BOOK REVIEWS

The Responsibility to Protect
Report of the International Commission on Intervention and State Sovereignty (2001) The International Development Research Centre, PO Box 8500, Ottawa ON, Canada K1G 3H9

In September 2000, the Canadian Government established the ‘International Commission on Intervention and State Sovereignty’. This was in response to a discussion in the United Nations General Assembly about the problems of ‘humanitarian intervention’ relating to the problems raised in Ruanda and Srebinica. The UN was set up to deal with problems between nations but, in the present circumstances, the great majority of crimes against humanity, massacres, institutionalized rape, mass expulsion, population starvation are occurring within countries due to despotic regimes. The commission’s task was to try to define the circumstances under which external intervention could be justified, a legalized intervention in the affairs of a sovereign state. Marginal cases are where an invasion has occurred and the invaded country feels that expulsion of the invaders merits entering the invading country to remove those responsible. The report contains not only a thorough discussion of this very difficult and contentious subject, but exemplary summary reports on the conduct of earlier cases.

The question of state sovereignty itself offers its own difficulties as has been shown in the comments of many legal scholars, ‘the most glittering and controversial notion in the history, doctrine and practice of international law’, and Falk says ‘there is little neutral ground when it comes to sovereignty’. The usual definition is given as ‘the competence, independence, and legal equality of states, encompassing all matters which each state is permitted by international law (agreement?) to decide and act without intrusions from other sovereign states.’ However, there are widely accepted limits to state sovereignty, notably in response to a threat to the peace, a breach of the peace or an act of aggression. One particular problem is with the concept of ‘humanitarian intervention’ against a state that abuses its sovereignty by brutal and cruel treatment of those within its power. This is invoked too easily as a pretext for intervention motivated by economic or other interests.

Consider the invasion of Vietnam by the Khmer Rouge after their success
within Cambodia. The Vietnamese drove them out and followed this up by an invasion of Cambodia by some 120,000 troops to eliminate them from their home territory, and set up an alternative government of the ‘United National Front’. The subsequent discussions in the UN lined up most countries in condemning the invasion but the Soviet Union and its allies opposed the discussions. Various commentators now estimate that the Khmer Rouge had been directly or indirectly responsible for the deaths of 1–2 million people within the country and no one tried to condone this. However, as the French delegation emphasized, ‘The notion that because a regime is detestable, foreign intervention is justified and forcible overthrow is legitimate is extremely dangerous’ and this theme was taken up by most countries. After a very vigorous debate in the UN, the draft resolution calling for the withdrawal of all foreign (i.e. Vietnamese) forces from Cambodia was supported by 13 members of the Council but was vetoed by the Soviets.

A different class of intervention was that of France in the Central African Empire in 1979. This was an instance where the regime had an appalling record of murder and violence. The trigger was the killing of school children and students. The French flew in paratroopers and engineered a bloodless coup, replacing Bokassa. This intervention raised little international reaction in the UN or elsewhere. By contrast, the US intervention in Grenada caused strong criticism and led to a UN Resolution calling the intervention ‘a flagrant violation of international law’ and calling for immediate withdrawal.

The intervention in Kosovo has deeper implications, while the Security Council saw the situation as a threat to peace, it was NATO that took action. Russia, China, Belarus and India condemned it but did not receive the necessary support. Although the intervention was undoubtedly motivated by humanitarian considerations, the moral, political and other aspects have remained very controversial.

Afghanistan is not dealt with in this study but it raises many issues that are even more complex.

The study deals comprehensively with the issues in international law and responsibility that these various conflicts have raised: rights and responsibilities, legitimacy and authority, conduct and capacity, domestic and international will, humanitarian intervention, conflict prevention, legal aspects and post-conflict challenges. It provides a splendid resource for evaluating all these aspects.

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Austria: Society and Regions
Elizabeth Lichtenberger
Austrian Academy of Sciences Press, Vienna, 2000 (491 pages)
Hardback, ISBN 3-7001-2775-8

Professor Lichtenberger, a leading personality of Austrian geography (and a member of Academia Europaea) directed a multidisciplinary research team of the Austrian Academy of Sciences between 1994 and 1998 to produce the first comprehensive geographical synthesis of Austria since 1928. This carefully edited book is very richly documented, with much statistical information, many colour maps and photos. First, the book gives a general introduction to Austrian history, ‘classical’ geography (from physical environment to settlement system) and to the peculiar post-Second World War Austrian political landscape.

It also offers fine and original analyses of some problems that can raise the interest of geographers and regional scientists. To take just two examples: the analysis of the population and society, and the discussion of the rural regions. Demography shows a drastic decline in the fertility rate below reproduction level: the country’s population is ageing — a phenomenon quite common in Europe. Thus, the Austrian economy needs migrant workers, but their growing presence inflames political demagogy and anti-foreigner feelings (foreign residents make up about one tenth of the total population). Owing to its geographical location (the first safe haven … ), Austria regularly received political refugees from East Central Europe before 1989, and some of them stayed there permanently. Following 1989, although the feared ‘stampede’ from the East-Central European countries into Austria did not take place, the country has continued to serve as the entrepôt of migrants from distant countries such as India, Pakistan, Afghanistan or Kurdistan.

The coexistence of farming and an urban leisure society is an interesting aspect of the Austrian countryside. Austria is one of the leading countries in international tourism and its tourist industry has been based on winter and rural tourism to a great extent. Farmers participate actively in the tourist industry, which has protected the traditional agricultural landscape from extensive agro-technical destruction.

The third aim of the book is to formulate some Austrian problems of European relevance. Austria is a small country (it comprises only 2.5% of the overall population of the EU) but it has important assets of European significance. Cultural assets: the political–cultural heritage of the Great Empire of Austria–Hungary and the capital city of Vienna, an important European metropolis. Environmental assets: the Alps with their exceptional tourist attractions and national parks. A geopolitical asset: its location in the heart of Central Europe and its opportunities in helping the integration of four neighbouring countries (Czech
Republic, Hungary, Slovakia and Slovenia) into the EU — one should not forget the cultural and geographical wealth and diversity of Central Europe. This excellent book is a good guide to Austria’s social and regional complexity.

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Becoming a Physician. Medical Education in Britain, France, Germany and the United States, 1750–1945
Thomas Neville Bonner

The author, Thomas Neville Bonner, is an emeritus Distinguished Professor of History and Higher Education, at Wayne State University, and is currently a visiting scholar in history and biology at Arizona State University.

After the introduction, the bulk of the book is divided into 14 chapters that are, on the whole, chronologically distributed, from the end of the 18th century to the aftermath of the Second World War. In every chapter, the comparative study of what happened about medical education in USA and in the transatlantic nations (Britain, France and Germany) is discussed.

The contents of this considerable work are too rich to be analysed in a few lines. Consequently, I will focus my review on one of the main topics of the book, the consideration of theoretical versus practical teaching and personalized instruction at the bedside. The major points are: university lecture room versus hospital ward, official teaching versus private tuition, the priority of clinical versus laboratory, scientific knowledge versus contact with patients. As Bonner says, ‘the teaching of medicine […] is inescapably embedded in a changing social environment. What students learn in the future and how they learn it, as was true in the past, will be rooted in the particular historical and cultural milieu that varies from nation to nation and from time to time.’ The singularity of the French system is based on the centralism of France and the strong influence of the State in education, the elitism and its ‘concours’ privileging the ‘externes’ and above all the ‘internes’, neglecting the run-of-the-mill student of medicine; the dominant role of the Ecole de Paris, at the beginning of the 19th century and the subsequent spread of morbid anatomy and the anatomo-clinical method. Bonner emphasizes the French dominance of the hospital and hence that of the clinics over laboratory and basic sciences. William Osler, quoted by Bonner, wrote in 1905 that for French students, ‘the hospital is everything; the medical school is — well, quite a secondary
consideration’, a statement always true, from the end of the 18th century up to today. Among the four countries studied by the author, Germany was the only model of good clinical training for the masses of students. The restricted size of the German clinics (less than 15 beds), and their close relationship with the central function of the university, allowed small groups of students to get real practical responsibility under the supervision of senior teachers. In contrast, says Edward C. Atwater, of the USA, ‘for a long time, there were too few hospitals, two few patients, and too many students to provide sufficient clinical experience. […] The student often finished his formal education, without ever having been alone with, much less touched a patient.’

The bibliography in the book is very extensive, bordering on exhaustive. Archives have been scanned in the USA, Great Britain, Germany, Austria and France — and for France, not only the Archives Nationales in Paris, but also those from Lyon, Montpellier and Strasbourg; curiously, the Archives of the Medical School of Paris are not mentioned. Ninety-four dissertations and theses, mainly in German or in English, but also a dozen in French, and 44 medical journals, seven German and seven French are cited. More than 400 printed primary sources and 500 secondary books and articles are mentioned, in the three languages. The index is copious and well done.

To sum up, Becoming a Physician is a highly valuable book, absolutely necessary to anyone who is interested in the history of medicine and history of education. The major feature of this history of medical education is as a part of comparative history. Even if there are imperfections in the result, it is major resource in medical history.

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Chemistry, Society and Environment. A New History of the British Chemical Industry
Edited by Colin Russell
Royal Society of Chemistry, 1999

Whenever a group of chemists gather together it is never long before the subject of chemistry’s ‘image’ enters the conversation. Chemists will bemoan the fact that chemistry, in the minds of the great unwashed, is associated with poisons,
pollution, toxic waste, the destruction of the ozone layer, and memorable chemical accidents — something, the conversation goes, must be done to improve chemistry’s profile. But such discussions beg the question of whether chemistry’s image ever was good. If one visits the Science Museum in London, the staircase leading up to the chemistry section is decorated with a huge reproduction of the entry from the word chemistry from the Oxford English Dictionary — chemistry, we are told, falls in the same class of nouns as palmistry, sophistry, casuistry — all of them pejorative, and suggesting that the subject has always had connotations of charlatanism and quackery. The popular view, and one that is perpetuated in many traditional undergraduate programmes, is that chemistry as a discipline emerged quite directly from distinctly suspect, if not fraudulent, alchemical antecedents, when during the Enlightenment the invention and development of ever more precise balances and glassware made it possible to quantify the transformations and transmutations that had previously been nothing more than collections of anecdotes.

Yet this is to omit the fact that chemistry has always been, at heart, an applied subject — one with direct and immediate commercial applications. From the tanning of leather, the smelting of metals, to the production of dyes and pigments, it was, in a sense, commercial pressures that drove chemistry forwards. While a handful of academics and largely self-funded gentlemen argued in learned journals over the nature of acids and bases and tried to understand heat and caloric, in the outside world the 18th and 19th centuries saw the rise of an industry. An industry that generated multi-tonne quantities of substances and materials for which there was an insatiable demand, and which gradually transformed the world into a more colourful, healthier, more comfortable place. It is the story of entrepreneurs who took part in a great gold-rush to bring to market ever more sophisticated products. And hand in hand with this frenzy came regulation and the analytical tools required to support these and to protect the public and the consumer from the greed of the producers.

In Britain, as elsewhere in the 18th century, the early chemical industry was strongly associated with the extraction of useful materials from the minerals and ores extracted from the mines — thus the smelting of tin, lead and iron, the production of lime from limestone for use in the construction industry, and the conversion of kelp (seaweed), wood, bone and so on into useful potash fertilizer for the increasingly industrialized agriculture. The demand for basic bulk chemicals gradually rose — vitriol (sulfuric acid), one of the most important of industrial chemicals today, was also much in demand for the cleaning of metals, for bleaching, for the preparation of ‘superphosphate’ fertilizer (by addition of sulfuric acid to spent animal charcoal used in the purification of sugar), and later in the alkali industry (see below). At the same time, demand for coloured cloth
provided a clear commercial impetus. The earliest dyes were, of course, of animal or vegetable origin — indigo, cochineal, madder, safflower, fustic, weld, tyrian purple — many of them imported and therefore very expensive. The chance discovery by William Perkin of the extraordinary purple material 'Mauve', made whilst fooling around with different combinations of compounds isolated from coal tar, ushered in a whole new business universe and simultaneously revolutionized fashion, art and design. The story of the dyestuff industry is a thrilling story of discovery and exploitation of pure research, followed by gradual decline resulting from a combination of bad financial management, litigation, and a 19th-century brain drain as chemists headed back from Britain to the continent. But since dyes require effective mordants, the metal salts used to bind dyes to the fibres of the textile, there was a parallel development of materials such as alum (still widely used) and copperas (FeSO₄·7H₂O), made from the combustion of iron pyrites (FeS₂). Each of these products found further use. Copperas was required in the early production of oil of vitriol (sulfuric acid), but also for synthesis of inorganic dyes such as Prussian blue, and to make Venetian red, the iron oxide used by jewellers as a polish. It found its way into ink, when mixed with oak gall, and alongside alum also found application in water purification as a flocculant.

Another great industry was the production of alkalis. Potash (K₂CO₃) was available from wood ash, and vast tracts of forest in North America and in Russia and the Baltic were cleared to supply Britain. But soda (Na₂CO₃) was in critical demand to make soap (potassium soap is too soft), and to make glass (potassium glass melted too high to be worked conveniently). Imports of soda from Egypt were expensive and increasingly unreliable as the demand grew. Yet efforts to produce soda industrially were not very successful and here hangs a fascinating and heroic tale. The key issue was not that soda could not be made artificially. The problem was to produce a reliable, saleable product on a large enough scale. The solution came from Nicolas Leblanc, the Parisian physician to the Duke of Orleans. Inspired by a published paper that incorrectly claimed to produce good yields of soda, Leblanc proposed a modification — heating equal amounts saltcake (sodium sulfate) with limestone (calcium carbonate) in the presence of coal would yield soda. Having convinced his boss to finance a business venture Leblanc set up a plant in St Denis on the north side of Paris. On paper, the method appears simple. Saltcake can be made by heating salt with sulfuric acid — the saltcake residue is then heated in a furnace with coal and limestone to give a material called black ash. The black ash can then be extracted with water, from which the soda crystallizes. The problem, however, was getting sufficiently pure and reliable starting materials, perfecting the conditions for the materials used — the devil was very much in the detail — minimizing transport costs by sourcing these locally, and having nearby purchasers, again to minimize costs. On top of all this, until
the abolition of the salt tax in Britain in 1823, the fiscal burden on producers was such that large-scale production was virtually uneconomic.

From a human point of view, the work was physically tough. In the production of saltcake the men mixed and turned the highly acidic, fuming sludge in a huge furnace. Their wrought iron tools would gradually dissolve and had to be replaced every two weeks. The production of black ash was little different. Yet this was a highly skilled job — misjudging the temperature or the consistency of the mix would result in a whole batch being condemned. Although wages were not as bad as has been suggested previously, hours were long and plants operated day and night, in some cases including Sundays. Weeks of between 60 and 100 hours were typical and children were employed, usually the sons of adult factory workers. Quite apart from the long hours, the accident statistics are fairly breathtaking. Chemical works may not have been the most dangerous of all industries (earthenware, lead-works and glassworks had worse occupational hazard statistics), but the death rate was 50% higher than the national average. Workers fell into vats (sometimes through drunkenness), boilers burst, and dust and fumes were inhaled — portrait photographs of workers wearing flannel masks over their mouth and nose are deeply affecting when one imagines the brutality of the conditions to which they were exposed.

And then there was the pollution. In London, the Great Stink controversy broke out in the 1860s: people had always been complaining about the stenches and fumes emanating from chimneys and rivers. One writer suggested that melancholy individuals should avoid Widnes ‘lest they be tempted to do away with themselves’. Blake, of course, cursed ‘those dark satanic mills’, but popular songs captured some of the horror.

The banks of the Tyne, I remember,  
Were covered with bonny green fields;  
Now there is nought but the big furnaces  
Down from Newcastle to Shields.  
And what with the sulfur and brimstone,  
Their vapour, their smoke and their steam,  
The grass is all gone, and the farmers  
Can neither get butter nor cream.

Rachel Carson eat your heart out.

Manufacturers were, of course, inclined to use the cheapest disposal methods (the chimney and the river) to rid themselves of their waste. The hydrochloric acid generated in the production of saltcake simply left the factory through the chimney and then drizzled gently back down onto the streets and countryside — acid rain indeed. Two factors led to the clean-up. On the one hand, the Alkali Act of 1863 compelled industry to clean up its act. But there was also a commercial recognition that perhaps use could be made of waste products. The acid could be converted
to chlorine and hence to bleach, a process that eventually became more profitable than the production of alkali itself. William Gossage and Ludwig Mond, the father of ICI and discoverer of nickel carbonyl, suggested a simple method for the recovery of sulfur. Thus, a combination of legislation and ingenuity led to a huge clean-up.

The compelling vision that emerges from this book is the striking degree of sophistication and integration of all of these processes. Terrifying competitive pressures pushed many of the heroic businesses that developed clever processes or sold innovative products ruthlessly to the wall when circumstances changed. Processes came and went. Industrial chemicals came into and went out of fashion as better substitutes are found and as improved processes were found to reach a particular target chemical. Alongside these are stories of individual initiative, innovation, and brilliance, of lives in some cases in transformed and in others crushed by this intricate web of interconnected processes.

All of this makes for fascinating reading for someone with a little chemical knowledge and an interest in technological and economic history. The book is neatly divided into chapters written by a number of scholars specializing in different aspects of the story and one of the pleasures is to see the extent to which certain bulk chemicals reappear in different contexts. And, to a large extent, the book succeeds in penning the story of the British chemical industry. On the other hand, several chapters really fail to integrate the relationship of this industrial and societal development with the environment. The chip on the shoulder that chemists have when confronted with accusations of being poisoners and destroyers of the environment leads some of the authors to sound rather shrill. In one particularly memorable passage, one author comments rather laughably that ‘the (petrochemicals) industry can hardly be held responsible for the deliberate and gross abuse of its products, as in the craze for solvent sniffing …’. Indeed not. Yet chemistry carries with it a historical burden that it cannot easily shake off. And this book serves to remind us of how much our lives have come to depend upon it and how much it has contributed to the economic development of Britain in the last 200 years. The final chapter attempts to draw together the environmental threads of the story. While the environmental lobby that forced the passing through parliament of the key regulatory acts (which led to the huge improvements in air and water quality) is very different from that of today, it is intriguing to notice how it too exploited a broad base of public opinion to get the ear of the government and how powerful establishment figures were brought on board to lend weight to the arguments: the same tensions within communities — jobs versus environment/health — were as prominent then as they are today. What emerges very clearly is the extent to which, in line with Bjørn Lomborg’s recent controversial book *The Skeptical Environmentalist*, we really never have had it so good and both our
air and water have not been as clean for several hundred years. We are now in a position to have our cake (a thrilling variety of chemical products, new materials, and applications deriving from them) and eat it too (clean air, water, and better health and longevity than ever before).

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