



BY JEFFREY E. GARTEN

The High-Tech Threat From China

The news is full of headlines about China—its rising trade surplus, ballooning currency reserves, relentless search for oil, and its tensions with the U.S. over textiles and intellectual property rights. But one development has been seriously underreported: China's emergence as a technological superstate. Could Beijing pose a threat in the one area

where the U.S. has assumed it would always retain supremacy?

Since 1985, China has repeatedly declared its resolve to reach technological parity with the West. Between 1992 and 2002, the latest period for which figures are available, Beijing has more than doubled the proportion of gross domestic product it spent on research and development, while the level stagnated in America. China boosted its output of PhDs in science and engineering by 14% a year, while the number of U.S. grads fell. Its technology-intensive exports grew by 22% annually, while exports of U.S. high-tech goods have declined. Today, moreover, while American universities award 25% of all their PhDs in science and engineering to Chinese citizens, Beijing is sparing no effort to lure many back. Among China's R&D priorities are superscale integrated circuits, computer software, and information security systems.

WESTERN COMPANIES ARE SPEEDING up China's advancement by establishing huge R&D facilities there. General Electric Co. has 27 labs in China working on projects from composite-materials design to molecular modeling. Microsoft Corp. has nearly 200 researchers in the country. Cisco, DaimlerChrysler, IBM, Intel, and many others are following suit.

Experts are split on the implications of the globalization of R&D. In a forthcoming report, for example, Nicholas Lardy of the Institute for International Economics downplays China's technological position by pointing to the relatively low sophistication of even its high-tech exports, its heavy dependence on imported technology, and the benefits that accrue to U.S. companies investing there. On the other hand, in an upcoming book, Ernest Prege of the Manufacturers Alliance/MAPI is sounding alarms because of China's steep upward technological trajectory. In a recent study, Kathleen Walsh of the Henry L. Stimson Center calls for Washington to wake up to the economic and national security implications of China's growing R&D capabilities. And the National Science Foundation is upset by the decline in research funding and scientific education in America.

I fear that the U.S. hasn't come to grips with the implications of corporations doing so much R&D in China. U.S. companies are understandably seeking the best talent and lowest cost of operations anywhere. But in the process

they are sharing America's intellectual treasures with a foreign rival in unprecedented ways. They are training foreign scientists and engineers and giving them and the omnipresent Chinese government access to their proprietary research programs.

To keep its undisputed technology lead, the U.S. must go beyond larger government-sponsored research budgets, better K-12 education, and closer government-business cooperation, all prescriptions made in the 1980s, when the U.S. last had a competitiveness debate. Now Washington must also figure out how to deepen basic R&D in America when so much is dispersed abroad. And it must adapt to the reality that U.S. multinationals' goals may no longer dovetail

with national interests. I've not seen a way to achieve all the goals at the same time.

Intel Corp. is illustrative. CEO Craig Barrett advocates more federally funded research, which would eventually benefit the country and the company. But Congress and the public have to wonder whether Intel should receive, in effect, subsidies if it then shares its knowhow with Chinese partners. At the very least, a quid pro quo should be

America Inc. is rushing Beijing ahead by sharing R&D treasures

established. Intel's sharing of technology could enrich its shareholders, China's economy, and to some extent the U.S. But unlike in the past, its goals no longer center on creating industries and jobs in the U.S., which is what American taxpayers deservedly expect.

In the 1960s, Americans were galvanized by Sputnik, and in the 1980s they were spurred on by Japan Inc. As the challenge of remaining technologically superior becomes more complex, the U.S. needs another shot of adrenaline. The perceived threat of China could supply it, but I worry that it won't be strong enough or soon enough. ■

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