Across the past 25 years, interest in the history of science has spurred the accession and retrieval of the documents of scientists across two centuries. Many 20th century scientists have been motivated to deposit or bequeath their papers; the Australian Joint Copying Project of the National Library has microfilmed correspondence relating to Australian 19th century scientists in British collections; while tapes and oral history records and transcripts form an important new dimension to the collections. The names of most of our recent scientific leaders are here — Burnet, Florey, Oliphant, Rivett, Dorothy Hill, Martin, Baxter, Bullen, Birch, Pawsey, Frankel, Nossal, Helen Turner, Wark, White, and Wright, to name a selection.

The word 'science' is clearly elastic and the entries flow freely across aeronautical scientists and engineers, agriculturalists, anatomists, Antarctic explorers and researchers, anthropologists, astronomers, bacteriologists, biochemists, biologists, botanists, chemists, engineers of all varieties, entomologists, foresters, geologists, hydrographers, inventors, magneticians, mathematicians, medical scientists and practitioners, metallurgists, meteorologists, museum curators, natural history artists, ornithologists, physicists, statisticians, surveyors, technical officers, veterinary scientists, zoo directors, zoologists, and more .

The material is detailed and highly accessible, entries being alphabetically organised, with additional Indexes by subject and profession that allow the reader to track letters in different collections and make valuable institutional and topic sweeps. While 'technology' and 'technologists' do not feature among the subject or professional headings, the papers of such inventors as Julius, Michell, Hargrave, Hinkler are listed; there is a wide assortment of the papers of engineers, and other technologists will be found, e.g., Ernest Fisk, Charles Todd, G.D. Delprat, William Hudson, Henry Deane by a riffle through the pages or a quick scan of names in the index to professions.

"Some collections", McCarthy sums up this large endeavour, "are treasure troves, containing personal and professional materials that document not only the processes of science but also its humanity. They document the networks created by scientists, their battles with authority and with each other, and their cooperation to achieve longer term objectives; and they provide lasting evidence of the progress and processes of science in Australia". The *Guide* will be invaluable to researchers and a key information resource in this increasingly important field.

Unfortunately one blemish lies in the fact that the book has been printed without a publication date.

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The Politics of Progress: The Origins and Development of the Commercial Republic, 1600-1836 *by Hiram Caton*
(University of Florida Press, Gainesville, 1988), pp. xii + 627, $US49.00, ISBN 0-8130-0847-6.

"Political economy," wrote Adam Smith at the beginning of Book IV of *Wealth of Nations,* "considered as a branch of the science of a statesman or legislator, proposes two distinct objects: first, to provide a plentiful revenue or subsistence

for the people, or more properly to enable them to provide such a revenue or subsistence for themselves; and secondly, to supply the state or commonwealth with a revenue sufficient for the public services. It proposes to enrich both the people and the sovereign."

I take it that a country in which those two aims are recognised as related and are given a deliberate high priority, and in which they are more or less achieved, is a commercial republic.* Thus, Caton's book can be regarded as a history of political economy, in the original sense of the term. His examples of commercial republics include Holland in the 1650s and 1660s; France under Colbert (a slightly later but overlapping period); and England under Walpole, in the first half of the next century. But the mature commercial republics came only with the industrial revolution, when the goal of providing a plentiful revenue acquired the added complexity of allowing for continuous radical change in goods and techniques.

Caton defines his task as that of composing a "narrative history of progress as a history of polytechnic rationality", by which he means "the story of the extension of technical control over the artificial habitat", both physical and institutional. His method itself is scientific, he tells us: he drew on the whole range of social and psychological sciences, including animal ethology. To obtain insights into the flow of ideas during the period under study he sampled the literature of the times in a controlled fashion. But, at least to the non-specialist reader, none of this shows. *Ars est celare artem.* What we get is indeed a narrative, or rather a collection of partially interlinked narratives. That the episodes do not entirely cohere supports the author's claim to be writing scientific history: real knowledge is always patchy.

And the kind of knowledge that Caton is attempting is particularly hard to come by. We may believe, with Keynes, that the world is ruled by little else than the ideas of economists and political philosophers. But to trace plausible links between the idea and the reality, in specific cases, is rarely easy. Even in mechanical engineering, it can be debatable how much the inventor knew of the relevant 'known' physics. (An example from Caton's book is the question how much Watt derived from Black's work on latent heat.) In political innovation, the evidence can only be circumstantial. Caton's tightest connection is from Descartes to Colbert.

If there is a central theme to the book, it is that the commercial republic is Hobbsian. The achievement of Hobbes was to show that, even if people are mere detached, self-interested egos, with no social impulses whatever, it should still be possible to devise and impose a system of laws that would mould them into a viable and prosperous society. Religion, other than private faith and the secular religion of respect for the law, had to be expunged as worse than useless because (as everyone could see, in the 17th century) it led to conflict, and commerce required peace. The legislative power was to be concentrated in a monarch, who ruled however not by divine right but by the consent of the people. (Hobbes published *Leviathan* two years after the execution of Charles I, and tutored the future Charles II in exile.) Caton presents Hobbes as a Ghibelline — that is, one of those who since the 11th century had sided with monarchs against the Church — but with an appreciation of the growing power of a literate public.

Caton finds a direct Hobbsian influence on the Royal Society, Sprat's *History* of which he terms "an early, perhaps the first, Whig manifesto". Early in the next century, when Walpole's "Whig commercial republic" set about explicitly

legitimising itself in the impeachment of its critic Sacheverell, it did so, Caton shows, in Hobbsian terms as expressed by Locke. And the spirit of Hobbes was felt across the Atlantic: Benjamin Franklin's *Poor Richard's Almanack* was "Hobbism for the people" — a Hobbism acquired, again, via Locke, as also as that of Frederick the Great of Prussia. In *The Federalist* (whence the term 'commercial republic' is actually taken), the founders of the United States added a refinement to the basic Hobbsian vision: they replaced his competing individuals with competing groups. "The regulation of. . .various and interfering interests forms the principal task of modern legislation. . ." (*Federalist,* no. 49). Thus did Hobbism digest Hume's thesis that people were not simply atoms of ego, but were united by mutual 'sympathy': the social force in human beings was supposed to be strictly short-range, uniting firms and factions but not the nation. (Caton at this point brackets Hume and Adam Smith together, presumably in reference to Smith's *Theory of Moral Sentiments;* but in fact Smith reconciled 'sympathy' with competition rather differently: in his book, individuals competed primarily for reputation, respectability, in a kind of moral hall of mirrors. It is sometimes alleged that Smith's 'moral sentiments' were short-range, but it is not evident from the *Theory.*)

A second American addition to the Hobbes model is central to Caton's story. Alexander Hamilton recognised the dynamic of cumulative technological change, and saw the economic task of government not only as assisting the nation's commerce, but as assisting its industrialisation. It could of course be said that earlier mercantilists had done the same; and indeed, much of the earlier part of Caton's book is devoted to telling us what they did in this line. The Royal Society, the *Académie des Sciences,* the Society for the Encouragement of Arts and Manufactures, were all in their time conscious attempts at realising that old Baconian promise of "the effecting of all things possible" through technology. But once real money starts to be made in radically new industries that show positive economies of scale, and which are not geographically costrained as are the primary industries, the administration of the commercial republic acquires a new dimension.

In a footnote, Caton draws attention to the link between Hamilton and List, whom he describes, rather unconventionally, as the founder of the Historical School of Economics, but who was certainly the founder of the kind of economics that goes with an active industrial policy. Simplifying grossly, one could say (Caton does not) that List carried Hamiltonian industrial policy home to Germany, and posthumously conveyed it to Japan. (Tessa Morris-Suzuki, in her recent *A History of Japanese Economic Thought,* Routledge, 1989, writes: "A particularly important milestone in the development of Japanese protectionist thought came with the translation in the late 1880s of Friedrich List's *National System of Political Economy.*" (p. 60).) Well, it is tempting to continue the story, but Caton's book stops rather abruptly at 1835, with regrets over the missed opportunity of British industrialists in allowing the class war to take hold.

As Caton rightly observes, Adam Smith did not comprehend the industrial revolution that was going on around him. "For reasons not readily understood," he adds, "his commercial orientation was not subsequently rectified by successors. The consequence is a curious persistence of commercial economic thinking in an era dominated by industry." But is it persistence? Or is it an atavism — a throwback to (paradoxdically) Descartes, in an age when the rest of the sciences have moved on from there? It is instructive to compare the scraps of deductive theory attributed to Alfred Marshall in a modern economics text

with what the old master actually wrote — even in his undergraduate textbook (still in print in paperback after a century), but particularly in his 1919 *Industry and Trade*. "The preeminent figure in what has come to be called the neoclassical school" (as J.K. Galbraith terms him) was, in his mid-70s, keeping himself up to date with industrial engineering on both sides of the Atlantic, and occasionally extrapolating from it — for example, giving a succinct description of what we now know as containerisation. Where are the economists of yesteryear?

In fact, I cannot resist giving old Marshall the last word on the commercial republic. Addressing the Royal Economic Society in 1907, he attempted to give new meaning to an old slogan: "*Laissez faire:* — let the State be up and doing".

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* If I am wrong in this identification, it is because it is easier to find clear definitions in Smith than in Caton. As R.L. Stevenson said of Hazlitt, "though we are mighty fine-fellows nowadays, we cannot write like Smith."

Information and Legislative Organisation *by Keith Krehbiel*
(The University of Michigan Press, Ann Arbor, US, 1991), pp. vii + 314, $US27.95, ISBN 0-472-09460-2.

This book is a political analysis of theories of legislative organisation of the US Congress, based on the premise that the structural features of legislatures have great influence on the policy outcomes and the operation of political systems.

I question its practical use to the political decision-makers. Interesting theoretical concepts are often expressed in tangled jargon, making elementary ideas unnecessarily complicated. Many of the basic notions could be far more simply expressed. However, the author is redeemed by using examples from committee proceedings, which give the theories immediacy. Further, it does expand the academic debate with regard to theories of legislative practice, at least as it has been conducted from the economic theorist's viewpoint.

Theories have fashions. In the late 1970s, research on legislative politics moved from informal descriptions to formal theories, which explored the theoretical underpinnings of the system — in this case, the US Congress. Throughout the book, the historical context is well covered and puts the current debate into perspective. According to Krehbiel, current wisdom is towards 'distributive' theory.

The author contrasts two broad theoretical constructs: the distributive and the informational. The former states that Congress operates principally by 'distributive' mechanisms — to provide 'gains from trade' between legislators and selected electors, that is, who gets what at whose expense, also variously described as log rolling and pork barrelling.

> The distributive perspective on legislative organisation depicts the legislature as a collective choice body whose principal task is to allocate policy benefits (p. 3).

The informational theory incorporates the notion of policy expertise as a collective good. To illustrate the operation of uncertainty and the need for consistent expert information, the author gives an example of the Star Wars