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monarchist after the Restoration. He has been called an “unlovely conservative”, possessed of “a genuine fear of change”. Jacob’s strategy here decodes apparently innocent texts (such as Stubbe’s book on chocolate, *The Indian nectar* (1662)), or apparently conservative texts (such as those written against the Royal Society) as covering a motivated and sustained programme of radical vitalism and secular historicism. He rejects recent claims by Nicholas Steneck that the debate about the cures of the Irish “stroker”, Valentine Greatrakes, reflects “conflicting natural philosophies” rather than “conflicting political ideologies”. Jacob insists on the “shrewd, even devious calculation” which prompted Stubbe’s interventions in such disputes, and uses this insistence in decoding true motives for Stubbe’s actions.

Much is missing from this account, however. Little attention is paid to Stubbe’s role in arguments around the College of Physicians and iatrochemistry; the problem of the date of composition of Boyle’s *Free enquiry*, allegedly a response to “Stubbians” in the early Restoration, is still unresolved; a full account of the equally complex strategies of men like Glanvill, Stubbe’s target and respondent, is obviously essential in the work of deciphering the pamphlet war of the 1660s and 1670s. At the same time, it is not clear that the issues which divide writers such as Steneck and Jacob are going to be resolved by appeals to ever greater historical detail. Steneck reads *The Indian nectar*, for example, as a report of facts; Jacob reads the book as a critique of Presbyterianism, a statement sympathetic with Digger doctrines on property, and an attack on the Restoration settlement. Stubbe’s exchanges with Hobbes and his manuscript on Mahometan Christianity are used as the keys which unlock all the other texts he produced. There may, perhaps, be fruitful work to be done on other “turncoats”, such as Marchamont Nedham, erstwhile theorist of absolutism who switched back and forth as propagandist for King and Parliament and then emerged as author of the remarkable *Medela medicinae* in 1665. Perhaps he, too, may be saved from that circle of history’s Hell reserved for inconsistency. Ultimately, Jacob’s most successful chapter is his final one on the links between Stubbe and the Deists of the later seventeenth century, but, as the response to other works on Newtonians and radicals has shown, that area is no more secure a basis for reductive interpretation than the one surveyed in this book.

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JANET BROWNE, *The secular ark. Studies in the history of biogeography*, New Haven, Conn., and London, Yale University Press, 1983, 8vo, pp. x, 273, illus., £21.00.

Approaches to biogeography now range from specialist studies in the *Journal of the History of Biology* to M. Bowen’s liberationist *Empiricism and geographical thought* (1981). Given this wide interest, Janet Browne’s history of the “topographic” and geologic modes of thought that fused to form Darwinian biogeography is ensured a warm welcome.

Browne portrays *savants* like de Candolle, Brown, and H. C. Watson conducting a census of life using contemporary demographic methods, and expecting their statistics to serve as Humboldtian pointers to the topography of creation. Although elite geologists divorced Whewell’s “palaeology” from the ungentlemanly data-crunching methods of a phrenologist like Watson, Darwin as always saw both sides (even inviting Watson to Downe in 1856), and Browne’s interest in “botanical arithmetic” pays dividends when she deals with Darwin’s own computations. These enabled him to tackle speciation and divergence in “large genera”. She observes that by 1859 he was concentrating on divergence at the expense of distribution – a trend that Victorian palaeontologists continued with a vengeance.

Personally, I would have liked more on the colonial connexion. We get occasional glimpses: Linnaeus’ “Apostles” sailing away in all manner of merchantmen (p. 28); the discovery of extinct marsupials in New Holland by garrison troops pushing inland – finds that upset Brongniart’s global palaeofaunas and ushered in the “succession of types” (pp. 97–101). Not that Browne is blind to the imperial connotations of Eurocentrism. Indeed, she points out that colonialism had more than a metaphoric signification. With people part of nature’s process, human emigration was subject to the same stern law: hence Hooker justified the settlers’ slaughter of the Maoris as an act of superior selection (pp. 130–131).

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Browne's history challenges us to come up with underlying social explanations. Why the contemporary mania for naming and "stationing" new species? – so common an activity seems to defy questioning. William Kirby once said that naming was possessing, but it is surely too simplistic to see the enterprise as capitalist expropriation writ large (even knowing Wallace's need to tag and price each specimen to protect his livelihood). But these are minor cavils for what is, after all, a study which sets out to discover "topographic" patterns in history, not causal processes. Nor is it an unrewarding approach. Browne has returned the "botanical statisticians" to their rightful place, given a welcome ear to naturalists like Forbes and Watson, and shown the evolutionary importance of Darwin's uncertain arithmetic.

Adrian Desmond

DIETER OLDENBURG, *Romantische Naturphilosophie und Arzneimittellehre 1800–1840*, (Veröffentlichungen aus dem Pharmaziegeschichtlichen Seminar der Technischen Universität Braunschweig, Bd. 20), Stuttgart, Deutscher Apotheker-Verlag, 1979, 8vo, pp. 267, DM. 30.00 (paperback).

Medicine and natural science were profoundly influenced by the German Romanticism of the early part of the nineteenth century, in particular by Friedrich von Schelling (1775–1854). His *Naturphilosophie* formed the basis of the studies of chemists and pharmacologists: it emphasized the unity of the world and the regularity of its phenomena as a result of the mathematical correlations of its components. These were, first of all, spirit and nature, which were seen as opposite poles of a unified system. In the same way, everything worked within polarities such as organic and inorganic. In inorganic nature, the forces were magnetism, electricity, and chemical processes; in organic nature, reproduction, irritability, and sensibility. These categories were then subdivided in various ways. As many of the chemical elements as were then known were assigned to one or the other of the subdivisions and correlated with disease processes for a cure to be produced. For instance, J. C. Reil maintained that in the human body there was a polarity between oxygen and hydrogen, oxygen being associated with arterial blood and hydrogen with the nervous system. The oxygen was also associated with irritability and the hydrogen with sensibility. A preponderance of either principle or a dulling of both would lead to disease, which had to be countered with remedies belonging to the opposite principle; oxygen complaints were to be treated with hydrogen-like remedies and vice versa. Other systems were far more complicated permutations on the same idea. J. H. W. Grabau had a whole scale of the thirty-seven elements then known, starting with oxygen and ending with hydrogen, arranged by their supposed pharmacological effect. He also had a similar scale of organic substances. This is one of the few places where plant remedies figure in the pharmacology of the time. These systematizations, reminiscent as they are of medieval scholastic categories, proliferated until, as in the Renaissance, the pendulum swung back again, and judgements began to be arrived at empirically.

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ALMUTH WEIDMANN, *Die Arzneiversorgung der Armen zu Beginn der Industrialisierung im Deutschen Sprachgebiet, besonders in Hamburg*, (Braunschweiger Veröffentlichungen zur Geschichte der Pharmazie und der Naturwissenschaften, Bd. 25), Stuttgart, Deutscher Apotheker-Verlag, 1982, 8vo, pp. viii, 229, DM. 30.00 (paperback).

The rich have a choice. They can ignore the poor. Two institutions do this at their peril: the Church and the State. Almuth Weidmann, in her dissertation on the medical prescriptions available to the poor in the period she calls "the beginning of industrialization in Germany", tackles a very difficult subject. Yet the extent of Germany's industrialization at the turn of the nineteenth century is still open to question, some historians preferring to call it "proto-industrialization". The discussion is important because of the underlying assumption: that industrialization created a massive upsurge in urban poor. One should recall that it was the early eighteenth century and the Prussian need for a workforce in the newly founded wool and textile businesses (Mercantilism) that helped create the workhouse. The suffering of the urban