathogens dominated. Accordingly, within the pathological context, immunology developed as the study of how an organism protects its integrity in the face of pathogenic invasions (Tauber, 1999a, p. 459).

Shortly after World War II, phenomena such as autoimmunity and transplantation biology attracted increased attention from immunologists and clinicians (Tauber, 2012a). As a result, renewed interest was taken in the role of the immune system in the establishment of organismal identity. In this period, Sir Macfarlane Burnet introduced ‘the self’ in the vocabulary of immunology (Burnet,

1949; 1959), defining immunology as the science that discriminates self from non-self. The immune system protected the self from attacks by non-self elements (Tauber, 1994, p. 135).

In the past few decades, the concept of immunity has again been subject to a series of reinterpretations and redefinitions, due to changing views of the meaning and functioning of the immune system. There is increasing evidence that autoimmunity is a process that also takes place in normal (healthy) individuals, without necessarily resulting in disease. In other words, the immune systems also normally reacts against components coded as 'self'. This is one of the phenomena that challenges strict adherence to the self/non-self dichotomy. It is increasingly being recognised that this simple dichotomy is inadequate in capturing the complexity and multi-dimensionality of the immunological repertoire of the immune system. As such, Tauber claims that immunologists increasingly recognise that immunity is something far more complicated than a 'defensive army against destructive invaders' (Tauber, 2008a, p. 272).

For the analysis in this chapter, some of the works from the extensive *oeuvre* of Alfred I. Tauber are reviewed, particularly his works on how the metaphor of 'self' is employed in immunology. Tauber is a medical doctor (haematologist and biochemist) and philosopher of science, who has become an authority on the philosophy of immunology, publishing the first philosophical study of contemporary immunology. In his book *The Immune Self: Theory or Metaphor?* (1994), he sketches out the development of immunology, from its origins to its contemporary formulation. Tauber demonstrates how the term 'self' in immunology is employed in often the same sense as in philosophy. He shows how depictions of immune identity mirror philosophical and psychological conceptions of our very selves. In his work, Tauber shows the complexity (not to argue deficiency) of the self-metaphor in immunology. He is not so much concerned with the metaphor, *qua* metaphor, though he certainly recognises the usefulness of metaphors in science. Nevertheless, he convincingly shows how the self has become an impediment to advancing the conceptual horizon of immunology (Tauber, 2000, 2008, 2008a).

This chapter focuses on the conceptual developments in immunology. More particularly, it focuses on the deficiencies of the self-metaphor as signalled by Tauber and others. The notion of autoimmunity will be discussed in detail, because this notion has been appropriated by several political philosophers and thus appears to be philosophically relevant for the diagnosis of contemporary political culture. The philosophical notion of autoimmunity will be discussed in Chapter 6.

(Re)interpretations of the Biological Immune System: From 1890 to the Present

The biomedical understanding of immunity began in the 1890s with the discovery of Pasteur and Koch that microbes cause infectious diseases (Tauber, 2008a, p. 271). In 1901, Emil von Behring received the first Nobel Prize in Medicine for the first successful immune-based therapy against diphtheria (Linton, 2005).

Immunology became a 'big promise' because of its successes in elucidating both infectious diseases and the immune responses to those infectious agents. Contemporary research continues to focus on the defensive framework of elucidating our understanding of immune responses against pathogens and as such has an important role in the understanding and treatment of communicable diseases.

The intellectual foundation of immunology is attributed to the aforementioned Elie Metchnikoff (1845–1916), a Russian embryologist. He developed a first encompassing theory of organismic integrity (Tauber, 1991). His central assumption was that that immunity is (primarily) a 'definitional' process. In other words, Metchnikoff believed that the earliest 'immune' processes had a role in the guidance of embryological development. These immune activities defined organismal *identity*. Metchnikoff focused on the role of the phagocyte – the so-called 'cell which eats' – which was capable of engulfing particles and destroying the ingesta (Tauber, 1994a, p. 20; Silverstein, 2003a, p. 425).

As we have seen in the previous chapter, Metchnikoff considered phagocytic cells as being primarily responsible for the harmonisation of discordant cellular elements during embryological development (Tauber, 1994b, p. 134; 1999, p. 462). Only later, in the mature organism, did these same phagocytes take their secondary role of protecting the organism against pathological invasions. For Metchnikoff, the immune system thus primarily had a definitional function (establishing identity, which means that such identity is thus not 'given') and it took its defensive role only secondarily (Tauber, 1992, p. 505). He regarded inflammation not only as a general mechanism for combating pathogens, but also as responsible for endogenous activities such as repairing damaged tissue, destroying cancerous cells, for removing senile or effete elements and for monitoring growth processes (Tauber, 1994a, p. 20, 1994a, p. 130).

In the early phases of the development of the discipline of immunology, Metchnikoff's ideas concerning the role of immunity were not adopted. During the first half of the twentieth century, immunologists focused on the study of antibodies as responsible unities for the nature and function of immunity (called 'humoral immunology'). Immunology mainly focused on studying how a host reacts to pathogenic injuries and defends itself against those invasions (Silverstein, 1989, 2003a,b). The study of cell-based immunity, as introduced by Metchnikoff (called 'cellular immunology') was inhibited for half a century (Silverstein, 2003a, p. 426).

Shortly after World War II this changed. As a result of the discovery of autoimmunity (immune reaction to host constituents) and immunological tolerance ('silence' of the immune system upon confrontation with foreign elements), the question of organismal identity – on *what* was actually being defended – regained attention. This development was reflected in the language of immunology: the term 'self' appeared. In 1949, Sir Frank Macfarlane Burnet introduced the 'self' into the immunological lexicon. During the 1950s he fully developed his self-concept in the context of his Clonal Selection Theory (CST) (Burnet, 1949, 1959).

In his theory of self/non-self discrimination Burnet attempted to clearly demarcate the host organism on the one hand, and the foreign exterior on the

other. In his book *Self and Not-Self: Cellular Immunology* (1969) Burnet further explained this self/non-self discrimination. He wrote: ‘The need and capacity to distinguish between what is acceptable as self and what must be rejected as alien, is the evolutionary basis of immunology’ (Burnet, 1969, p. vii). Burnet thus believed that the immune system responds to non-self and not to self (Tauber, 1995, p. 585).

From the Burnetian perspective, components of the immune system and their regulation were therefore defined as a *self-contained* system (Moulin, 1991). The self was conceived as a negative image, i.e., that which incited no response. The Burnetian self, introduced as a metaphor of human personal identity, was consequently understood as requiring protection by the immune system against pathogenic invasions (Tauber, 1994a). By the 1970s, Burnet’s theory had become widely acknowledged. The self turned out to be an appropriate metaphor for deciphering and describing immune functioning (Tauber, 1994a). In this same period, the dominant self/non-self model was, however, also already challenged.

In the 1970s, Niels Jerne (1911–1994), a Danish immunologist, proposed a fundamentally different view on the organisation and functioning of the immune system. Jerne discovered the more complex and non-discriminatory functions of the immune system. As a result, he rejected the self/non-self dichotomy. Jerne disagreed with Burnet who believed that the immune system does not respond to self-elements. He demonstrated that the immune system is actually fundamentally self-reactive. Indeed, the immune system only ‘knows’ itself, and it is the perturbation of the system that causes a reaction. In other words, Jerne argues that an immune reaction does not take place in response to the ‘foreign’ but in response to disturbance of the system itself (Tauber, 2000, pp. 243–4). In Jerne’s view, the immune system could not be exclusively regarded as a defence force (Tauber, 2000, pp. 243–5). Nevertheless, the idea that the immune system refers to the organismic capacity to distinguish self from non-self still is still the dominant view and paradigm within immunology. Today, many practising immunologists still characterise their discipline as ‘the science of self/non-self discrimination’ (Tauber, 1999a, p. 459), affirming the crucial formulation introduced by Burnet. This is illustrated, for instance, by the definition of the immune system in a contemporary handbook entitled *Immunology for Medical Students* (Nairn and Helbert, 2007):

The immune system is the body’s primary defense system against invasion by microbes. ... The immune system as a whole distinguishes *self* from *non-self*. It is able to cope with the great diversity in *non-self* structures by anticipating these different structures (foreign antigens) and creating a diverse repertoire of antigen receptors or antigen-recognition molecules ... (Nairn and Helbert, 2007, p. 3)

The self/non-self dichotomy as introduced by Burnet was specifically useful for infectious diseases. From that perspective, alien pathogens (be it bacteria, viruses or parasites) are figured as ‘invaders’ against whose invasions the ‘defence forces’ of the immune system conduct their ‘wars’ (Cohen, 2004; Greenspan, 2007; Tauber, 2003;

Box 3.1 Definitions of biological terms*

Immunology: The branch of science concerned with the structure and function of the immune system.

Virology: The branch of science concerned with the study of viruses.

Immune system: The immune system comprises an interacting assemblage of cells and soluble molecules, whose primary function is to kill the invading microorganisms that may cause damage to the body. Two interdependent kinds of immune systems are present in most vertebrates:

An **innate** system, mediated by receptors that recognise uniquely microbial structures, responds rapidly to the threat of invading organisms. This underlies an adaptive system, mediated by antigen receptors on lymphocytes, which produces a more sustained and comprehensive response. Only the **adaptive system**, found exclusively in vertebrates, retains a memory of exposure to each microbe and ensures that the system is mobilised more rapidly on a subsequent infection by the same pathogen.

Phagocyte: A cell that can incorporate and store or break down solid particles (bacteria, other cells, foreign material, etc.), mobilised by the innate immune system.

Antibody: Any of the proteins, naturally present in the body or produced in response to the introduction of an antigen, which react with specific antigens.

Autoantibody: An antibody produced against a constituent of an organism's own tissues.

Antigen: A foreign substance which, when introduced into a living organism, stimulates the production of an antibody.

Pathogen: A microorganism that causes disease.

Angiogenesis: The development of new blood vessels.

Autoimmunity: The occurrence or development of an immune response against a normal constituent of the body.

Tolerance: Tolerance refers to the specific immunological non-reactivity to an antigen resulting from a previous exposure to the same antigen. While the most important form of tolerance is non-reactivity to self antigens, it is possible to induce tolerance to non-self antigens.

T and B lymphocytes: White blood cells: the effector cells of the adaptive immune defence system.

Cytokines: Messenger molecules that mediate the connection between the innate and adaptive immune system.

* The definitions are copied from the Oxford English Dictionary Online or the Wiley Encyclopedia of the Life Sciences.

Tauber and Chernyak, 1991). Philosophers use biological immunological concepts to illustrate political processes, immunologists in their turn use concepts from military strategy to illustrate immunological processes (Cohen, 2003). Apart from the persistent presence of military metaphors in the immunological lexicon, the ‘self’ also appears to have achieved an incontestable status in immunological discourse. This is not because it is a precise scientific term, but because it resonates with our understanding of core identity: the organismic foundation of an organism, which the immune system must defend. Nevertheless, some developments within immunology have challenged the parameters of selfhood (Tauber, 2000, 2008, 2008a).

Deficient Dichotomies and Autoimmunity

For some decades, the immune self was represented as a ‘fortress’ from which attacking lymphocytes could attack and destroy invaders. From the 1990s onwards, an increasing number of immunologists have realised that conceiving of the immune system as a well-demarcated fortress offers an over-simplified and naïve portrayal of the immune self. The immune self has appeared to be permanently challenged and changing in response to both internal and external environmental factors in a highly dynamic fashion. Transplantation biology, tolerance of foreign elements, and autoimmune processes have caused some immunologists to critically reflect on the usefulness and applicability of the discriminatory self/non-self model as the basis of the immune function.

Autoimmunity and Tolerance

Autoimmunity and tolerance can be considered as two sides of the same proverbial coin. Autoimmunity refers to a situation in which the immune system attacks what is regarded as self (by the outside observer). In the case of tolerance, the immune system ignores (tolerates) the host or – as it has turned out – even foreign components (Tauber, 2012a).

Burnet initially invoked the idea of immunological tolerance in order to explain how the immune system distinguished self from non-self. He defined the self as that which the immune system ignored. In other words, he understood tolerance as the negative image of the self (Tauber, 1995, p. 585), but tolerance has proven to entail much more than simply passive ‘silence’ or non-reactivity (as presupposed by Burnet). Tolerance has proven to involve a more complex balance of responses. Moreover, the immune system has also appeared to ignore (tolerate) foreign components. Accordingly, in the case of tolerance, one could argue that host constituents and foreign elements obtain a ‘*co-equal* status’ within the organism (Tauber, 2012a).

Autoimmunity involves an immune reaction against the normal constituents of the host. This reaction can – but does not necessarily – result in (autoimmune) disease. In recent years scientific evidence has proved that autoimmunity is

actually part of a complex normal physiology. In other words, it is a process that is also present in healthy individuals. The immune system routinely and normally also reacts to both normal and abnormal host elements. This can range from the clearing away of senescent, damaged or dead cells to surveillance for malignancies. Immunocytes and their products have appeared to survey and contribute to normal body economy (Tauber, 2008b, p. 227; Cohen, 2000).

These self-directed immune responses of autoimmunity and tolerance have challenged the notion of a 'one-directional' (directed at non-self only) schema of immune reactivity, which posits a demarcated self (and its constitutive agents) that only detects and attacks foreign or non-self components (Tauber, 1998, 2000, 2008; Greenspan, 2007; Cohen, 2000). The process of autoimmunity and a deeper understanding of the complexity of the process of immunological tolerance (tolerance is more complex than simply 'silence' of the immune system) have alerted immunologists to the ambiguities of immune selfhood. It has been shown that the immune system structurally (and normally) ignores 'foreign' components. This proves that the immune system thus actually operates in a bi-directional mode (against self and non-self components). The self/non-self division apparently has a blurred border. As such, the self appears to be polymorphous and cannot be clearly defined (Tauber, 2012a).

Symbiosis

Another phenomenon that challenges or even transcends the self/non-self dichotomy as the organising model of immune functioning is symbiosis. Symbiosis refers to interactions of animals (including humans) and plants with microorganisms throughout the animal kingdom. This insight has disrupted the idea that the individuality of organisms is secured by (firm) boundaries. Thus, animals (including humans) cannot be considered individuals based on anatomical or physiological criteria. A diversity of symbionts plays a role in metabolic pathways and other physiological functions (Douglas, 2010; Gilbert, Sapp, and Tauber, 2012a). Acknowledging the significance of symbiosis, one could argue that 'organisms are always already "invaded"' (Tauber, 1999a, p. 514), thus challenging the use of military metaphors in the field of immunology. The following four examples are illustrative of the omnipresence of symbiotic relations, and as such grounds for adjusting the immunological repertoire, as will be shown below:

First, the individual's immune system itself is in part created by the microbial symbionts (Gilbert et al., 2012, p. 87). In vertebrates, for example, bacterial symbionts have a role in the specification and organisation of the gut-associated lymphoid tissue. Without the presence of symbiotic microbes within the gut, the immune system and the organism's metabolism would not function properly, and the repertoire of the immune system would be significantly reduced (Tauber, 2012b, p. 102).

Secondly, defence against infection does not always depend on immediate destruction of the infectious agent. For a healthy body, the immune system

exchanges signals with the normal flora (and with the ‘normal’ viruses), and allows the organised existence of these ‘normal’ parasites within the organism. Thus, the immune system maintains ‘normal’ parasites (normal flora) as part of the healthy body. These ‘normal’ parasites can even have a function in infection prevention because they pre-emptively occupy niches within organisms that could otherwise be taken by more virulent pathogens (Cohen, 2000).

Thirdly, biologists have discovered that about eight per cent of our DNA consists of viral DNA (Varela, Spencer, Palmarini and Arnaud, 2009). Some of these so-called endogenous retroviruses have been proven to play a critical role in placental development and protect us against infection from related pathogenic and exogenous retroviruses.

A fourth phenomenon involves the ecological role of viruses in aquatic environments. Recent studies have revealed that natural waters contain a very high number of viruses: there are billions of viruses to be found in a teaspoon of seawater. These concentrations indicate that virus infection is an important factor in the ecological control of planktonic microorganisms. Viruses are responsible for the mediation of genetic exchange among bacteria in natural aquatic environments (Bratbak and Heldal, 2000; Bergh, Borsheim, Bratbak and Heldal, 1989).

In sum, the relation between humans and microbial and viral life is one of inescapable co-evolution. The work of the American biologist Lynn Margulis (1938–2011) centres on this issue, stating that we are literally the products of long-standing alliances between bacteria, viruses and our own cells (Margulis, 1997). These symbiotic developments are well captured in a quote from Pearson: ‘[a]n essential part of the history of symbiosis will be to formulate germs not simply as “disease-causing” but as “life-giving” entities’ (Pearson, 1997, p. 134). In immunological terms, all these symbiotic relationships illustrate the fundamentally dialectical relationship between self and other: without ‘others’ there would be no ‘self’.

Ecological Immunology

Nowadays, there is broad consensus among experts concerning the importance of the ‘context’ of immune reactivity. The context of the immune responses determines the various degrees of immune reactivity or dormancy. It appears that an antigen is neither a priori self nor a priori non-self. It only attains its ‘meaning’ as the one or the other within a particular context. In other words, the immune system does not react to an antigen based on its intrinsic foreignness. Whether an antigen is perceived as ‘self’ or as ‘non-self’ is determined in the larger context of the immune response (Tauber, 2000, p. 241).

In 1994, Polly Matzinger, a French immunologist, proposed a different explanation of how the immune system works. Matzinger rejected the idea that the immune system involved a system that was merely concerned with protecting a circumscribed self. Her theory came to be termed the ‘danger model’ (Matzinger, 1994). Matzinger refuted the idea that an organism needed to be conceived of as

distinct from its environment, arguing that the immune system is not concerned with discerning self from non-self. Rather, she argued that the immune system is primarily concerned with detecting and protecting against danger. More importantly, she claimed that the immune system does not do this job alone, but receives positive and negative communications from a large network of other bodily tissues (Matzinger, 1994). Accordingly, Matzinger proposed to modify the self/other dichotomous model and complement it with an 'ecological' sensibility that emphasises the interchange between the organism and its environment (Tauber, 2008a, 2008b). She proposed a contextualist schema of immune system functioning and claimed that the immune system is intricately connected with other cells and tissues, with which it cooperates. In her view, immune reactivity is directed by the cooperation of lymphocytes, antigen-presenting cells, and other tissues (Tauber, 1999, p. 468).

This more holistic consideration of immune regulation (called ecological immunology or ecoimmunity) recognises the importance of the context of immune reactivity and its 'dialogue' with this wider context (Tauber, 2012a; Pradue, 2012). This way, the self, conceived of as insular and having borders, is reconceived as a cooperative participant in an ecological economy. As a result, the defensive interpretation of immunity (i.e., self posed against an invasive other) is shifted to a more complex and contextual one. From the ecological perspective, the firm dichotomy is seen as an obstacle to a more complete understanding of the organism in its dialectical interchanges with the world. The dichotomous scheme limits the understanding of the versatile immunological repertoire (Tauber, 2000; Greenspan, 2007). Not only Tauber, but also other immunologists are critical of the reigning dichotomous schemes in immunology. Greenspan, for example, an immunologist at Case Western Reserve University, points to the problems that arise when using a dichotomist scheme to conceptualise a physiological entity as complex as the immune system. He argues that although the use of metaphors is almost inevitable and often valuable in immunology, it is equally important to be conscious of the limitations of any particular metaphor (Greenspan, 2007, p. 7). With regard to the use of metaphors in science, he refers to the advice offered by Arturo Rosenbluth and Norbert Wiener: '[t]he price of metaphor is eternal vigilance' (Lewontin, 2001, p. 1264).

Parallel to the 'symbiotic turn' in immunology, which propagates a more ecological perspective, comparable voices can be traced in virology as well. For example, Singh argues for an ecological perspective on infectious diseases. He claims that we should stop regarding microbes only as invading entities that should be fought with antibiotics, or as tools for biological attacks. In his view, new infectious diseases are a product of our modern way of life. The increase in international mobility, high population density and overcrowded cities, intensive food production, and global climate change, amongst other factors, are important elements in the emergence, maintenance, and spread of new infectious diseases. These factors also allow the resurgence of older infectious diseases such as cholera, tuberculosis, and malaria (Singh, 2004).

In retrospect, the understanding of the immune system as a defence system that protects a delineated self seems rather simplistic. The self can only be identified in relation to its environment. The identity of the immune self is constantly changing in response to encounters with pathogenic and non-pathogenic substances (Pradeau and Carosella, 2006). Tauber has emphasised the importance of an ecological perspective on immune system functioning in his work, writing that the ‘expanded ecological perspective (‘ecological immunology’) seeks to account not only for how the individual organism copes with the risks of living in a hostile environment, but also for how it participates in a community with other entities that contribute to its welfare’ (Tauber, 2008, pp. 272–3).

In sum, the processes of autoimmunity and tolerance, the abundance of symbiotic relationships, and the importance of context in immune system functioning (ecological immunology) involve four phenomena that underline the importance of broadening the understanding of immune system functioning. The immune system is not only involved in offensive interactions, but also in cooperative and tolerant ones. This complex (bi-directional) behaviour has called the parameters of immunity into question. Tauber argues that the atomistic defensive model that dominated immunology for over a century must be expanded and must include accounts of not only aggressive but also of cooperative and tolerant interactions. From this view, Tauber contends that ‘immunity’ has actually functioned as a ‘semantic trap’ that has narrowed the understanding of the immune system, over-emphasising its defensive functions (Tauber, 2008a, p. 273).

The next section will focus on the notion of autoimmunity. There are two reasons to do so: firstly, because this phenomenon seems to be the most important feature that violates the ‘categorical imperative’ of immunity, to protect the self against a threatening ‘other’; secondly, because autoimmunity and autoimmune disease are two biological processes, which have been appropriated by numerous political philosophers for their analyses of political dilemmas, as will be shown in Chapter 6. A proper understanding of the biomedical notion of autoimmunity is a prerequisite for a fruitful analysis of the philosophical immunological theories.

Autoimmune Disease and Autoimmune Protection

Autoimmune Disease

Processes of autoimmunity take place in every human (and in all other vertebrates for that matter). Autoimmune processes are usually harmless and probably a universal phenomenon of vertebrate life. At the same time, autoimmunity can be the cause of a broad spectrum of human illnesses, known as autoimmune diseases.

The concept of autoimmunity as the cause of human illness is relatively young. Although Paul Ehrlich (1854–1915) – a German physician who worked in the fields of haematology, immunology and chemotherapy – had already described the process of autoimmunity in 1901, it took about 60 years before it was officially

acknowledged by the discipline of immunology. Ehrlich described an inhibitory effect that he named '*horror autotoxicus*':

the organism possesses certain contrivances by means of which the immune reaction, so easily provoked by all kinds of cells, is prevented from acting against the organism's own elements and so giving rise to autotoxins ... so that we might be justified in speaking of a *horror autotoxicus* of an organism. These contrivances are naturally of the highest importance for the individual. (Ehrlich, 1957, p. 298)

Although Ehrlich acknowledged autoimmunity as a theoretical possibility, he argued that in real life it could not happen: autoimmunity was 'dysteleological' so that 'contrivances' had to exist to prevent immune reactions from harming the body itself (Mackay, 2010). Thus, the true meaning of the '*horror autotoxicus*' was not that antibodies against the self could not be formed but that they were prevented 'by certain contrivances' from exerting any destructive action. As a result, immunologists were unconcerned with autoimmunity for quite some time despite increasing incidence of autoimmune diseases (Silverstein, 2001; Mackay, 2010, p. A251).

By the early 1960s, resistance to the idea of autoimmunity had decreased, and the study of autoimmunity and autoimmune disease was taken up in the mainstream of immunology (Mackay, 2010; Dameshek, Witebsky and Milgrom, 1965). Currently, between 60 and 70 illnesses are considered autoimmune conditions. They can affect many different tissues of the human body (Greenspan, 2007). Examples of autoimmune illnesses include: Type 1 Diabetes mellitus, multiple sclerosis, rheumatoid arthritis, ulcerative colitis, inflammatory bowel disease (Crohn's disease), and psoriasis.

In current medical literature, autoimmune diseases are defined as the progression from benign autoimmunity to pathogenic autoimmunity (Rose and Bona, 1993). Both genetic influences and environmental factors play a role in this progression. Autoimmunity involves an immune response with specificity for self-antigens, thereby producing antibodies (in this case called autoantibodies, see Box 3.1) and so-called T cells. The produced autoantibodies are directed at normal cellular components, referred to as autoantigens. Most healthy individuals produce some autoantibodies, although the levels of these autoantibodies are very low. They can only be detected by sensitive tests (Nairn and Helbert, 2007, p. 214).

In *Immunology for Medical Students* (2007), autoimmunity is portrayed as a kind of *hypersensitivity reaction* that can occur in response to: (1) infectious agents, such that autoimmunity constitutes an overreaction to infections in which the immune response itself contributes to the symptoms of infections; (2) environmental substances, such as *allergy* to grass pollens for example, where the immune response to pollen causes harm (hay fever); (3) self antigens, where normal host molecules trigger immune responses, referred to as autoimmunity. In all three cases, it is the immune response itself that causes the harm (Nairn

and Helbert, 2007, p. 196). In other publications, it is described as an immune system that *goes awry*: ‘The healthy human body is equipped with a powerful set of tools for resisting the onslaught of invading microorganisms (such as viruses, bacteria, and parasites). Unfortunately, this set of tools, known as the immune system, sometimes *goes awry* and attacks the body itself’.¹ However, it appears that the same autoimmune T cells that cause a disease in one context can help to repair the body in another context. This process is called autoimmune protection (Schwartz and Cohen, 2000).

Autoimmune Protection

From the perspective of the self as point of reference, immunologists consider defence as being directed outward, while maintenance is directed inward. A maintenance system has a role in examining and repairing the self. The immune system appears to be a major player in this so-called body maintenance. The products of the immune system, such as cytokines, antibodies, chemokines, and adhesion molecules, are involved in body maintenance. They regulate wound healing, angiogenesis, connective tissue formation, apoptosis, tissue regeneration, and so on. (Cohen, 2000, p. 215). For example: there is scientific evidence that so-called autoimmune T cells have an important role in the maintenance of the central nervous system, protecting it against secondary degeneration after traumatic injury. At the same time, however, these same autoimmune T cells can also be the agents of a central nervous system disease. The intensity and the timing of the autoimmune inflammation determine whether it has a protective or a pathogenic effect, whether it results in autoimmune protection or in autoimmune disease (Cohen, 2000; Schwartz and Cohen, 2000; Schwarz et al., 1999).

Healthy individuals are naturally populated with autoantibodies and autoimmune T cells, called ‘natural autoimmunity’. In principle, autoimmunity regulates itself to prevent autoimmune disease. In other words, autoimmune disease is often the result of the dysregulated activation of natural autoimmunity. Furthermore, tumour antigens often involve normal self-antigens, and tumour immunity is thus mostly autoimmunity (Cohen, 2000, p. 216). These observations on the dual role of autoimmunity have consequences for the idea that the immune system is concerned with self/non-self discrimination. They once more underscore the idea that the immune system recognises antigens, but not on the basis of self-ness or foreignness. The immune system is sensitive to the context of the antigens, and regulates the immunological repertoire according to the need of the situation (Cohen, 2000, pp. 216–17). In other words, the healthy immune system recognises both self-antigens and foreign antigens, without class discrimination. In short, the immune system appears not to be concerned with discrimination (and verdict) between self and non-self, but rather with judgement and dialogue (Cohen, 2000, p. 215).

1 Definition from Autoimmune Disease Research Center, Johns Hopkins Medical Institution.

Conclusion

To prepare for a proper understanding of the philosophical theories that will be discussed later in this book, this chapter has taken a biomedical detour on recent developments in immunology as a biomedical discipline. The typical historical account of immunology as a clinical science is determined by its close connection with the elucidation of the aetiology of infectious diseases. Immunology began as a study of how a host organism defends itself against pathogenic invasion. In that pathological context, immunology came to be defined as the science that discriminates between self and non-self. This hostile confrontation between self and non-self – including the military metaphors that are often used in medical immunological discourse – is still the archetypical description (Tauber, 1999b, p. 526). Nevertheless, there are several phenomena that have challenged this ‘one-directional’ schema of immune reactivity.

Immunologists have increasingly realised that the depiction of the immune self as a fortress from which lymphocytes attack and besiege invaders is naïve and inadequate. The immune self appeared to be an constantly changing entity. Hence, the drawing of neat boundaries between ‘self’ and ‘other’ is problematic. Processes like symbiosis, tolerance, and autoimmunity have pointed immunologists to the importance of the context for immune functioning. The context of the immune response is an important determinant of the character of the immune object, not its foreignness *per se*. The physiological role of any antigen or cytokine is not determined by simply binding to its receptor, but is determined by a larger context. The extracellular milieu of the lymphocyte appears to be a critical determinant. Moreover, that larger context encompasses ever-increasing domains (tissue, organism, external environment) (Tauber, 2008b, p. 240). This so-called ‘ecological perspective’ or holistic consideration of the immune system shifts the focus from a self-centred defensive perspective to a more contextual scheme of immune regulation.

Ecological immunology emphasises the interchange between the organism and its environment. It contextualises the immune responses within the larger environment in which they take place (Tauber, 2008a). Nevertheless, this ecological approach is still in its infancy and its ramifications still do not find wide support; because immunology developed in the context of defensive functions, the ecological perspective has been eclipsed by the prevailing worries about pathogenic threats (Tauber, 2008b, p. 228). The most prevalent representation of immunity in everyday parlance, in the scientific and the philosophical community (as will be shown in Chapters 5 and 6), is still based on the traditional idea of a body’s defence system against foreign (other) elements that threaten the physiological and functional integrity of the body (politic) (self) (Tauber, 1999b, 2012, 2012a, p. 103).

In sum, the conceptions of selfhood and immunity in biomedical discourse have clearly changed. The awareness of the importance of autoimmunity as a key component in the ‘normal’ dynamics of immunisation – i.e. the protective function of autoimmune processes – is one of the phenomena that has contributed to this

reconceptualisation of selfhood and immunity. Given these reconceptualisations – including the awareness of the productive role of autoimmunity – the next question concerns the extent to which these insights are reflected in philosophical immunological discourse (Chapters 5 and 6). Chapters 5 and 6 will deal with the question of how far the philosophical ideas reflect the complexity and versatility of the biological immunological notions as explained in this chapter.

Before turning to the political philosophical immunological theories, in the next chapter, the immunisation strategies against some recent viral threats will be studied. It will be investigated whether the conceptual developments in immunology, including the ecological approach to immunology, are also reflected ‘in practice’, in the immunisation response against viral threats. The response against viral threats is a perfect case example for both our biomedical and political view on immunisation, since it embodies the intricate entanglement between biology and politics.

Chapter 4

Immunisation against Viral Threats¹

We study health, and we deliberate upon our meats, and drink, and ayre, and exercises, and we hew and wee polish every stone, that goes to that building; and so our Health is a long and regular work; But in a minute a Canon batters all, overthrows all, demolishes all; a Sickness unprevented for all our diligence, unsuspected for all our curiositie ...

(Donne, 1627, p. 7).²

Introduction

Throughout history, mankind has repeatedly fallen victim to dreadful epidemics or pandemics that have claimed the lives of millions over the centuries; from the ‘plague of Justinian’ dating back to the Roman empire, via ‘the Black Death’ in the Middle Ages, to the ‘Spanish flu’ in 1918, the ‘Asian flu’ of 1957 and the ‘Hong Kong flu’ of 1968 (Zanetti and Zappa, 2010). By the 1970s it had become common to believe that infectious diseases were declining and would be soon eliminated through medical progress. This optimistic view appears to have been naive. In the past few decades, the world has been confronted with several (sometimes severe) infectious threats (Zanetti and Zappa, 2010). Scientists now agree that new viral strains will emerge and continue to puzzle scientists, presenting challenges to the public health of future societies (Cohen, 2000; Medina and Garcia-Sastre, 2011; Sasseti and Rubin, 2007).

In April 2009, a new influenza virus emerged in the United States and Mexico. In the weeks that followed, the ‘Mexican flu’ (later called the ‘H1N1 Swine flu virus’, named after the subtype numbers of its haemagglutinin (H) and neuraminidase (N) surface antigens) spread rapidly around the world. On 11 June 2009, the World Health Organisation (WHO) officially declared the

1 Adapted from a journal article, which was published as: One health approach as counter-measure against ‘autoimmune’ responses in biosecurity, *Social Science & Medicine*, 129: 123–30, Elsevier, 2015.

2 This is a quote from the metaphysical poet John Donne (1572–1631). In his prose aria on illness, *Devotions upon Emergent Occasions*, written when he thought he was dying, he describes illness as an enemy that besieges the body-fortress. In Donne’s imagery, it is the illness itself that invades us. It was not before the nineteenth century that microorganisms were recognised as the invaders that cause the illness. In that period, military metaphors soon caught on (Donne, J. (1975[1627])).

first flu pandemic of the twenty-first century (Butler, 2010a; Chan, 2009). This outbreak and its rapid spread across the world revived the debate on protection against infectious diseases. The Swine flu pandemic will not be the last disease to hit mankind. Rather than zooming in on the medical specificity of the virus, this chapter focuses on how the recent pandemic has influenced the scientific and socio-political debate on protection against infectious diseases.

The response to the Swine flu pandemic was characterised by substantial ambiguity, on the socio-political as well as the scientific level. In various publications, in mass media and in scientific journals, the severity of the threat, and of the accompanying protection measures considered necessary were stressed by referring to the dreadfulness of the 1918 Spanish flu pandemic (Barry, 2009). At the same time, other people (including scientists) were much more cautious and argued that the pandemic would not be that severe (Editorial, *Nature*, 2009; Reporter, BBC News, 2009). In this chapter, the 'immunisation measures' taken in response to viral threats will be analysed and problematised (see also, Collier and Lakoff, 2008, p. 27).

The second event that will be examined is the disturbance caused by the fabrication of a mutant Avian influenza virus (Butler, 2011). In view of a potential future Avian flu pandemic, virologists have succeeded in fabricating a mutant version of the Avian flu that is capable of transmission between humans, in order to gain greater insight into flu evolution, and to prepare the production of future vaccines and antiviral medicines. This preventive approach has the downside that such lab-bred viruses could escape from the laboratory or be abused by terrorists.

To come to terms with the 'medical-political immunisation response' to these recent viral threats, Sloterdijk's trilogy *Spheres* (1998, 1999, 2004) may serve as an instrument to analyse and assess the 'immunisation response' to both the Swine flu pandemic and the Avian flu threat. In his 'Immunology of Spheres', Sloterdijk uses immunological concepts to analyse and assess the current biopolitical situation. He draws a parallel between the immune system on the biological level and immune systems on socio-political and cultural levels. By building on this analogy between the biological immune system and 'immune responses' on the socio-political level, this chapter shows how an immunological framework can be fruitful for grasping (assessing and reconceptualising) the response to infectious disease threats. The analysis will illustrated with quotations from articles published in *Nature* and *Science* (news and opinion articles and editorials) that deal with these two threats. The 'Sloterdijkian' analysis³ will be supplemented with the views of the American cultural critic Susan Sontag, drawing primarily on her notion of apocalyptic discourse, as reflected in her commentary on the AIDS pandemic in the late 1980s (notably in *AIDS and its Metaphors*, 1988). Finally, conclusions will be drawn regarding these latest developments concerning

3 To analyse the scientific (biomedical) and political response to both the Swine flu pandemic and the Avian flu threat two notions from Sloterdijk's 'Immunology of Spheres' (1998, 1999, 2004) will be borrowed: his notion of 'immunisation' and 'explication'.

immunisation strategies against infectious diseases and regarding the underlying view on viruses and immunisation that these developments embody.

The Virus

The immunisation strategies against viral threats are, perhaps not surprisingly, tightly coupled with the image and understanding of the virus in general. In the course of history, the conception of the virus underwent some remarkable changes. Nowadays, a virus is considered to be a small infectious agent composed of RNA or DNA genomes surrounded by a protein shell called a capsid. It can only replicate inside the living cells of organisms. In doing so it can affect the behaviour of its hosts profoundly. Viruses are the smallest and most abundant type of biological entity and can infect all types of organisms, from animals and plants to bacteria and archaea (Breitbart and Rohwera, 2005). There are an estimated 10^{31} viruses on earth (Suttle, 2007) and they can be found in almost every ecosystem on earth. This unfathomable totality of viral diversity is called the 'virosphere' (Suttle, 2007, p. 801). The current debates on looming viral threats and the immunisation measures deemed necessary make us forget that until late in the nineteenth century, viruses were an invisible mystery.

The word 'virus' has its roots in the Latin term for 'poison or slime venom' (Online Etymology Dictionary). For many centuries, 'virus' was a term that was widely used for any poisonous or venomous disease-inciting agent. In the 1860s and 1870s, Pasteur demonstrated that life does not originate spontaneously, but needs germs from which to develop. In this period, the virus was initially ignored and eclipsed, due to the emphasis on microbes. Koch (1876) demonstrated convincingly that infections by microorganisms are the cause of contagious diseases. He showed how disease could be reproduced by cultivating microorganisms in or on artificial media and then back-inoculating the pure culture into a healthy susceptible host. Koch's methods appeared very successful and his theory gradually became known as 'Koch's Postulates'. As a result, bacteriology began to dominate the study of disease (Bos, 1999; Bos, 2000, p. 82). The 'Koch Postulates' were even converted into dogma. In that period, viruses were basically seen as microbes: '*tout virus est un microbe*' (Pasteur, 1890). Towards the end of the nineteenth century, however, phenomena were discovered that conflicted with these ideas.

In 1898, Martinus Willem Beijerinck postulated the existence of an entirely new pathogen that caused the Tobacco Mosaic disease. Beijerinck discovered that it was not a microorganism that caused infection with this disease, but that infection was caused by what he thought to be a non-corpuscular (i.e. non-cellular) entity, which he named *contagium vivum fluidum*. In his paper, Beijerinck refers to the disease-causing agent as 'contagium' or, more often, as 'the virus'. Furthermore, he clearly indicated that the virus was both filterable (which implied that it was much smaller than a microbe) and was not able to grow independently of the host's metabolism. As such, Beijerinck believed that he was dealing with an

autonomous sub-microscopic (that is, subcellular) form of life (Bos, 2000, p. 83). As a result, the prevailing theory that ‘all viruses are microbes’ was changed into ‘a virus is not a microbe’. However, in those days opinions differed widely on the exact nature and properties of the pathogen. While Beijerinck stressed the non-organised, non-cellular but *living* nature of the new pathogen, others – the German geneticist Erwin Bauer (1876–1933), for example – emphasised their merely *chemical* nature (Bos, 2000, p. 84).

During the following three decades, the true nature of viruses remained obscure. Viruses were increasingly compared with enzymes. The problem was that they could only be studied indirectly, through their transmissibility and the effects they induced on their host. The discovery of a rapidly increasing number of viral diseases, particularly during the 1920s, increased the urge for elucidation of the intrinsic properties of the disease-causing agents (Bos, 1999, p. 682). The development of the discipline of virology, however, remained embryonic. This did not change until 1935, when viruses became subject to study and isolation *in vitro*. A number of chemical approaches were developed which resulted in the understanding of viruses as truly physiochemical entities. This was complemented later with the discovery of their role as genetic entities. Thus, molecular biology was developing, yet, it was not until 1967, with the introduction of electron microscopy, that the understanding of the phenomena of viral existence could be refined (Bos, 1999, p. 682).

After Beijerinck’s discovery in 1889, it took another 40 years for science and technology to develop the methodology and technology required for the unambiguous characterisation of viruses (Lederberg, 2000). In the end, they were characterised as non-cellular, small packages of non-host genetic information, and as obligate parasites because they lack any physiological machinery of their own. Viruses appeared to lead a ‘borrowed life’ (Laidlaw, 1938). Finally, the long-lasting controversy over whether viruses were living or non-living could be reconciled. Viruses exist at the ‘fringes’ of life, as Beijerinck’s successor Albert Kluyver brilliantly expressed it (Kluyver, 1937). Kluyver argued how, in their design and function, viruses really are ‘*at the threshold of life*’ (Fraenkel-Conrat, 1962). Today, viruses are still thought of as representing a grey area between the living and the non-living.

Soon after Beijerinck published his paper, in 1900, Louis Raemaekers drew a cartoon (Figure 4.1), in which Eduard Mayer (1843–1942) (Beijerinck’s predecessor, on whose observations Beijerinck built) was depicted as Goethe’s Dr Faust with Mephistopheles, the symbol of temptation and evil, in the background. It portrays the concerns raised by Mayer’s and Beijerinck’s tinkering with phenomena at the threshold of life. Moreover, this cartoon shows that the public dispute concerning virology is as old as virology itself and had already begun when virology was still in its embryonic state.

Raemaeker’s cartoon is an artistic exploration that illustrates what the future could have in store for us. It seems more topical than ever, and as such has proven to be a visionary and anticipatory work. In those days, biotechnology, including

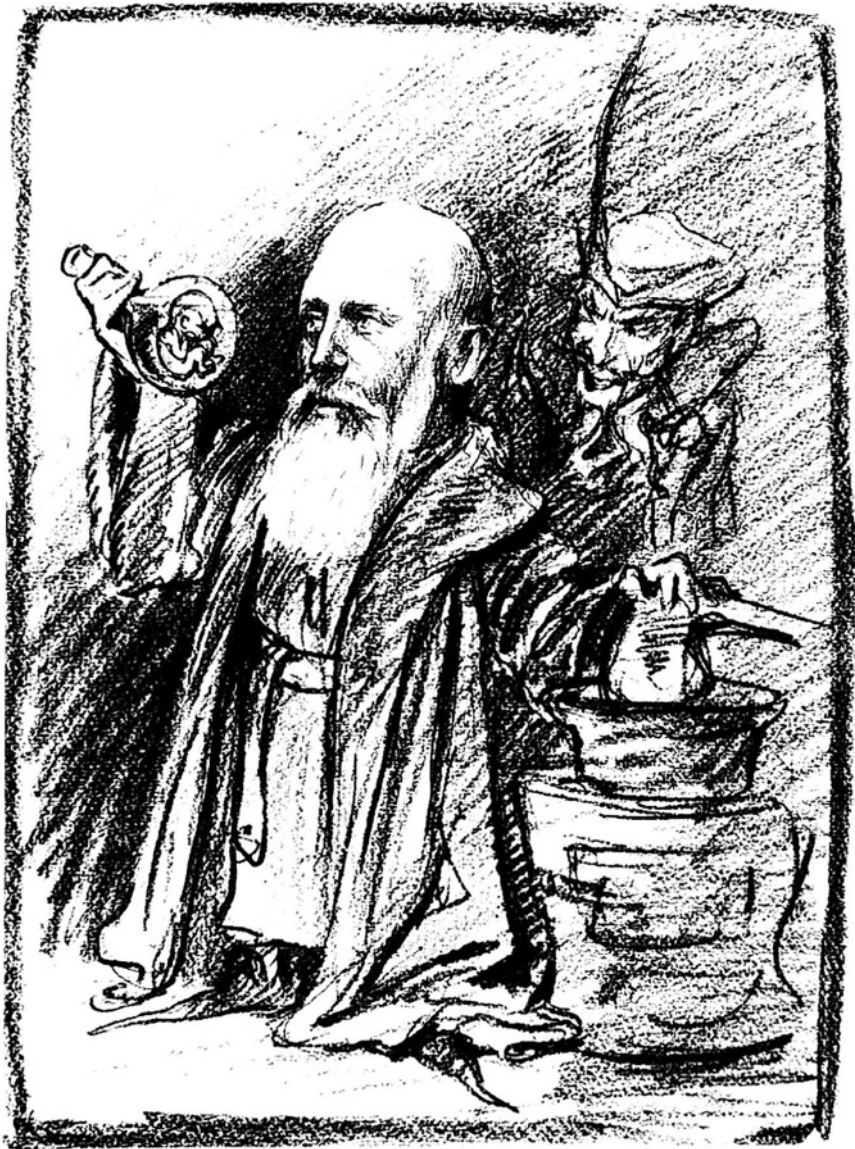


Figure 4.1 Cartoon of Professor Adolf Mayer by Louis Raemaekers
© Louis Raemaekers Foundation

genetic engineering, reaching the threshold of life with outlooks towards the engineering of life itself (as envisioned by Raemaekers), was thought to be the final stage of a long history. Now, with the resurrection of the Spanish flu virus in 2005 (Taubenberger et al., 2005) and more recently with the fabrication of a new strain of the Avian flu, genetic engineering has rather proven to be in its infancy.

If one looks at the development of the image of the virus, or the conceptual understanding of the virus, shifts in meaning can be distinguished from the virus as ‘poison’, via the virus as ‘microbe’ and the virus as ‘chemical substance’, to the virus as a ‘phenomenon at the threshold of life’. The contemporary figuration of the virus is rather ambivalent. On the one hand, scientists are beginning to appreciate the role of viruses as fundamental players in the history of the evolution of life (Brussaard et al., 2008; Galama, 2010; Roossinck, 2011; Suttle, 2007; Villarreal, 2004). Many studies have contributed to the acknowledgment that viruses are active and dynamic players in freshwater and marine ecosystems (Brussaard et al., 2008; Suttle, 2007). By moving between environments, viruses can facilitate horizontal gene transfer (Breitbart and Rohwera, 2005). Viral activity has a profound impact upon ecosystem functioning and structure by affecting the host population, ecosystem dynamics, species succession, biodiversity, and global biogeochemical cycles.

On the other hand, in spite of new scientific insights, viruses are still often portrayed as pure enemies of the host, or even as ‘terrorists’ (Carvajal, 2011; Walsh, 2011),⁴ and in this respect, the virus metaphor still clings to its old meaning. The reverse analogy, of portraying terrorists as viruses has also quite often been drawn, for example, by Tony Blair, the former Prime Minister of the UK, in his speech to the US congress when he stated that ‘the virus is terrorism’ (Blair, 2003).⁵

The view of the virus in its ecological role and usefulness has not been widely recognised yet, either by biologists or by the public at large. As a result, the view

4 In contrast to its contemporary usage, during the French Revolution, terrorism had a decidedly positive connotation. The system or *régime de la terreur* of 1793–1794 – from which the English word came – was adopted as a means to establish order during the transient anarchical period of turmoil and upheaval that followed the uprisings of 1789, just as similar developments have followed in the wake of many other revolutions (Hoffman, 2006). The Bolsheviks, for example, organised a revolution through ‘cells’ and ‘terror’, both understood positively. The cell that is the cancer for some, is the carrier of liberation for others.

5 ‘The threat comes because, in another part of the globe, there is shadow and darkness where not all the world is free, where many millions suffer under brutal dictatorship; where a third of our planet lives in a poverty beyond anything even the poorest in our societies can imagine; and where a fanatical strain of religious extremism has arisen, that is a mutation of the true and peaceful faith of Islam and because in the combination of these afflictions, a new and deadly virus has emerged.

The *virus* is *terrorism*, whose intent to inflict destruction is unconstrained by human feeling; and whose capacity to inflict it is enlarged by technology. This is a battle that can’t be fought or won only by armies. We are so much more powerful in all conventional ways than the terrorist. Yet even in all our might, we are taught humility. In the end, it is not our power alone that will defeat this evil. Our ultimate weapon is not our guns but our beliefs’ (Blair, 2003).

on viruses as pure enemies to the host or even as terrorists continues to dominate. This is valid for both virology and for political decision-making (medical-political immunisation strategies) in response to viral threats. For this reason, in the following sections, the vocabulary used in medical-political responses to the Swine flu threat and the Avian flu threat will be studied in detail. The underlying view of viruses that these responses convey will also be analysed.

The Immunisation Paradox

Although viruses have proven to be more than enemies, their sudden outbreaks understandably invoke turmoil, anxieties and fear. The Swine flu pandemic that started in April 2009 took the world by surprise. As the outbreak spread to countries worldwide, it turned out that the surface proteins of the virus were strikingly similar to those of the 1918 Spanish flu virus that had caused a pandemic 90 years earlier, which went on to kill up to 50 million people worldwide (Nabel, Wei and Ledgerwood, 2011). Accordingly, in several scientific articles the severity of the threat (and the ‘immunisation measures’ considered necessary) was stressed by referring to the dreadfulness of this 1918 pandemic of the Spanish flu (Barry, 2009). Following the threat and these premonitions, an ‘immunisation response’ erupted, not only on the biomedical scene (with the development and distribution of vaccines and antivirals) but also at the societal level (through public health measures, surveillance, quarantine, hygiene, etc.).

On the one hand, virology in general enables the emergence of an effective medical-political immunisation response, such as in the H1N1 case. Virological research has revealed the genetic characteristics of H1N1, its transmissibility, etc. in order to make informed decisions on how to control and counteract the virus’s spread (Hayden, 2009). On the other hand, virological research obviously increases our knowledge about viruses, about their genes, their virulence, their interaction with hosts, and their spread. This progressive understanding has also made us more aware of the potential new risks we are exposed to. This ambivalent effect of virological research is captured nicely by the following quote from *Nature*: ‘[t]he boost in research spending on epidemiological modelling and laboratory studies has enabled scientists to understand the H1N1 virus in record time, prepare to manufacture more vaccine faster, make more informed decisions on how to intervene in the virus’s spread, and understand and share information on its genetic characteristics’ (Hayden, 2009, p. 756). In this phrase, it is suggested that our increased knowledge will boost our immunisation response. In the following quote, however, the basic ambivalence already becomes more apparent: ‘[i]f researchers know the key genetic regions that facilitate reassortment, surveillance efforts could watch out for H5N1 or H1N1 viruses with changes in those regions, ones that might be on the verge of dangerous reassortments’ (Maher and Butler, 2009, p. 157). In other words, increased knowledge about the Swine flu genes might result in the discovery of an even more dangerous and virulent ‘reassortment’ of the virus

(Check, 2005). Reassortment, or gene mixing, refers to the exchange of segments of the viral genome of two distinct virus strains as a result of simultaneous infection of a single cell by two distinct influenza viruses. This can result in the generation of a novel influenza virus strain, and it is believed that most human pandemic viruses actually arose in this way (Medina and Garcia-Sastre, 2011).

These quotes already indicate that new knowledge did not simply result in the idea that we are protected from Swine flu once and for all. On the contrary, increased knowledge about Swine flu has pointed to the potential emergence of new and previously unknown threats, the threat of an even more virulent virus. This new and disconcerting knowledge involves what Sloterdijk refers to as ‘collateral damage’ (Sloterdijk, 2004, p. 200). If new diseases or new viral strains are discovered, feelings of security or comfort (among both experts and the public) will not increase; rather the opposite is actually more likely. There is increased uneasiness or distrust because of the greater awareness of new potential risks in society (Sloterdijk, 2004, p. 200). This is a paradigmatic example of what could be termed the ‘immunisation paradox’, the idea that ‘immunisation measures’ result in the concomitant ‘explication’ of previously unknown risks and threats, and increased feelings of insecurity, which entail more and more emphasis on immunisation (see also Chapter 5). In that respect, one could argue that the protection against infectious disease threats is a paradigmatic example of what Sloterdijk and Esposito have termed the ‘immunisation paradigm’ of contemporary society (Esposito, 2011; Sloterdijk, 2004).

Moreover, the collateral damage is actually two-fold. First of all, an increase in our knowledge about the Swine flu unravels potential new risks, for example the risk of dangerous reassortments or mutations of the virus that make it more virulent, transmissible or resistant to drugs (Maher and Butler, 2009). Secondly, new knowledge about viruses and new techniques, for example the technique of ‘resurrecting’ former (now extinct) viruses such as the 1918 flu virus, actually creates new forms of risk associated with the very technology that seeks to reduce those risks. Although a fully reconstructed virus might lead to a better understanding of the virus and thus be instrumental in fighting the next pandemic, there is nonetheless a risk of accidental or intentional release (bioterrorism) of the virus from the laboratory (Beck, 2002; Bubnoff, 2005; Interlandi, 2010). The paradoxical implications of this so-called ‘pre-emptive’ strategy will be discussed later in this chapter.

Excessive Immunisation or better Safe than Sorry?

In hindsight, the Swine flu pandemic turned out to be mild. The dramatic pestilence that many (experts as well as ordinary people) had expected did not occur. There have definitely been casualties: the most seriously affected included relatively young people, and one quarter of the seriously afflicted patients that died had no pre-existing underlying disease (Butler, 2009; Osterhaus, 2010b). Yet, the downside of the lack of virulence of H1N1 and the relative mildness of the pandemic was that

many countries were left with a stockpile of unused H1N1 vaccines. As a result, in hindsight, many governments have been criticised for squandering taxpayers' money on supplies that were not needed. Several critics have been prompting accusations that the WHO has been guilty of scaremongering and exaggerating the Swine flu threat and accordingly have accused scientists and the WHO of 'over-reacting'. Moreover, these critics point to partnerships between governments, the virologists involved, and drugs companies providing the vaccines (Butler, 2010b; Cohen and Carter, 2010; Editorial, *Nature*, 'Lessons from a pandemic', 2010).

Retrospectively, one could argue that the 'immunisation response' to the threat and the accompanying scares and fears may have been more socially and economically disruptive than the harm caused by the disease itself. On these grounds, the response to the threat could be labelled as an instance of what cultural critics like Sloterdijk, but also Jacques Derrida and Roberto Esposito, have referred to as 'excessive immunisation' or an 'autoimmune pathology' (Sloterdijk, 2004; Borradori, 2003; Esposito, 2008). The concept of autoimmunity has its origins in the biomedical sphere and indicates – in simplified terms – a situation in which the immune system operates so powerfully that it produces detrimental effects for the body it is supposed to safeguard. When used as a metaphor for socio-political responses, autoimmunity refers to a situation when the striving for immunisation or self-protection becomes more damaging to the life and the veins and tissues of society than the original threat.

Governments were faced with predictions concerning a new influenza virus from which a large proportion of the world's population was not protected (or against which it had no or little immunity). Taking into account the uncertainty of the predictive epidemiological models, governments chose to base their policies on the principle of prudence: 'preparing for the worst while hoping for the best', as advocated by Dr Keji Fukuda of WHO (Osterhaus, 2010b, p. 142). Referring to the fact that it is impossible to predict the course of an influenza pandemic at an early stage because of the unpredictability of the virus, virologists such as Osterhaus justify their caution by arguing that the policy of 'better safe than sorry' is warranted (Osterhaus, 2010b, p. 142).

There is a clear logic behind this reasoning. The problem, however, is that there is a price to pay for this prudence, as these warnings and premonitions do evoke anxieties and fear (sometimes causing public reluctance concerning vaccination). These carry financial as well as political consequences (Editorial, *Nature*, 2009; see also Wildavsky, 1988). This prudent 'immune reaction' thus risks evolving into an 'autoimmune response'.

One may question whether the immunisation response is appropriate or excessive. In either case, immunisation attempts have increased societal unrest, not only in terms of fear of becoming infected, but also in terms of substantial public reluctance concerning vaccination (distrust of vaccines) (Editorial, *Nature*, 2009). Furthermore, the delay in delivery of a vaccine not only resulted in an estimated 1 million extra infections, but also burdened health care systems with the associated costs of care (Jack, 2010; Stöhr, 2010). Such spending of public money remains in the collective memory.

Looming Viral Threats: Comparing Pandemics and Terrorism

On a political level, the Council of Europe has written an evaluation report on the handling of the H1N1 pandemic entitled 'The Handling of the H1N1 Pandemic: More Transparency Needed' (Flynn, 2010). The immediate cause for this evaluation report was a motion tabled under the title 'Faked Pandemics – a Threat for Health', by Dr Wolfgang Wodarg (2010).

Although the intention was to write a clear-cut evaluation of the topic, the document abounds in ambiguities. On the one hand, virologists are accused of inciting 'unjustified scares and fears about health risks' and of 'sensationalism and scaremongering in the public health domain' (Flynn, 2010, p. 1). On the other hand, this document itself warns of 'the next disease of pandemic scope – which may turn out to be much more severe than the H1N1 pandemic' (Flynn, 2010, p. 1). Although the response to the Swine flu pandemic is diagnosed as excessive, the document refers to the looming threat of a potentially more severe 'next disease of pandemic scope', thereby evoking a new catastrophic foresight with all the accompanying concerns and fears.

Thus, the viral threat still remains and it is only a matter of time before the world is hit by a deadlier influenza pandemic. Virologists and other public health officials and experts keep on warning of the possibility that the threat still exists: 'We're worried the virus could increase its disease-causing ability' (Ledford, 2009, p. 1). They have even warned against the development of a false sense of security: '[t]he danger now is that last year's relatively mild pandemic will create a false sense of security and complacency. The reality is that the next time we might not be so lucky ...' (Editorial, *Nature*, 2010, p. 136).

The apocalypse of a pandemic is present in a more threatening way than ever, at least according to prominent virologists such as Osterhaus. He warns of an imminent pandemic of a viral (flu) strain. The exact moment it will strike is as yet uncertain but the fact that a pandemic will strike sooner or later is something to be expected (Osterhaus, 2010b). Many virologists such as Osterhaus justify their warnings against a pandemic by saying that we should always 'expect the unexpected' (Butler, 2009, p. 21; Weiss and McMichael, 2004, p. S75; Howard and Fletcher, 2012, p. 10). The same discourse that was triggered by the Swine flu pandemic also emerged in 2006, when there was said to be a threat of Avian influenza. 'Avian influenza – a pandemic waiting to happen?' was the title of an article in the *Journal of Microbiology, Immunology and Infection* (Liu, 2006). This rhetoric is comparable to the rhetoric on AIDS described by Sontag in *AIDS and its Metaphors*, which seems to be aimed at accustoming people with 'the intermittent awareness of a monstrous, unthinkable – but we are told quite probable – pandemic catastrophe' (Sontag, 1988, p. 88). Such a taste for worst-case scenarios seems to reflect the constant need to master fear of what is felt to be out of control (1988, p. 87). The warning 'expect the unexpected' entails a situation in which constant fear is provoked, rather than fear of a specific disease at a specific moment; as such, it produces a kind of sustained state of fear. Sontag has argued that it seems that in modern society, the end is believed to be

near, but this is a 'long-running-serial', a protracted condition rather than a terminal event. It is a state that always looms but never occurs (Sontag, 1988, p. 88; see also Fitzpatrick, 2003, p. 1310). As she puts it, it is not 'Apocalypse Now' but rather 'Apocalypse from now on' (Sontag, 1988, p. 88). These modern kinds of apocalypse or prospects of worst-case scenarios can be recognised in other societal domains as well. We are all acquainted with, for example, the lingering anxieties about (bio) terrorism, nuclear war, environmental catastrophes (Cooper, 2008; Fitzpatrick, 2003) and quite recently with financial disasters, too (Sivy, 2012). It seems that virologists who warn of the looming threat of viruses and pandemics try to make the pandemic catastrophe a key element of our 'ordinary horizon of expectations'. In contemporary society, the state of concern has become indeterminable (Cooper, 2008a,b; Fitzpatrick, 2003), a phenomenon that can be regarded as an 'autoimmune pathology', or as Sontag puts it: 'an unparalleled violence that is being done to our sense of reality, to our humanity' (Sontag, 1988, p. 88).

These concerns about a looming viral threat are closely connected with key characteristics of viruses, such as their invisibility to the naked eye, or their capacity to mutate and evolve very quickly. Viral infections are particularly difficult to eradicate because viruses adapt continuously to their environment by mutation, recombination or gene reassortment (Morens et al., 2004). Furthermore, globalisation promotes the emergence and spread of new infections and pandemics (Zanetti and Zappa, 2010). Accordingly, virologists state that 'at the end of the day, making predictions about this new H1N1's next move is a mug's game. There's nothing more predictable about flu than its unpredictability' (Cohen, 2009b, p. 997). When, where and how the next catastrophe will strike remains uncertain, disaster is always incubating and one can only speculate (Ewald, 2001). Accordingly, the inescapable, elusive and uncertain characteristics of viral threats call for drastic and immediate 'immunisation measures'. Some virologists argue that H2N2 looms and could re-emerge in a similar way as H1N1 did. Accordingly, they urge a 'pre-emptive' vaccination strategy against this potential threat (Nabel et al., 2011; Stöhr, 2010), yet, such pre-emptive strategies are likely to generate their own incalculable dangers, as will be shown in the next section.

Pre-empting Emergence

Pre-emption is a concept originating from international law, authorising a state to counter-strike when it had warning or visible evidence of an imminent attack. However, in the course of time, the doctrine of pre-emption has changed, mainly in response to the World Trade Centre (WTC) attacks of 11 September 2001 (National Security Strategy, 2002). In *Life as Surplus* (2008), Cooper points out that what is radically new about this doctrine is that the US authorised itself to use *pre-emptive* action against a threat that is not so much *imminent* as *emergent*: 'a threat whose actual occurrence remains irreducibly speculative, impossible to locate or predict' (Cooper, 2008, p. 124).

Cooper describes how, at least in the US, the strategy of pre-emption has increasingly been employed as a justification for aggressive counter-attack in relation to the war on terror. The basis of the strategy of pre-emption is the collective ‘apprehension’ of the future as threat. This fundamental uncertainty, rather than a proof of risk, paradoxically establishes the self-legitimising authority to use violence. In short, pre-emption transforms suspicions, fears and panic into a real mobilising force (Cooper, 2008, p. 89).

Currently, the application of drones – unmanned aerial vehicles – by the US and the UK in Pakistan and other countries, is exemplary of the continuously expanding strategy of pre-emption. Drones are used either for reconnaissance and surveillance purposes, or for attacks and bombings. Drones have already killed many unarmed and innocent victims (Greenwald, 2013). In his much heralded terrorism speech, US president Barack Obama said that the US would reduce drone strikes, and stressed that they would only use them when a threat was ‘continuing and imminent’ (Reporter, *The Guardian*, 2013). In spite of Obama’s argument for a more restrictive standard for drone use, they are still used intensively.

In recent decades, newly emerging infectious diseases, but also bioterrorist threats, such as the anthrax attacks of 2002, induced a shift in the approach to disease from classic public health (managing known diseases) to preparedness practices (developing the capacity to respond to as yet unknown potentially catastrophic biological events) (Lakoff, 2008, pp. 14, 33–60). As a result, the strategy of pre-emption has also been taken up and employed in the field of infectious diseases. In view of a potential future Avian flu pandemic, two groups of scientists (one led by Yoshihiro Kawaoka at the University of Tokyo and the University of Wisconsin-Madison, and one led by Ron Fouchier of the Erasmus Medical Center in Rotterdam, the Netherlands), have created mutant H5N1 Avian influenza variants that can be transmitted between ferrets, which are a good proxy for how flu behaves in other mammals, including humans (Herfst et al., 2012; Imai et al., 2012). To date, however, H5N1 viruses have very rarely been transmitted between humans. Nevertheless, as H5N1 viruses continue to evolve and infect humans, the viral experts concerned warn of the fact that variants of H5N1 viruses with pandemic potential, including Avian–human reassortant viruses, might emerge (Kawaoka, 2012). In this specific case, the doctrine of pre-emption implies that we need not only mobilise ourselves against currently circulating viruses, but against the potential emergence of a possible disease, in this case a mutant version of the Avian flu, which (as far as one knows) does not yet exist. This could be regarded as a form of ‘anticipatory evolution’ (Bacher et al., 2002).

The transmissibility studies of H5N1 Avian influenza sparked a fierce debate within the life science community and – although instigated by the media – among the general public, about the ‘dual-use’ risks involved in publishing the results of this research. The results of such studies can be used for beneficial purposes (i.e. understanding and counter-acting a future viral threat), but can also be misused for malevolent purposes with potentially severe effects on public health (for instance, bio-terrorism) (Butler, 2012; Brumfiel, 2012).

The US National Advisory Board on Biosecurity (NSABB) (established in response to the Anthrax attacks) at first decided that only a redacted portion of the papers could be published. Their argument was that revealing the detailed methods could increase the risk of bioterrorism. During the subsequent months of intensive debate among scientists, biosecurity experts, and policy makers, as well as among the larger public, the NSABB was pressured to reconsider its decision. In March 2012, the NSABB revised its decision and endorsed publication of the ‘flu papers’ (Butler, 2012).

The protagonists endorsing publication of the mutant flu studies assure that their research sheds light on influenza transmission. They argue that their research will deepen understanding of what allows a virus to cross the species barrier and jump from animals to humans. The benefits for monitoring wild viruses for potentially dangerous mutations and for vaccine development outweigh the risks, they claim (Hunter, 2012; Maher, 2012). ‘Don’t censor life-saving science’, argues the virologist Peter Palese (2012, p. 115). Palese contends that the transmissibility experiments actually allow virologists to understand what makes a virus dangerous and how it can be disabled (Palese, 2012, p. 115). Fouchier, the author of one of the mutant flu papers, argues similarly that publication of his study could help stop a future pandemic, whether natural or the result of an act of terrorism (Hunter, 2012, p. 607). Accordingly, imposing censorship on publication would be counterproductive, to the extent that it constrains the development of suitable countermeasures such as vaccines (Hunter, 2012, p. 604).

However, it is important to keep in mind that the actual occurrence of an Avian flu pandemic remains irreducibly speculative – impossible to locate or predict. Moreover, the pre-emption strategy also involves paradoxical aspects: although the studies were aimed at finding ways to prevent a devastating Avian influenza pandemic (to engineer a cure), they involved the creation of a novel, more transmissible Avian flu virus. Thus, this simple act seemed to increase the chance of a pandemic, owing to either a lab accident or intentional release by terrorists. *Nature* also warns against the dangers of this development by arguing that we should keep in mind that public health services are currently not equipped to mitigate an H5N1 pandemic, either accidental or intentional, due to the limited abilities worldwide to manufacture and distribute vaccines (Editorial, *Nature*, ‘Facing up to flu’, 2012; Cohen, 2009a).

The Virus as Bioterrorist

It seems that, carried by fear and anxiety, the doctrine of pre-emption is of growing importance and popularity for managing not only political problems, but also for coping with viral threats. There is an increased demand for public health preparedness to focus not only on interventions against known recorded viral strains but on generic measures that would be effective against as yet unknown, not recorded, but theoretically possible viral strains (Collier and Lakoff, 2008, pp. 12–16). The idea behind pre-emption is to intervene in the conditions of emergence of the

future, before one may be besieged by nature's own act of emergence (Cooper, 2008a, p. 91). In the case of the mutant Avian flu, virologists make use of exactly that argument. As Professor John Oxford from Barts and the London School of Medicine states: 'The biggest risk with bird flu is from the virus itself. We should forget about bio terrorism and concentrate on Mother Nature' (Walsh, 2011). In similar vein, Osterhaus argues that the bigger danger is that 'nature will do the first job' (quoted from Check, 2005, p. 406). Similarly, both Fouchier and De Jong (virologists) claim that 'nature is the biggest terrorist' (Carvajal, 2011, p. A28; Visser, 2012, p. 1). Their argument clearly states that virologists should be allowed to pre-emptively 'attack' nature, before nature itself 'attacks' us.

In these quotes, the virologists concerned literally align nature and bioterrorism, a natural viral threat and a threat from bioterrorism, and as such this example represents the surreptitious militarisation of infectious diseases (Cooper, 2008a). From the perspective of these virologists, the only viable protection strategy against evolving infectious diseases, against an uncertain biological future, is one of aggressive counter-proliferation. Whether the threat is unintentional or intentional, i.e. whether it comes from human terrorists or from nature, does not really make a difference.

However, one must realise that the potential of biological resistance is inexhaustible because of the co-evolution between viruses and their hosts, including humans. As a result, the pre-emptive war will be indefinite in time and scale (Dubos, 1987[1959]). In other words, the 'war', however smart it might be, will remain interminable. Lederberg labelled this scenario: 'our wits versus their genes', referring to our technical and public health defences on the one side and the evolution and dissemination of pathogens on the other (Lederberg, 1998, p. 463).

This specific development within the field of virology is not surprising, since it seems to fit within a wider development, which some philosophers have designated a reinforcement of the 'biologisation of politics' (Esposito, 2008; Rose, 2001). This means that the rapid technological and scientific developments within the life sciences, and our deepened understanding of biological life at the molecular level, have resulted in the fact that human existence (at the biological level) has increasingly become the dominant concern of government attention. The idea of a pre-emptive war against all possible offenders, including terrorists as well as viruses, seems to be the quintessential result of this development (Esposito, 2008, pp. 147–8). Esposito regards this to be the 'autoimmune illness' of contemporary political culture, by pointing to the paradoxical results of this strategy and by indicating that this 'excessive defense' actually ruins the body politic it is meant to protect (Esposito, 2008, pp. 147–8). The concept of autommunity will be discussed in more detail in Chapter 6.

The Militaristic Perspective on Immunisation

The practice of pre-emption as political strategy thus appears to convey a rather militaristic approach, both for health and terrorism. This is testified by the figuration

of viruses as terrorists. Paradoxically, the common threat to the population appears to be ‘life itself’, in the form of terrorists, viruses, or otherwise. In this situation, security, defence, and medicine fold into a single problem: the common threat to the population is biological life. As Thacker argues: ‘biology is the weapon, the means, and the target all at once’ (Thacker, 2005, p. 13). The Avian flu example once more underscores the extension and intensification of this pre-emption strategy towards natural (as opposed to bioterrorist-induced) epidemics. Cooper also noted that this growing entanglement between the protection of biological life (immunisation) and the imposition of a permanent state of war is something that needs to be contested (Cooper, 2008a, p. 99; Thacker, 2005). Yet, as long as we (virologists, but also politicians and the public at large) regard ‘nature as the biggest terrorist’, this entanglement is rather furthered than contested.

Recalling the cartoon in which Mayer (one of the founding ‘fathers’ of virology) was depicted as Goethe’s Faust, it becomes clear how this portrayal of the risks related to our technological interference with nature has proven to be visionary and legitimate. The pre-emptive approach, together with the comparisons of viruses with terrorists, testifies to a reductionist and defensive approach to immunisation. Although the defensive properties of the immune system have proven to be only a small part of the total immunological repertoire, this aspect of the immune system still dominates the medical context (as we saw in the previous chapter). The immune system is primarily seen as a defence mechanism safeguarding the organism (self) against threats from non-self. This picture of immune function now seems to materialise not only in political practices, but in medical-political (biopolitical) practices as well.

Conclusion

The Sloterdijkian immunological framework has shown how immunisation attempts often concomitantly also *explicate* new viral threats. It has been argued how viral research potentially brings about ‘collateral damage’, through the explication of formerly unknown risks, for example the emergence of a more virulent reassortment of the virus. Given the important characteristics of viruses, such as their invisibility, their unpredictability, and their capacity to mutate quickly, virologists are bound to caution that despite immunisation measures, viral threats are always looming. These unwanted effects (discontents [!], cf. Freud’s *Civilisation and its Discontents*)⁶ of influenza and immunisation will continue to feed our ‘virophobia’. At the same time, given the fact that pandemic catastrophes do appear at intervals, a permanent low-level of ‘virophobia’ seems to be a necessary and understandable approach in a risk society (Beck, 1992;

6 NB: Note the proliferation of book titles that contain the term ‘discontents’: *Postmodernity and its Discontents* by Bauman (see bibliography), but also *Globalisation and its Discontents* by Stiglitz (2002) etc.

Knight, 2001, pp. 17–30). This fear, however, appears to further promote the shift to preparedness in public health, including the practice of pre-emption. The lab-bred mutant Avian flu is a paradigmatic example thereof. In view of a potential Avian flu pandemic, virologists have developed a contagious human-to-human transmissible Avian flu virus that does not yet circulate in nature. However, such strong defensive (and preventive) ‘immunisation measures’ risk evolving into ‘autoimmune’ responses. In the context of this chapter, ‘autoimmune’ responses involve a situation in which protective measures (against a viral threat) are more destructive for society than the original viral threat itself.

The subsequent fierce global debate on the dual-use risks involved overlooks the fact that this strategy of pre-emption will be indefinite. If pre-emption develops into a standard doctrine, one needs to take into account the evolution rate and reassortment possibilities of this most abundant type of biological entity and the accordingly endless range of potential viral threats. Furthermore, The ‘autoimmune’ aspects of the lab-bred Avian flu involve not only the creation of new viruses, but also psychological damage caused by creating a permanent state of fear. More importantly, as long as virologists regard ‘nature as the biggest bioterrorist’, the worrisome entanglement between the protection of biological life (immunisation) and war including its ‘autoimmunitary’ effects, will be furthered rather than contested – including all the discontents that this development implies.

The arguments in this chapter should not be seen as advancing a pacifist manifest with regard to infectious diseases. Nevertheless, in view of the discontents of our (fierce) immunisation strategies, a fundamental philosophical reflection on immunisation is required. This reflection might also help to tame our virophobia in order to vitalise, in the words of Sloterdijk, the ‘mental immune status of our enlightened society’ (Sloterdijk, 2004, p. 196). To that end, in the next chapter, the philosophical immunological repertoire will be analysed. Perhaps, philosophy could be instrumental in providing other perspectives for action with respect to viral threats.

PART II
Philosophical Immunisation

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Chapter 5

Sloterdijk's 'Immunology of Spheres'

Introduction

In *Spheres*, Sloterdijk argues that humans are essentially sphere-producing and sphere-dependent beings (Sloterdijk, 1998, 1999, 2004). Spheres are forms of immunisation or protection against the threatening and initially quite harmful outside world (Sloterdijk, 1998, p. 28).^{1,2} When relating Sloterdijk's notion of immunisation to the historical description of immunity above, it appears that Sloterdijk's idea of immunisation cuts across all the various dimensions of the concept of immunity by grounding it in a more fundamental and overarching 'spatio-cultural' understanding of immunisation (Sloterdijk, 1998, p. 66). For Sloterdijk, culture as such revolves around a process of immunisation (Sloterdijk, 1998; 2001, p. 346).^{3,4} Spheres are *spatial* environments that function as protective *immune systems*. They defend us from looming threats coming from outside and create an *ambiance*, a *place* that humans can inhabit and which allows them to live their lives in the immensity of the world.

Sloterdijk states that throughout history humans have gradually enhanced their capacity to build protective sphere-like structures. He regards caves, houses, villages, cities, nation-states and the like as immune responses against threats coming from outside. In his view, history can be regarded as the interplay of damage to and repair of *immune systems* that have gradually increased in scale and efficiency in the course of this process (Sloterdijk, 1998, p. 66; 2001, p. 346). In this chapter, I will offer a detailed account of Sloterdijk's 'Immunology of Spheres' (1998, 1999b, 2004).

1 'Jedes noch so grausame und unpassenden Außen, alle Dämonen des Negativen und die Monstern der Fremdheit in einem erweiterten Innen auszusiedeln'. In that sense we live in an outside world, which carries 'Innenwelten'. 'Wir sind in einem Außen, das Innenwelten trägt' (Sloterdijk, 1998, p. 28).

2 'In Sphären leben heißt, die Dimension erzeugen, in der Menschen enthalten sein können. Sphären sind immunsystemisch wirksame Raumschöpfungen für ekstatische Wesen, an denen das Außen arbeitet' (Sloterdijk, 1998, p. 28).

3 'Was ist die Weltgeschichte, wenn nicht stets auch die Kriegsgeschichte der Immunsysteme? Und die frühen Immunsysteme – waren sie nicht immer auch militante Geometrien?' (Sloterdijk, 1998, p. 66).

4 'Daß alle Kulturgeschichte die Geschichte der Umformatierung von Narzißmen ist – anders gesagt die Geschichte der Verletzung und Regeneration von mentalen Immunsystemen' (Sloterdijk, 2001, p. 346).

In his immunology, Sloterdijk points to a transition in our immunisation efforts that is the unanticipated result the process of globalisation. He shows how our collective efforts towards immunisation seem to have reached their limits, and how a plurality of more *individual immunisation* attempts has been developed. This has resulted in what Sloterdijk calls the ‘twilight of immunity’ [*Immunitätsdämmerung*]: a failure of collective, top-down strategies of immunisation and an increase and strengthening of (individual) technical immunisation measures. As a result, as humans we are increasingly aware of the immunological constitution [*Verfassung*] of our human condition. In Sloterdijk’s words, we realise that ‘immune systems become the central focus of concern’ (Sloterdijk, 2004, pp. 195–6).

With his *Spheres-project*, Sloterdijk proclaims himself to be engaged in an Heideggerian enterprise concerning the nature of being, not focussing on the temporal dimension, as Heidegger did, but on our spatial relationships, which allows him to describe his own project as *Being and Space* (Sloterdijk, 1998, p. 345). Sloterdijk starts by inviting us to reconsider the old Gnostic question: ‘Where are we when we are in the world?’ (Sloterdijk, 1998, p. 28). In this chapter, I shall thoroughly analyse not only Sloterdijk’s notion of immunisation, but also his idea concerning the relation between immunisation on the one hand and modernisation and globalisation on the other.

Immunisation

In *Spheres I*, Sloterdijk fleshes out the complex processes of coming into the world. In Sloterdijk’s view, we are all born too early and rather violently, since we already have a relatively large brain. ‘Neotony’, for Sloterdijk, is another name for ‘being aborted’: for being thrown into the world, out of the warm and comfortable amniotic fluid of the mother’s womb. Sloterdijk refers to this process of being ejected from or thrown out of the uterus as ‘negative gynaecology’ (Sloterdijk, 1998, p. 307). After being ripped from the almost ‘utopian’ comforts of a mother’s womb, humans display the tendency to construct artificial extensions beyond their primeval dwelling. Being cut off from the original form of co-existence, humans have to search relentlessly for new immunological forms of spatial togetherness (Schinkel and Noordegraaf-Eelens, 2011, p. 14).

Before recounting Sloterdijk’s account of the dwellings, or immune systems that humans create, a short comment is needed on his ideas on the dwelling of the foetus in the uterus. Sloterdijk seems to romanticise the foetus’ dwelling. From an immunological point of view, the mother’s womb is not so ‘romantic’. Whilst avoiding an overly detailed explanation of the exact immunological processes and components involved, one should note that the foetus is actually immunologically coded as ‘other’ and the immune system of the mother has to work very hard in order to counteract immunologically rejecting the foetus (Esposito, 2011, pp. 169–70). In other words, from a biological point of view, the search for immunological forms of spatial togetherness is something that is already running before birth.

After being born, we are estranged [*entfremdet*] creatures, Sloterdijk argues. We survive because of the fact that another receives us, welcomes us, nourishes us and provides us with a safe refuge. For Sloterdijk, coming into the world is a sort of coupling: spheres are the original product of human being-together. Coming into the world involves building a home. Being-with is thus always being inside of a dwelling, is always being-in-spheres (Elden and Eduardo, 2009; Sloterdijk, 1998, p. 46).

All sorts of human interventions, from the prehistoric cave and the Neolithic village up to the metropolises of the present, can be regarded as *immune systems* created by human beings in order to mimic the conditions of prenatal life in a technologically reproducible manner (Sloterdijk, 1998, p. 68; 1999b, p. 205). Spheres, in his eyes, create a *dimension*, a place that humans can inhabit and in which they can feel at home. Sloterdijk primarily considers humans as entities that are able to build an artificial type of space, a 'greenhouse', that functions as an 'autogenic sphere', allowing them to live a relatively peaceful and insulated existence within the immensity of the natural world (Sloterdijk, 1998, p. 28, 46). City walls, arches, temples and domes thus emerge as architectural insulations that have provided this experience of interior spaces.

From an immunological point of view, spheres thus have a dualistic function. Spheres ensure a shared space of perception and experience, thereby creating an essential communion. The protective membrane offers protection or immunity from the extra-spherical world (Borch, 2008). One could consider the first function as analogous to the role of immune systems in the establishment of a biological *identity*, whereas the function of spheres as protective membranes can be considered analogous to the function of immune systems in *host defence*.

Sloterdijk shows how spheres function as psycho-social containers because they create 'greenhouses' (atmospheres) allowing individuals to flourish and develop within a relatively homely and viable atmosphere, within the immense expanses of that which is 'outside'. Spheres are thus both social (cultural) and spatial (Schinkel and Noordegraaf-Eelens, 2011). As such, he considers spheres as 'morpho-immunological buildings' enabling a 'symbolic climatisation of the shared space' (Sloterdijk, 1998, pp. 45–7; Schinkel and Noordegraaf-Eelens, 2011, p. 13).

The capacity to build protective spheres is not restricted to material environments such as villages and cities (technical immunisation). It also involves protective ideological structures, such as metaphysical theories and religions, which Sloterdijk calls 'symbolic immunisation'. Human existence is devoted and dedicated to the permanent development and maintenance of 'morpho-immune shields' against threats, ranging from microbial invasions and attacks by hostile competitors, to ideological offences to which they are exposed (Alliez and Sloterdijk, 2007). Although it is natural for organisms to protect themselves against microbiological invasions, science and technology can provide contrivances to make this protection more effective (Sloterdijk, 1999a, pp. 161–2). Against the 'cognitive invasions' that result from their fundamental openness, human beings have to protect themselves quite actively through man-made immune systems. Metaphysical worldviews and religious creeds, including modern humanism, have

provided this ‘immunitarian illusionism’, he argues (Sloterdijk, 2001, p. 347). In short, Sloterdijk regards material technology as well as metaphysics and religion as immunisation performances [*Immunitätsleistungen*], but also as life assurance systems [*Lebenssicherungssysteme*], primarily in service of survival (Sloterdijk and Heinrichs, 2006, pp. 220–21).⁵

Jean-Pierre Couture (2009) contends how Sloterdijk’s spherical housing metaphor thus becomes the common denominator for an alternative account of the continuing odyssey of *human immunology* (Couture, 2009, p. 159). Whereas earlier societies succeeded in sustaining and reproducing themselves by the construction of regenerative protective microspheres, over time, humanity has tended increasingly towards the construction of macrospheres, culminating in a global macrosphere. The immune function of intimacy is projected into larger human groupings that seek to equal the immunological quality of the original micro-sphere. As Sloterdijk phrases it: ‘[t]raditionally, the family and the tribe community, and later on the city, the community of believers, the people, the party, or the enterprise, want to be considered like the efficient operational immune entity and tend to impose on their members the behaviours that meet the norm of this common immunity’ (Sloterdijk, 2004, p. 535, my translation).

In his attempt to trace the genealogy of the concept, Sloterdijk regards Plato as the head immunologist [*Chefimmunologe*], because he was the first to conceive of the cosmos as a sort of gigantic immune system (Sloterdijk and Heinrichs, 2006, p. 218). Sloterdijk argues, that what Plato called the cosmos, Christian theologians later came to call God, but both function primarily as a *guarantee of immunity* and as such, he regards metaphysics in general as an ‘*All-Beseelungsprojekt*’ (‘global soul project’) (Sloterdijk, 1999b, p. 136). While Plato was the first ‘immuno-poet’, Sloterdijk regards Nietzsche as the first real ‘immunologist of culture’ and ‘immuno-critic’. It is with Nietzsche, he argues, that the immunological turn of thinking really began (Sloterdijk, 1999b, p. 558). Similarly, Esposito argues that it was Nietzsche who brought ‘the lexicon of immunity to its full development’ (Esposito, 2008, p. 78).

In Chapter 2, it was described how Sloterdijk depicts Nietzsche as the first author to use an immunological lens when looking at culture. Sloterdijk explains how Nietzsche conceived of the human mind as a mental immune system, and of consciousness as an immunisation device that functions as a cognitive filter. As such, it plays an important role as the generator of protective or curative illusions: ‘Nature has embedded human beings in illusions. Illusions constitute his proper and optimal environment’, as Sloterdijk cites Nietzsche’s famous passage in the third part of *Unzeitgemäße Betrachtungen (Untimely Meditations)* (1872) (Sloterdijk, 2004, p. 206). Sloterdijk contends that it was Nietzsche who argued that the traditional truth systems, like religion, metaphysics and humanism, are protective

5 Sloterdijk stresses the importance of immune systems for human survival. He contends that we should ask ourselves why we are we not already dead. Sloterdijk contends that death has not come to pass from the very outset because hitherto invisible immune systems have enabled us to survive; we are all survivors (personal communication, 22 December 2011).

illusions, and hence serve as what he calls symbolic immunisation strategies. Sloterdijk concludes that it was Nietzsche who engendered the emergence of an immunological paradigm, as we have seen in Chapter 2 (Sloterdijk, 2004, p. 204). It is within this same paradigm that Sloterdijk positions himself. He labels his spherology 'General Immunology' (Sloterdijk, 1999a, p. 161) and describes the notion of immunisation as a cognitive-psychological immune system (Sloterdijk, 1999a, p. 161; Sloterdijk and Heinrichs, 2006, p. 217).

Philosophy as Immunology

Nietzsche considered the mental system as a kind of protective system, but he also put much emphasis on its deplorable effects. According to Nietzsche, human beings should free themselves from their dependence on illusions as well as comforting and reassuring but false ideas. What he pleaded for is what Sloterdijk calls an 'immunological turn' (Sloterdijk, 1999b, p. 558). In other words, thought had to free itself from the immunitarian defences against the challenges of truth and life. In Sloterdijk's terms, a truly enlightened philosophy has to take 'the autoimmunitarian paradoxes of knowing' into account (Sloterdijk, 2004, p. 205). The price humans have to pay for increasing their knowledge involves a certain amount of self-damage and self-disruption. Human beings have to expose themselves to the 'unbearable truths', and philosophy-as-immunology has to free itself radically from 'the leading reins of ordinary representation' of which one realises that it is structurally dictated by 'a chronic need for illusions' (Sloterdijk, 2004, p. 206).

Following Nietzsche, Sloterdijk argues that notwithstanding their protective function, it is necessary to demonstrate the immunological mechanisms to be illusions, created by individual as well as collective imagination: they are curative but illusory sphere bubbles [*selbstgesponnene Illusionsblasen*] (Sloterdijk, 1998, p. 23). In order to become truly 'healthy', humans have to rid themselves of the inclination to seek shelter behind ideological immunisations. Building on Nietzsche, Sloterdijk argues that we have to allow our comforting but misguided ideas about ourselves to be challenged and left behind, however painful and humiliating this new knowledge may prove to be (Sloterdijk, 1999a, pp. 161–2; 2004, p. 205).

Sloterdijk's point of departure is a generalised therapeutic concern and, following in Nietzsche's footsteps, he presents himself as a self-appointed 'immunologist of culture'. As we have seen, he argues that his spherology is to be understood as a 'cultural medico-philosophical approach' [*Kulturmedizinphilosophischen Ansatz*].⁶ With his 'General Immunology', Sloterdijk seeks to achieve more insight into the immunological strategies human beings have to guarantee their continuity. More specifically, Sloterdijk asserts that such a 'General Immunology' allows us to transcend

6 In *Die Sonne und der Tod* (2006) Sloterdijk explains: '[a]us diesem kulturmedizinphilosophischen Ansatz heraus sind die Sphären zu verstehen' (Sloterdijk and Heinrichs, 2006, p. 217).

the mental immune system to look behind the scenes of the illusion production process, which form the core of the ‘symbolic climatisation’ [*Klimatisierung*] or ‘symbolic immunisation’ against the unbearable and disruptive ‘outside’ (Alliez and Sloterdijk, 2007, p. 318; Sloterdijk and Heinrichs, 2006, p. 222).

Sloterdijk’s esteem for biological immune systems is substantial. He stresses the evolutionary relevance of biological immune systems as well as the scientific and cultural importance of the discovery of immune systems (Sloterdijk, 2009, pp. 20–24).⁷ In Sloterdijk’s view, the ‘*homo immunologicus*’ avails himself of three types of immune systems in order to guarantee self-preservation (Sloterdijk, 2009, p. 23). Besides the biological immune system in a strict sense, humans make use of historically developed socio-cultural immune systems: the juridical and the solidarity systems as well as the military practices that all play an important role in confrontations with aggressors and with offending neighbours causing damage. Finally, the psycho-immunological practices, or the so-called symbolic immune systems, make up a third immune system (Sloterdijk, 2009, p. 22).

The purpose of Sloterdijk’s ‘General Immunology’ now is to acquire insight into those psycho-immunological practices. When philosophy turns into immunology, he argues, it may discern the *immuno*-logical character of the *zōion lōgon échon*, and the traditional truths. Thus, ‘first order truths’ are replaced by immunocritical ‘second-order truths’, which hold the illusory but vital character of the first order truths up to a new light (Lemmens, 2008, pp. 86–93; Sloterdijk, 2001, p. 347; Sloterdijk and Heinrichs, 2006, p. 215).

Modernity, Globalisation and the Immunological Catastrophe

It is through this immunological lens that Sloterdijk looks at Nietzsche’s famous phrase ‘God is dead’. For Sloterdijk, this *cri de cœur* of Nietzsche means that the great concepts of the onto-theological tradition have lost their sway over Western thought: God should be seen as a reassuring illusion, which from now on we have to learn to do without (Sloterdijk, 1999b, p. 588; Sloterdijk and Heinrichs, 2006, p. 218).^{8,9} Nietzsche’s proclamation of God’s death is echoed by Sloterdijk’s

7 Sloterdijk considers the discovery of biological immune systems an important moment in the history of human mind and understanding of the world. Suddenly, the whole meaning of the past had to change according to Sloterdijk, because we had a new general notion for all kinds of protectionism, including economic protectionism, and warfare (personal communication, 22 December 2011).

8 ‘Der Immunzauber der klassischen Ontotheologie ist wirkungslos geworden, und unser Glaube an der Gott in der Höhe, ohne den bis gestern kein Haar vom Haupt eines Sterblichen fiel, ist kraftlos, gegenstandslos, heillos geworden’ (Sloterdijk, 1999b, p. 588).

9 ‘Wie immunisieren wir uns noch, wenn uns eine so starke Schutz- und Solidarform nicht mehr zu Verfügung steht wie die, die Platon Kosmos genannt hat, oder die, die bei den Christen Gott heißt?’ (Sloterdijk and Heinrichs, 2006, p. 218).

proposition that the grand spheres have collapsed, a development he refers to as a *sphere pathology* or an *immunological catastrophe* (Sloterdijk, 1998, p. 74). This is a result of the basic tendency of modernity towards 'explication'¹⁰ of reality, as a result of which the traditional symbolic immune systems no longer offer security and modern humanity is increasingly exposed to a radical outside (Sloterdijk, 2001, p. 212; 2004, pp. 192–207). This invokes the need to invent a science and technology-based poetics for creating a new immunised space.

For Sloterdijk, this explication of the world started during the scientific revolution of the seventeenth century (with the works of figures such as Bacon, Galilei, Newton and Descartes), but has become more dominant and influential from the twentieth century onwards. Through scientific inquiry and new technologies, the formerly implicit aspects of the world have been rendered more and more explicit. Sloterdijk argues that 'most of the rituals in nature remain in hidden form until research 'uncovers' and 'discovers' them' (personal communication, 22 December 2011). The realms of existence of which we had only latent knowledge were transferred to the foreground and appear in front of the footlights as it were (Sloterdijk, 2004, p. 192). With the advent of modernity, Sloterdijk contends, illusions were scattered to pieces and reality's 'secrets', hidden by the veil of illusions, were revealed and made explicit. As a result of this, we can no longer wrap ourselves in naive illusions about escaping the sometimes brute-confrontations with reality (Sloterdijk, 2004, pp. 201, 229). Consequently, Sloterdijk argues that metaphysics and religion have become ineffective in terms of immunisation against dangers and as means to fend off the epistemological threats from outside. Symbolic immune systems are surpassed by science and technology as far more efficient immunisation strategies (Sloterdijk, 1999b, p. 551).

Sloterdijk discerns a transition from symbolic immunisation or 'illusion-based immunity' [*Illusion-immunität*, i.e. metaphysics and religion] towards 'technical power-based immunisation' [*Macht-Immunität*] brought about by scientific knowledge [*Technisierung von Immunität*] (Alliez and Sloterdijk, 2007, p. 319; Sloterdijk, 1998, p. 70; 1999b, p. 209; 2001, p. 347). For Sloterdijk, our technical-titanism is thus merely an attempt to replace the traditional heavenly security

10 Sloterdijk speaks about the twentieth century as the '*Explikationszeitalter*' (Sloterdijk, 2004, p. 176). His notion of 'explication' [*Explikation*] is related to Heidegger's notion of 'unveiling' [*Entbergung*] (ibid. p. 228), which is the core of science and technology [*Technik ist eine Weise des Entbergens*], i.e. the unveiling and explication of processes and mechanisms in nature (and culture) in order to control them (to be able to manipulate them technically). According to Sloterdijk, the twentieth century is not the century of revolutions but of explications and the catastrophe of latency [*Katastrophe der Latenz*] (ibid. p. 228), [*Drama der Explizitmachung*] (ibid. p. 226). In this century, science and technology revealed aspects that until then had been implicit, things that were there but that were unknown and invisible. This resulted in the exodus of man from his traditional lifeworld, a phenomenon that Heidegger referred to as the increasing *Heimatlosigkeit* (homelessness) of modern man.

with a technical, artificial surrogate sphere [*Ersatz-Sphäre*] relying on technical-operative forms of immunisation (Sloterdijk, 1999b, p. 885).

Besides explication, Sloterdijk argues, the process of globalisation has also played a major role in bringing about this 'sphere pathology'. For Sloterdijk, globalisation has had a detrimental impact on former strategies of immunisation, since, in his view, globalisation has, for example, resulted in the collapse of outdated immune structures such as nation states. In order to explain the causes and effects of the 'sphere pathology', Sloterdijk's interpretation of globalisation, specifically his discerning of three phases of globalisation: metaphysical globalisation, terrestrial globalisation and electronic globalisation will be discussed.

Sloterdijk considers Plato's global soul project [*All-Beseelungsprojekt*] (Sloterdijk, 1999b, p. 136) as the first phase of globalisation, which he refers to as *metaphysical globalisation*. Sloterdijk shows how ancient cosmology, as elaborated by Plato and Aristotle, is dominated by spherical thinking. In line with their interpretations of nature 'as cosmos' (geometrical order), they propounded the theory of the absolute globe, through which the earth as a safe haven and protected dwelling for human beings, enveloped by a series of concentric spheres, came into being (Sloterdijk, 2006). The first phase of globalisation was characterised by the idea that the best protection against the outside, the best immunisation of the interior against the external, is the integration of anything that is outside within one magnificent global cosmic shelter. Nature is basically regarded as a well-ordered, spherical space. In this all-encompassing sphere, humans could feel at home. Here they experienced a sense of security, of immunity against chaos and disruption (Morin, 2009, pp. 62–4).

For Sloterdijk, the second phase is that of *terrestrial globalisation* (Sloterdijk, 1999b, p. 824; 2006; ten Bos, 2009, pp. 82–5). It refers to the era during which the real terrestrial space was explored in its extension through cartographical and nautical endeavours, brought about by European colonialism and circumnavigation. As a result of this second wave of expansion and 'explication' or discovery of the globe, Sloterdijk suggests that we as modern subjects have lost the privilege of 'being-in'. We are no longer *in* but rather *on* the world, and our traditional immune systems have had to be adapted to this new experience of space.

The third wave of *electronic* globalisation – a globalisation that extends into virtual networks – and its correlated birth of a 'foam cells society', occurred in the contemporary era. It has become clear that the Earth, rather than *being* a sphere, actually *has* an (atmo)sphere. To a certain extent, the atmosphere acts as a 'sphere' in the sense of a protective shell, sheltering us against treats, such as ultraviolet light. Yet, at the same time, it is penetrable. It does not function as a firm container of what exists inside, but rather as a filter for what exists outside (Sloterdijk and Heinrichs, 2006, p. 210). One no longer dwells inside, but all human beings are condemned for all time to exist on the outside. We are, as surface-beings, 'uncontained' [*Nicht-Enthaltene*] and can no longer feign being safe within a 'hyper-sphere' (Sloterdijk and Heinrichs, 2006, p. 212) The Earth is an absolute non-container, whose outer surface, in the course of time, has cooled down. Sloterdijk argues that the universe

in its primordial state was hostile to life, a vacuum, the paradigm of terror and inhospitableness (Sloterdijk and Heinrichs, 2006, p. 213). Somehow this primordial state is now being unearthed and rediscovered. The macrospherological edifices of modernity have lost their immunising power.

Due to the collapse of macrospheres, the processes of immunisation have become visible (Sloterdijk, 2006, p. 162). Take, for example, the case of the nation state. In the past, it functioned as a political immune structure allowing its citizens comfort, certainty and protection. Nowadays, we witness the waning of the nation state due to the forces of globalisation. The traditional connection between place and identity that was once reinvigorated by the nation state has now loosened up considerably. This immunological construction is on its way out, and the connection between place and self (territorialism) is not as strong as it was in the past. The 'container immunity' it once offered is no longer available (Sloterdijk, 2006, p. 166).

One could argue that the immunological catastrophe of modernity does not consist in the loss of a centre, as has been so often claimed, but rather in the loss of the periphery. Borders are no longer what they seemed to be. The de-ontologisation of what once seemed to be permanent borders is the 'dysangelium' of modernity, Sloterdijk argues (Sloterdijk, 1999b, p. 825; 2006, p. 36). Globalisation destroys feelings of homeliness. Humans are increasingly unable to construct meaningful forms of togetherness. The old poetics of dwelling is dismantled. The world no longer provides a recognisable horizon offering illusions of security; she is no longer the maternal womb. In other words, the protective shell has collapsed. Sloterdijk reasons that we have abandoned the interior and are, as Pascal already pointed out, exposed to an infinite meaningless and cold exterior.

This realism condemns us, Sloterdijk claims, to renounce imaginary immune systems founded in geometrical simplifications (Plato) and similar metaphysical illusions. Morphological idealism has had its time. Life under globalising conditions exposes our very existence; we all have to carry on without the enveloping structures providing us with a sense of immunity (Sloterdijk, 1998, p. 24). Sloterdijk insists that we have to develop different geometries, corresponding to more modern, more efficient, and *less illusory* immune designs that no longer present themselves under the veil of religion or ideology (Sloterdijk and Heinrichs, 2001, p. 219). For Sloterdijk, 'the question is whether the masses of solitary individuals, for whom happiness is in essence an individual project, will be able to construct new immuno-systemic places that offer protection against the "cosmic flu"' (Ten Bos and Kaulingfreks, 2002, p. 142).

The Twilight of Immunity

As we have seen, Sloterdijk contends that as a result of modernisation and globalisation, organismal (human) integrity can no longer be obtained with the help of metaphysical illusions. From now on, integrity must be seen as the result of the personal achievements of individuals who actively delimit their own space

and secure their integrity. According to Sloterdijk, one of the characteristics of increased explication, and the core idea of what he calls our ‘post-metaphysical’ [*nach-metaphysischen*] society, is that we can no longer rely on taken for granted modes of behaviour (Sloterdijk, 2004, p. 195). These are being replaced by explicit choices based on science and technology that help us immunise ourselves against the new risks, such as the ecological risks related to climate change, health risks related to newly emerging infectious diseases and the risk of deterritorialised (bio)terrorism.

The search for security focuses on new forms of individual or collective health through diet, exercise and fitness (see also Rose, 2007; Sloterdijk, 2004, pp. 197–8). Sloterdijk argues that the excessive interest in techniques for staying healthy is closely related to the search for identity. He builds on the work of Bauman who likewise argues that the obsessive preoccupation with fitness, health and safety is exemplary of a tendency to understand our body as a place where all kinds of terrors might occur (Bauman, 1999, pp. 42–6). Our response to the lack of security of life on a planetary scale has led to a focus on ourselves.

Because risks looming in contemporary society are seen as too grand to be manageable, we try to transfer our anxiety about them (from global insecurity and uncertainty, which are its genuine causes) to the field of our own fleshy, visible and tangible bodies (Bauman, 1999, p. 49). This privatisation of fears, Bauman contends, has a self-perpetuating capacity: ‘There is no obvious way leading from privatised terrors to common causes ...’ (Bauman, 1999, p. 47). Governments

cannot honestly promise their citizens a secure existence and a certain future; but they may for the time being unload at least a part of the accumulated anxiety ... by demonstrating their energy and determination in the war against foreign job-seekers and other alien gate-crashers, intruders into once clean and quiet, orderly and familiar, native backyards. Doing so may be richly satisfying; perhaps modest and short-lived, yet nevertheless a compensation for the humiliating feeling of helplessness in the face of an unsympathetic or coldly indifferent world. (Bauman, 1999, p. 51)

Sloterdijk also recognises that the search for self-security in the context of planetary anxiety is deeply paradoxical. Medical research, or medical ‘explication’ in Sloterdijk’s terminology, plays a subversive role (Sloterdijk, 2004, p. 198). With the explication of the immune system, Sloterdijk reasons that we have slowly begun to understand that obscure fights between pathogenic organisms and antibodies are continuously raging within our own bodies. The discovery of autoimmune illnesses has, in his view, revealed the danger of excessive immunisation. If the success of our immune system in its struggle against pathogens would be complete, then this victory would in itself become a kind of danger, since microbial and viral life forms are indispensable to keeping our bodies alive. In this sense, there is a dangerous tendency (of the self) to gain total and therefore fatal victories in fighting the other (Haraway, 1991; Sloterdijk, 2004, p. 199).

The 'explication' of biochemical processes of immunity through techno-scientific research also has consequences for the 'mental immune status of the enlightened society', Sloterdijk asserts (Sloterdijk, 2004, p. 196). Our knowledge has increased tremendously, but sometimes this has caused a paralysing bafflement due to our increased awareness of risks. More knowledge will not automatically yield more immunity advantages (Sloterdijk, 2004, p. 200). If, for example, through biomedical research a multitude of new diseases are discovered, feelings of security or comfort will not increase at all (Sloterdijk, 2004, p. 201). An unanticipated result of progressive explication by scientific and technological developments is more distrust and anxiety.

This 'collateral damage', as Sloterdijk calls it, is actually twofold (Sloterdijk, 2004, p. 200). In the first place, the increase in knowledge explicates potential risks, while effective (technical) immunisation strategies still have to be developed. Sloterdijk pays particular attention to the psychological collateral damage in terms of increased perception of risks and correlated fears. In the second place, there is a physical form of collateral damage. New technologies actually create new forms of risk associated with the technology itself, for example risks involved in nuclear, bio- or nano-technology. This resonates with the views of Bauman, who argues that in our society there is a 'profound and unquenchable desire for security', and simultaneously a sense 'of more and deeper insecurity' which, in turn, entails more and more emphasis on immunity, and so on (Bauman, 1999, p. 23). The stronger we immunise ourselves, the less secure we feel (Sloterdijk, 2004, p. 200).

Sloterdijk's concerns resonate with what Beck has to say in his texts on the 'risk society' (Beck, 1992, 1998, 2002). Beck argues that the speeding up of modernisation has produced a gap between the world of quantifiable risks in which we think and act, and the world of non-quantifiable insecurities that we are creating. Beck's diagnosis accords with Sloterdijk's reflections, as he argues that the growth in knowledge has not alleviated our fears, but rather increased the widespread sense of uncontrollability (Beck, 2002, p. 43).¹¹ Referring to those fears and anxieties, Sloterdijk's diagnosis of society is sometimes rather gloomy: he considers our society a 'multi-alarm society' [*Multi-Alarmgesellschaft*] (Sloterdijk, 2004, p. 202). Mobilisation of fear has become the dominant political strategy, which all political actors employ. In view of the lack of guiding principles, fear appears to be the only accepted valuta at the political market (Swierstra and Tonkens, 2011).

In our society, these risk pressures cause citizens and governments to prioritise *protection over participation* in society (Sloterdijk, 2004, p. 196). One of the effects of increasing explication of risks is an obsession with safety – from antibodies and dietary prescriptions to welfare states and military apparatuses (Sloterdijk, 2004, p. 208). As a result, Sloterdijk concludes that the 'twilight of immunity'

11 The sociologist Ulrich Beck refers to this process as 'modernity's self-endangerment', which is the accumulation and redistribution of 'bads' (i.e. risks) that are tied up with the continuous production of 'goods' (Beck, 2002, p. 43).

[*Immunitätsdämmerung*] determines the intellectual and moral condition of the present (Sloterdijk, 2004, p. 196). Although Sloterdijk does not elaborate on precisely what he means with this notion, it is probably a reference to Wagner's *Götterdämmerung* and Nietzsche's *Götzen-Dämmerung*.

In the third and final act of *Götterdämmerung* or *Twilight of the Gods* – the well-known opera by Wagner – both gods and heroes are consumed by flames, and humanity is left entirely at its own mercy. Nietzsche's book *Götzen-Dämmerung, oder, Wie man mit dem Hammer philosophiert (Twilight of the Idols, or, How to Philosophise with a Hammer)* was published in 1889. The term *Götzen-Dämmerung* clearly seems a parody of Wagner's opera. In this book, Nietzsche uses his philosophical hammer to critically assess a number of 'idols' such as Socratic rationality and Christian morality, as well as their contemporary counterparts. His central concern is the coming into being of a new type of philosophy that affirms life, rather than denying it. He is vehemently opposed to any philosophy that proposes a denial of the 'will to life'. Thus, what is called for is a 'revaluation of values'. This new philosophy should see psychology and physiology as its allies, relentlessly tracing and diagnosing cultural symptoms of decadence. The 'idols' referred to by the title of the book are empty or hollow beliefs, which can be 'sounded out' with the philosopher's hammer.

Sloterdijk's term '*Immunitätsdämmerung*' clearly refers to the titles of Wagner and Nietzsche's works mentioned above. It refers to the waning of traditional immune strategies as 'idols', while reliable new ones still have to be developed. Again, the decline of the idols means that individuals are left to their own resources. Thus, the concept *Immunitätsdämmerung* implies that the collective failure of top-down strategies of immunisation must be compensated for by individual-based technical forms of immunisation, still under development.

Foams: Plurality and Fragmentation of Immune Systems

As we have seen, in the wake of the combined processes of individualisation and globalisation, the various spheres that make up our contemporary world society have ceased to be securely integrated within overarching spheres such as nation-states. In the third part of his *Spheres*-project, Sloterdijk argues that overarching social and cultural spheres have given way to foam – to an immense 'aggregate of microspheres' (Sloterdijk, 2004, p. 59). The age of over-arching holisms has been replaced with an amorphous, fluid, and complex world-order (cf. Bauman, 2007). As a consequence, there has been a development towards more 'individualistic immunity care and design' (Sloterdijk, 2006, p. 166). This is closely connected to the concept of *Immunitätsdämmerung* of course. Individuals themselves (rather than nation-states, for instance) will increasingly become the designers and carriers of immunity competences. This can be illustrated with many examples, from the individualisation of tailor-made insurances and retirement funds to personalised dietary prescriptions (Ewald, 1991, 2001; Sloterdijk, 2006, pp. 162–8).

It is not that over-arching spheres as such have become completely obsolete. Several international immunisation networks such as the United Nations or WHO still exist. Yet, in our current age, a plurality of more or less transient worlds has arisen. To describe this novel condition, Sloterdijk has coined the notion 'foams' [*Schäume*] (Sloterdijk, 2006, p. 171). He presents the novel condition as the good news of our time: 'The grand sphere has imploded, long live the foams' (Sloterdijk, 2004, p. 26). The grand spheres of former times have been replaced by smaller and much more transient spheres. These new immunity systems took over the monosphere's immunological functions 'through a disarticulated foamy architecture' (Couture, 2009, p. 162). The crucial question of our epoch is how to constitute one's own immunity while living alongside countless other solitary bubble builders (Sloterdijk, 2004, p. 1003). Flexible individuals no longer find immunity in imaginary and collective totalities such as religions, nations or classes, but find or create their own solutions (Sloterdijk, 2004, pp. 535–6). In other words, individuals themselves become increasingly skilled and competent at creating immunity (Sloterdijk, 2004, pp. 258–9). The foam metaphor thus allows Sloterdijk to formulate a philosophical-anthropological interpretation of modern individualism in a polyspheric (postholistic) world (Klauser, 2010, p. 330).

While the notion of foams (plural) emphasises the *plurality* of the 'globalised interior', another image, which Sloterdijk uses to describe this new type of environment, is the crystal palace [*Kristallpalastes*]. In his book *In the World Interior of Capital* (2005) [*Im Weltinnenraum des Kapitals*], Sloterdijk emphasises the vulnerability, lightness, transparency, and compartmentalisation of the spherical dimension of social space. Society can no longer be seen as a gigantic soap bubble, but is an amalgam mixture of mutually overlapping and interfering smaller bubbles (Sloterdijk, 2004, pp. 248–9). The metaphor of foam enables us to describe society as a multitude of fluid and evaporating immunity improvisations (Sloterdijk, 2004, pp. 55, 59, 251). Foams can be considered as the lightest form of spherical housing, providing the minimum immunisation requirement for human beings that live together (Couture, 2009, p. 162).

The idea of foam evokes the 'co-fragility' as well as the 'co-isolation' of closely connected aggregated units (Sloterdijk, 2004, p. 255). Each foam cell is a singular entity, whilst being defined and isolated by the fragile membrane it shares with its adjoining neighbour cell. These shared membranes imply co-fragility, since the annihilation of one cell will also affect its neighbouring cells. The semi-permeable membranes at once separate and simultaneously bind several households together, since they share what separates them: walls, streets, borders, media, etc. (Sloterdijk, 2004, p. 255). In this individuated mode of foam-existence, immunity and integrity are grounded neither in collective solidarity nor in an all-encompassing metaphysical whole. Rather, immunity is created by 'each co-isolated self-affirmative subject' (Klauser, 2010, p. 331).

Sloterdijk uses the metaphor of 'apartment individualism' in order to convey a social reality which increasingly consists of ego-spheres that are linked through communication networks (Sloterdijk, 2004, pp. 501–67). Sloterdijk defines the

apartment as ‘an atomic or elementary ego-spherical form ... massive repetition thereof gives birth to individualistic foams’ (Sloterdijk, 2004, p. 569). The media-sustained house thus transforms into a ‘zone of immunity’, a defensive measure that demarcates a territory of wellness against intruders and other transmitters of calamities (Sloterdijk, 2004, p. 535). In a precise *immuno-spherical sense*, to live in a foam bubble means to live in a self-animated space that provides a sense of physical and psychopolitical security. In other words, it provides ‘an *immune system* within a field ... of neighbourhoods’ (Sloterdijk, 2004, p. 576). For Sloterdijk, the individual dwelling is an ‘extended bodily immune system’, an ‘immune house’, which explicates the fact that ‘world openness’ always goes together with the need for closing off, with the need for host-defence (Sloterdijk, 2004, p. 540; see also Sloterdijk, 1993). Yet, for Sloterdijk, the question is how such a foaming sociality – the innumerable monadic spheres of today’s society – can acquire a minimum of social synthesis or solidarity.

Sloterdijk contends that neighbours (foamy individuals) are characterised by the possession of comparable ways of organising and immunising their life space. Most neighbours live spatially at a distance, but resemble each other in terms of analogous immunisation strategies and imitative and repetitive technological ‘infections’ (Sloterdijk, 2004, pp. 253–60). In other words, the relations between co-isolated cells are not to be understood as communication, but instead as imitation, supported in modern society by the mass media (Sloterdijk, 2004, p. 60). The mass media produce an instant cohesion through the production of common news themes, clothing fashions, popular music trends, etc. Sloterdijk claims that the content of the media messages is less important than the produced emotional outcomes. It is the affective involvement of individuals, for example in the form of collectively consuming alarming information, that really connects a dispersed mass of individuals together (Laermans, 2011, pp. 117–28).

Media-produced social cohesion, however, does not create a substantial sociability but only a temporary, unstable, and volatile sociality. The mass media are not very helpful in creating and sustaining real existential solidarity; indeed they mock the very idea of authentic and receptive solidarity. Something of the inspirational quality, of the ‘psycho-atmospheric’ quality of the microsphere will inevitably be lost (Kaulingfreks and ten Bos, 2006). In the end, it only creates a connectedness of the most abstract and distant kind. A foam society is thus characterised by a world of interior spaces that are populated by human beings whose social relations are easily shifting. Therefore, eventually, foams are heading towards their own inevitable collapse.

Co-immunisation

As we have seen from the analysis so far, Sloterdijk argues that we can no longer enjoy the super-immunity provided by a natural order or God. Moreover, the immunisation structures that came into existence in the era of the nation-state have lost their

significance as well. In a society of foams, immune systems are rapidly proliferating. The question, then, is how to constitute one's own immunity while living side-by-side with countless other solitary bubble builders. How does one successfully design and adjust inhabitable immune spaces in a society of permeable walls? For Sloterdijk, the quintessential question is how we can become a world society where the immunity of the one is no longer achieved at the expense of the other? To that end, Sloterdijk argues that it is time to rethink the relation between immunity and community (Sloterdijk, 2004, p. 536; see also Esposito, 2008, pp. 146–94). To that end, he comes up with the term '*co-immunisation*' (Sloterdijk, 2009, p. 711).

In the final chapter of his book *You Must Change Your Life* (2009) [*Du mußt dein Leben ändern*], Sloterdijk argues that the incentive for transforming our lives into more sustainable ethical cosmopolitical ways of being can be distilled from the 'General Immunology' he has developed (Sloterdijk, 2009, pp. 699–714). As discussed, Sloterdijk regards 'General Immunology' as the legitimate successor of (religious and secular) metaphysics. He argues that immune systems embody the institutionalised expectations of injury and damage that are based on a distinction between self and other, between native and foreign. Whereas biological immunity operates at the level of the organism, social immune systems rather refer to supra-organismal cooperative dimensions of human existence. Such immune systems guarantee legal certainty, social security and feelings of affinity or solidarity that go beyond relationships based on family ties. The self is no longer confined within the horizon of organismal egoism, but rather positions itself in service of ethnic or multi-ethnic, institutionalised and intergenerational enlarged social selves.

Until recently, in Sloterdijk's view, history was a struggle, an interplay of damage and repair to immune systems of increasing size and complexity of organisation (Sloterdijk, 1998, p. 66; 2001, p. 346; 2009, p. 712). Nowadays, this agonistic dynamic struggle between groups has reached its limit in the form of an absolute boundary: the world has become a global system, where the differentiations between self and other become elusive and less feasible. This brings about the need for a *concrete* planetary co-immunisation structure to replace the abstract universalist illusions and religious monotheisms that have prevailed thus far.

Accordingly, Sloterdijk argues that *protection of the whole* now becomes a form of categorical imperative (Sloterdijk, 2009, p. 712). The new *telos* of practical reason is the complete protection of everything that is included within the global sphere. Yet, at the same time, we are faced with processes of '*foam making*'. The only way to overcome this tension, Sloterdijk argues, is to see individual immunity as *co-immunity*. According to Sloterdijk, we must leave behind all former distinctions between self and other and all separations between friend and enemy (Sloterdijk, 2009, p. 713). The question remains: how do we do that?

No credible co-immunity structure that could encompass all members of the world society has emerged in the real world so far. At the highest level of political summits and financial negotiations, there is no all-encompassing solidarity. The existing political entities still have a familial, tribal, national, regional, and imperial nature (cf. van der Zweerde, 2009). These systems are still in competition

and the immunity profits of one are still seen as detrimental to the other. Sloterdijk concludes that this proves that so far humanity has not evolved into a ‘super-organism’ yet (Sloterdijk, 2009, p. 712; see also Safranski, 2003, p. 45). In other words, there is no all-encompassing (global) immune system and accordingly no all-encompassing solidarity. Take for example the discussion in the EU regarding the massive deficits of Greece, the support (or rather lack of support) by fellow EU countries, not to mention citizens and the debate on the threatened future of the euro. Immunity (also in the sense of ‘exemption’) of one state is still clearly perceived as detrimental to other states (Editorial, *The New York Times*, ‘Greece and Who’s Next?’, 2010). Accordingly, Sloterdijk contends that the major challenge of the present is to organise a concrete ‘worldwide co-immunity structure’, which takes into account separate cultures, particular interests and local solidarities.

The Earth is covered by networks and vaulted with foams (assemblies of insular immunity structures) and in need of a global structure that allows these foam-like insular immunity structures to co-exist, he argues. This does not mean that Sloterdijk pleads for a return to *abstract* universalist or holist illusions and symbolic immunisation structures; rather, he argues that we are in need of a concrete, respectful and operational planetary co-immunisation structure; in other words, a macro-structure of global immunisations: *co-immunism* [*Ko-Immunismus*] (Sloterdijk, 2009, p. 713).

Discussion

As we have seen, Sloterdijk basically assesses the contemporary world in terms of immunisation processes. But how does Sloterdijk’s immunology actually relate to insights in the dynamics of immunity as they unfold in the biomedical domain? Throughout *Spheres*, he points to the immunitary qualities that have enabled cultures to develop ‘under the permanent pressure of a potentially invasive and irritating environment’ (Sloterdijk, 2009, p. 20). He puts forward the necessity of ‘optimalisation of the social immune status against faint life risks and acute death security’ (Sloterdijk, 2009, p. 23, my translation). In this context, he stresses the toxicity, nihilism, and meaninglessness of a threatening environment (Sloterdijk, 2004, pp. 195, 540).¹² So, it seems that he sometimes takes a rather negative view of the environment and accordingly emphasises the defensive capacity of immunisation.

12 The following quotes concern a few, among many more, that underline Sloterdijk’s defensive view on immune function: ‘Allein Aufgrund ihre immunitären Qualitäten steigen sie auf den Rang von selbstorganisierenden Einheiten, die sich unter ständigem Bezug auf ein potentiell wie aktuell invasive und irritationenträchtige Umwelt erhalten und reproduzieren’ (Sloterdijk, 2009, pp. 19, 20). ‘Folglich kann man die Immunsysteme dieses Niveaus als verkörperte Verletzungswartungen und als entsprechende Schutz- und Reparaturprogramme a priori definieren’ (Sloterdijk, 2009, p. 20). ‘Solcher Leistungen wegen hat man Immunsysteme dieses Typs mit einer “Körperpolizei” oder einer

In *You Must Change Your Life*, he summarises his immunology by stating that 'immune systems are embodied, respectively institutionalised injure and repair expectations that are based on the distinction between self and foreign' (Sloterdijk, 2009, p. 709). Sloterdijk refers to immunology as the study of how an organism reacts to potential pathogenic injury and defends itself against the deleterious effects of (for instance) microbial insult. He departs from a categorisation of immunity in its role as a defender (of the self) against assaults from the side of the other (outside), as illustrated by the fact that he speaks of a 'body police' [*Körperpolizei*] and a 'border security force' [*Grenzschutztruppe*] (Sloterdijk, 2009, p. 20).

From this perspective, the organism, the human, the state, or whatever the object concerned is regarded as an *entity*, and immunity is to defend its integrity against external harm. At the same time, Sloterdijk acknowledges the double function of immunisation. He also points to the role of the sphere (immune system) in the creation of a homely atmosphere, in creating an internal climate (or identity). In his employment of immunological terms, he sometimes seems to prioritise the defensive role of immune systems, although he acknowledges their constitutive role. Still, he continuously stresses the terrifying monstrosity and potential toxicity of the environment, thus apparently embracing a predominantly defensive perspective on immunisation.

By pointing to the complexity of the immune system and the self-organising, dialectical interchange between self and the 'outside' world, it was shown, in Chapter 3, how immune reactivity is increasingly understood as highly integrated and dialectical in nature (Tauber, 2000). In that sense, immune functioning appeared to be more complex and dialectical than Sloterdijk professes it to be when he defines the immune system as described above (Sloterdijk, 2009, p. 709).

This apparently defensive account of immunity sometimes seems to be at odds with his intricate and thoughtful (foam) theory and its quite positive undertone. In his reflections on the individualised immunising foam bubbles, he stresses the co-fragility, and co-isolation of the individual cells in the plurality of the foam. In other words, in the case of foam bubbles or foam cells, the distinction between the one and the other, between self and foreign is far from well-demarcated. It seems that Sloterdijk's idea of the 'foaming selves', which have no circumscribed walls to protect them, comes close to the scientific consideration of the self as elusive and ill-defined, as described by Tauber (Tauber, 1999a). As such, Sloterdijk's

Grenzschutztruppe vergleichen' (Sloterdijk, 2009, p. 20). 'Wohnen ist aus immunologischer Sicht eine Verteidigungsmaßnahme, durch die ein Bereich des Wohls gegen Invasoren und andere Bringer von Unwohlsein abgegrenzt wird' (Sloterdijk, 2004, p. 535). 'Die Wohnung des Modernen eist die Körperausdehnung, durch die seine habitualisierte Sorge um sich und seine in den Hintergrund verlegte Defensivität eigens zur Darstellung gebraucht werden' (Sloterdijk, 2004, p. 540). 'Die einzelne Blase im Wohn-Schaum ... dient die vitale Kapsel der Wohnung als Schauplatz seiner Selbstpaarung, als Operationsraum seiner Selbstsorge und als Immunsystem in einem kontaminationsträchtigen Feld aus connected isolations alias Nachbarschaften' (Sloterdijk, 2004, p. 576).

immunology seems to entail a tension between his intricate and sophisticated analysis of our contemporary culture on the one hand (including his foam theory), and his sometimes defensive immunological discourse on the other.

Conclusion

In this chapter, Sloterdijk's argument that immunisation has become the core dynamic of contemporary society has been followed and explained. His idea that spheres, although historically of different size and composition, are the common denominator in the continuing odyssey of human immunology has been expounded (Couture, 2009, p. 159). Whereas earlier societies succeeded in sustaining and reproducing themselves by the construction of regenerative protective microspheres, over time, humanity has increasingly tended towards the construction of macrospheres and eventually even a single global macrosphere.

The immunological catastrophe, as a consequence of the processes of modernisation and globalisation, has forced us to develop less illusory immune designs. Consequently, there is a development towards more individualistic and technology-based immune designs that have resulted in what Sloterdijk calls the 'twilight of immunity', or the global crisis of the immunisation paradigm. Through an increase and extension of safety (immunisation) measures, contemporary biosocieties are struggling, not always successfully, to overcome the basic experience of uneasiness and insecurity.

In view of the drawbacks of individualised immunisation and the lack of solidarity, Sloterdijk argues in favour of a new immunitary imperative. To that end, he takes a cosmopolitical perspective and comes up with the notion of *co-immunisation* to imagine a world in which foam-like insular immunity structures are able to peacefully co-exist. This notion of *co-immunisation* (or '*co-immunism*'; Sloterdijk shifts between the terms) seems intuitively relevant and perhaps even necessary or inevitable in a world in which we are increasingly interconnected and interdependent. Yet, it also remains rather abstract and sketchy. Sloterdijk refrains from elaborating in a more concrete and tangible manner on the 'social mutations' needed for achieving or realising this co-immunisation.

The idea of co-immunisation is interesting and if further elaborated, would add substantially to the previous debate. It should however be developed beyond a warning appeal, accompanied by the mantra of mutual respect. It needs to be elaborated how an account of co-immunisation in terms of an enlarged self-concept can fulfil the need of leaving behind former distinctions between self and other. Only then can philosophy help to deal with or diminish the harsh everyday geopolitical reality, where it seems that the distinction between self and other intensifies and sharpens rather than dissolves.

As we have seen in Chapter 2 and the present chapter, Sloterdijk builds on the discipline of biological immunology for giving shape to his 'General Immunology'. However, there appears to be a tension between his sometimes

defensive immunological discourse on the one hand and his intricate, thoughtful and positive¹³ analysis on the other.

With regard to the positive undertone of his immunology; he does point to the – at times – paradoxical results of our immunisation strategies. However, he refrains from deploying autoimmunity as a philosophical notion as Esposito, Derrida, and others have done. Esposito, for example, argues that it sometimes seems that in present times, immunisation has in fact evolved into a strategy of excess, into an ‘autoimmune illness’ (Esposito, 2008, p. 148). The concept of autoimmunity is philosophically very relevant and cannot be put aside when one considers ‘General Immunology’ to be today’s metaphysics, as Sloterdijk does. Unfortunately, Sloterdijk does not make use of the full immunological repertoire. Other contemporary philosophers do employ the notion of autoimmunity in order to convey the potential damaging results (discontents) of excessive immunisation measures. In the next chapter, this notion of autoimmunity as appropriated by Derrida, Esposito, Han, and Baudrillard will be further analysed and explained.

13 According to Sloterdijk, immunisation has to be thought in positive terms. He stresses that immune systems play a constitutive role in the maintenance of organic life. In his view, immunity is the most dramatic demonstration of the fact that to live means to draw borderlines between the organism and the environment. Life itself is a protectionist institution, and according to Sloterdijk that protectionism has to be thought positively (personal communication, 22 December 2011).

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Chapter 6

Alternative Immunological Concepts in Political Philosophy

Introduction

In December 2012, a tragedy in an elementary school in Newtown, Connecticut, took place in which 20 children and at least six adults were shot by a former student. The event revived the debate about limiting access to heavy lethal weapons. Until then, the American public seemed almost unaffected by the series of shocking shooting incidents. Despite the US's toll of mass shootings, political unwillingness and a powerful gun lobby seemed able to prevent laws tightening restrictions on weapon ownership (Harris, 2012). The right to own a gun and to defend oneself is a central tenet of American identity (Hofstadter, 1970). But this 'gun culture' and the assumed responsibility for self-protection rest on an obvious paradox. American citizens try to protect themselves by means of weapons, and paradoxically, they (or their children) get killed by those very same weapons, the possession of which is considered a constitutional right to self-protection. As a result, they call for even more security, more weapons, for example, in the placement of armed security guards in front of every school. Despite these security measures, the civic sense of safety does not increase, but decreases. The result is a vicious circle in which the public tries to protect itself against the collateral effects of its means of self-protection. The American gun culture is a typical example of what some cultural critics and political philosophers refer to as autoimmunity.

Although the first consideration of biological autoimmunity dates back to 1901, it was not until recently, from the beginning of the 1990s, that the notion of autoimmunity began to pervade philosophical discourse. By now, it has firmly taken root in political and cultural and philosophy, for example in the work of Esposito, Baudrillard, Derrida, and Han. In his philosophy, Esposito also elaborates on the intense *biologisation* of the political, or an intense biopoliticisation of all societal relationships. The maintenance, development and expansion of life has become of strategic political relevance. The conservation of biological life and the struggle for its protection have now become a major goal of global politics, precisely by *immunising* it from the (lethal) dangers threatening it. But now, the practice of preventive war (such as the one fought in Iraq, or the permanent 'war on terror') constitutes what Esposito refers to as 'the most acute point of an *autoimmunitary* turn of contemporary biopolitics' (Esposito, 2008, p. 147). He argues that the obsessive quest for security, resulting in excessive mechanisms of defence, ruinously strikes back on the same body politic that those defence mechanisms actually aim to strengthen.

The above-mentioned philosophers more or less agree on diagnosing an ‘autoimmune crisis’ in contemporary culture. Nevertheless, they employ different interpretations of autoimmunity and undertake practically no cross-referenced related interpretations of each other’s work. Each of them stresses different aspects of the notion of autoimmunity (or a related term), and as a result there is neither a fully-fledged philosophical debate on immunological concepts in general, nor on autoimmunity in particular.

We have seen that autoimmunity is a biological concept that refers to an immune response directed against a body’s own cells and tissues (Chapter 3). In its use as political philosophical concept, autoimmunity refers to a situation in which the striving for immunisation becomes a major threat to social (political) life itself. In that case, the protection of life, the effort to exclude any intrusion from the outside, may become obsessive to such an extent that it risks destroying not only the alleged enemy outside, but first and foremost the social ‘body’ it is meant to protect, i.e. society (Derrida, 2005; Esposito, 2008; cf. Napier, 2003). In the case mentioned above, for instance, the American people tries to protect or immunise itself against armed violence, and is paradoxically harmed by its own weapons and thus by its own immune system. But how appropriate is this concept of autoimmunity (or a related immunological term) for political philosophical analyses of such mechanisms?

As we have seen in Chapter 1, there is a long-standing tradition of exchange of concepts between biology and political philosophy. In this chapter, this exchange will be investigated with regard to the notion of autoimmunity. I shall analyse the extent to which extent the philosophical notion corresponds with the biological concept, thereby providing a basis for a philosophical debate by thoroughly analysing the philosophical appropriation of the concept of autoimmunity by the philosophers concerned, and by comparing the internal differences and similarities of their theories. The different ideas and political theories behind the philosophical notions of autoimmunity or behind the other (closely related) immunological notions that they employ will be analysed. Although they use different immunological notions, their theories are very closely related to and hinge on the alleged idea of autoimmunity. By investigating how their philosophical notions of autoimmunity relate to the biological idea, I shall initiate the debate between biology and philosophy on the notion of autoimmunity.

Immunological Concepts in Political Philosophy

This chapter commences with an analysis of the use of immunological terms in the work of Baudrillard and Han respectively, because their employment of immunological concepts is still somewhat loose and mainly metaphorical. In the work of Esposito and Derrida, the notion of autoimmunity is ascribed a more serious and far-reaching philosophical significance. Derrida develops autoimmunity into a full political philosophical concept. In the analysis of the immunological notions

as applied by the philosophers concerned, a development can thus be discerned from a somewhat general metaphorical immunological discourse towards a more specific philosophical interpretation of the notion of autoimmunity.

Finally, in the analysis, the philosophers concerned will be brought under three headings, according to the general idea (and meaning) behind the notions of autoimmunity or related immunological notions that they employ: *hyper-immunisation* or *excessive immunisation* (Han, Baudrillard), *preventive immunisation* (Esposito) and *sacrificial self-destruction* (Derrida).

Excessive Immunisation or Hyper-immunisation (Baudrillard, Han)

Jean Baudrillard (1929–2007) was a French sociologist, philosopher, and cultural critic. He is best known for his analyses of the modes of mediation and technological communication. He is also famous for his imaginative and often iconoclastic reading of contemporary culture and thought. *Simulacra and Simulation* (1981), for example, is a famous philosophical treatise in which Baudrillard pursues an interrogation of the relationship between reality, symbols, and society. His commentaries on the first Gulf War (*The Gulf War Did Not Take Place*, 1991) and on the attacks on the Twin Towers (*The Spirit of Terrorism*, 2001) constitute important works in the field of political theory. The analysis of Baudrillard below will mainly focus on two of his works: *Screened Out* (2002) and *The Transparency of Evil* (1993). In these two works, he reflects on contemporary political issues and debates. *Screened Out* involves a collection of journalistic essays in which he analyses a wide spectrum of subjects ranging from virtual reality and television, to the Western intervention in Bosnia, children's rights, and genetic cloning, amongst many others. In *The Transparency of Evil*, he pinpoints some worrisome and pathological developments in contemporary western culture: the banal or vicious circulations of fame, drugs and terrorism, but also the tendency towards hyper-prophylaxis, a Baudrillardian perspective that will be discussed in this chapter.

When it comes to the analysis of contemporary political culture, Baudrillard points to the pathological downsides of preventive and excessive immunisation, which he terms 'pathologies of disinfection' (Baudrillard, 2002, pp. 1–8). He draws a clear parallel between the physical body and the social body, and argues that in a hyper-protected space, in which the level of prophylaxis (medicine; protecting from or preventing disease) is too high, the body eventually undermines its own lines of defence. He contends that it is in the most sterile places that the most mysterious, virulent viruses or microbes emerge (Baudrillard, 2002, p. 3; 1993, p. 69). In the non-metaphorical sense, this is illustrated for example by the emergence of the resistant 'hospital superbug' *Clostridium difficile* (even more dangerous than the well-known MRSA microbe). This bug typically emerges in hospitals that have a very high level of prophylaxis (McDonald, 2005; Dancer, 2008). The point that Baudrillard is aiming at, of course, is that the very same thing happens with the social body.

Baudrillard contends that because of our oversophisticated protective strategies, the social system damages its own defences. In his view, the causes of terrorist

threats, viral threats and even cancer, for example, are basically identical. They are anomalous symptoms that are generated by the system itself. They are a reaction in the first case to a 'political overmanagement of the social body', in the second and third case, to a 'biological overmanagement of the body *tout court*' (Baudrillard, 1993, pp. 69–72). Baudrillard calls this 'a pathology born of disinfection itself, a pathology of the third kind' (Baudrillard, 2002, p. 4). In other words, he argues that because of our *excessive immunisation* strategies in several societal domains, new risks and threats are generated by the protective system itself.

Baudrillard claims that the contemporary terrorist threats that threaten us today are themselves the paradoxical (and pathological[!]) results of our counterterrorism activities (Baudrillard, 2002, pp. 1–8). Baudrillard states that the pathologies of disinfection, which he also terms 'virulence' in other parts of his texts, are the results of our inclination to be protected from all risks and threats. In other words, he claims that total prophylaxis is lethal: 'This is the leukaemia of an organism devouring its own defences, precisely because all threat, all adversity has disappeared' (Baudrillard, 1993, p. 71). Note that leukaemia is an autoimmune disease. Although he does not use the notion of autoimmunity but rather speaks of 'pathology of disinfection', in other parts of his texts, he explicitly draws the parallel with autoimmune diseases.

Baudrillard draws the parallel with the biological body, which, if it eliminated all of its germs, bacillae and parasites would run the risk of developing cancer, of 'devouring its own cells' (Baudrillard, 2002, p. 3). It would risk being devoured by its own antibodies, which would then have nothing to do: 'Under the reign of the virus you are destroyed by your own antibodies' (Baudrillard, 1993, p. 71). The same would happen to the social body: if all negative critical elements were expelled, it would run the risk of catastrophe by total implosion. In his view, in the absence of negativity, of viruses, of 'the other' in general, the body and the social body would be devoured by their own defences.

According to Baudrillard, we are all, what he calls, 'potentially immunodeficient': because of our over-protection, the body loses all its natural defences in precise proportion to the development of sophisticated technologies (Baudrillard, 1993, p. 69). For Baudrillard, this immunodeficiency involves an 'internal virulence', a virulence caused by the system itself, which is the result of the tendency to eliminate all external aggression. Moreover, the problem is that there is no effective prophylaxis against these kinds of internal virulence. This is a result of the fact that medicine, for example, is itself part of that system of overprotection. Baudrillard contends that medicine instead contributes to the obsessive production, not to mention over-production, of protective and preventive measures that aim to prevent diseases and improve one's health and fitness.

Baudrillard states that there is a connection between AIDS, economic collapse, and electronic viruses. These are not isolated events; they embody the logic of the whole system of over-protection and prophylactic fanaticism. Because of this relation between prophylactic measures and catastrophes, Baudrillard claims that as our technologies become more sophisticated, the catastrophes

(i.e., the pathologies of disinfection) will be more dramatic to the same degree. Furthermore, he points to the importance of globalisation and media in the spread ('contamination') of these risks and threats. The risks and threats that arise from the system of over-protection follow the same 'protocol of virulence' through the media and imagination, and therefore have 'contamination effects' way beyond their actual impact (Baudrillard, 2002, p. 6).

Baudrillard, however, also points to the productive side of the catastrophes resulting from our over-protectiveness. In his view, the 'extreme phenomena', the pathologies of disinfection, at the same time serve as a 'homeopathic therapy' for the systems. They serve as an 'alarm signal' against an even more extreme escalation of the tendency towards prophylaxis or immunisation. As such, the catastrophes are at the same the therapy: 'The sudden whirlpools that we dub catastrophe are really the thing that saves us from catastrophe' (Baudrillard, 1993, p. 77).

In sum, although Baudrillard does not use the term autoimmunity, with his analysis he nevertheless clearly aims to point at the pathological results of over-protective systems in different societal domains. As such, he aims to point at the self-inflicted damage contemporary protective systems give rise to. In other words, Baudrillard draws attention to the paradoxical self-destructive results of excessive immunisation measures put in place to protect the body(politic).

The German philosopher Byung-Chul Han partly shares Baudrillard's view, as will be shown. Han is a cultural theorist and philosopher who has written about different topics; his most recent books involve the *Müdigkeitsgesellschaft* (2010) (*Fatigue Society*),¹ and the *Transparenzgesellschaft* (2012) (*Transparency Society*). In *Topologie der Gewalt* (2011) (*Topology of Violence*), he focuses on the relation between violence and individuality. He shows that in spite of the widespread belief that violence is decreasing in modern civilised society, Han explains that it has only changed its form of appearance and operates more subtly. The military (explosive) form of violence gives way to a more anonymous and implosive form of violence. This form of violence is less visible because of the fact that it merges with its antagonist freedom. Building on the ideas of several philosophers such as Freud, Schmitt, Foucault, and Deleuze and Guattari, he elaborates his own concept of violence. The analysis below will focus on this book as well as on the *Müdigkeitsgesellschaft*, because it is mainly in these works that he applies immunological concepts for his analysis of society in general, and for the analysis of the expression of violence in particular.

Han's diagnosis of contemporary society is closely related to Baudrillard's thesis on the risks and threats created by our systems of *excessive immunisation*. In *Topologie der Gewalt* and *Müdigkeitsgesellschaft*, Han contends that globalisation has resulted in a vanishing of otherness and foreignness (Han, 2011, pp. 53–100). In his view, globalisation has created a society of solitary isolated individuals with a weak, volatile and unstable connectedness, analogous to Sloterdijk's solitary

1 This book has not (yet) officially been translated in English. I have only given a translation of the title.

isolated foam bubbles: individuals whose social relations are easily shifting and whose relationships are characterised by intensified competition. In this society, we are more or less all competitors who have to survive in our ‘performance society’ (a rather Western view of society) (Han, 2011, pp. 98–9, 106–7). Because of the disappearance of absolute otherness, we now live in a time bereft of negativity and of antagonistic tensions. This lack of negativity leads to an uncontrolled growth of positivity: ‘a general promiscuity, excess of mobility, consumption, communication, information and production’ (Han, 2013, p. 13).²

Han is of the opinion that the immunological paradigm is completely inconsistent with the globalisation process. In his view, a dialectic of negativity underlies the immunological paradigm. The immunological other (foreign) provokes a negative antagonistic tension with the self, whereas, as described above, Han considers contemporary society as bereft of negativity. It consists mainly of self(same) competing individuals, who are particularly in competition with themselves. Accordingly, these same(selves) do not produce an immunological antagonistic tension. Today, people are more concerned with their success, unlimited self-expansion and productivity, rather than with foreigners or immigrants who would transgress their boundaries. People compete primarily with themselves (Dücker, 2011). This incessant willingness to perform is also reflected in the effort to optimise our bodies at work in all of us. Paradoxically, this obsessive quest for health and performance results in neuronal illnesses like depression, borderline personality disorder, and burnout syndrome (Han, 2011, p. 30; 2013, pp. 7–25).

According to Han, neuronal disorders determine the pathological landscape of today’s society. These disorders do not indicate ‘infections’ but ‘infarcts’, because they are not caused by the negativity of other people’s immunology, but by an excess of positivity (Han, 2013, p. 7). Accordingly, they are beyond any immunological technique of prevention and defence, which make these ‘infarcts’ so problematic. Han argues for a replacement of the *immunological paradigm* (based on the analogy with pestilential infection by a hostile virus and as such organised around a dialectic of negativity), with a *post-immunological, psychic-neuronal* paradigm (an internal psychic implosion and as such based on a dialectic of positivity) (Han, 2011, pp. 98–9, 136–45).

In Chapter 5, Sloterdijk’s argument that ‘immune systems have become the central focus of concern’ was discussed (Sloterdijk, 2004, p. 195). Han seems to claim the exact opposite: we are living in a *post-immunological* period bereft of antagonistic tensions from immunological others. To a certain extent, Han argues, people mainly suffer from self-inflicted terror; in other words, they are mainly at ‘war with themselves’ (Han, 2011, p. 134; 2013, p. 17). This might even lead to a ‘global burn-out’, he concludes, with neither winners nor enemies (Han, 2011, p. 122). As such, in Han’s view, the burnout of the performance subject

2 Han obviously builds on Baudrillard’s analysis when he speaks about a ‘total positivation’ in contemporary society, which leads to an ‘implosion’ of the system (Han, 2011, p. 122).

[*Leistungssubjekt*] is a pathological omen of the threatening *implosion* of the system, the pathological signature of the *post-immunological* age.

Han's analysis has some parallels with Baudrillard's analysis in terms of self-inflicted damage. Nevertheless, where Baudrillard uses terms like 'virulence', or 'pathology of disinfection', Han wants to get rid of immunological notions. In his view, contemporary individuals are primarily 'at war with themselves' rather than at war with (immunological) others, illustrating what he terms the *post-immunological* paradigm. So in Han's view, the danger comes from within, from our own bodies, and is a result of our own desire for performance and success.

Preventive immunisation (Esposito)

Roberto Esposito is an Italian philosopher and an influential and important voice within contemporary Italian political theory. He is especially important for his work in the field of biopolitics. He departs from the works of Foucault in his analysis of the contemporary biopolitical situation. The most well-known works include *Communitas: The Origin and Destiny of Community* (1998/2010), *Immunitas: The Protection and Negation of Life* (2002/2011) and *Bios: Biopolitics and Philosophy* (2004/2008).

In his book *Bios: Biopolitics and Philosophy*, Esposito aims at a diagnosis of the current political moment. He assesses the present in terms of a political autoimmunity crisis or a 'global autoimmunity crisis', which, in his view, grows more dangerous and destructive by the day (Esposito, 2008, p. xiii; Esposito, 2013, pp. 61–2; Esposito, Campbell and Paparcone, 2006, p. 53). For him, autoimmunity is the (pathological) result of an increased demand for *preventive* immunisation measures.

Esposito links immunity to the theme of community and with that of biopolitics. He thus abstains from isolating the category of immunity (or autoimmunity in this case), stressing its dialectic character (see also Chapter 2). He recognises that life, whether it concerns individual life or communal life, would die without an immunitary apparatus. Esposito also diagnoses an intense *biologisation of the political*, illustrated by the fact that the preservation of (biological) life has become the dominant political concern. Contemporary society's increasingly biopolitical character is illustrated by the fact that it seems as if in every societal domain there is an inclination to 'compress the political into the purely biological (if not to the body itself)' (Esposito, 2008, pp. 146–7).

In many aspects and many domains of society, the appearance of new barriers and lines of separation against something threatening us – or at least what we perceive as threatening to our social, biological, or environmental identity – can be observed. This is related to what some philosophers diagnose as a fundamental crisis of coexistence. This crisis is marked by processes of alienation, the diffusion of individualism and a decline of tolerance (Esposito, 2008; cf. Napier, 2003). The increasing segregation between Muslim and non-Muslim parts of the world, the marginalisation of particular populations, but also the electoral profit of populist

and nationalist parties in Europe and elsewhere testify to such a reality (Bauman, 1997; Bonito Oliva, 2006). Despite Esposito's emphasis on the indispensability of immunisation, he also recognises the potentially deplorable results of these immunising tendencies.

In response to the (real or perceived) threats discussed above, Esposito argues, immunisation measures have grown excessive, in the sense that they are already deployed in the absence of danger or risk. Parallel to the defence of the body in the absence of infection, the defence of the social body by way of 'preventive immunisation' - in situations where real danger and contagion are lacking - has grown exponentially over the past decades (Esposito, 2013, pp. 62, 84; Bonito Oliva, 2006, p. 76). He draws a parallel with autoimmune illnesses and argues that 'just as in the most serious autoimmune illness, so too in the planetary conflict presently under way: it is excessive defence that ruinously turns on the same body that continues to activate and strengthen it' (Esposito, 2008, p. 148). Esposito worries about the disintegration of human relations: every relationship, every form of togetherness immediately appears as endangered by the risk of contamination, reflecting the dangers of immunisation as our societal *Leitmotiv* (Esposito, 2013, p. 59).

The excessive mechanisms of defence and control are a result of the fact that the threshold of society vis-à-vis risk has been raised continuously. In other words, in contemporary society risk perception has strongly increased. This is a result of the tendency to adjust the perception of risk to the growing demand for protection rather than adjusting level of protection to the effective nature of the risk (Esposito, 2013, p. 62). The routine of insurance companies is a paradigmatic example of such a development (Esposito, 2008, see also Beck, 2002). In consequence, Esposito argues, in contemporary society the dynamics (the reciprocal strengthening) between risk and protection, between risk and insurance, in other words, between risk and immunisation, runs the risk of getting out of hand (Esposito, 2013, p. 62).

Because of our immunitary obsession, *preventive* (and excessive) defence measures are developed that have an autoimmunitary effect and are detrimental to the social body itself. This 'demand' for protection and defence is illustrated by and probably fuelled by the 'protection industry' itself. Its defence products, including the weapons for self-protection as mentioned at the beginning of this chapter, have turned into a real market. The global market for pharmaceuticals has also been growing and has proved to be very lucrative. Therefore, many contemporary critics consider pharmaceutical companies the supposed catalysts of the 'demand' for drugs (Payer, 1994).

Esposito further ascribes an important role to '(tele-)technologies' and to globalisation in general as contributing to the paradoxical effects of our immunisation strategies. In response to the fact that human beings are becoming coming more intertwined with each other economically, politically and culturally, a demand for what he calls 'preventive immunisation' is generated as a sort of compensation (Esposito, 2013, p. 60). In other words, for Esposito the new local

enclaves, with their ethno-fundamentalist tendencies, can be explained as the *immunitary rejection* of what he terms ‘global contamination’, i.e. globalisation (Esposito, 2013, p. 60; Esposito, Campbell and Paparcone, 2006).

In sum, for Esposito autoimmunity is the pathological result of both *preventive* and as such excessive immunisation measures, or the pathological result of immunisation in the absence of infections or risks. As such, his reading of autoimmune diseases also hinges on the idea of autoimmunity being the pathological result of *excessive* immunisation measures.

Sacrificial Self-destruction (Derrida)

Jacques Derrida (1930–2004) was a French literary critic and philosopher and father of the method of ‘deconstruction’, which is a form of semiotic analysis. This method is a way of criticising not only both literary and philosophical texts but also political institutions. The influence of his thought and work is very wide-ranging: Derrida contributed to a broad range of philosophical fields, from the philosophy of literature, to linguistics, ethics and politics. His ethical and political analyses, which will be the main focus of the following analysis, started to appear in the 1980s (Borradori, 2003, p. 137). I shall not attempt to give a full account of his political thought, which would be very difficult given the extent and complexity of his work, but will focus on the work(s) in which he employs the notion of autoimmunity.

Derrida departs from an understanding of autoimmunity as a distinctly biological concept (see Chapter 2; see also Johnson, 2010). In his philosophy, he uses the notion of autoimmunity in different ways. The first and most prominent denotation he gives to autoimmunity is sacrificial self-destruction or suicide, as will be illustrated. He first mentions autoimmunity in his book *Religion* (Derrida and Vattimo, 1998) and further develops it in a book by Borradori, *Philosophy in a Time of Terror* (2003), in which Borradori interviews Jürgen Habermas and Jacques Derrida on the subject of the attacks on the Twin Towers in 2001. In *Rogues* (2005), he discusses the themes of sovereignty, democracy and freedom within the context of the expression ‘rogue states’, which is the outlaw designation of certain countries by the leading world powers, particularly by the United States. In *Rogues*, Derrida uses the notion of autoimmunity in order to develop a critique of democracy. The notion of autoimmunity enables him to rethink the idea of self-identity, as he demonstrates the paradoxical nature of every sovereign identity such as the nation-state, or even of God Himself. For Derrida, every sovereign is exposed to a process of self-destruction and at the same time this self-destruction gives it its only chance of survival (Naas, 2008, pp. 124–5).

In *Religion* (1998), Derrida and Vattimo address questions about the meaning, status and prospects of religion. In the essay *Faith and Knowledge* of this volume, Derrida employs the concepts of immunity and autoimmunity to describe the relations between faith and knowledge or between religion and science (Derrida

and Vattimo, 1998, p. 73 n. 27; Naas, 2008, p. 130).³ For Derrida, autoimmunity is a biological condition in which a ‘living being, in quasi-*suicidal* fashion, “itself” works to destroy its own protection, to immunise itself *against* its “own” immunity’ (Borradori, 2003, p. 94). Derrida refers to immunity and autoimmunity as biological notions yet at the same time he generalises the notions beyond their biological context by speaking ‘of a sort of general logic of auto-immunisation’ that applies to other realms outside biology as well.⁴

In *Faith and Knowledge*, he demonstrates that religion’s attempt to immunise itself against technology has the paradoxical effect of science and technology becoming a fundamental part of religion. Inversely, he also shows how faith is the precondition of all science and technology (Derrida and Vattimo, 1998, p. 46; Naas, 2008, p. 130). Religion tries to immunise itself against contamination by technology, Derrida argues, because one of the sources of religion is ‘the unscathed (the safe and sound, the immune, the holy, the sacred, *heilig*)’ (Derrida and Vattimo, 1998, p. 49). For the benefit of the unscathed, religions strive for a purity (immunity) from the corrupting influence of technologies. At the same time, religions today, particularly in their globalising ambitions, depend on technologies (Internet, satellite transmission, cell phones) for their very survival. This dependence is related to the fact that, for their survival, religions need to repeat themselves, inscribing a kind of technology at their very core (Naas, 2008, pp. 130–32; see also Johnson, 2010).

The relationship between religion and technology is thus an ambivalent one. Religions oppose technology in an attempt to maintain their sacredness, but at the same time, they actually rely on technology for their own survival. Religion attacks the very thing that it needs for its survival (technology), and this is what Derrida labels a process of autoimmunity:

Religion today allies itself with tele-technoscience, to which it vehemently reacts at the same time. Religion is, on the one hand, globalisation; it produces, weds, exploits the capital and knowledge of tele-mediatisation ... But, on the

3 The parallel between the body and the social body concerning auto-immunity is first drawn by Derrida in his book *Religion*: ‘It is especially in the domain of biology that the lexical resources of immunity have developed their authority. The immunitary reaction protects the “indemn-ity” of the body proper in producing antibodies against foreign antigens. As for the process of auto-immunisation, which interests us particularly here, it consists for a living organism, as is well known and in short, of protecting itself against its self-protection by destroying its own immune system. As the phenomenon of these antibodies is extended to a broader zone of pathology and as one resorts increasingly to the positive virtues of immuno-depressants destined to limit the mechanisms of rejection and to facilitate tolerance of certain organ transplants’ (Derrida and Vattimo, 1998, p. 73 n.27).

4 ‘We feel ourselves authorized to speak of a sort of general logic of auto-immunisation. It seems indispensable to us today for thinking the relation between faith and knowledge, religion and science, as well as the duplicity of sources in general’ (Derrida and Vattimo, 1998, pp. 72–3).

other hand, it reacts immediately, simultaneously, declaring war against that which gives it this new power only at the cost of dislodging it from all its proper places ... It conducts a terrible war against that which protects it only by threatening it, according to this double and contradictory structure: immunitary and auto-immunitary. (Derrida and Vattimo, 1998, p. 46 translation modified)

After *Faith and Knowledge*, the concept of autoimmunity reappears in many of Derrida's subsequent works. In his interviews with Borradori on the attacks of September 11 (2001), as recorded in *Philosophy in a Time of Terror* (Borradori, 2003), Derrida diagnoses the political situation as autoimmune, by pointing to the self-destructive tendencies in (Western) democracies.

For Derrida, the attacks of 9/11 proved that the Cold War logic no longer applies. In the contemporary political landscape, the threats no longer come from identifiable sovereign nation states – from 'rogue states' or 'outlaw regimes' – but from non-state or trans-state entities. Apart from 9/11, a terrifying example of a contemporary non-state threat is of course the jihadi movement Islamic State (Isis). The name Isis is rather misleading, because Isis is not linked to a specific nation-state. In the Cold War era, nation-states simply declared war, but now those non-state or trans-state entities rather turn the resources (and the 'immune system') of the state (including its freedom, technologies and airplanes) against the state itself (Naas, 2008, p. 124). In other words, Derrida argues that the terror comes from within the state, for example, from plane hijackers that have been armed and trained by the US (Borradori, 2003, pp. 92, 95). This implies that the enemy is no longer located within foreign nation-states, 'but within non-state networks *and* within the immune system of the nation-state itself' (Naas, 2008, p. 124). This is what Derrida refers to as 'an autoimmunitarian terror' (Borradori, 2003, pp. 85–96).

Moreover, 9/11, the 'major event' as it is called, has resulted in the continuous fear of a broad range of threats, such as future terrorist attacks, because of the anonymous invisibility of the enemy and the undetermined origin of terror. This chronic fear tends to call for protective measures long before the alleged disaster really happens. Building on the French word for future, '*avenir*', Derrida claims that since the attacks on the Twin Towers, the threat haunts the future, in the sense that it is still to come (*à venir*): 'Traumatism is produced by the future, by the "to come"' (Borradori, 2003, pp. 97–9, 151). The terror of terrorism leads to a fear of the future, and he also terms this an 'autoimmune pathology'. For Derrida, the real terror is the dissemination of the dreadful images through mass media to audiences consisting of billions of individuals worldwide. As a result, the future becomes haunted with conspiratorial fears.

In general, for Derrida, 9/11 represents an autoimmune crisis, because it shows that the US was vulnerable as a result of its tendency to overreact, which is another 'autoimmunitary terror' according to Derrida (Borradori, 2003, p. 100). He reasons that all efforts to counteract threats – to neutralise, deny or repress threats – are desperate attempts; more strongly, they are 'autoimmunitary movements, which

produce, invent, and feed the very monstrosity they claim to overcome' (Borradori, 2003, p. 99). What is repressed on the political and psychoanalytical level is the very same thing that is at the same time nourished and cultivated, namely the fear. For Derrida, that is precisely the autoimmune perversity (Miller, 2008, p. 222). In the short or the long run, the 'war on terrorism' produces the causes of evil it claims to eradicate. The 'immune systems' – i.e. the repressive and anti-democratic measures introduced in Western democracies – were put in place in order to protect the public against terrorist threats, but turned against the West itself. The 'immune systems' of the US were supposed to avert the dangerous threats that caused 9/11, yet they undermined the very freedoms that were supposed to be protected (Johnson, 2010).

For Derrida, autoimmunity is thus the 'illogical logic'⁵ that turns something against its own defences (Derrida, 2005, p. 123; Naas, 2008, p. 124). In his view, this process is applicable to sovereign identity. In *Rogues*, he develops a critique of democracy as autoimmune. Derrida argues that democracy 'protects itself and maintains itself precisely by limiting and threatening itself' (Derrida, 2005, p. 36). Derrida offers a paradigmatic example of this autoimmunity in the suspension of elections in Algeria in 1992. In Algeria, a democratically elected government suspended elections for fear of a majority intending to elect a party that aimed at the formation of a fundamentalist Islamic government. In the name of democracy, the Algerian government and an important (while non-majority) part of the people interrupted a normal electoral process, in order to immunise democracy against the potential threat of an opposing party (the enemy inside democracy) that would put an end to democracy permanently (Derrida, 2005, pp. 30–37; Naas, 2008, p. 136).

The 'autoimmune suicide' consists in the fact that democracy attacks a part of itself (in this case elections) in order to survive as a whole. Derrida stresses that such autoimmune suicide is not just an anomaly that befell Algeria in this case; rather it is a constitutive or inherent character of democracy in general (Naas, 2008, p. 136; Haddad, 2004). Another example that Derrida uses to demonstrate autoimmunity in democracy is the response of the US government to 9/11, which has been discussed above. In that case, the threat to the democracy of the United States caused the American government to attack a part of itself (through the suspension of certain democratic rights and liberties) in order to ensure its survival. In both cases, the Algerian election and the response in the US to the attacks of 9/11, democracy entails a certain openness to threats from outside, from 'the other' – an undemocratic regime, or terrorist attacks – and democracy risks destroying part of itself in an attempt to avert these threats (Haddad, 2004, p. 37). Democracy is therefore by definition 'at risk'. That risk comes as much

5 'To lose itself all by itself, to go down on its own, to *autoimmunize* itself, as I would prefer to say in order to designate this strange illogical logic by which a living being can spontaneously destroy, in an autonomous fashion, the very thing within it that is supposed to protect it against the other, to immunize it against the aggressive intrusion of the other' (Derrida, 2005, p. 123).

from itself as from threatening ‘others’: the dictators, terrorists, and religious fundamentalists who abhor democracy (Haddad, 2004). Because every state is a priori able to abuse its power and transgress international law, Derrida concludes that: ‘there is something of a rogue state in every state’ (Derrida, 2005, p. 156; see also Agamben, 2005).

In the case of both September 11 and the Algerian elections, the threat is the result of the openness or hospitality of democracy. Democracy is open to ‘others’ and to other forms of government (Haddad, 2004, p. 36). Democracy’s ‘constitutive autoimmunity’ is related to this hospitality, which is problematic, because in a sense democracy ‘wants’ two incompatible things:

on the one hand, to welcome only men, and on the condition that they be citizens, brothers, and compeers ..., excluding all the others, in particular bad citizens, rogues, non-citizens and all sorts of unlike and unrecognisable others, and on the other hand at the same time or by turns, it has wanted to open itself up, to offer hospitality, to all those excluded. (Derrida, 2005, p. 63; see also Johnson, 2010)

This shows how democracy always already produces the very forces by which it is threatened to be undermined. Accordingly, Derrida claims there is no absolutely reliable prophylaxis against such autoimmune terror (Derrida, 2005, pp. 150–51; Borradori, 2003, pp. 99–100; Johnson, 2010).

Building on the inherent paradox of autoimmunity, Derrida relates autoimmunity to the ancient Greek concept of the *pharmakon*. This concept was introduced in philosophy in the *Phaedrus* and *Phaedo*, in relation to Socrates’ explanation of his views on the nature of writing. The term is used to point to a fundamental indeterminacy of whether something is a benefit or a harm. Derrida builds on the notion of *pharmakon* and its contradictory meaning. A *pharmakon* is remedy and addictive drug or medicine and poison at the same time (Derrida, 1981; Derrida, 2005, p. 157; Borradori, 2003, p. 124). In *Rogues*, Derrida describes the inherently pharmacotic character of the state, which as we have seen is at the same time self-protecting and self-destroying: it is at the same time cure and poison (see also George, 2002).⁶ As Derrida puts it: ‘[t]his poisoned medicine, this *pharmakon* of an inflexible and cruel autoimmunity that is sometimes called the “death drive”’ (Derrida, 2005, p. 157).

⁶ ‘How to decide between, on the one hand the salutary role played by the ‘state’ form (the sovereignty of the nation-state) and, thus, by democratic citizenship in providing protection against certain kinds of international violence (the market, the concentration of world capital as well as ‘terrorist’ violence and the proliferation of weapons), and, on the other hand, the negative limiting effects of a state whose sovereignty remains a theological legacy, a state that closes its borders to noncitizens, monopolizes violence, controls its borders, excludes or represses noncitizens, and so forth? ... The *pharmakon* is another name, an old name, for this autoimmunitary logic’ (Borradori, 2003, p. 124).

While in his interviews with Borradori, Derrida emphasises the suicidal side of the autoimmune crisis, in *Rogues* he emphasises the ambivalence of the concept, and its *pharmacological* properties as a political trope. Although the interpretation of autoimmunity as sacrificial self-destruction at first sight suggests a rather pathological (or negative) reading of autoimmunity, Derrida explicitly also points to the productive (curing) character of it. Autoimmunity is also a medicine that opens up chances and hope. The optimistic chance of autoimmunity is hospitality, he argues. A community cannot be formed without autoimmunity; protection of community is not possible without the hospitable but dangerous opening of its borders. Derrida argues that this openness to others, which is risky, makes it possible to receive the other. Thus, for Derrida, autoimmunity is not necessarily negative. He relates it to his ethics of *hospitality* as opposed to an ethics of *security*:

In this regard, autoimmunity is not absolute ill or evil. It enables an exposure to the other, to *what* and to *who* comes – which means that it must remain incalculable. Without autoimmunity, with absolute immunity, nothing would ever happen or arrive; we would no longer wait, await, or expect, no longer expect another, or expect any event. (Derrida, 2005, p. 152)

In other words, ‘autoimmunity is the very condition of the unconditionality of the event; it is what opens the *autos*, what opens us, to time, space, language and the other’ (Naas, 2008, p. 139).

In general, Derrida’s notion of autoimmunity actually represents a non-dialectical term that undermines Carl Schmitt’s (1888–1985) interpretation of the political being as defined by the oppositional categories of friends and enemies, as written in *The Concept of the Political* (1996[1932]):

for Schmitt, it is indeed nothing more and nothing less than the political as such which would no longer exist without the figure of the enemy and without the determined possibility of an actual war. Losing the enemy would simply be the loss of the political itself – and this would be our century’s horizon after two world wars. (Derrida, 2005, p. 84; Johnson, 2010)

Derrida believes, however, that the new political reality (with its changed political relations) requires a new definition of the essence of the political for reasons described above (Johnson, 2010).

In sum, for Derrida, autoimmunity appears as a process of sacrificial self-destruction. This process is inevitable and inherently active in every sovereign identity (Naas, 2008, p. 124). In Derrida’s works, a development can be observed in the way he employs the notion of autoimmunity. In *Philosophy in a Time of Terror*, he focuses on the destructive (pathological) side of autoimmunity and accordingly he describes the attacks of 9/11 (and Madrid and London) as marking the global autoimmunity crisis. In *Rogues*, however, Derrida not only

stresses the suicidal effect of autoimmunity, but also pays attention to what could be termed ‘the other side of the coin’ of autoimmunity, i.e. hospitality (see also Chapter 3). Thus, Derrida shows how autoimmunity also implies an openness and vulnerability to others, with the risk of destroying oneself (democracy, the nation-state or otherwise etc.) (Derrida, 2005, p. 40; Haddad, 2004, p. 36).

Comparative Analysis of Political Philosophical Immunological Notions

All four philosophers discussed in this chapter agree on the fact that contemporary (political) culture can be characterised by (excessive) immunising tendencies with damaging effects on our own society and safety. They all more or less agree on the notion that, in contemporary society, the relentless quest for security, protection, and optimisation of our health (by performance and immunisation) has been carried too far. They all build on the pathological symptom of today’s political culture. Esposito, for example, in his criticism and (negative) biopolitical characterisation of our society as autoimmunitary, equates autoimmunity with *preventive immunisation*, and in other parts of his text with *excessive immunisation*. For Derrida too, virtually all immunisation is autoimmunisation and by definition (potentially) *suicidal*. In his analysis of the attacks on the Twin Towers in particular, autoimmunity is narrowed down and turned into a form of *excessive suicidal immunisation*. Han speaks of a war against ourselves, of a terror of the same(self) resulting in psychic-neuronal disorders. Baudrillard, finally, considers current threats, ranging from terrorism to computer viruses, as autoimmune illnesses (using different terms: Leukaemia, virulence and pathology of disinfection) resulting from our excessive purification and immunisation strategies against otherness in all its guises.

The four authors argue that the obsession with defence has a detrimental impact on our own bodies as well as our social body. In other words, they use the notion of autoimmunity (or an equivalent biological term) to convey the *pathological* tendencies of today’s immunisation measures. In that respect, autoimmunity is mainly discussed or interpreted as a negative phenomenon; a form of suicide, or the result of over-reaction or hyper-immunisation. Despite these similarities, their specific theories and use of immunological notions vary.

Where both Derrida and Esposito develop autoimmunity into a political philosophical concept (Derrida) or at least as the pathological result of an immunitary paradigm (Esposito), Baudrillard applies the term ‘pathology of disinfection’ in its biological meaning, using it as a metaphor for illustrating certain political dynamics. Baudrillard draws a parallel between excessive biological disinfection measures and the concomitant rise of virulent bacteria and proverbial ‘virulence’ that arise as a result of over-management and over-protective systems in our society. Baudrillard speaks about a ‘pathology of disinfection’, and in this use, his analyses of contemporary political culture are based on drawing analogies and on using biological processes as metaphors to illustrate political dilemmas.

Baudrillard's diagnosis is related to the 'hygiene hypothesis' in biology, first postulated in 1989 by Strachan (Strachan, 1989). His hypothesis reads as follows: 'Over the past century declining family size, improved household amenities and higher standards of personal cleanliness have reduced opportunities for cross-infection in young families. This may have resulted in more widespread clinical expression of atopic disease' (Strachan, 2000, p. S2). In other words, the changes in the lifestyle in industrialised countries (i.e. overly clean conditions) have led to decreased incidence of infectious diseases, but the decline of these infections is closely associated with the rise of certain immunological disorders such as allergies (hay fever, asthma, etc.) and autoimmune diseases (diabetes, or multiple sclerosis) (Strachan, 2000; Okada et al., 2010). The leading idea is that some infectious agents – notably those that co-evolved with humans – are actually quite beneficial in protecting us against a broad spectrum of immune-related disorders (Carpenter, 1999; Strachan, 2000; Kivity et al., 2009). Han contrasts his psychic-neurological paradigm with an immunological paradigm, which in his view represents a culture that suffers from communicable diseases and a culture that is characterised by antagonistic tensions (for example, between nation states).

Han's thesis about the alleged post-immunological paradigm can be called into question: when looking at the political landscape of today, it seems that, notably after the attacks of 9/11, antagonistic tensions between states, between citizens and immigrants, between ethnic minorities and the state and so on, have increased rather than decreased. Antagonistic tensions can also be observed in the political rhetoric that sometimes still posits a dichotomy between the supposedly freedom-loving West and despotic, hateful others (Mayer, 2007). The electoral gains of populist and nationalist political parties in various countries in Europe and elsewhere and their focus on their national cultural identities and corresponding stringent border regimes (to fend off 'illegal' immigrants) testifies to these antagonistic tensions as well (van Houtum, 2010). This is only one example among many that illustrates the still existing and working dichotomy between the imperilled self and the undesirable other. One could argue that in order to fend off threatening otherness, the West itself has encouraged the 'plague' of global informational espionage.

Whilst Derrida attributes great value to the notion of autoimmunity in the political context, for Esposito, contemporary political culture is mainly characterised by an immunisation paradigm and autoimmunity represents the pathological results of such a paradigm. Where, for Derrida, democracy, or even more fundamentally, the political, should be thought of in terms of autoimmunity (against Schmitt's definition of the political), for Esposito, autoimmunity is not inherent in democracy or politics as such, but rather is the pathological result of over-immunisation.

Baudrillard does not use the term autoimmunity in the way in which Esposito and Derrida employ it (as the pathological result of over-immunisation). Han and Esposito differ from Baudrillard in the fact that the latter mainly uses non-immunitarian terms to articulate his views. Baudrillard's main argument is that stringent purification and immunisation measures result in other pathologies. It has

been previously explained how this theory correlates with the hygiene hypothesis. To a certain extent, this hypothesis could indeed be applied to other societal domains as well. As such, the pathologies that arise could be termed autoimmune pathologies. Indeed, the hygiene hypothesis also states that over-purification might result in autoimmune disorders, or allergies (Strachan, 2000).

From the above analysis, it becomes clear how the philosophers not only attribute their own denotation to the notion of autoimmunity (or a related biological notion), but also give the term different philosophical weight. Whilst agreeing with Baudrillard's use of medical terminology, Derrida most radically translates the notion of autoimmunity to political philosophy, which makes his analysis of the political situation most profound and relevant. He has provided the most far-reaching and valid contribution when it comes to the use of autoimmunity as a political philosophical concept. Accordingly, the following analysis will predominantly build on his interpretation and use of the concept.

Reconciling Political Philosophical and Biological Immunological Concepts

As we have seen, the philosophers concerned build (particularly) on the negative effects of autoimmunity, i.e. on autoimmunity as illness and not as protection. Autoimmunity is thus reduced and narrowed down to the idea of autoimmune illness. However, as shown in Chapter 3, in biology it is now recognised that autoimmunity is essentially a positive phenomenon, a component of the complexity of the immune system, and very essential for our health and maintenance of the body (Schwarz et al., 1999). The difference between autoimmune protection and autoimmune disease is not clear-cut. It is located somewhere on a continuum, depending on the on-going dialogue with the external environment (surrounding tissues, components of the immune system etc.), rather than on a priori dichotomies (Cohen, 2000). A deeper understanding of the function of autoimmunity is called for. The role of autoimmunity in normal physiological functioning is often overlooked in mainstream biomedical science. Within the broader scientific community (outside immunology), autoimmunity is mainly regarded as a pathological phenomenon.

From a biological point of view, autoimmunity involves an immune response against the organism's own cells and tissues, so against what is considered as self. Autoimmunity is closely related or coupled to immunological tolerance (tolerance of self-antigens). Autoimmune responses are an integral part of vertebrate immune systems (sometimes called 'natural autoimmunity'). Autoimmune processes normally do not result in causing disease because of the phenomenon of immunological tolerance of self-antigens. However, in the case of reduced or broken tolerance, the reaction of the immune system against self-antigens can result in disease. As such, autoimmunity and tolerance can be regarded as 'two sides of the proverbial coin' (Tauber, 2012a).

Biological autoimmunity has nothing to do with excessively fighting the other, or with excessive protection against (foreign) dangers. Rather, the pathological

form of autoimmunity could be termed as ‘damaging the self’. Although all four philosophers probably have a point when arguing that some of our contemporary immunisation tendencies have grown out of proportion, it appears confusing rather than illuminating to equate excessive immunisation with autoimmune disorders as some philosophers do.

Before elaborating on how the political philosophical notion relates to the biological one, it is important to look more closely at the biological notion, or rather at the biological paradigm that underlies the biological interpretation a bit closer. When autoimmunity is biologically defined as a (destructive) reaction against components that are regarded as self, this definition of autoimmunity is drawn from an (obsolete) immunological perspective: from the perspective of the immune system as a system that discriminates between self and non-self and that protects a circumscribed self from foreign or non-self.

As we saw in Chapter 3, it has been recognised within immunology that the very notion of autoimmunity (among other immunological processes) has revealed that the immune self is not clearly defined. The immune self is continuously changing its identity. The process of autoimmunity has pointed to the fact that clear-cut foundational binaries such as self/non-self or host/aggressor are no longer tenable. (As we have seen, Derrida also opposes to those violent hierarchies.) Instead, autoimmune processes have stressed the fact that the immune system is not so much concerned with class discrimination (it recognises antigens but not on the basis of self-ness or foreignness *per se*), but rather with dialogue (Cohen, 2004, p. 10). From the classical dichotomous immunological perspective, autoimmunity appears as a contradiction. An immune system that is essentially targeted against others instead attacks the self. By taking autoimmunity solely as pathological, or as an undesirable immune response, the philosophers concerned all depart from this classical (obsolete) immunological perspective.

According to Han, in contemporary globalised society the other has disappeared. As a result we do not suffer from viral communicable illnesses (caused by the other), nor from threats by geopolitical others, but we suffer predominantly from neurological disorders caused by ourselves. This brings him to the conclusion that we live in a *post-immunological* age, in which we are mainly at war with ourselves and where illnesses affect not our immune system, but our psychic-neurological system. Taking into account the developments within immunology, the following three difficulties can be discerned concerning Han’s diagnosis of a prevailing post-immunological paradigm.

Firstly, it seems that Han is not aware of the fact that in immunology, the distinction between self and other has also been obscured. Han accuses Baudrillard for hewing too closely to the virological or immunological paradigm (Han, 2011, pp. 120–21). In that way, Han conveniently equates the virological with the immunological paradigm. As we have seen in chapters 3 and 4, virology tends to create an oppositional discourse, whereas immunology provides a non-oppositional scheme. As Protevi captured it:

For immunology, the question is never one of inside and outside, but of the economic distribution between intakes, assimilation or rejection and excretion. The unitary, self-present body is exploded into a systematic interchange, a point of exchange of forces; in other words, immunology studies forceful bodies politic. The outside is already inside, in relation to the inside; the regulation of this interchange is the job of the immune system. (Protevi, 2001, p. 102)

Although virologists discover more and more about the productivity of viruses (in terms of protection against illness, their role in evolution, and their importance for biodiversity), the discipline of virology as such is still based on a firm antagonistic (dichotomous) paradigm of a virus coming from the outside (the virus as other) threatening the inside body/cell (self), whereas in the immunological paradigm this dichotomous distinction is being obfuscated and questioned. Thus, Han cannot simply equate the virological with the immunological paradigm. So although Han argues for a *post-immunological* paradigm, he himself, in fact, clings to the (obsolete) immunological paradigm and its firm self/other distinction.

Han tries to account for his post-immunological paradigm by arguing that contemporary modern society will no longer be suffering from infectious diseases. This reasoning overlooks the point that communicable diseases still pose and will continue to pose an everlasting threat to humans, related to the fact that viruses continuously mutate and evade our immune system. From a biological perspective, Han's argument about the alleged neurological age is also questionable, since our immune system has proven to be essential for the maintenance of our central nervous system. Apart from the fact that processes of globalisation, modernisation, and ecological factors result in the potential emergence and re-emergence of dangerous viruses, implying that viruses will always pose a permanent threat, the immune system has also proven to be essential to our neurological disorders (Schwarz, et al., 1999).

From a systematic perspective, in Esposito's view, the 'global autoimmunity crisis' is the result of two opposing immunitary obsessions. The first immunitary obsession involves the attempt of Islamic fundamentalism to immunise itself (its religious, ethnic, and cultural purity) against secular and Western 'contamination'. The second immunitary obsession involves the West's exclusion of a large part of the world by not sharing their wealth, their surplus of resources and goods. In Esposito's view, the anxiety provoking turmoil we are currently experiencing is a characteristic of the 'autoimmune crisis', which is the result of the intertwining between these two opposing developments (Esposito, Campbell, and Paparcone, 2006, p. 53; cf. Borradori, 2003, pp. 99–123).

Esposito's argument relates to Baudrillard's analysis. He argues that the intensification of the defensive strategies have inverted the paradigm of self-preservation. By blocking the expansive power of life and by reducing life to a function of survival, an 'autoimmune implosion' is the result (Bonito Oliva, 2006, p. 76). In other parts of his texts, he makes the same argument but uses the strategy of vaccination to illustrate his argument. When vaccinating a patient, a

tolerable amount of the disease is introduced into the patient. In order to protect a patient against a specific disease, a minute amount of the specific infectious agent is inoculated. According to Esposito, the problem now is that modern immunitary procedures have carried this contradiction beyond its optimum, with deplorable results for the social body. He states that the level of immunisation increases to the point at which it is so high, that the 'cure' is given in the form of a fatal dose, a lethal poison (Esposito, 2013, p. 61).

Esposito draws a parallel between the paradigms of medicine and politics. In Esposito's view, the prevention of infection (even before bodies come into contact) has become the dominant concern, not only in medicine but also in the political domain. This results in the crushing of relationality and solidarity (Bonito Oliva, 2006, p. 76). Esposito tries to illustrate these dynamics by drawing the analogy with autoimmune diseases. Esposito states that 'in autoimmune diseases the immune system becomes so strong that it turns against the very mechanism that it should defend and winds up destroying it' (Esposito, 2013, p. 62). Although Esposito's analysis is very interesting and relevant from a political perspective, the immunological terms he employs sometimes obfuscate his message, for three reasons.

Firstly, the strategy of vaccination has nothing to do with autoimmune illnesses. Esposito appears to equate surplus vaccination and autoimmune illnesses. An autoimmune disease is determined as the result of a 'failure' in the immune system's tolerance. In the case of an autoimmune disease, the immune system reacts to bodily components (coded a self) that it would normally ignore or tolerate. Vaccination, however, involves inoculation of a tolerable amount of an infectious agent, which helps the immune system to provide the immune response by reinforcing antibody production. So, using both different processes (vaccination and autoimmunity) to illustrate the same political dynamics introduces confusion.

Secondly, Esposito seems only aware of autoimmunity as pathology (as disease) and not of autoimmunity as normal physiological process. In addition, he seems to interpret autoimmune diseases as the result of lowering the threshold for immunisation. In the metaphorical sense, he appears to understand autoimmune illness as the result of our excessive defence against otherness. However, immunisation against pathogens (others) and autoimmunity involve two different processes. Autoimmunity involves an immune reaction against components coded as self (see Chapter 3). This reaction does not necessarily result in disease. The difference between so-called autoimmune protection and autoimmune disease is determined by timing and intensity of inflammation. The autoimmune T cells involved are actually the same. So, autoimmune disease is the result of a 'normal' immune reaction against components coded as self, which has gone awry.

Thirdly, Esposito's definition of autoimmune illness also obfuscates his political message. Autoimmune diseases do not destroy 'the mechanisms, i.e., the immune system that should protect us', as Esposito claims (Esposito, 2013, p. 62, Esposito, Campbell and Papparcone, 2006, p. 53). Instead, autoimmune diseases attack parts of the body (not part of the immune system!) that, for the outside observer, are coded as self.

Leaving aside the fact that Esposito seems to homogenise vaccination and autoimmune disease, his theory could make sense from the biological perspective of the hygiene hypothesis. This hypothesis states that as a result of excessive purification and immunisation measures, autoimmune pathologies and allergies arise. Thus, from this perspective, autoimmune pathologies are a secondary effect of excessive immunisation measures. However, this does not appear to be the parallel that Esposito is aiming for.

Derrida's appropriation of the notion of autoimmunity is the most intricate and politically relevant. Nevertheless, as in the work of Han and Esposito, there is a tension between Derrida's use of immunological terms and his political analysis. In *Religion*, Derrida refers to the biological notion, which in his view would amount to 'protecting itself against its self-protection by destroying its own immune system ...' (Derrida, 1990, p. 73 n. 27).⁷ Derrida's interpretation of autoimmunity thus deviates from the biological definition of autoimmunity, but interestingly it corresponds with Esposito's reading of autoimmunity. Biological autoimmunity is a process in which the immune system reacts to the body's own components, not to the body's own *immune system*. Here, Derrida seems to confuse autoimmune disorders with immunodeficiency disorders, such as HIV/AIDS (Acquired Immune Deficiency Syndrome or Acquired Immunodeficiency Syndrome). The latter involves an illness in which the HIV-virus affects the *immune system* of its host, making people much more vulnerable to disease (Boesecke et al., 2009). Although Derrida builds on the definition of autoimmunity expressed above, in his actual use of autoimmunity, he seems to disregard both his own biomedical definition and the actual biomedical definition (cf. Antonelli, 2011). This is unfortunate, since these could have contributed to a more clearly articulated use of state of the art immunological principles and thus a richer account of immunological principles at work at a political and societal level.

Derrida uses the term autoimmunity to describe the phenomenon of self-attack in general, rather than for self-attack of the immune system of democracy (which is how he defines the term, as we have seen). In his examples of the governmental responses to the attacks of 11 September and the elections in Algeria, Derrida emphasises how democracy attacks a part of itself by suspending elections and restricting personal freedom. If Derrida had adhered meticulously to his own definition, the elements – such as elections and personal freedom – would then not just be seen as parts of democracy but as parts of the *immune system* of democracy (Haddad, 2004, p. 30). The elements would have a role in the protection of democracy as such. The problem with this *immunodeficiency* perspective (instead of autoimmunity perspective) is that democracy is pictured as fundamentally

7 In *Philosophy in a Time of Terror*, Derrida employs this same definition of biological autoimmunity. He states: 'As we know, an autoimmunity process is that strange behaviour where a living being, in quasi-suicidal fashion, "itself" works to destroy its own protection, to immunize itself *against* its "own" immunity' (Borradori, 2003, p. 94).

structured around a notion of defence. This may not be the picture of democracy that Derrida envisaged (Haddad, 2004, p. 30).

Conclusion

We have seen how autoimmunity has developed as a biological concept (Chapter 3), and how subsequently it has been taken up in political philosophy and cultural criticism as well. In this chapter, the different political analyses and ideas that philosophical autoimmunity must represent have been investigated. Moreover, the extent to which the philosophical interpretation and use of autoimmunity relates to the biological notion has been investigated.

The philosophers discussed here appear to work independently from one another and follow different paths of thought, reflected in their own definitions and interpretations of autoimmunity. The common ground between the philosophers seems to be the consideration of autoimmunity (or an equivalent biological concept which, for them, characterises the deplorable results of immunisation) as a *pathological* symptom of the contemporary political situation. They all express their concern about (stringent) protectionist measures and the collateral damage that these involve.

Although intuitively an interesting perspective, given the exasperation caused by immunising tendencies, the application of the notion of autoimmune disease for such an analysis is somewhat confusing. This is because of the different meanings that the philosophers attribute to the term compared to the biological denotation of autoimmunity and autoimmune disease. As has been shown, an autoimmune disease is neither the result of what one could term ‘excessive defence’ nor the result of the exclusion of dangerous elements that are alien to the organism (the analogous to the infectious agent coded as other) (Esposito, Campbell, and Papparcone, 2006, p. 53). Rather, autoimmune disease is the result of an immune reaction gone awry, in which the immune system attacks bodily components (coded as self). Accordingly, it seems – and this applies to all philosophers concerned – that immunological terms are sometimes employed in a rather superficial and hasty way. Many immunological terms are mixed up and are not clearly defined: autoimmunity is confused with immunodeficiency, and even with vaccination.

Nevertheless, their appropriation of autoimmunity brings to the forefront a very interesting philosophical point. The fact that they interpret autoimmunity solely as a pathological symptom implies that they all build on the biomedical immunological paradigm, which is structured around the idea of *defence* of a circumscribed self against a (dangerous) other, an approach that has actually appeared to be deficient. Derrida is the only philosopher who also employs the notion of autoimmunity for indicating a situation in which the self/other dichotomy no longer holds.

In short, the use of the notion of autoimmunity to analyse certain political dilemmas (such as the 9/11 attacks) and the current political situation in general, remains rather general and vague, ignoring the more precise definition Derrida and other philosophers themselves seem to hold, and thus fails to exploit to the full the analytical power that this notion proffers.

In spite of some drawbacks mentioned, Derrida's political analysis and employment of the notion of autoimmunity is most profound. Although he explicitly links the term autoimmunity to suicide and to defence, for Derrida, it also deconstructs the traditional demarcation that separates self and other, which is first and foremost politically relevant but also in accordance with the role of autoimmunity from a biological perspective. His view therefore may be the best basis for enriching the immunological repertoire. Such a repertoire will be suggested in the next chapter, attempting a more rigorous application of (auto) immunity to the analysis of political situations.

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Chapter 7

General Discussion: Towards a Common Philosophical Immunological Repertoire

Introduction

Biology and politics are deeply entwined in many ways. This book has shed light on the role of immunological discourse in this entwinement. In the previous parts (I and II), we have seen that it is appealing to use immunological discourse in political philosophy, and to describe the (political) state of society, since it reflects the political ontology that underlies our entire way of life. We have a body, both as an individual and community, that needs to be defended. The analyses of immunological discourse in the biological field (Chapters 3 and 4) and in the field of political philosophy (Chapters 5 and 6) have revealed three points of concern:

First, contemporary immunisation practices within the field of infectious diseases, including the controversial practice of pre-emption, reproduce a rather defensive perspective on immunisation (Chapter 4). The perception of the virus as the invading other has consequences for the way infectious diseases are dealt with, and for other areas as well, such as political discourse.

Secondly, within political philosophy immunological terms are not always precisely defined. For example, the term autoimmunity is used in many different ways (Chapter 6). The imprecise definitions as well as inconsistencies in the application of immunological terms are an obstacle both to mutual understanding between the philosophers whose thought has been analysed in the course of this book, and to a proper understanding of their particular theories on the part of their readers (Chapters 5 and 6).

Thirdly, the philosophers discussed in this book use only a relatively small part of the immunological repertoire. The biological immunological repertoire is versatile and includes notions such as immunity, tolerance and autoimmunity. In the political philosophical analyses discussed, merely the notion of immunity is employed. Furthermore, although authors such as Derrida are critical of a dualist interpretation of immunity in terms of discrimination between self and other, and although they do provide for a more relational account, some philosophers inadvertently retain notions of an older, dualist metaphysics by their use of immunological terms. The problem with a defensive (bipolar) interpretation of immunological discourse is that it leaves no room for grey areas or complexities. From such a defensive perspective there are no doubts about 'the self' or 'the other', and consequently no qualms about the nature of the response to certain perceived threats or the alleged 'other' (see also Campbell, 1992, p. 97). Moreover, this focus on the defensive

function of immunity is insufficient to do justice to the political complexity it is supposed to describe. This will be demonstrated further in this chapter.

This synthesis will start by discussing the different approaches concerning the application of immunological terms in the theories of the philosophers discussed in this book. Immunological terms are used in different ways and are ascribed different philosophical significance. Sometimes immunological terms are used in a mainly metaphorical sense; other philosophers develop immunity into a fully philosophical notion or a consistent paradigm. Then, the different philosophical meanings given to immunological terms will be discussed, as will the ways in which the philosophical meanings relate to the biological interpretation of immunity. It will become clear that basing philosophical immunological discourse on a firm discrimination between self and non-self, including its military metaphors, is not very helpful if one wants overcome the so-called ‘autoimmunitary tendencies’, nor is it sufficient to discern complex and nuanced political processes. In the following section, the discontents of a defensive perspective on immunisation in the political practice of protection against infectious diseases will be outlined. After that, the recent insights in immunology will be recalled, including the alternative perspective on infectious diseases. These insights are slowly permeating although their ramifications have not yet been widely recognised. Building on these biological insights, I shall argue for the use of a common immunological repertoire in political philosophy, that is grounded on the biological definition and applies the full spectrum of immunological processes known from the biosciences, notably tolerance and autoimmunity, not because biology is the model per se (such an approach would come down to biologism), but because the conceptual ‘surplus’ in biological immunology could enrich the political philosophical immunological repertoire.

Immunity: Metaphor, Concept or Paradigm?

Chapter 6 discussed the issue of the status of immunological notions and models in political philosophy. The philosophers discussed all attribute a different status (role) to the immunological notions they use, and they provide different meanings for these terms. Some use these concepts as metaphor, some as concept, and sometimes the philosophical use of immunological terms is programmatic for the establishment of a new paradigm. The philosophers are not always clear about the role or status they attribute to the immunological notions, and this needs clarification. Before elaborating the assessment, their philosophical immunological theories will be recalled by briefly summarising them. The philosophical theories will be discussed in ascending order of philosophical significance attributed to the immunological terms. First the theories of Baudrillard and Han will be recalled. They use immunological terminology mainly in a metaphorical sense. Then, the immunological theories of Sloterdijk, Esposito and Derrida will be discussed. They develop immunity into a truly philosophical category or paradigm.

Baudrillard uses biological terms to indicate the (detrimental) results of protectionist tendencies in different domains, from the biological to the political. He draws linear analogies between the biological body and the social body. In that respect, he uses biological notions such as ‘virulence’, and ‘pathology of disinfection’ mainly in a metaphorical sense. He does not aim to develop a specific biological notion into a coherent coordinating paradigm, but rather restricts himself to drawing analogies. Baudrillard argues that, parallel to the biological body that loses its (natural) defences as a result of the broad range of prophylactic and protectionist measures, the social body suffers from political over-control. This results in new pathologies caused by the protectionist system itself, such as terrorism or economic collapse.

For Han, the use of immunology serves the purpose of indicating how and why society is characterised by decreasing antagonistic tendencies. Han speaks about contemporary culture being characterised by a ‘post-immunological paradigm’ (Han, 2011, pp. 98–9, 136–45). He uses this paradigm mainly as an antithesis to the immunological paradigm, as propagated by Sloterdijk and Esposito. He does not detail how the dynamics of such a paradigm would be shaped, nor has he given shape and content to the notion of post-immunology. In that sense he, like Baudrillard, mainly uses immunology to sketch out certain analogies between political culture and the organism and its environment, in their biomedical interrelation. As such, he uses immunology predominantly in an illustrative (metaphorical) fashion.

Sloterdijk is one of the philosophers who develops immunity into a truly philosophical category. In his work, immunisation appears as an onto-anthropological category. For him, humans (*homo immunologicus*) (Sloterdijk, 2009, p. 24) are essentially immunising creatures. They develop immune systems in different expressions at different levels: at the societal level (socio-immunological system), at the psychological level (psycho-immunological system), and, of course, at the level of the biological immune system. Although humans have always immunised themselves against potential threats from the outside, Sloterdijk observes a change in the way they do so under the influence of globalisation and technological developments. With the decline of mono-spherological protections (collective immunisation structures), and the increase in the perception of risks through technological developments, people are more compelled to rely on (individual) technical modes of immunisation.

Esposito sees immunisation as the contemporary paradigm. Although historically every society has expressed a need to be protected, in his view, it is only today, at the end of the modern period, that the practices of the entire contemporary civilisation have been constructed around self-protection. To be able to understand the nature of our *Zeitgeist*, he uses the category of immunity as a ‘hermeneutic key’ (Esposito, Campbell, Pappaccone, 2006, p. 50). In other words, he uses the category of immunisation as an ‘interpretive category’ ushering different tendencies such as the fight against illegal migration, protection against resurgence of epidemics, computer anti-virus programmes, and so on, into a coherent whole.

Unlike Sloterdijk and Esposito, Derrida focuses not on immunity, but on the notion of autoimmunity. He uses the notion of autoimmunity to deconstruct Schmitt's axiom of the political being defined by the opposition between friend and foe. For Derrida, in contemporary globalised society, the concepts of friends and enemies are unidentifiable (Borradori, 2003, pp. 100–101). For him, parallel to the function of autoimmunity in biology, is its capacity to obfuscate the traditional opposition between self and other. Thus, autoimmunity is the *deconstruction of the self*. Derrida is concerned with designations (dichotomies) such as self and other, because this involves the drawing of well-delineated borders, which he regards as problematic. Derrida problematises such dichotomies or hierarchies in many of his works. Autoimmunity thus is the typically Derridean deconstructive effort 'aimed at displacing the traditional metaphysical tendency to rely on irreducible pairs' (Borradori, 2003, pp. 151–2; see also Johnson, 2010).

The immuno-philosophers above use immunological terms in many different ways: some of them oscillate between different roles of the category of immunity and some adhere to the meaning of immunological terms in biomedicine more closely than others. These divergences in approach are not in themselves problematic, and even could be regarded as enriching the philosophical immunological landscape; nevertheless, they do complicate the understanding of the connection between the philosophical theories. The divergent approaches also hinder the emergence of a fruitful philosophical debate. Besides, for instigating a philosophical debate, the specific meaning of immunological terms is an important factor. In the next section, the specific interpretations of immunological terminology and their relation with the biomedical definition of immunity will be examined.

Immunity Reduced to Host Defence?

The philosophers treated as central in this book not only employ immunological terms for different philosophical approaches and analyses, they also attribute different denotations to the particular immunological terms used. Although they employ the immunological terms for the purpose of interesting, nuanced, and complex analyses, the phraseology used sometimes suggests a bipolar and defensive interpretation of immunity in terms of a host in defence of external threats. In other words, in some instances, there is confusion between what the philosophers involved aim to state and the unintended consequences of how they use immunological terms. In what follows, the specific interpretation of immunological terms by Derrida, Sloterdijk and Esposito (respectively) will be discussed. Han and Baudrillard will be left aside for the moment, because they do not explicitly elaborate on their precise interpretation of the notion of immunity.

Derrida's conception of autoimmunity comes close to a direct analogy between biology and political philosophy. With the concept of autoimmunity, Derrida does not simply aim at deconstructing the distinction between self and other, or friends and foes; for him, autoimmunity is an inherent characteristic of democratic

societies. It represents democracy's political openness, which is necessarily of a sacrificial nature: the very thing that aims to protect it, destroys it.

Recapitulating Chapter 6, Derrida's use of autoimmunity describes the protective measures taken by a state to protect itself from threats from outside, from what is foreign. Derrida uses the notion of immunity or rather autoimmunity (Derrida confuses the terms) to reflect on issues of defence and security. At the same time, autoimmunity also represents its inverse: hospitality. This ambivalence is what Derrida refers to as democracy's *constitutive autoimmunity*; democracy tries to immunise itself against threats from outside and at the same time it remains open to excluded populations. Thus, its constitutive logic is at heart paradoxical ('illogical logic', as Derrida calls it) (Derrida, 2005, p. 123). Whereas democracy is threatened by its own mode of immunisation, its openness to others (with the risk of destroying itself) entails the possibility of an ethics of (unconditional) hospitality.

Derrida's effort to deconstruct the inside/outside, friend/foe typology is in itself admirable. His new type of political thought beyond Schmitt's oppositional categories contributes to the sophistication of the philosophical use of immunological terms in favour of an unconditional hospitality. As Derrida claims: 'without autoimmunity, with absolute immunity, nothing would ever happen or arrive, we would no longer wait, await or expect one another, or expect any event' (Derrida, 2005, p. 152). With this observation, he argues in favour of autoimmunity because it presupposes an openness to the other (hospitality or tolerance) with the risk of destroying oneself. From a political perspective, this is an appealing observation because he acknowledges the dialectical character of immunity and the positive side of interaction with the environment and contact with other(s)(ness). As such, of the philosophers discussed, he takes an original position and also comes closest to the contemporary biomedical interpretation of the term autoimmunity. Nevertheless, his application of immunological terms sometimes appears somewhat unfortunate in this context, since it inadvertently carries notions of a dualistic, defensive interpretation of immunisation, which also has effects on its use for political and societal analysis. From Derrida's claim above, it follows that (absolute) immunity and autoimmunity mutually exclude each other. Likewise, he also presupposes that (absolute) immunity and hospitality are mutually exclusive. This is underscored once more by another of Derrida's claims in which he argues that 'unconditional hospitality ... exposes the host to a maximum of risk, as it does not allow for any systematic defence or immunity against the other' (Borradori, 2003, pp. 162–3). Derrida thus claims that tolerance does not allow for any immunity, whereas, as we have seen in Chapter 3, tolerance and immunity do not exclude each other; in contrast, tolerance is part of the immunological repertoire.

Tolerance is the aspect of immunity that covers the ability and readiness of the organism to endure a certain amount of strangeness (resilience) and thus gives rise to the awareness that interaction with the outside world is in itself a positive and productive phenomenon. In the case of tolerance, the immune system ignores (tolerates) both host and foreign components. As such it refers to the immune system's 'silence' against host and foreign elements. In Derrida's analysis, however,

immunity and hospitality/tolerance appear as mutually exclusive. Derrida clearly advocates an ethics of hospitality *as opposed to* an ethics of security. In doing so, he seems to (unintentionally, I am sure) reduce immunity to simply (host) defence, whereas immunity has proven to entail a complex of responses, including tolerance and autoimmunity.

Derrida's pathological interpretation of autoimmunity (autoimmunity as sacrificial self-destruction) also underscores his defensive perspective on immune function. From the perspective of the immune system as the mediator of host defence, autoimmunity is the pathological aberrancy of that system. From such a perspective, the self-inflicted damage is seen as the price of immunity, the price of being cleansed of the other/foreign (Tauber, 1999a, p. 460). Derrida interprets autoimmunity as a situation in which the self/non-self opposition implodes. This is accurate and (politically) relevant, but his use of immunological notions sometimes confuses and undermines his argument, since they imply a defensive perspective on immune function and accordingly on the political dynamics he aims to analyse.

Sloterdijk's immunology of spheres, as described in Chapter 5, involves an intricate analysis of the *condition humaine* in relation to processes of globalisation and modernisation. However, sometimes Sloterdijk appears to focus too much on the potential toxicity of the environment (or the outside), and the necessity of the development of spheres to protect against this outside. His presentation of immune systems as 'body-police', 'border patrol troops', and as 'defence measures against a potentially invasive and irritating environment' seems to suggest that he retains a rather defensive perspective on immune function. At the same time, Sloterdijk aims to show that the self-other dichotomy can no longer be upheld, because otherness and the outside no longer exist as everything is now both inside the global world (with container immunity having collapsed). Sloterdijk argues that the world consists of a plurality of foaming selves who are not impenetrably demarcated from one another. As such, his 'defencism' is at odds with this 'long live the foams' theory. In other words, similar to Derrida, there appears to be a tension between the discourse he uses and the content of his message. His analysis of political culture on the basis of immunology therefore sometimes becomes obfuscating and confusing.

Sloterdijk only makes use of the notion of immunity or immunisation; he does not employ other terms in the immunological repertoire. Instead, Sloterdijk invents the new term 'co-immunisation', although he mentions this term only once, in the last passage of *You Must Change Your Life*. Sloterdijk elaborates on the immunisation paradigm in an essentially positive manner as something that is able to enrich and develop our experience at various levels. Derrida and Esposito, on the other hand, give it a much less optimistic or even tragic characterisation. Nevertheless, Sloterdijk shows (in passing) that he is aware of the potential discontents of immunisation, such as the loss of solidarity. To come to terms with these discontents, he proposes the notion of co-immunisation, which represents a potentially less defensive and more symbiotic mode of (co-)existence between the foam-like insular immunity structures. Co-immunisation thus

represents Sloterdijk's ideology for the future. It represents a pluralistic embracing of otherness, and a nullifying of the self and other discrimination in view of a sustainable cosmopolitan world-order. Sloterdijk may not have needed this new term, if he had taken a closer look at the complexity and versatility of immune function. In essence, he still reduces immunity to a one-directional scheme. The notion of co-immunisation is introduced to provide a form of compensation.

The existent immunological term *tolerance* captures the dialectical nature of Sloterdijk's co-immunisation. In the case of tolerance, host constituents and foreign elements are allowed a 'co-equal status' within the organism. Sloterdijk's notion of co-immunisation actually seems to hinge on such a notion of tolerance. It would be interesting if Sloterdijk made greater use of the biomedical richness of the notion of immunity as inspiration for the *condition humaine*. He has not employed other notions from the repertoire of immunology, such as tolerance and autoimmunity. His analysis would benefit from an elaboration on the basis of an application of such terms, aimed at better interpreting the political-cultural dynamics of contemporary society.

Like Derrida, Esposito gives the immunitary paradigm a rather negative characterisation. Esposito interprets autoimmunity as the pathological aberrancy of immunity, as the pathological result of (excessive) defence against contamination by others. He argues that walls, barriers or blockades against the risk of environmental or interhuman contamination are becoming more prevalent. Technological developments and globalisation have resulted in an increase in the (perception of) risks in contemporary society, as a result of which there is an increase in defence measures and a vigorous exclusion of those elements that are foreign or potentially contaminating.

Esposito regards the recent identification with local groups as a sort of *immunitarian rejection* of the global *contamination* that is globalisation. This immunitarian rejection has grown excessive, he argues. The surplus of defence now has resulted in an autoimmune illness: it damages the body politic that it was supposed to protect (by liquidating relationality). The fact that he equates excessive immunisation and a surplus of defence seems to indicate a defensive perspective on immunity. Moreover, the fact that he interprets autoimmunity as the pathological result of excessive immunisation also underscores this perspective.

As we have seen there is a tension between the intricate philosophical analyses and the immunological terms employed. In other words, there appears to be a tension between philosophy and biology. On the one hand, Sloterdijk, Esposito, and Derrida rely on biological immunology in the definition of their immunological terms. On the other hand, their use of immunological terminology is at certain points not consistent with the biological immunological ideas and definitions. In some instances, the philosophical immunological vocabulary seems to imply that the notion of immunity is reduced to host defence, and as such seems to be at odds with their complex, intricate philosophical analyses. As such, it seems that – parallel to biomedical immunological discourse – in philosophical discourse immunity sometimes also functions as a 'semantic trap', focusing on

the defensive understanding of immunity (Chapter 3; Tauber, 2008a, p. 273). This does not mean, however, that the philosophers are wrong or mistaken, but it raises the question of whether a more nuanced and diverse immunological repertoire would benefit their political and societal analyses.

When immunological discourse is employed in philosophical analyses with a definition of immunity in terms of host defence, it is only sufficient for the *diagnosis* of firm antagonistic tendencies. In the political realm nowadays, however, other less defensive initiatives can also be discerned, and these necessitate a broader immunological repertoire. In this book, it has been expounded how the war on Iraq, building on the defensive perspective on immunity, has been dubbed an 'autoimmune disease', by Esposito, amongst others (Chapter 6). But such a defensive immunological repertoire seems to fail in its duties for the analysis of more subtle political developments.

For example, when looking at the position of Iran in the field of global politics, it appears that its relation with world powers such as the US, as well as its relations with countries in the Gulf region, are changing and cannot easily be put in the defensive scheme of immunity as defence of the self against a non-self: after the attacks of 9/11, Iran was considered by the US (in the days of President Bush Jr.) as part of the 'Axis of Evil'. Accordingly, the US and their allies invaded Iraq in 2003. This resulted in a reinforcement of Iran's strategic position by removing Saddam Hussein, its strongest regional enemy (Bowen, 2013). In 2013, however, different diplomatic relations with Iran emerged, even leading to the formation of occasional coalitions. The separate agreement between Iran and the International Atomic Energy Agency (IAEA) on a framework for coming to grips with Iran's past nuclear activities is a positive development (Marcus, 2013). Moreover, the election of Hassan Rouhani as Iran's president also raised expectations about an improvement in relations between Tehran and Washington. In 2013, US President Barack Obama and Iranian President Hassan Rouhani had a telephone conversation, which was a memorable event because at the highest level, the two countries had not been in contact for over 3 decades. By 2015, these polite messages and good atmospherics have turned into real diplomatic progress. They have led to further negotiations between Iran and the US government on Iran's nuclear program (Bowen, 2013; Tisdall, 2015). The question remains, however, whether this diplomatic progress will have a sustainable character. The nuclear deal between Iran and the US is of historic importance. It could be the beginning of a mutually beneficial cooperation in tackling shared challenges, such as the spread of the Islamic State (Isis) terror and Syria's civil war (Tisdall, 2015).

These developments underscore the fact that the contemporary relations between Iran and the West can apparently no longer be analysed by building on a one-directional scheme of immunity as host defence, because more sophisticated and less defensive strategies are developing. The West seems to have learned from the 'discontents' connected to their fierce immunisation strategies. A more nuanced and versatile immunological repertoire is now needed to analyse the changing 'immunitary strategies' of the West, regarding Iran, for example. One

should realise that both on the biological level and on the political level, ‘the other’ is no longer a priori the enemy. Indeed, ‘the other’ is no longer a priori ‘other’; its character is context dependent, as Derrida also pointed out.

Discontents of Immunisation

In the previous paragraph, by way of a critical analysis of the philosophical interpretation and use of immunological terms, it has been shown that a qualified versatile perspective on immunity is important. Although host defence is an important aspect of immunity, it is only part of the immunological spectrum. If we now look at the immunisation practice of protection against infectious diseases, it will be shown that a similar nuance is necessary. Defence against infectious diseases is very important, but one should not overlook the fact that interaction with the environment is of equal importance and can also be very productive.

Throughout this book, the discontents of (excessive) immunisation measures have been pointed out. The intricate discursive and practical entwinement between biology and politics is pre-eminently mirrored in the biopolitical practice of protection against infectious diseases. In Chapter 4, it was shown how the immunisation practices against the Swine flu pandemic and the Avian flu threat exemplify a defensive and reductionist perspective on immunisation. In other words, the defensive perspective on immunisation is materialised in these immunisation strategies. Chapter 4 also illustrated the collateral damage that comes with fierce immunisation responses such as the pre-emptive strategy, as employed in both the protection against infectious diseases and in the fight against terrorism. The depiction of viruses as terrorists and of terrorists as viruses stresses the antagonistic dynamics at play in both cases. Raemaekers’ cartoon of Mayer – the forerunner virologist – as Goethe’s Faust, already foresaw the risk of a narrowly reductionist perspective on infectious diseases.

Utterances like ‘nature is the biggest bioterrorist’ or ‘the biggest threat comes from Mother Nature’ (Walsh, 2011; Carvajal, 2011; Visser, 2012) articulate a defensive perspective on viruses and immunisation, considering viruses as our primary enemies. This militarisation of the struggle against infectious diseases does not only surface in mass media, but also becomes apparent in articles in major scientific journals such as *Nature* and *Science*. A *Nature Outlook* on influenza, for example, has given special attention to our ‘battle’ against influenza and questions whether new research offers hope for ‘defeating this pathogen for good’ (‘Outlook’, *Nature*, 2011, p. S1). In an editorial of *Nature*, the ‘long war against flu’ is discussed (Editorial, *Nature*, 2008, p. 137) and the article *Drugs: Lines of Defence* (Palmer, 2011) focuses on effective healthcare responses to ‘outsmart the virus’. This depiction of viruses as our worst enemies is used to account for the (sometimes rather fierce and therefore costly) immunisation responses.

The ancient Greek notion *pharmakon*, which means both medicine and poison, is helpful in illuminating the parallel between the ‘war on terror’ and the ‘war on

viruses'. The 'war on terror' and the 'war on viruses' can both be described as pharmacotic. The 'curative' effect of the 'war on terror' consists in the fact that it confirms the (national) identity of those concerned, thereby politically unifying the people. Its 'poisoning' effect consists in the fact it creates the cultural and social foundations that encourage xenophobia and militarism (George, 2002a, 2002b). The 'war on terror' is pharmacotic in a second sense as well, because such a war resembles collective ritual sacrifices. In ancient Greece, *pharmakoi* were human scapegoats (slaves, cripples, or criminals) that were ritualistically sacrificed by being killed or expelled from the *polis* at times of disaster (famine, invasion or plague) or at times of calendric crises when purification was needed. The 'war on terror' also carries out collective ritual sacrifices. By imagining a coherent enemy (*pharmakos*), one can conceive of the self or the nation as a coherent entity and thereby creating a unifying effect (cure) (see also George, 2002b).

The analogy of this second meaning of *pharmakon* is also valid for the 'war on viruses' and other causes of contagious disease. With the EHEC-bacterium (*Enterohaemorrhagic E. Coli*) alarm in 2011, for example, public health professionals immediately started scapegoating. As a result, the scapegoats (*pharmakoi*) – in this case billions of kilos of good cucumbers, tomatoes and sprouts – were destroyed, consumers were scared, and the vegetable industry was faced with devastating financial losses. In the case of the H1N1 Swine flu pandemic, many governments bought millions of vaccines, and (depending on the alleged source) killed many innocent and healthy pigs (Keenslide, 2013, pp. 267–9). That fierce immunisation responses often cause significant 'collateral damage' has been emphasised several times in this book. It will suffice to note that the 'collateral damage' not only involves a socio-economic burden and production of dangerous viruses, but also includes psychological 'poisoning' effects.

The collective stress produced by mass media was also discussed by Sloterdijk. In his 'Immunology of Spheres', he mainly elaborates on the beneficial effects, i.e. the creation of 'instant' cohesion, through the production of collective stress. One may wonder whether the 'instant' cohesion created really leads to sustainable sociability. It rather seems to entail a temporary, unstable and fleeing, even highly imaginable form of sociality. Although Sloterdijk is aware of the 'collateral damage' of such collective stress (hence his plea for co-immunisation), in his analysis he pays less attention to the 'poisoning' effects of these processes of *pharmacosis*, and predominantly focuses on the 'curing' aspect of collective stress. Media messages about looming viral threats do 'climatise' the social space, as Sloterdijk calls it, but they create a rather 'cold' social climate, a climate of fear.

Complexity of Biological Immunity and Friendly Viruses

In view of these discontents of immunisation, and in view of the need for a versatile philosophical immunological repertoire, it is interesting to look at some recent developments in immunology and virology. In immunology and virology

a few important developments can be discerned, which are very relevant for the philosophical use of immunological terms, as will be shown below.

When immunology first appeared in the nineteenth century, as we have seen in Chapter 2, it incorporated the biopolitical presumption of ‘the body’ as unity and as ground for human subjectivity (self) (see also Cohen, 2004). Hobbes’ political concept of ‘the body’ and his axiom of ‘self-defence’ were inserted into the medical context, resulting in the definition of immunity as host defence. However, autoimmunity – a situation in which the immune system attacks parts of the body itself (coded as ‘self’) – has made explicit the problems and inconsistencies that arise when such a political concept of the ‘body’ – considered as an entity – becomes representative of the vital complexities that living organisms are (Cohen, 2004, p. 11). Our bodies are not ‘things’ that can be protected against threats coming from the outside. Even the distinction between organism and environment is misleading, since organisms and environments always already coexist and coevolve (Levins and Lewontin, 1985; Lewontin and Levins 2007; Lewontin, 2000).¹ The fact that autoimmunity is a process that is present normally in healthy individuals shows the ‘intriguing paradoxicality proper to an autonomous identity’ (Varela, 1991, p. 85). The paradoxes of autoimmunity alert us to the fact that neither organisms nor the immunological self are delineated entities, and as such processes of autoimmunity make us aware of ‘the bio-politics that infects the biology of immune discourse’ (Cohen, 2004, p. 11).

One should recognise the fact that the immune system is not directed exclusively against threats coming from outside. Rather, it is in constant interaction (‘dialogue’) with its environment (Tauber, 1999a, 2000, 2008, 2012). As we have seen in Chapter 3, there is increased attention to the context of immunological reactions. Processes like autoimmunity and tolerance have proven to be part of the normal immunological repertoire and indicate how immunity concerns a complex of responses and is not simply dictated by expelling or fighting the other. The self-centred defensive model of immunity is therefore called into question. The immunological self appears a dynamic and elusive entity. Accordingly, the self/non-self dichotomy is receding as a central principle. Interaction with the environment (surrounding tissues, lymphocytes, etc.), determines what is coded as self (and needs protection) and what is coded as non-self (and must be attacked). In other words, *the context* is a critical determinant in the characterisation of the immune object, not its foreignness per se (Tauber, 2008a; Cohen, 2000). A similar development can be observed in the field of infectious diseases, although its ramifications have not been widely recognised yet.

Since the late twentieth century, an upsurge in the emergence and re-emergence of infectious diseases is threatening many parts of the world. This reflects various changes in human ecology: increases in population size and density (especially high-density peri-urban slums); increases in the numbers and movement of political, economic and environmental refugees, conflict and

1 Hence Sloterdijk’s plea for co-immunisation.

warfare; changes in personal behaviour and lifestyle; and human-induced global changes, including climate change. Medical technology can also pose a risk and inadvertently introduce and spread infectious diseases. Drug-resistant microbes, contaminated equipment or biological medicines produced from animal-cell substrates present an inherent potential for introducing new infections (Weiss and McMichael, 2004). All these factors cause patterns of infectious diseases to change globally and on a massive scale. This illustrates how human health obviously cannot be separated from planetary conditions in general, i.e. from our total planetary 'health', including the health status of the animate and inanimate environment (see also Canguilhem, 1989). As human beings we live in *interdependent* existence with the totality of the living and non-living world. Accordingly, today it is recognised that the concept of the microbe as the single cause of infection (as Koch has postulated) is inadequate and incomplete, because it ignores the contextual factors of infectious threats such as the influence of the host, the milieu, and the social and physical environment (Budd, Morag, and Brown, 2009; Weiss and McMichael, 2004; Wilson, 1995).

In Chapter 4, it was explained how a better understanding of viruses, their genome, their virulence and their transmissibility, and a better understanding of the evolving social dynamics of emerging infectious diseases, are relevant clues for anticipating future risks. This account of all the factors involved in the transmission, evolution and emergence of infectious diseases illustrates the lack of sense in utterances such as 'nature is the biggest bioterrorist', or 'Mother Nature as biggest threat' (Walsh, 2011; Carvajal, 2011; Visser, 2012). As humans, we are an integral part of nature and our role and behaviour is of crucial importance in the current upsurge of infectious disease incidence.

Changing ecological conditions and novel human-animal contacts will be useful clues when it comes to identifying new potential infectious threats that require surveillance. Predicting when and what new disease will come next and where it will emerge, however, remains difficult. Almost 450 years ago, Girolamo Fracastoro stated in his treatise *De Contagione*: 'There will come yet other new and unusual ailments in the course of time. And this disease [syphilis, IM] will pass way, but it later will be born again and be seen by our descendants' (cited in Weiss and McMichael, 2004, p. S75). This statement remains very actual and appropriate, and is echoed in current expressions of virologists such as: 'we must always expect the unexpected' (Weiss and McMichael, 2004, p. S75; Osterhaus, 2010; Butler, 2009, p. 21; Howard and Fletcher, 2012, p. 10).

Although viral threats will always be looming over us, a more ecological perspective on infectious diseases can help tame our 'virophobia', in view of the fact that as humans we do have an influence on some of the above-mentioned factors involved in the evolution, transmission and emergence of infectious diseases. Therefore, any meaningful immunisation response must integrate knowledge from multiple disciplines and approach infectious disease threats at the systems level (Farrar, 2007). For immunisation strategies to be successful, infectious diseases must be apprehended in their evolutionary and ecological context (Wilson, 1995).

Unlike the atomistic defensive perspective on infectious diseases, such an ecological perspective involves not only an acknowledgement of the broader developments and factors responsible for the infectious burden, but also involves the recognition that microbes are more than mere enemies. They do not *only* pose a threat. Current insights of biology and virology show that only a small proportion of all viruses are pathogenic, whereas most of the others are in fact rather life-friendly and beneficial. Not only is our own DNA (our most intimate self, as it were) partly of viral origin, viruses have proven to be essential for our individual health (they prevent other pathogenic infections), and have proven to be essential for ecosystem diversity in oceans as well.

A Common Immunological Repertoire

When it comes to using immunological discourse in political philosophy, much can be learned from recent conceptual developments in these biomedical fields. This is not because biology should be regarded as a model *by definition* (which would amount to biologism or naturalism), but because an impressive amount of conceptual labour has been done in developing biomedical conceptions of immunisation from which the immuno-philosophers might profit.

A common philosophical immunological repertoire (conceptual apparatus) that includes notions of tolerance and autoimmunity (also as normal phenomena) is still lacking. Such a repertoire should also take into the account the context in which the encounter between self and non-self takes place. The defensive philosophical notion of immunity is not sufficient to capture the political diplomatic complexity of many contemporary political issues. Therefore, rather than taking immunity (reduced to host defence) as a contemporary paradigm, this book argues for the development of a hermeneutic tool which encompasses the full immunological repertoire. To be able to extend the discursive exchange between biomedicine and philosophy in a meaningful way, one should also take care not to take autoimmunity solely as a pathological symptom of immunity and thus as a *paradox*, but rather take it as point of departure in the process of immunisation. Derrida gave the initial impetus in taking autoimmunity as a model for political institutions, but we have seen previously how his application of immunological terms obscured his message.

Taking autoimmunity as point of departure means that, as Derrida has already indicated, in contemporary globalised society, our friends can become our enemies and vice versa. The Taliban, for example, were established as the USA's allies in Afghanistan, and trained by the CIA. The world has porous borders and consists of strongly interconnected individuals, and in the field of politics many occasional coalitions are formed. In such a world, the Schmittian paradigm based on friends and enemies, or the traditional immunological paradigm based on self versus other no longer holds. Iran is no longer a priori part of the 'Axis of Evil', but even appears to have become an ally of the West in its efforts to control the proliferation

of nuclear weapons. There now appears to be a certain amount of tolerance with regard to their nuclear activities. When diagnosing the political relations between Iran and the West, the issue is no longer that the West tries to immunise itself from Iranian contamination. The analysis of the contemporary political situation requires a more nuanced and versatile immunological repertoire, and the notion of tolerance in particular appears to be of utmost importance.

Another example for which only a versatile and full immunological repertoire would be adequate to analyse the political dynamics is the planned UN military mission to Mali of 2013. That mission aimed to contribute to the stabilisation of the country after the Tuareg rebellion (2012). There was political debate about the character of the mission. Experts argued that one should be careful not to give the mission an exclusively military character aiming at the establishment of 'a firm and decent government', and preventing the country from becoming 'a haven for criminals and Al Qaeda-like-terrorists' or a 'motorway for criminals' (Outeren, 2013, p. 9). The experts reminded the politicians of the fact that the Netherlands, which was part of the UN mission, prides itself on the combination of *defence*, *diplomacy* and *development* (Outeren, 2013, p. 9). The question remains, however, of how chasing terrorists can be reconciled with political reconciliation and stabilisation. It is hard to envisage conciliation without, at the same time, involving those same extremists in any dialogue that might ensue – or at least undermining the support for these groups (Verkoren, 2013, p. 29). In immunological terms, the experts thus argued for a mission to Mali, which was not simply charged with expelling (immunisation against) the terrorists and criminals, but which included other responsibilities as well, and analogous to the biological immunological repertoire, included a complex balance of immune responses.

A further example to which a versatile and full immunological repertoire would be apt is the response to jihadis who want to join Isis. In the beginning of the 'war against Isis' counter-terrorism officers tried to staunch the flow of recruits travelling to Syria. In different Western countries 'Syria-travellers' have been arrested and prosecuted, often without any form of evidence. This strong 'immunisation response' is also reflected in the *cri de coeur* of the Dutch Mayor Aboutaleb, who argued that people who don't accept Dutch culture and values, including 'our freedoms' (the freedom of speech, etc.) should 'fuck off' to their own countries (NOS, January 7, 2015). The immune reaction that should protect 'us' (Western citizens) against the danger of foreign rebel fighters in the Syrian Civil War, damaged in some way our own society (our own Western 'political body'). Arresting those attempting to travel, for example, is at odds with the right to freedom of movement, expression and other fundamental rights. Privacy is also severely compromised. Restrictive measures not only ward off the intruders outside, but also harm innocent others, including 'our own' citizens (Westerners). For instance, most EU Member States have taken a number of administrative measures that affect not only the targeted group, but also a large part of the rest of the Muslim population in Europe. The possible consequence is that feelings of resentment are fed and violence further escalates.

In short, the immunisation measures against terror, although understandable in themselves, risks backfiring on our own society. Immunisation includes a multitude of responses and ‘attacking enemies’ is just one of them. More attention to the context of immune responses means in the case of young people going to Syria, that they are not a priori ‘the other’ and thus ‘the enemy’ of Western society. They can present themselves as the enemy (as did the perpetrators of the attacks on the editorial office of *Charlie Hebdo* in Paris in 2015), but they only became the enemy when they started to behave in that fashion. If others are to be prevented from also taking up arms, it is important to first investigate the cause (context) of their radicalisation. The same goes for the Isis terrorists themselves. Rather than only fighting the terror group, one should investigate and address the circumstances of radicalisation in the affected countries. Furthermore, on the political level, voices are raised for negotiation (dialogue) with terrorists. Jonathan Powell, a former chief of staff to Tony Blair, argues that in some cases negotiation, however horrifying it may seem in the eyes of many governments, appears more effective than simply ‘stonewalling’ the terror group (Tisdall, 2015a). Here again, obviously, a complex balance of ‘immune’ responses is needed, rather than simply attacking and bombing the Isis extremists.

Truce Rather than War

The contemporary immunological discourse as used by the political philosophers discussed in this book works from the biological description of the hostile encounter between self and non-self and includes the military metaphors of attack, combat, invasion and counter-attack. In biology, this is the archetypical description, however, not because the hostile encounter is axiomatic, but because its associated events are the most salient and consequential (Tauber, 1999b, p. 526). Yet, as Burnet already recognised, ‘on the biological level, the immunological encounters between self and non-self are usually inconsequential, if not innocuous: if there is a norm in such encounters it is *truce* rather than *war*, *tolerance* instead of *destruction*’ (Tauber, 1999b, p. 526; Burnet, 1962, p. 39). As such, the biological body is not a battlefield; nor is the political body, moreover. Given this fact and the fact that immunisation responses include much more than simply a form of defence against non-self, this book proposes a Derridean autoimmune critique, which involves a vigilant resistance and questioning of immunological categories such as self versus other and domestic versus foreign, every time these are (re-)imposed (Stephens and Vaughan-Williams, 2008, p. 93). Related to this, it is also of utmost importance to dispense with military metaphors in the debates on protection against infectious diseases or in discussions of other (bio)political practices of protection. In that respect Sontag’s statement about the military metaphor still holds: ‘give it back to the war-makers’ (Sontag, 1988, p. 95).

A prerequisite for a common immunological repertoire is an understanding not only of how easily life is threatened, but also of our dependence upon others, of

co-existence as a basis for our existence, biologically as well as politically. The fundamental dependency on anonymous others is not a condition we can get away from, on either the political or the biological level. As such, the immunological processes of tolerance and autoimmunity are politically very relevant since they embody and presuppose openness to the other and articulate our radical dependency on interrelationships with others, as well as our vulnerability to all others (including our self). No security or immunisation measure can foreclose this dependency (Butler, 2004, pp. 19–50), and as such, immunisation will and can never be absolute. The problem of primary vulnerability to others is an ineradicable dimension of human dependency and sociality. In other words, ‘Life is a window of vulnerability. It seems a mistake to close it’ (Haraway, 1991, p. 224). A common immunological repertoire that incorporates notions of tolerance and autoimmunity would further our commitment to living with a certain kind of ‘*vulnerability to others*’ that actually gives our individual lives meaning (Butler, 2004, pp. 19–50).

This book has illustrated how immunisation as (bio)political strategy and as philosophical paradigm triggers both fascination and discontent. Taking immunisation as a philosophical paradigm is appealing and results in intriguing analyses that account for our complex contemporary political culture. This book has also shown, however, that if one looks at the philosophical use of immunological notions in greater detail, it appears that immunological terms are not always precisely defined nor consistently applied. Moreover, the way immunological concepts are used is sometimes at odds with intricate and nuanced philosophical messages. To resolve this problem, this book has provided a thorough philosophical analysis of different uses of immunological terms. It claims that a common understanding of immunological concepts would be a prerequisite for a sensible philosophical analysis of the tendency towards polarisation in contemporary biopolitical dynamics. Only then can alternative perspectives for action, that depolarise the political debate, be defined. So, when it comes to the use of immunological notions in political philosophy – building on the aphorism currently used in the field of counter-terrorism – the *credo* should be: Be alert, not alarmed!

References

- Adam, B. (1998). *Timescapes of Modernity: Environment and Invisible Hazards (Global Environmental Change)*. London: Routledge.
- Adam, B. (2003). Reflexive modernization temporalized. *Theory, Culture & Society*, 20(2), 59–78.
- Agamben, G. (1998). *Homo Sacer: Sovereign Power and Bare Life*. (D. Heller-Roazen, Trans.). Stanford, CA: Stanford University Press.
- Agamben, G. (2005). *State of Exception*. (K. Attell, Trans.). Chicago: Chicago University Press.
- Alliez, E., and Sloterdijk, P. (2007). Living hot, thinking coldly: An interview with Peter Sloterdijk. *Cultural Politics*, 3(3), 307–26.
- Anderson, N. (1996). Review of the book *Flexible Bodies: Tracking Immunity in American Culture from the Days of Polio to the Age of AIDS*. *Social Science & Medicine*, 42(9), 1341–2.
- Antonelli, E. (2011). Transparency and the logic of auto-immunity. *Lebenswelt*, 1, 127–39.
- Bacher, J.M., Reis, B.D., and Ellington, A.D. (2002). Antipatory evolution and DNA shuffling. *Genome Biology*, 3(8), 1021–5.
- Barry, J.M. (2009). Pandemics: Avoiding the mistakes of 1918. *Nature*, 459, 324–5.
- Baudrillard, J. (1993). *The Transparency of Evil: Essays on Extreme Phenomena*. London: Verso.
- Baudrillard, J. (1994). *The Illusion of the End* (C. Turner, Trans.). Cambridge: Polity Press.
- Baudrillard, J. (2002). *Screened Out* (C. Turner, Trans.). London, New York: Verso.
- Bauman, Z. (1989). *Modernity and the Holocaust*. Cambridge: Polity Press.
- Bauman, Z. (1997). *Postmodernity and its Discontents*. Cambridge: Polity Press.
- Bauman, Z. (1999). *In Search of Politics*. Cambridge: Polity Press.
- Bauman, Z. (2006). *Liquid Fear*. Cambridge: Polity Press.
- Bauman, Z. (2007). *Liquid Times: Living in an Age of Uncertainty*. Cambridge: Polity Press.
- BBC News (2009, 14 May). Is now a good time to get swine flu? *BBC News*. Retrieved from http://news.bbc.co.uk/2/hi/uk_news/magazine/8045896.stm.
- Beck, U. (1992). *Risk Society: Towards a New Modernity*. London: Sage.
- Beck, U. (1998). *Democracy without Enemies*. Cambridge: Polity Press.
- Beck, U. (2002). The terrorist threat: World risk society revisited. *Theory, Culture & Society*, 19(4), 39–55.
- Bergh, O., Borsheim, K.Y., Bratbak, G., and Heldal, M. (1989). High abundance of viruses found in aquatic environments. *Nature*, 340(6233), 467–8.

- Blair, T. (2003). Prime Minister's speech to the US Congress. Retrieved from http://news.bbc.co.uk/2/hi/uk_news/politics/3076253.stm.
- Boesecke, C., Dore, G.J. and Cooper, D.A. (2009). AIDS: Clinical Manifestations. In: eLS. John Wiley & Sons Ltd, Chichester. [doi: 10.1002/9780470015902.a0002237.pub2].
- Bonito Oliva, R. (2006). From the immune community to the communitarian immunity: On the recent reflections of Roberto Esposito. *Diacritics*, 36(2), 70–82.
- Borch, C. (2008). Foam architecture: Managing co-isolated associations. *Economy & Society*, 37(4), 548–71.
- Borradori, G. (2003). *Philosophy in a Time of Terror. Dialogues with Jürgen Habermas and Jacques Derrida*. Chicago, London: The University of Chicago Press.
- Bos, L. (1999). Beijerinck's work on tobacco mosaic virus: Historical context and legacy. *Philosophical Transactions of the Royal Society of London Biological Sciences*, 354, 675–85.
- Bos, L. (2000). 100 years of virology: From vitalism via molecular biology to genetic engineering. *Trends in Microbiology*, 8(2), 82–7.
- Bos, R. ten (2001). Weltfremdheit and escapism in the learning organization. *Critical Management Studies Conference*, Manchester Business School, UK, 11–13 July.
- Bos, R. ten (2009). Towards an amphibious anthropology: Water and Peter Sloterdijk. *Society and Space: Environment and Planning D*, 27, 73–86.
- Bos, R. ten and Kaulingfreks, R. (2002). Interfaces. *Theory, Culture & Society*, 19(3), 139–51.
- Bowen, J. (2013, 25 September). New tone, but old differences still separate Iran and West. *BBC News*. Retrieved from <http://www.bbc.com/news/world-middle-east-24237745>.
- Branswell, H. (2011). Flu factories. *Scientific American*, 304(1), 46–51.
- Bratbak, G. and Haldal, M. (2000). Viruses rule the waves: The smallest and most abundant members of marine ecosystems. *Microbiology Today*, 27, 171–3.
- Breitbart, M. and Rohwera, F. (2005). Here a virus, there a virus, everywhere the same virus? *Trends in Microbiology*, 13(6), 278–84.
- Brocke, R. (2000). Sickness in the Body Politic: Medical Imagery in the Greek Polis. In V.M. Hope and E. Marshall (Eds.), *Death and Disease in the Ancient City*. London and New York: Routledge.
- Brumfiel, G. (2012). Controversial research: Good science bad science. *Nature*, 484, 432–4.
- Brussaard, C.P.D., Wilhelm, S.W., Thingstad, F., Weinbauer, M.G., Bratbak, G., Haldal, M., et al. (2008). Global scale processes with a nanoscale drive: The role of marine viruses. *ISME Journal*, 2(6), 575–8.
- Bubnoff, A. von (2005). The 1918 flu virus is resurrected. *Nature*, 437, 794–5.

- Budd, L., Morag, B. and Brown, T. (2009). Of plagues, planes and politics: Controlling the global spread of infectious diseases by air. *Political Geography*, 28(7), 426–35.
- Burnet, F.M. (1959). *The Clonal Selection Theory of Acquired Immunity*. Nashville: Vanderbilt University Press.
- Burnet, F.M. (1962). *The Integrity of the Body: A Discussion of Modern Immunological Ideas*. Cambridge, MA: Harvard University Press.
- Burnet, F.M. and Fenner, F. (1949). *The Production of Antibodies*. Melbourne: Macmillan and Co.
- Burnet, M. (1969). *Self and Not-Self: Cellular Immunology*. London: Cambridge University Press.
- Burroughs, W.S. (1963). *The Ticket That Exploded*. Paris: Olympia Press.
- Butler, D. (2009). Pandemic flu: From the front lines. *Nature*, 461, 20–21.
- Butler, D. (2010a). Portrait of a year-old pandemic. *Nature*, 464, 1112–13.
- Butler, D. (2010b). Flu experts rebut conflict claims. *Nature*, 465, 672–3.
- Butler, D. (2011). Fears grow over lab-bred flu. *Nature*, 480, 421–2.
- Butler, D. (2012). Freezeon mutant-flu research set to thaw. *Nature*, 486, 449–50.
- Butler, J. (2004). *Precarious Life: The Powers of Mourning and Violence*. London, New York: Verso.
- Campbell, D. (1992). *Writing Security: United States Foreign Policy and the Politics of Identity*. Minneapolis: University of Minnesota Press.
- Canguilhem, G. (1989). *The Normal and the Pathological*. New York: Zone Books.
- Canguilhem, G. (2012). *Writings on Medicine*. New York: Fordham University Press.
- Carpenter, S. (1999). Modern hygiene's dirty tricks. *Science*, 156(7), 108.
- Carvajal, D. (2011, 21 December). Security in flu study was paramount, scientist says. *New York Times*. Retrieved from http://www.nytimes.com/2011/12/22/health/security-in-h5n1-bird-flu-study-was-paramount-scientist-says.html?pagewanted=all&_r=0.
- Chan, M. (2009, 11 June). World now at the start of 2009 influenza pandemic. Statement to the press by WHO Director-General Dr Margaret Chan. Retrieved from http://www.who.int/mediacentre/news/statements/2009/h1n1_pandemic_phase6_20090611/en/.
- Check, E. (2005). Is this our best shot? *Nature*, 435, 404–6.
- Chernyak, L. and Tauber, A.I. (1988). History of immunology. The birth of immunology: Metchnikoff, the embryologist. *Cellular Immunology*, 117, 218–33.
- Clifford McDonald, L. (2005). Clostridium difficile: Responding to a new threat from an old enemy. *Infection Control and Hospital Epidemiology*, 26(8), 672–5.
- Cohen, D. and Carter, P. (2010). WHO and the pandemic flu 'conspiracies'. *British Medical Journal*, 340, 1274–9.
- Cohen, E. (2003). Metaphorical immunity: A case of biomedical fiction. *Literature and Medicine*, 22(2), 140–63.

- Cohen, E. (2004). My self as an other: On autoimmunity and 'other' paradoxes. *Journal of Medical Ethics; Medical Humanities*, 30, 7–11.
- Cohen, E. (2009). *A Body Worth Defending: Immunity, Biopolitics and the Apotheosis of the Modern Body*. Durham and London: Duke University Press.
- Cohen, I.R. (2000). Discrimination and dialogue in the immune system. *Seminars in Immunology*, 12, 215–19.
- Cohen, J. (2009a). A race against time to vaccinate against novel H1N1 virus. *Science*, 325(5946), 1328–9.
- Cohen, J. (2009b). Past pandemics provide mixed clues to H1N1's next moves. *Science*, 324, 996–7.
- Cohen, M.L. (2000). Changing patterns of infectious disease. *Nature*, 406, 762–7.
- Collier, S.J. and Lakoff, A. (2008). The problem of securing health. In Lakoff, A., Collier, S.J. (Eds.), *Biosecurity Interventions: Global Health and Security in Question* (pp. 7–32). New York: Columbia University Press.
- Cooper, M. (2008a). *Life as Surplus: Biotechnology & Capitalism in the Neoliberal Era*. Seattle and London: University of Washington Press.
- Cooper, M. (2008b). Pre-empting emergence: The biological turn in the war on terror. *Theory, Culture & Society*, 23(4), 113–35.
- Couture, J.-P. (2009). Review essay. Spacing emancipation? Or how spherology can be seen as therapy for modernity. *Environment and Planning D: Society and Space*, 27, 157–63.
- Dameshek, W., Witebsky, E. and Milgrom, F. (1965). *Autoimmunity: Experimental and Clinical Aspects*. New York: New York Academy of Sciences.
- Dancer, S.J. (2008). Importance of the environment in meticillin-resistant *Staphylococcus aureus* acquisition: The case for hospital cleaning. *The Lancet*, 8, 101–13.
- Deleuze, G. (2005). *Pure Immanence: Essays on a Life* (A. Boyman, Trans.). New York: Zone Books.
- Derrida, J. (1981). Plato's Pharmacy. In *Dissemination* (pp. 61–171). Chicago: University of Chicago Press.
- Derrida, J. (2005). *Rogues: Two Essays on Reason*. Stanford, CA: Stanford University Press.
- Derrida, J. (2005[1994]). *The Politics of Friendship*. London, New York: Verso.
- Derrida, J. and Vattimo, G. (Eds.) (1998). *Religion*. Cambridge: Polity Press.
- Dodds, K. and Atkinson, D. (2000). *Geopolitical Traditions: A Century of Geopolitical Thought*. London: Routledge.
- Donne, J. (1975[1627]). *Devotions Upon Emergent Occasions*. Montreal and London: McGill-Queen's University Press.
- Douglas, A.E. (2010). *The Symbiotic Habit*. Princeton: Princeton University Press.
- Dubos, R. (1987 [1959]). *Mirage of Health: Utopias, Progress, and Biological Change*. New York: Rutgers University Press.
- Dücker, R. (2011, 16 June). West-Östliche Lockerung. *Cicero Online Magazine für politische Kultur*. Retrieved from <http://www.cicero.de/salon/west-oestliche-lockerung/47395>.

- Ehrlich, P. (1957). *The Collected Papers of Paul Ehrlich* (Vol. 2). New York: Pergamon Press.
- Elden, S. and Eduardo, M. (2009). Being-with as making worlds: The 'second-coming' of Peter Sloterdijk. *Society and Space: Environment and Planning D*, 27(1), 1–22.
- Esposito, R. (2002). *Immunitas. Protezione e Negazione Della Vita*. Turijn: Einaudi.
- Esposito, R. (2006). The immunization paradigm. *Diacritics*, 36(2), 23–48.
- Esposito, R. (2008). *Bios, Biopolitics and Philosophy*. Minneapolis: University of Minnesota Press.
- Esposito, R. (2011). *Immunitas. The Protection and Negation of Life* (Z. Hanafi, Trans.). Cambridge: Polity Press.
- Esposito, R. (2013). *Terms of the Political: Community, Immunity, Biopolitics* (R.N. Welch, Trans.). Bologna: Fordham University Press.
- Esposito, R., Campbell, T. and Paparcone, A. (2006). Bios, immunity, life: The thought of Roberto Esposito. *Diacritics*, 36(2), 49–56.
- Ewald, F. (1991). Insurance and Risk. In G. Burchell, C. Gordon and P. Milller (Eds.), *The Foucault Effect: Studies in Governmental Rationality* (pp. 197–210). Chicago: University of Chicago Press.
- Ewald, F. (1993). Two Infinities of Risk. In B. Massumi (Ed.), *The Politics of Everyday Fear* (pp. 221–8). Minneapolis: University of Minnesota Press.
- Ewald, F. (2002). The Return of Descartes' Malicious Demon: An Outline of a Philosophy of Precaution. In T. Baker and J. Simon (Eds.), *Embracing Risk: The Changing Culture of Insurance and Responsibility* (pp. 273–301). Chicago: Chicago University Press.
- Farrar, J. (2007). Global health science: A threat and an opportunity for collaborative clinical science. *Immunology*, 120, 1–2.
- Fassin, D. (2007). *When Bodies Remember: Experiences and Politics of Aids In South Africa*. Berkeley and Los Angeles: University of California Press, Ltd.
- Fitzpatrick, M. (2003). Doctoring the risk society. Apocalypse from now on. *The Lancet*, 361(9365), 1310.
- Flynn, B. (2005). *The Philosophy of Claude Lefort: Interpreting the Political*. Evanston, IL: Northwestern University Press.
- Flynn, P. (2010). *The handling of the H1N1 pandemic: More transparency needed*. Report Social Health and Family Affairs Committee, Council of Europe.
- Foucault, M. (1979). *The History of Sexuality. Volume 1: An Introduction*. London: Allen Lane.
- Foucault, M. (1988). *Politics, Philosophy, Culture. Interviews and Other Writings 1977–1984*. London and New York: Routledge, Chapman & Hall, Inc.
- Foucault, M. (2004a). *Society Must Be Defended: Lectures at the Collèges de France 1975–76*. London: Penguin Books.
- Foucault, M. (2004b/1976). The crisis of medicine or the crisis of antimedicine? *Foucault Studies*, 1, 5–19.
- Foucault, M. (2008). *Geboorte van de Kliniek* (P. Klinkenberg, Trans.). Amsterdam: Uitgeverij Boom.

- Foucault, M. (2009). *Security, Territory, Population: Lectures at the Collège de France 1977–1978* (G. Burchell). New York: Palgrave Macmillan.
- Fraenkel-Conrat, H. (1962). *Design and Function at the Threshold of Life: The Viruses*. New York and London: Academic Press.
- Freud, S. (1917/1947). *Eine Schwierigkeit der Psychoanalyse: Gesammelte Werke XII*. London: Imago.
- Frey, L.S. and Frey, M.L. (1999). *The History of Diplomatic Immunity*. Columbus: Ohio State University Press.
- Fromherz, A.J. (2010). *Ibn Khaldūn: Life and Times*. Edinburgh: Edinburgh University Press Ltd.
- Galama, J. (2010). Virus en evolutie. *Nederlands Tijdschrift voor Geneeskunde*, 154(A1701), 1–5.
- Garret, L. (1995). *The Coming Plague: Newly Emerging Diseases in a World Out of Balance*. New York: Penguin Books.
- George, L.N. (2002a). Pharmacotic war. *Theory & Event*, 5(4).
- George, L.N. (2002b). The pharmacotic war on terrorism: Cure or poison for the US body politic? *Theory, Culture & Society*, 19(4), 161–86.
- Gilbert, S.F., Sapp, J. and Tauber, A.I. (2012). A symbiotic view of life: We have never been Individuals. *The Quarterly Review of Biology*, 87(4), 325–41.
- Gordon, S. (2008). Elie Metchnikoff: Father of natural immunity. *European Journal of Immunology*, 38, 3257–64.
- Greenspan, N.S. (2007). Conceptualizing immune responsiveness. *Nature*, 8(1), 5–7.
- Greenwald, G. (2013, 2 June). Drone attacks continue, the FBI killed an unarmed witness, and Obama aides cash in. *The Guardian*. Retrieved from <http://www.theguardian.com/commentisfree/2013/jun/02/drones-obama-yemen-pakistan-todashev>.
- Groot, G. (1991). ‘Krankheit als Mittel der Erkenntnis’. Nietzsche over ziekte. *Krisis*, 42, 47–56.
- The Guardian (2013, 8 June). Pakistan summons US ambassador to protest against latest drone killings. *The Guardian*. Retrieved from <http://www.theguardian.com/world/2013/jun/08/pakistan-us-drone-killings>.
- Haddad, S. (2004). Derrida and democracy at risk. *Contretemps*, 4, 29–44.
- Haeckel, E. (1883). *The Pedigree of Man and Other Essays* (E.B. Aveling, Trans.). London: Freethought Publishing.
- Han, B.-C. (2011). *Topologie der Gewalt*. Berlin: Matthes & Seitz Berlin.
- Han, B.-C. (2012). *Transparenzgesellschaft*. Berlin: Matthes & Seitz Berlin.
- Han, B.-C. (2013). *Müdigkeitsgesellschaft*. Berlin: Matthes & Seitz Berlin.
- Haraway, D.J. (1991). The Biopolitics of Postmodern Bodies: Determination of Self in Immune System Discourse. In D.J. Haraway. *Simians, Cyborgs, and Women: The Reinvention of Nature* (pp. 203–31). London: Free Association Books.

- Harris, P. (2012, 15 December). Tearful and angry, Americans target gun control after Newtown shooting. *The Guardian*. Retrieved from <http://www.theguardian.com/world/2012/dec/15/newtown-school-shootings-gun-control>.
- Hayden, E.C. (2009). Avian influenza aided readiness for swine flu. *Nature*, 459, 756–7.
- Haythornthwaite, R. (2010). A practical approach to risk for the 21st century regulators. *British Dental Journal*, 208(2), 55–9.
- Herfst, S., Schrauwen, E.J., Linster, M., Chutinimitkul, S., de Wit, E., Munster, V.J et al. (2012). Airborne transmission of influenza A/H5N1 virus between ferrets. *Science*, 336(6088), 1534–41.
- Hobbes, T. (1968). *Leviathan*. London: Penguin.
- Hobbes, T. (1983). *Thomes Hobbes De Cive*. New York: Oxford University Press.
- Hobbes, T. (1998). *Thomas Hobbes Leviathan*. New York: Oxford University Press.
- Hofman, B. (2006). *Inside Terrorism*. New York: Columbia University Press.
- Hofstadter, R. (1970). America as a gun culture. *American Heritage Magazine*, 21(6).
- Houtum, H. van (2010). Human blacklisting: The global apartheid of the EU's external border regime. *Environment and Planning D: Society and Space*, 28, 957–76.
- Howard, C.R. and Fletcher, N.F. (2012). Emerging virus diseases: Can we ever expect the unexpected? *Emerging Microbes & Infections*, 1(e46), 1–11.
- Hunter, P. (2012). H5N1 infects the biosecurity debate. *EMBO reports*, 1–4.
- Imai, M., Watanabe, T., Hatta, M., Das, S.C., Ozawa, M., Shinya, K., et al. (2012). Experimental adaptation of an influenza H5 HA confers respiratory droplet transmission to a reassortant H5 HA/H1N1 virus in ferrets. *Nature*, 486, 420–28.
- Interlandi, J. (2010). Finding a killer's achilles' heel. *Scientific American*, 303(5), 21.
- Jack, A. (2010, 11 January). Move to recover cost of flu vaccine. *Financial Times*. Retrieved from <http://www.ft.com/intl/cms/s/0/0e4d6a46-fe1a-11de-9340-00144feab49a.html>.
- John of Salisbury (1990) *Policraticus* (C. Nederman, Trans.). Cambridge: Cambridge University Press.
- Johnson, A. (2010). *Viral Politics: Jacques Derrida's Reading of Autoimmunity and the Political Philosophy of Carl Schmitt*. London: Lap Lambert Academic Publishing.
- Kahan, D.M., Jenkins-Smith, H. and Braman, D. (2010). Cultural cognition of scientific consensus. *Journal of Risk Research*, 14, 147–74.
- Kaulingfreks, R. and ten Bos, R. (2006). Inspiration and Togetherness. In M. Bakke (Ed.), *Going Aerial: Air, Art, Architecture* (pp. 156–70). Maastricht: Jan van Eyk Academie.
- Kawaoka, Y. (2012). H5N1: Flu transmission work is urgent. *Nature*, 482, 155.

- Keenlside, J. (2013). Pandemic Influenza A H1N1 in Swine and Other Animals In J.A. Richt and R.J. Webby (Eds.), *Swine Influenza* (pp. 259–73). Heidelberg/NewYork/Dordrecht/London: Springer.
- Kivity, S., Agmon-Levin, N., Blank, M. Shoenfeld, Y. (2009). Infections and autoimmunity – friends or foes? *Trends in Immunology*, 30(8), 409–14.
- Klauser, F.R. (2010). Splintering spheres of security: Peter Sloterdijk and the contemporary fortress city. *Society and Space: Environment and Planning D*, 28, 326–40.
- Kluyver, A.J. (1937). 's Levens nevels. Handel. XXVIe Ned. Nat.-en Geneesk. congres. In A.F. Kamp, J.W.M. la Rivière and W. Verhoeven (Eds.), *Albert Jan Kluyver: His Life and Work* (pp. 329–48). Amsterdam: North-Holland Publishing Company.
- Knight, P. (2001). I LOVE YOU: Viruses, Paranoia, and the Environment of Risk. In J. Parish and M. Parker (Eds.), *The Age of Anxiety: Conspiracy Theory and the Human Sciences* (pp.17–30). Oxford: Blackwell Publishers.
- Koch, R. (1890a). An address on bacteriological research. *The British Medical Journal*, 2(1546), 380–83.
- Koch, R. (1890b). Über bakteriologische Forschung. Aus Verhandlungen des X. Internationalen Medizinischen Kongresses, Bd. I. Berlin: Verlag von August Hirschwald.
- Kraut, A. (1994). *Silent Travelers: Germs, Genes, and the Immigrant Menace*. Baltimore: Johns Hopkins University Press.
- Kruif, P. de (1926). *The Microbe Hunters*. New York: Harcourt Brace Jovanovich Publishers.
- Laermans, R. (2011). The Attention Regime: On Mass Media and the Information Society. In W. Schinkel and L. Noordegraaf-Eelens (Eds.), *In Medias Res: Peter Sloterdijk's Spherological Poetics of Being* (pp. 115–32). Amsterdam: Amsterdam University Press.
- Laidlaw, P.P. (1938). *Viruses Diseases and Viruses*. London: Cambridge University Press.
- Lakoff, A. (2008). From population to vital system. In: A.Lakoff and S.J. Collier (Eds.), *Biosecurity Interventions: Global Health and Security in Question* (pp. 33–60). New York: Columbia University Press.
- Lakoff, A. and Collier, S.J. (Eds.) (2008). *Biosecurity Interventions: Global Health and Security in Question*. New York: Columbia University Press.
- Lakoff, G. and Johnson, M. (1980). *Metaphors We Live By*. Chicago: University of Chicago Press.
- Latour, B. (1988). *The Pasteurization of France*. Cambridge, MA: Harvard University Press.
- Latour, B. (1993). *We Have Never Been Modern* (C. Porter, Trans.). Cambridge, MA: Harvard University Press.
- Lederberg, J. (1998). The future of infectious diseases. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, 75(3), 463–70.
- Lederberg, J. (2000). Infectious history. *Science*, 288(5464), 287–93.

- Ledford, H. (2009). Pandemic flu viruses brew for years before going global. *Nature News*, doi:10.1038/news.2009.673.
- Lemmens, P. (2008). *Gedreven door Techniek: De Menselijke Conditie en de Biotechnologische Revolutie*. Oisterwijk: Box Press.
- Lesaffer, R. (2008). *Inleiding tot de Europese Rechtsgeschiedenis [Introduction to European History of Law]*. Leuven: Universitaire Pers.
- Lesch, E.J. (2007). *The First Miracle Drugs: How the Sulfa Drugs Transformed Medicine*. New York: Oxford University Press.
- Letsch, C. James, C., Lewis, P. and Watt, N. (2014, 6 October). Syrian Kurds say air strikes against Isis are not working. *The Guardian*. Retrieved from <http://www.theguardian.com/world/2014/oct/05/air-strikes-isis-not-working-syrian-kurds>.
- Levins, R. and Lewontin, R. (1985). *The Dialectical Biologist*. Cambridge, MA: Harvard University Press.
- Lewontin, R. (2000). *The Triple Helix: Gene, Organism, and Environment*. Cambridge, MA: Harvard University Press.
- Lewontin, R.C. (2001). In the beginning was the word. *Science*, 291(5507), 1263–4.
- Lewontin, R., and Levins, R. (2007). *Biology Under the Influence: Dialectical Essays on Ecology, Agriculture, and Health*. New York: Monthly Review Press.
- Linton, D.S. (2005). *Emil von Behring: Infectious disease, Immunology, Serum Therapy*. Philadelphia: American Philosophical Society.
- Liu, J.-P. (2006). Avian influenza – a pandemic waiting to happen? *Journal of Microbiology, Immunology and Infection*, 39, 4–10.
- Lloyd, G.E.R. (Ed.) (1983). *Hippocratic Writings*. New York: Penguin.
- Locke, J. (1988). *Two Treatises of Government* (Ed. P. Laslett). Cambridge: Cambridge University Press.
- Luhmann, N. (1984). *Social Systems*. (J. Berdnarz and D. Baecker, Trans.) Stanford: Stanford University Press.
- Lupton, D. (1994). Panic computing: The viral metaphor and computer technology. *Cultural Studies*, 8(3), 556–68.
- Maassen, S., Mendelsohn, E. and Weingart, P. (Eds.) (1994). *Biology as Society, Society as Biology: Metaphors*. Dordrecht, Boston and London: Kluwer Academic Publishers.
- Mackay, I.R. (2010). Travels and travails of autoimmunity: A historical journey from discovery to rediscovery. *Autoimmunity Reviews*, 9(5), 251–8.
- Maher, B. (2012). The biosecurity oversight. *Nature*, 485, 431–4.
- Maher, B. and Butler, D. (2009). Swine flu: One killer virus, three key questions. *Nature*, 462, 154–7.
- Marcus, J. (2013, 11 November). Iran nuclear: Positive signs despite talks breakdown. *BBC News*. Retrieved from <http://www.bbc.com/news/world-middle-east-24895917>.
- Margulis, L. (1997). *Microcosmos: Four Billion Years of Microbial Evolution*. Berkeley: University of California Press.
- Martin, E. (1994). *Flexible Bodies: Tracking Immunology in American Culture From the Days of Polio to the Age of AIDS*. Boston, MA: Beacon Press.

- Matzinger, P. (1994). Tolerance, danger and the extended family. *Annual Review of Immunology*, 12, 991–1045.
- Mayer, R. (2007). Virus discourse: The rhetoric of threat and terrorism in the biothriller. *Cultural Critique*, 66, 1–20.
- McClanahan, G. (1989). *Diplomatic Immunity: Principles, Practices, Problem*. London: C. Hurst & Co (publishers) Ltd.
- Medina, R.A. and Garcia-Sastre, A. (2011). Influenza A viruses: New research developments. *Nature Reviews Microbiology*, 9, 590–603.
- Metchnikoff, E. (1887). Sur la lutte des cellules de l'organisme contre l'invasion des microbes. *Annales de L'Institute Pasteur*, 1(7), 321–36.
- Metchnikoff, E. (1905 (1901)). *Immunity in Infective Diseases* (F.B. Binnie, Trans.). London: Cambridge University Press.
- Miller, J.H. (2008). Derrida's politics of autoimmunity. *Discourse*, 30, 208–25.
- Morens, D.M. and Taubenberger, J.K. (2011). Pandemic influenza: Certain uncertainties. *Reviews in Medical Virology*, 21(5), 262–84.
- Morens, D., Folkers, G.K. and Fauci, A.S. (2004). The challenge of emerging and re-emerging infectious diseases. *Nature Medicine*, 430, 242–50.
- Morin, M.-E. (2009). Cohabiting in the globalised world: Peter Sloterdijk's global foams and Bruno Latour's cosmopolitics. *Environment and Planning D: Society and Space*, 27, 58–72.
- The Moscow Times (2013, 10 October). Dutch apologize to Moscow for detention of Russian diplomat. *The Moscow Times*. Retrieved from <http://www.themoscowtimes.com/news/article/dutch-apologize-to-moscow-for-detention-of-russian-diplomat/487609.html>.
- Moulin, A.-M. (1991). *Dernier Langage de la Médecine: Histoire de l'Immunologie de Pasteur au Sida*. Paris: Presses Universitaires France.
- Naas, M. (2008). *Derrida From Now On*. New York: Fordham University Press.
- Nabel, G.J., Wei, C.-J. and Ledgerwood, J.E. (2011). Vaccinate for the next H2N2 pandemic now. *Nature*, 471, 157–8.
- Nairn, R. and Helbert, M. (2007). *Immunology for Medical Students*. Philadelphia: Mosbey Elsevier.
- Napier, D.A. (2003). *The Age of Immunology: Conceiving a Future in an Alienating World*. Chicago, London: The University of Chicago Press.
- Nathanson, S. (2010). *Terrorism and the Ethics of War*. Cambridge: Cambridge University Press.
- National Security Council (2002). *National Security Strategy of the United States of America*. Retrieved from <http://www.whitehouse.gov/nsc/nss.pdf>.
- Nature [Editorial] (2008). The long war against flu. *Nature*, 454(7201), 137.
- Nature [Editorial] (2009). How to win trust over flu? *Nature*, 461, 698.
- Nature [Editorial] (2010). Lessons from a pandemic. *Nature*, 463(7278), 135–6.
- Nature [Editorial] (2012). Facing up to flu. *Nature*, 482, 131.
- Nature [Outlook] (2011). Influenza. *Nature*, 480(7376), S1-S33.

- Nerlich, B. (2008). 'The post-antibiotic apocalypse' and the 'war on superbugs': Catastrophe discourse in microbiology, its rhetorical form and political function. *Public Understanding of Science*, 1–17.
- The New York Times (2010, 23 April). Greece and who's next? *The New York Times*. Retrieved from <http://www.nytimes.com/2010/04/24/opinion/24sat3.html>.
- Nietzsche, F. (1886/1980). *Jenseits von Gut und Böse, Kritische Studienausgabe Band 5*: München.
- Nietzsche, F. (1889/2008). *Götzen-Dämmerung oder Wie man mit dem Hammer philosophiert*. Köln: Anaconda Verlag.
- Nietzsche, F. (1980a). *Kritische Studienausgabe* (Vol. Band 1). München: DTV.
- Nietzsche, F. (1980b). *Sämtliche Werke, Kritische Studienausgabe (KSA)*. Berlin/New York: De Gruyter.
- Nietzsche, F. (1999). *The Birth of Tragedy and Other Writings*. Cambridge: Cambridge University Press.
- Nietzsche, F. (2004). *Ecce Homo: How One Becomes what One is & The Antichrist* (T. Wayne, Trans.). New York: Algora Publishing.
- Nietzsche, F. (2009/1882). *De Vrolijke Wetenschap* (H. Driessen, Trans.). Amsterdam: De Arbeiderspers.
- NOS (2014, 26 November). PVV: geen islam in Nederland. Retrieved from <http://nos.nl/artikel/2005845-pvv-geen-islam-in-nederland.html>.
- NOS (2015, 7 January). Aboutaleb tegen jihadisten: rot toch op! Retrieved from <http://nos.nl/artikel/2012214-aboutaleb-tegen-jihadisten-rot-toch-op.html>.
- Novas, C. and Rose, N. (2000). Genetic risk and the birth of the somatic individual. *Economy and Society*, 29(4), 485–513.
- Ogden, M. (1997). The growth of purpose in the law of diplomatic immunity. *The American Journal of International Law*, 31(3), 449–65.
- Okada, H., Kuhn, C., Feillet, H., Bach, J.F. (2010). The 'hygiene hypothesis' for autoimmune and allergic diseases: an update. *Clinical & Experimental Immunology*, 160(1), 1–9.
- Osterhaus, A. (2010a, 17 November). De Spaanse griep: Andere Tijden. [Television broadcast]. Hilversum: NTR.
- Osterhaus, A. (2010b). Pandemics: Is hoping for the best enough? *EMBO Reports*, 11(3), 142.
- Outeren, E. van (2013, 28 November). Mali wordt lastiger dan het kabinet vertelt. *NRC Handelsblad*, pp. 8–9.
- Palese, P. (2012). Don't censor life-saving science. *Nature*, 481, 115.
- Palmer, R. (2011). Drugs: Lines of defence. *Nature*, 480, 9–10.
- Pasteur, L. (1878). *Modern History Sourcebook: Louis Pasteur. Germ Theory and its Applications to Medicine and Surgery. Read before the French Academy of Sciences, April 29th 1878*: Published in Comptes rendus de l'Académie des Sciences, lxxxvi.
- Payer, L. (1994). *Disease-Mongers: How Doctors, Drug Companies, and Insurers Are Making You Feel Sick*. New York: Wiley.

- Pearson, K.A. (1997). *Viroid Life: Perspectives on Nietzsche and the Transhuman Condition*. London and New York: Routledge.
- Pradeau, T. and Carosella, E.D. (2006). The self model and the conception of biological identity in immunology. *Biology & Philosophy*, 21, 235–52.
- Pradue, T. (2012). *The Limits of the Self: Immunology and Biological Identity* (E. Vitanza, Trans.). Oxford: Oxford University Press.
- Protevi, J. (2001). *Political Physics: Deleuze, Derrida and the Body Politic*. London and New York: The Athlone Press.
- Purshouse, L. (2006). *Plato's Republic: A Reader's Guide*. London, New York: Continuum International Publishing Group.
- Quammen, D. (2012). *Spillover: Animal Infections and the Next Human Pandemic*. London and New York: W.W Norton & Company.
- Ranitz, A.M. de (1989). *Met een Pen en een Potlood als Wapen: Louis Raemaekers (1869–1956)*. Amsterdam: University of Amsterdam.
- Rappuoli, R. (2004). From Pasteur to genomics: Progress and challenges in infectious diseases. *Nature Medicine*, 10(11), 1177–82.
- Reagan, R. (1985, 28 June 1985). Terrorists will be held accountable – Reagan. *Washington Post*. Retrieved from http://articles.latimes.com/1985-06-28/news/mn-1287_1_president-reagan.
- Roossinck, M.J. (2011). The good viruses: Viral mutualistic symbiosis. *Nature Reviews Microbiology*, 9, 99–108.
- Rose, N. (2001). The politics of life itself. *Theory, Culture & Society*, 18(6), 1–30.
- Rose, N. (2007). *The Politics of Life Itself: Biomedicine, Power and Subjectivity in the Twenty-First Century*. Princeton, New Jersey: Princeton University Press.
- Rose, N.R. and Bona, C. (1993). Defining criteria for autoimmune diseases. *Immunology Today*, 14(9), 426–30.
- Roth, J.P. (1999). *The Logistics of the Roman Army at War: 264 B.C. – A.D. 235*. New York: Brill Academic Publishers.
- Rousseau, J.-J. (1988). *The Basic Political Writings* (C.A. Cress, Trans.). Indianapolis: Hackett.
- Safranski, R. (2003). *Hoeveel Globalisering Verdraagt De Mens?* (M. Wildschut, Trans.). Amsterdam/Antwerpen: Atlas.
- Sanger, D.E. and Mazzetti, M. (2013, 24 October) Allegation of U.S. spying on Merkel puts Obama at crossroads. *The New York Times*. Retrieved from http://www.nytimes.com/2013/10/25/world/europe/allegation-of-us-spying-on-merkel-puts-obama-at-crossroads.html?_r=0.
- Sasseti, C.M. and Rubin, E.J. (2007). The open book of infectious diseases. *Nature Medicine*, 13(3), 279–80.
- Schell, H. (1997). Outburst! A chilling true story about emerging virus narratives and pandemic social change. *Configurations*, 5(1), 93–133.
- Schinkel, W. and Noordegraaf-Eelens, L. (Eds.) (2011). *In Medias Res. Peter Sloterdijk's Spherological Poetics of Being*. Amsterdam: Amsterdam University Press.

- Schmidt, M.S. (2013, 29 October). N.S.A. head says European data was collected by allies. *The New York Times*. Retrieved from <http://www.nytimes.com/2013/10/30/us/politics/u-s-intelligence-officials-defend-surveillance-operations-on-capitol-hill.html>.
- Schmitt, C. (1995). *Staat, Großraum, Nomos: Arbeiten aus den Jahren 1916 bis 1969*. Berlin: Duncker & Humblot.
- Schmitt, C. (1996[1932]). *The Concept of the Political*. Chicago and London: University of Chicago Press.
- Schwartz, M. and Cohen, I.R. (2000). Autoimmunity can benefit self-maintenance. *Immunology Today*, 21(6), 265–8.
- Schwarz, M., Moalem, G., Leibowitz-Amit, R. and Cohen, I.R. (1999). Innate and adaptive immune responses can be beneficial for CNS repair. *Trends in Neuroscience*, 22, 295–9.
- Serres, M. (1977). *Hermes IV: La Distribution*. Paris: Les Editions de Minuit.
- Shreedhar, S. (2010). *Hobbes on Resistance: Defying the Leviathan*. Cambridge: Cambridge University Press.
- Silverstein, A.M. (1989). *A History of Immunology*. San Diego: Academic Press, Inc.
- Silverstein, A.M. (2001). Autoimmunity versus horror autotoxicus: The struggle for recognition. *Nature Immunology*, 2(4), 279–81.
- Silverstein, A.M. (2003a). Cellular versus humoral immunology: A century-long dispute. *Nature Immunology*, 4(5), 425–8.
- Silverstein, A.M. (2003b). Darwinism and immunology: From Metchnikoff to Burnet. *Nature Immunology*, 4(1), 3–6.
- Singh, D. (2004). New infectious diseases will continue to emerge. *British Medical Journal*, 328(7433), 186.
- Sivy, M. (2012, 13 February). Are we already planting the seeds of the next financial crisis? *Time Magazine*. Retrieved from <http://business.time.com/2012/02/13/are-we-already-planting-the-seeds-of-the-next-financial-crisis/>.
- Sloterdijk, P. (1998). *Spären I. Mikrosphärologie: Blasen*. Frankfurt am Main: Suhrkamp Verlag Frankfurt am Main.
- Sloterdijk, P. (1999a). *Regels voor het Mensenpark*. Amsterdam: Uitgeverij Boom.
- Sloterdijk, P. (1999b). *Spären II. Makrosphärologie: Globen*. Frankfurt am Main: Suhrkamp Verlag Frankfurt am Main.
- Sloterdijk, P. (2001). *Nicht Gerettet: Versuche nach Heidegger*. Frankfurt am Main: Suhrkamp Verlag Frankfurt am Main.
- Sloterdijk, P. (2004). *Sphären III. Plurale Sphärologie: Schäume*. Frankfurt am Main: Suhrkamp Verlag Frankfurt am Main.
- Sloterdijk, P. (2006). *Het Kristalpaleis: Een Filosofie van de Globalisering*. Amsterdam: Uitgeverij Boom/SUN.
- Sloterdijk, P. (2009). *Du Mußt Dein Leben ändern: Über Anthropotechnik*. Frankfurt am Main: Suhrkamp Verlag Frankfurt am Main.
- Sloterdijk, P. (2011, 22 December). Personal communication. Karlsruhe.

- Sloterdijk, P. and Heinrichs, H.-J. (2006). *Die Sonne und der Tod*. Frankfurt am Main: Suhrkamp Verlag Frankfurt am Main.
- Sontag, S. (1978). *Illness as Metaphor*. New York: Farrar, Straus & Giroux.
- Sontag, S. (1988). *AIDS and its metaphors*. London, UK: Penguin Group.
- Stephens, A.C. and Vaughan-Williams, N. (Eds.) (2008). *Terrorism and the Politics of Response*. London and New York: Routledge.
- Stern, A.M. and Markel, H. (2005). The history of vaccines and immunization: Familiar patterns, new challenges. *Health Affairs. At the Intersection of Health, Health Care and Policy*, 24(3), 611–21.
- Stöhr, K. (2010). Vaccinate before the next pandemic. *Nature*, 465, 161.
- Strachan, D.P. (1989). Hay fever, hygiene, and household size. *British Medical Journal*, 299(6710), 1259–60.
- Strachan, D.P. (2000). Family size, infection and atopy: The first decade of the ‘hygiene hypothesis’. *Thorax*, 55(1), S2–S10.
- Strauss, D. (2012, 24 August 2012). Bloomberg: ‘Safest big city’ not immune to national problem of gun violence. *The Hill*. Retrieved from <http://thehill.com/video/in-the-news/245149-several-shot-in-empire-state-building-shooting-rampage>.
- Sullivan, R., Behncke, I. and Purushotham, A. (2010). Why do we love medicines so much? An evolutionary perspective on the human love of pills, potions and placebo. *EMBO Reports*, 11(571–8).
- Suttle, C.A. (2007). Marine viruses: Major players in the global ecosystem. *Nature Reviews Microbiology*, 5, 801–12.
- Swierstra, T.E. and Tonkens, E. (2011). Woekerend Wantrouwen. Risico’s en de Verstoorde Verhouding tussen Burger en Overheid. In J. van Tol, I. Helsloot and F. Mertens (Eds.), *Veiligheid boven alles? Essays over Oorzaken en Gevolgen van de Risico-Regelreflex* (pp. 63–71). Amsterdam: Boom Juridische Uitgevers.
- Taubenberger, J.K., Reid, A.H., Lourens, R.M., Wang, R., Jin, G. and Fanning, T.G. (2005). Characterization of the 1918 influenza virus polymerase genes. *Nature*, 437, 889–93.
- Tauber, A.I. (1992). History of immunology. The birth of immunology: The fate of the phagocytosis theory. *Cellular Immunology*, 139, 505–30.
- Tauber, A.I. (1994a). *The Immune Self: Theory or Metaphor?* Cambridge: Cambridge University Press.
- Tauber, A.I. (1994b). The immune self: Theory or metaphor? *Immunology Today*, 15(3), 134–6.
- Tauber, A.I. (1995). Postmodernism and immune selfhood. *Science in Context*, 8(4), 579–607.
- Tauber, A.I. (1998). Conceptual shifts in immunology: Comments on the ‘two-way paradigm’. *Theoretical Medicine and Bioethics*, 19, 457–73.
- Tauber, A.I. (1999a). The elusive immune self: A case of category errors. *Perspectives in Biology and Medicine*, 42, 459–74.
- Tauber, A.I. (1999b). Selfhood, immunity, and the biological imagination: The thought of Frank Macfarlane Burnet. *Biology & Philosophy*, 15, 509–33.

- Tauber, A.I. (2000). Moving beyond the immune self? *Seminars in Immunology*, 12, 241–8.
- Tauber, A.I. (2003). Metchnikoff and the phagocytosis theory. *Nature Reviews Molecular Cell Biology*, 4, 897–901.
- Tauber, A.I. (2008a). Expanding immunology: Defensive versus ecological perspectives. *Perspectives in Biology and Medicine*, 51(2), 270–84.
- Tauber, A.I. (2008b). The immune system and its ecology. *Philosophy of Science*, 75, 224–45.
- Tauber, A.I. (2012a). The biological notion of self and nonself. In *Stanford Encyclopedia of Science*. Retrieved from <http://plato.stanford.edu/entries/biology-self/>.
- Tauber, A.I. (2012b). From the immune self to moral agency. *AVANT*, III(1), 101–5.
- Tauber, A.I. and Chernyak, L. (1991). *Metchnikoff and the Origins of Immunology: From Metaphor to Theory*. New York and Oxford: Oxford University Press.
- Thacker, E. (2005). Nomos, nosos and bios. *Culture Machine*, 7, 1–8.
- Tisdall, S. (2015a, 22 March). Iran nuclear deal could transform Obama and Rouhani presidencies. *The Guardian*. Retrieved from <http://www.theguardian.com/world/2015/mar/22/iran-nuclear-deal-could-transform-obama-and-rouhani-presidencies>.
- Tisdall, S. (2015b, 28 January). Jordan shows that negotiating with terrorists can reap rewards. *The Guardian*. Retrieved from <http://www.theguardian.com/world/2015/jan/28/jordan-shows-negotiating-terrorists-reap-rewards>.
- Treichler, P.A. (1987). AIDS, homophobia, and biomedical Discourse: An epidemic of signification. *AIDS: Cultural Analysis/Cultural Activism*, 43, 31–70.
- Turda, M. (2009). ‘To end the degeneration of a nation’: Debates on eugenic sterilization in inter-war Romania. *Medical History*, 53(1), 77–104.
- Turner, B.S. (1992). *Regulating Bodies: Essays in Medical Sociology*. London and New York: Routledge.
- Turner, B.S. (1996 [1984]). *The Body and Society: Explorations in Social Theory*. Oxford: Sage Publications Ltd.
- Van Tongeren, P.J.M. (2000). *Reinterpreting Modern Culture: An Introduction to Friedrich Nietzsche’s Philosophy*. West Lafayette, IN: Purdue University Press.
- Varela, F. (1991). A Meshwork of Selfless Selves. In A.I. Tauber (Ed.), *Organisms and the Origins of Self*. Dordrecht, Boston, and London: Kluwer Academic Publishers.
- Varela, M., Spencer, T.E., Palmarini, M. and Arnaud, F. (2009). Friendly viruses: The special relationship between endogenous retroviruses and their hosts. *Annals of the New York Academy of Sciences*, 1178, 157–72.
- Verkoren, W. (2013, 12 December). Militaire interventie lost problemen in Mali niet op. *De Volkskrant*, p.29.
- Verweij, M. and Dawson, A. (2010). Shutting up infected houses: Infectious disease control, past and present. *Public Health Ethics*, 3(1), 1–3.
- Villarreal, L.P. (2004). Are viruses alive? *Scientific American*, 291(6), 100–105.

- Visser, E.D. (2012, 21 January). De realiteit van een scenario. *De Volkskrant*. Retrieved from <http://www.volkskrant.nl/vk/nl/2844/Archief/archief/article/detail/3131790/2012/01/21/De-realiteit-van-een-scenario.dhtml>.
- Walsh, F. (2011). When should science be censored? *BBC News*. Retrieved from <http://www.bbc.co.uk/news/health-16275946>.
- Watt, N. (2012, 2 January). David Cameron: We are not immune from eurozone crisis. *The Guardian*. Retrieved from <http://www.guardian.co.uk/politics/2012/jan/02/david-cameron-new-year-message>.
- Weiss, R.A. and McMichael, A.J. (2004). Social and environmental risk factors in the emergence of infectious diseases. *Nature Medicine*, 10(12), S70–S76.
- WHO (1946). *Constitution of the World Health Organisation*. Retrieved from http://whqlibdoc.who.int/hist/official_records/constitution.pdf.
- Wildavsky, A. (1988). *Searching for Safety*. New Brunswick: Sage.
- Wilson, M.E. (1995). Infectious diseases: An ecological perspective. *British Medical Journal*, 311, 1681–4.
- Zanetti, A.R. and Zappa, A. (2010). Emerging and re-emerging infections at the turn of the millennium. *Haemophilia*, 16(s1), 7–12.
- Zwart, H. (2005). *Denkstijlen*. Nijmegen: Valkhof Pers.
- Zwart H. (2013). Peter Sloterdijk. In R. Celikates, R. Gabriëls, J. Hartle, P. Lemmens and T. Lijster (Eds.), *De Nieuwe Duitse Filosofie: Denkers en Thema's voor de 21e Eeuw* (pp. 245–54). Amsterdam: Boom.
- Zweerde, E. van der (2009). Europe and its others: 'plurality in unity': European identity and European citizenship. *Limes*, 2(1), 5–25.

Index

- Agamben, Giorgio, 11, 25, 107
Alcmæon of Croton, 4
allergy, 53
analogies, 3, 41, 109, 121
antibiotics, 9, 10, 51
Antiquity, 3, 4, 25
Aristotle, 3, 9, 29, 82
autogenic sphere, 77
autoimmune disease, 14, 33, 48, 52–54, 98, 103, 110–111, 114–116, 126
autoimmune illness, 53, 70, 84, 93, 102, 109, 111, 114, 125, 126
autoimmune protection, 52, 54, 111, 114
autoimmunitarian paradoxes, 79
autoimmunitarian terror, 105
autoimmunity, 14, 18–19, 37–39, 43–49, 52–56, 65, 93, 95–99, 101, 103–117, 119–125, 129, 131, 134
Avian flu, 18, 58, 62–63, 68–72, 127
- bare life, 11
Baudrillard, Jean, 2, 14–15, 18–19, 24, 37, 95–101, 109–113, 120–122
Bauman, Zygmunt, 71, 84–86, 102
Beijerinck, Martinus Willem, 59–60
Bernard, Claude, 29, 31–33
biological citizenship, 11
biologisation of politics, xii, 13–14, 70
biologisation of the political, 95, 101
biopolitical concept, 26, 40
biopolitical developments, 2, 8
biopolitical power, 9, 27
biopolitical practice, 9, 16, 71, 127
biopolitical situation, 2, 10, 14, 39, 58, 101
biopolitical tendencies, 1
biopolitics, 7–9, 13, 34, 95, 101
biosophy, 39
body politic, xii, 3–5, 15, 39, 70, 95, 99, 125
Burnet, Macfarlane,
- Canguilhem, 4, 10, 30
cell theory, 4
co-existence, 19, 76, 134
co-fragility, 87, 91
co-immunisation, 88–90, 92, 124–125, 129
co-immunity, 89–90
co-isolation, 87, 91
collateral damage, 64, 71, 85, 116, 127–128
communitas, 24, 101
condition humaine, 14, 38, 124–125
constitutive autoimmunity, 107, 123
contagion, 5, 14, 36, 102
contagium vivum fluidum, 59
contamination, 2, 5, 37, 39, 99, 102–104, 113, 125, 132
Cooper, Melinda, 12, 13, 67–71
cooperative dimensions, 39, 89
cooperative interactions, 49, 52
corporeal atomism, 32
corporeality, 11
crystal palace, 87
cultural criticism, 13, 116
- defensive account of immunity, 91
defensive approach, 71
defensive immunological discourse, 92–93
defensive perspective on immunisation, 91, 119–120, 124–127, 131
democracy, 103, 106–110, 115–116, 123
Derrida, Jacques, 13–14, 37–38, 65, 95–97, 103–117, 119, 122–127, 131
diplomatic immunity, 24–26
discontents, 71–72, 93, 120, 124, 126–128
- ecological immunology, 50–52, 55
embryological development, 32, 43, 45
embryologist, 43, 45
emerging infectious diseases, 6, 10, 12, 68, 84, 130
endemics, 29
epidemics, 3, 5, 8, 12, 29, 37, 57, 71, 121
Esposito, Roberto, 2, 14–15, 24, 26–27, 39–40, 64–65, 70, 76, 78, 93, 95–96, 101–103, 109–110, 113–116, 121–122, 124–126
excessive immunisation, 64–65, 84, 93, 97–99, 103, 109, 112, 115, 125, 127
exemption, 27, 40, 90

- exoneration, 25, 27
 explication, 58, 64, 71, 81–85
- foam theory, 86–92
 foams, 86–90, 124
 Foucault, Michel, 8–11, 13, 29–30
- Garret, Laurie, 6
 genealogy, 23, 78
 general immunology, 39, 79–80, 89, 92–93
- Haeckel, Ernst, 4, 32
 Han, Byung-Chul, 15, 39–40, 99–101, 109–110, 112–113, 121
 Haraway, Donna, 7, 8, 134
 Hippocratic idea, 32
 Hippocratic tradition, 3
 Hobbes, Thomas, 3, 26–29, 40, 129
 homo immunologicus, 80, 121
 horror autotoxicus, 53
 hospitality, 107–109, 123–124
 host defence, 32, 40–43, 77, 88, 122–127, 129, 131
 hygiene hypothesis, 110–111, 115
 hyper-immunisation, 97, 109
- illogical logic, 106, 123
 immune system discourse, 7, 13
 immune system, 14, 18, 33, 43–56
 immunis, 24
 immunisation immunisation paradox, 63–64
 immunisation paradigm, 2, 15, 39, 64, 92, 110, 124
 immunitarian dispositif, 2
 immunitarian illusionism, 78
 immunitary illusions, 35
 immunitary paradigm, 15, 109, 125
 immunitas, 24, 32, 101
 immuno-philosophers, 13, 15, 41, 43, 122, 131
 immunological catastrophe, 80, 81, 83, 92
 immunological discourse
 immunological models
 immunological paradigm, 79, 100, 110, 112, 113, 116, 121, 131
 immunological repertoire, 19, 44, 49, 51, 54, 71–72, 93, 117, 119–120, 123–124, 126, 128–129, 131–134
 immunological tolerance, 33, 45, 48–49, 111
 immunologist of culture, 35, 78–79
 immunology
 inflammation, 32–33, 45, 54, 114
 inflammatory processes, 32
 invader, 31–32, 40, 44, 46, 48, 55, 57
- Jerne, Niels, 46
 John of Salisbury, 3
- Khaldūn, Ibn, 3
 Koch, Robert, 5, 9, 31
- Lefort, Claude, 5
 legal immunity, 25, 38
 Leviathan, 9, 26–28
 Locke, John, 3
- Martin, Emily, 8, 33
 medical-political immunisation, 16, 58, 63
 medicalization, 10–11, 30
 mental immune system, 34, 78, 80
 Metchnikoff, Elie, 32–33, 43, 45
 microbe, 6, 30–33, 36, 40, 44, 46–47, 49, 51, 59–60, 62
 microbial insult, 91
 microbiology, 9, 32, 34, 36, 43
 microorganism, 32, 47, 49–50, 54, 57, 59
 milieu intérieur, 29
 militaristic language, 12
 militaristic perspective, 70
 military language, 7
 military metaphor, 8, 29, 30–31, 34, 48–49, 55
 military strategy, 48
 mutant, 58, 68–70, 72
- Napier, David, 8, 13–14
 natural autoimmunity, 54, 111
 neurological disorders, 15, 40, 112–113
 Nietzsche, Friedrich, 23–24, 34–37, 40, 78–80, 86
- organismal identity, 32–33, 43, 45
 over-immunisation, 110
 overprotection, 37, 98
- pandemic, 23, 37, 57–58, 63–69, 71–71
 parasite, 3, 36–37, 46, 50, 54, 60, 98
 Pasteur, Louis, 5, 9, 23, 30–31, 36–37, 40, 43–44, 59
 Payer, Lynn, 11, 102
 phagocyte, 32–33, 45, 47
 pharmacosis, 128
 pharmophilia, 11
 philosophical paradigm, 134
 philosophy-as-immunology, 79
 plague, 6, 57, 110
 Plato, 2–3, 29, 78, 80, 82, 83
 polarisation, 134
 polis, 2, 128

- politicisation, 13, 95
 post-immunological paradigm, 15, 39, 110, 113, 121
 pre-empting emergence, 67
 pre-emption, 67–72, 119
 pre-emptive war, 70
 preventive immunisation, 97, 101–102, 109
 prophylactic fanaticism, 98
 prophylactic measures, 98, 121
 prophylactic zeal, 15
 prophylactics, 5
 prophylaxis, 37, 97–99, 107
 psychic-neurological paradigm, 110, 112
 purification, 36–37, 109–11, 115, 128
- Raemaekers, Louis, 60–62, 127
 re-emerging infectious diseases, 6, 10
 reassortant, 68
 reassortment, 63–64, 67, 71–72
 risk society, 71, 85
 Rousseau, Jean-Jacques, 3
- sacrificial self-destruction, 97, 103, 108, 124
 securitisation, 9, 10, 12–13
 self-medication, 10–11
 selfhood, 7, 11, 48–49, 55–56
 Serres, Michel, 5, 36, 40
 Sloterdijk, Peter, xi, 1–2, 13–15, 18, 23, 33–35, 38–40, 58, 64–65, 71, 75–94, 99, 100, 121–125, 128, 129
- social body, 8, 14, 37, 97–98, 102, 104, 109, 114, 121
 Social Darwinism, 4, 8, 31
 somatic individuality, 11
 somatic terms, 11
 somaticisation, 10–11
 somatocracy, 9
 Sontag, Susan, 4, 7, 58, 66–67, 133
 spatio-cultural understanding, 75
 Spencer, Herbert, 4
 Swine flu, 10, 18, 23, 57–58, 63–66, 127–128
 symbiosis, 49–50, 55
 symbiotic turn, 51
 symbolic immunisation, 39, 77, 79–81, 90
- technical immunisation, 76–77, 85
 terrorism, 23, 62, 64, 66–70, 84, 97–98, 105–106, 121, 127, 132, 134
 Thacker, Eugene, 3, 4, 13, 71
 Treichler, Paula, 7
 Turner, Bryan, 12, 30
- variola minor, 32
 Virchow, Rudolf, 4, 32
 virology, 47, 51, 60, 63, 70–71, 112–113, 128, 131
 virophobia, 71–72, 130
 virulence, 37, 63–64, 98–99, 101, 109, 121, 130
 virus discourse, 6
 virus, 59–63