

A tale of two cultures

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America's Struggle for Leadership in Technology. By Jean-Claude Derian. MIT: 1990. Pp 309. £26.95, \$29.95.

JEAN-Claude Derian is in the distinguished tradition of Tocqueville — a French visitor who grasps US institutions better than most natives. Derian wrote this succinct book while he was science counsellor at the French Embassy in Washington during the mid-1980s. His subjects are the confused objectives of US technology policy, and its mixed effect on the competitive standing of industry. In part, the book is an efficient tour of the usual horizon: the role of NASA, the Pentagon and such “big science” projects as the Strategic Defence Initiative (Star Wars) in incubating and channelling new technologies; the distinct subculture of Silicon valley; a comparison of technology policy in the United States, Japan and France, and so on. This, of course, is well-worn territory, yet Derian manages to work it better than most.

But Derian's original contribution, which makes the book especially worth reading, is his analysis of the two cultures of high-technology industry — a ‘sheltered’ culture of large companies either with close linkages to government or dwelling within regulated or cartelized industries, and which compete mainly on the basis of technical advance; and an entrepreneurial ‘exposed’ culture of companies and industries competing openly (and fiercely) on the basis of price. “The sheltered culture”, writes Derian, “has resulted from what seems to be an accident of history: the involvement of the federal government in the generation of advanced military technology in the aftermath of World War II.” Most military contractors fit into this category, though regulation can be as efficient a basis for shelter as government procurement.

AT&T was perhaps the epitome of the US sheltered company. Although privately owned, it was a regulated monopoly. It could divert earnings to Bell Labs, the crown jewel of industrial laboratories, and pass the cost on to its captive customers. AT&T was superb at big technical innovations like digital switching, which its captive regional telephone companies were compelled to buy and which drove down the cost of basic phone calls and expanded its market. But as computing and telecommunications converged into a single digital technology, AT&T's sheltered culture made it very slow to compete for the new markets in the thousands of devices that could fit on the end of a telephone wire. These devices are highly price competitive, and successful purveyors are

necessarily entrepreneurial. After deregulation, AT&T fell on its face attempting to sell personal computers, though it has been highly successful marketing its UNIX system, the fruit of Bell Labs.

IBM, by contrast, is the quintessential ‘exposed’ company — entrepreneurial, market driven, and innovative in a different fashion. “Big Blue”, despite its market power, sides with supporters of open systems, allowing its machines both to be cloned and to remain the industry standard, as a strategy for keeping itself on its toes.

Although defence firms tend to epitomize the sheltered firms, the correlation is far from perfect. Some companies, Boeing for example, began as almost exclusively suppliers to the US Air Force, yet made the transition to commercial markets while still drawing on the benefits of close research and procurement links to government, and the oligopolistic character of the aircraft industry.

What is refreshing about Derian's version of this analysis is his catholicity. In an era of government-bashers versus mercantilists, he is in neither category. His message is not that government involvement is a millstone — or that it is a salvation. Nor does he discern a simple correlation between government linkage and entrepreneurial failure. His point is that one must get down to cases, which he does brilliantly. In the heyday of

Dwight Eisenhower's “military-industrial complex”, the linkage of sheltered firms to the Pentagon and NASA produced great technical advance, and commercial benefit for big US companies, but this era is over. Derian nominally classifies Japanese industry as mostly exposed rather than sheltered, but in reality (as he seems to agree), what Japan really manages is a more competitive blend of the two cultures. Firms are partners in interlocked industrial groups: the state subsidizes targeted breakthroughs frankly aimed at commercial advantage; it relies on cartelization and market closure when that serves its purposes, yet its companies are fiercely price-competitive in world markets. Japan seems sheltered *vis a vis* imports, but highly open in export markets.

America's problem today is that it no longer has the military basis for incubating commercial technologies, whereas its 40-year reliance on shelter has sapped the entrepreneurial vitality of its firms that must compete in an increasingly exposed global culture. The country is also hobbled by peculiar ideological blinders. So long as the ostensible goal is basic research or military supremacy, the prevailing ideology allows government subsidy of technology. But in a nation that believes deeply in Adam Smith and David Ricardo, deliberately using government to help create commercial advantage is considered sinful. Aid to the semiconductor industry could be channelled only through the Pentagon, disdaining commercial spillovers. Aid to high-definition television (HDTV) was rejected by the Bush White House as a form of the loathed industrial policy. Neither Japan nor France nor the EC commission has this Anglo-Saxon neurosis (which is currently



Mountain melody — Nepalese monks blow their long brass horns, producing “a low primitive sound that rolled across the valley to the mountains”. Mike Harding, British entertainer and keen conservationist, trekked through the Himalayas of India and Nepal while making a film about the effects of deforestation. The photographs he took together with his affectionately written account of the journey combine to provide a superb portrayal of this breathtakingly beautiful corner of the world. Published by Viking, price £16.95, \$29.95.