

Canada: SARS. She highlights how it overrode conventional boundaries, both in its spread as well as in its prevention. SARS, much like the event of “9/11”, also aroused a new sense of fear and anxiety in the west and in the process the WHO assumed more political power and legitimacy through its “global health governance” over sovereign nation states.

In the context of such fear and corresponding ideas of medical borders, international security and intelligence is now an important topical concern. Two articles in this connection scrutinize this modern anxiety about health and security. David Fidler shows how biosecurity has emerged in response to new concerns over public health as a state policy. Lorna Weir and Eric Mykhalovskiy study the Global Public Health Intelligence Network (GPHIN), a warning system for public health events developed by the WHO. The authors claim that this has ushered in a new era in the collection of medical data on epidemic outbreaks, a new surveillance system centralized beyond the nation state, which has ultimately provided more authority and power to the WHO. While not all the articles adhere to the theme of borders, the collection does open up new areas of scholarship in national and international medicine. The volume is a valuable documentation of how historically disease and epidemics have constantly redrawn the borderlines of modern state formation.

Pratik Chakrabarti,
University of Kent

James Colgrove, *State of immunity: the politics of vaccination in twentieth-century America*, Berkeley, University of California Press, and New York, Milbank Memorial Fund, 2006, pp. xiii, 332, illus., £29.00, \$39.95 (hardback 978-0-520-24749-3).

Anxious to understand the nature of what is generally referred to as “antivaccinationism”, a number of commentators in the medical literature have turned to the past. Some have seen parallels with widespread popular resistance to compulsory smallpox vaccination in the latter

part of the nineteenth century. Others have seen continuities, in beliefs and in attitudes, despite the apparent dissolution of most of the anti-vaccination groups in the first decades of the twentieth century. Colgrove has done a useful job of filling in, at least as far as the United States is concerned. By the 1930s smallpox had virtually disappeared, the medical profession had achieved far greater influence on public health policies, and the old antivaccinationist groups had largely dissolved. These events form the background to the beginnings of diphtheria vaccination in the 1920s and 1930s. Public health authorities had learned a lesson from the smallpox campaigns. The emphasis now, in New York and in the majority of states, was to be on education and persuasion, not on compulsion. There was little or no popular resistance. But now, however, controversy arose over who should be responsible for preventive health care. Just as the Sheppard–Towner Act, providing for publicly funded maternal and child health programmes, had attracted the wrath of the American Medical Association, so too many physicians in private practice saw mass vaccination campaigns as an unacceptable intrusion into their terrain and a threat to their incomes. “The popular perception that diphtheria immunization was safe and effective”, writes Colgrove, “would greatly influence the acceptability of new vaccines against other illnesses” (p. 109). By the 1940s, surveys showed high levels of confidence in the principles of immunization. So much so, that by the time the Salk polio vaccine was licensed, in 1955, supplies fell far short of parents’ demands. The consequence of shortage was a new dilemma, and a new political conundrum. How should the vaccine be distributed? Who could and should ensure rapid and equitable access, independent of wealth and connections? The modest federal government role that was ultimately negotiated reflected the Eisenhower administration’s profound opposition to “socialized medicine”, but it was to prove an important step. Further elements of current vaccine politics were slowly emerging. As popular enthusiasm for polio vaccine faded, epidemiological and social studies were

beginning to disclose social inequalities in vaccination status. The new Kennedy administration, far more amenable to federal involvement in health care than Eisenhower's had been, sought ways of reaching unvaccinated children in deprived communities. Soon afterwards a measles vaccine was licensed. But it was expensive, rarely made available through public clinics, and generated little public excitement. So, when public health physicians came up with the idea of measles *eradication*, the problem of reaching the unvaccinated acquired a new significance. The result, an ironic one, since measles eradication had been "undertaken amid the Great Society's spirit of community mobilization and empowerment" (p. 177) was the re-emergence of compulsion. By 1981 all states had passed legislation making vaccination against most vaccine-preventable diseases mandatory for school entry. And so the stage was set for renewed controversy as "patients' rights", and in particular the right to choice, to informed consent, became an increasingly central aspect of health care. Vaccines are complicated substances, and uncertainties regarding their functioning are easily used to fan the fires of controversy. And so they are in regard to the MMR vaccine today, and will be in regard to the many vaccines now becoming available. Have we come full circle?

James Colgrove's book is well researched and well written, showing clearly the changing tensions that have characterized the difficult reconciliation of the protection of the health of the community with an individualistic and market-oriented health care system.

Stuart Blume,
University of Amsterdam

Toine Pieters, *Interferon: the science and selling of a miracle drug*, Routledge Studies in the History of Science, Technology and Medicine, London and New York, Routledge, 2005, pp. xvi, 264, illus., £90.00, \$155.00 (hardback 0-415-34246-5). Also available as a Kindle e-book through Amazon Digital Services, \$75.60 (including free wireless delivery via Amazon Whispernet; [http://www.](http://www.amazon.com/Interferon-Science-Selling-Technology-Medicine/dp/B000OI15WA/ref=dp_kinw_strp_1//s?ie=UTF8&search-type=ss&index=digital-text&field-author=Toine%20Pieters)

[amazon.com/Interferon-Science-Selling-Technology-Medicine/dp/B000OI15WA/ref=dp_kinw_strp_1//s?ie=UTF8&search-type=ss&index=digital-text&field-author=Toine%20Pieters](http://www.amazon.com/Interferon-Science-Selling-Technology-Medicine/dp/B000OI15WA/ref=dp_kinw_strp_1//s?ie=UTF8&search-type=ss&index=digital-text&field-author=Toine%20Pieters)).

Interferon is a wonderful object for the historian of medicine. The drug remains a major blockbuster selling \$5 billions in 2005. It is one of the rare products of genetic engineering, which has found significant clinical use, for treating cancer in particular. More importantly interferon's development lasted thirty years, encompassing the entire postwar biomedical era. Making the best of this long trajectory, Toine Pieters' biography of the drug is a timely book. Following interferon from the laboratory to the market and the public sphere it sheds new light on the intimate relations biology and medicine have developed during that period and the inevitable tensions they created. Coming after Ilana Löwy's *Between bench and bedside* and Peter Keating and Alberto Cambrosio's *Biomedical platforms*, it complements their perspectives on the detailed construction of biomedical knowledge, while opening new vistas on the role of marketing and public cultures. The book's subtitle is therefore not misleading: science and the selling of its products are actually discussed.

This dual approach is well reflected in the roughly chronological organization of the book. The first three chapters focus on the period 1957–75, dominated by laboratory research and the (failed) attempts to turn interferon into a drug against viral infections. The last three chapters present the making of a biotech-based wonder drug, instrumental in treating (if not curing) cancer. "Making" should be understood in a broad sense since interferon's success owed much to forms of biomedical work typical of the second half of the twentieth century, i.e., clinical trial management and public promotion, media coverage in the first instance. This is not to say that interferon is not a powerful drug under specific circumstances and indications. Pieters is too good a connoisseur of science and technology studies to avoid the question of how it became effective.