Chapter 1 - PRC Acquisition of U.S. Technology

1 In practice, it is just as accurate to say the PRC Government is made up of just two bureaucracies (since the PLA is actually the “fist” of the CCP), or even one bureaucracy (since both the PLA and the State are subservient to the CCP). The distinctions between are them largely artificial. For general information on this topic, See CRS Report, “Chinese Government Structure and Function, Policies on Military and Industrial Modernization, and Technology Acquisition,” November 10, 1998; Kenneth Lieberthal, Governing China, W.W. Norton & Company, Inc., 1995.

2 The Politburo currently has 22 members and two alternates.

3 See Constitution of the People’s Republic of China, Articles 2, 3.

4 Lieberthal, Governing China, refers to this technique as “interlocking directorates.”

5 PRC Constitution, Article 29.

6 Jienfangjun Bao, Beijing, July 30, 1997, as cited in the BBC Summary of World Broadcasts, August 8, 1997.

7 Leading Groups are a key mechanism for policy coordination and decision-making in the PRC. They are comprised of senior Communist Party, State, and PLA officials with relevant expertise and authority for specified areas. See generally, CRS Chinese Government Structure.

8 The State Science and Technology Commission was recently dissolved and replaced by the newly-formed Ministry of Science and Technology.


10 For the official report on this program, see “Decade-Long Hi-Tech Program Bears Fruit,” Xinhua News Agency, September 27, 1996.


Quarterly, June 1996.


Frankenstein and Gill.

17 Testimony of Dr. Michael Pillsbury before the Senate Select Committee on Intelligence, September 18, 1997.


19 For open source discussion, see Richard Fisher, “Foreign Arms Acquisition and PLA Modernization,” Heritage Foundation, June 1, 1998.

20 Ibid.


22 Wei Ke, “Army Re-Tools Commercial Production,” China Daily August 17-23, 1997; in FBIS.


24 See Frankenstein and Gill.

25 The National People’s Congress is a putative legislature, and officially China’s supreme body of State power. It officially elects the State Council. Recent evidence suggests the National People’s Congress has an increasing role in policy deliberation. Kenneth Lieberthal, Governing China, W.W. Norton & Company, Inc., 1995.


27 BBS Summary of World Broadcasts, April 7, 1997.


29 Testimony of Nicholas Eftimiades, October 15, 1998.

30 Interview of James Lilley, November 17, 1998.


35 Ibid.


37 Interim Report of the House Government Reform and Oversight Committee (“HGROC Report”) Chapter IV C.

38 Deposition of Shen Jun before the Select Committee (Dec. 8, 1998); Japanese Firms Buy Into Satellite Telephone Co., Information Access Newsbytes (July 9, 1996).


40 Interim Report of the House Government Reform and Oversight Committee (“HGROC Report”) Chapter IV C.

41 Ibid.

42 Ibid.

43 Ibid.

44 “Red Face Over China; Did a Chinese plot persuade Clinton to let a U.S. company give China its rocket science? No. Politics (and policy) did,” Eric Pooley et. al., Time, June 1, 1998.


50 Ibid.


53 Ibid.
54 For a more detailed discussion of the jet engine acquisition, see Chapter 10, Manufacturing Processes; Bates Gill and Taeho Kim.
59 Kathleen Walsh, December, 1997.
60 Walsh, December, 1997, (stating the United States is “somewhere in the middle” among countries in its willingness to transfer technology).
63 Interview of John Foarde, September 23, 1998.
64 See, e.g., Walsh, December, 1997; Letter to the Select Committee from Sandra Taylor, Vice-President, Eastman Kodak Company, November 18, 1998.
66 Walsh Testimony and Letter to the Select Committee from Sandra Taylor, Vice-President, Eastman Kodak Company, November 18, 1998.
67 Letter to the Select Committee from Sandra Taylor, Vice-President, Eastman Kodak Company, November 18, 1998.
68 See John Frankenstein, “China’s Defense Industries: A New Course?” The Chinese concept of a “spin-on” is in marked contrast to the “spin-off” approach of the U.S. at the end of the Cold War, where the goal was to convert military technology to commercial uses.
70 This Ministry is now known as the Ministry of Information Industry.
72 Testimony of James Mulvenon, October 15, 1998.
73 See the Manufacturing processes chapter for examples of CATIC’s involvement in this process.
74 Interview of Tom Nangle, October 8, 1998.
75 Almost all Chinese military production lines are co-located with civil/commercial production lines.
76 “Commercial Activities of China’s People’s Liberation Army (PLA),” Hearing Before the Committee on Foreign Relations, United States Senate, November 6, 1997.
77 Testimony of James Mulvenon, October 15, 1998.
78 Ibid.
80 Ibid.
81 Ibid.
85 Ibid.
87 Ibid.
88 “Chinese Spies Just as Active as Soviets Ever Were, FBI Says,” Ruth Sinai, Associated Press, March 9, 1992. Statements in article are attributed to Patrick Watson, the FBI’s Deputy Assistant Director for Intelligence.
89 Testimony of Nicholas Eftimiades, October 15, 1998.
91 Ibid.
93 “Department of Defense Disposition of Government Surplus Items,” hearing before the Senate Judiciary Subcommittee on Administrative Oversight and the Courts, July 8, 1997; “Defense Inventory: Action Needed
to Avoid Inappropriate Sales of Surplus Parts,” General Accounting Office, August, 1998; “On the
Representatives, October 1, 1997.

94 Ibid.

95 Ibid.

96 U.S. Customs briefing to Select Committee Staff, October 28, 1998. In response to this situation, in October
1997, Representative Pete Stark introduced H.R. 2602, the Arms Surplus Reform Act of 1997, to place a
moratorium on all surplus arms sales until DOD certified to Congress that steps had been taken to correct
weaknesses in the surplus sales program. The Act did not pass, but a section was added to the Defense
Authorization Act for Fiscal Year 1998, Pub. L. 105-85, Sec. 1067, requiring similar steps. The DOD sub-
mitted its report to Congress in June, 1998, identifying problem areas and steps taken to address them.

97 Robert Greenberger, “Let’s Make a Deal: Chinese Find Bargains in Defense Equipment as Firms Unload
Challenges,” Heterodoxy, April/May 1997 (Submission for the record by Rep. Tillie Fowler in the U.S. House
of Representatives, June 26, 1997).

98 Robert Levy, President, Norman Levy Associates, as quoted in Robert Greenberger, “Let’s Make a Deal:

99 Interview of Jerry Remick, October 8, 1998; Interview of David Duquette, October 14, 1998. In a response
to written interrogatories, officials of CATIC, USA denied it was aware of the existence of the U.S. company.
Letter to Daniel Silver from Barbara Van Gelder, October 22, 1998.

100 A more detailed summary of the CATIC purchase of McDonnell Douglas machine tools appears at
Chapter 10.

101 “Message to the Congress on the China National Aero-Technology Import and Export Corporation Divestiture

Bearing Company,” PR Newswire, January 17, 1996.

103 Briefing by U.S. Treasury Department to Select Committee staff, October 29, 1998.

104 See, e.g., Stan Crock, “China and the U.S.: The Sparks May Start Flying,” Business Week, November 16,


106 Interview of Wu Bin, October 20, 1998.

107 Bruce Smith, “Dragonair Misstep,” Aviation Week and Space Technology, September 16, 1996; “Michael

108 See, e.g., “Hong Kong’s Reversion to China: Effective Monitoring Critical to Assess U.S. Nonproliferation

109 U.S. Customs briefing to Select Committee Staff, October 28, 1998.


115 Ibid.


120 SCGA Report.

121 Testimony of Karl Jackson before the SCGA, September 16, 1997; testimony of Clark Southall Wallace before the SCGA, September 16, 1997; testimony of Beth Dozoretz before the SCGA, September 16, 1997.


126 The Department of Defense failed to respond to the Select Committee’s inquiry of September 22, 1998 in this regard.

127 Letter to Chairman Christopher Cox from William Reinsch, Department of Commerce, October 22, 1998; Letter to Chairman Christopher Cox from General Counsel, Department of Commerce, October 21, 1998.

128 BEA collects information concerning investment in U.S. businesses in which a foreign person holds an ownership interest of ten percent or more. Pursuant to federal law, the FDIUS data that BEA collects is confidential, and individual company data, including the names of survey respondents, cannot be released or disclosed in such a manner that the person or firm that furnished the information can be specifically identified. Use of an individual company’s data for investigative purposes is prohibited, as the data can only be used for statistical and analytical purposes.

129 Letter to Chairman Christopher Cox from Linda Robertson, Department of the Treasury, October 29, 1998.
Chapter 2 - PRC Theft of U.S. Thermonuclear Warhead Design Information

1 The Select Committee believes that nuclear tests related to the development of the PRC’s next generation of thermonuclear warheads may be continuing underground at the PRC test site at Lop Nur.


3 Ibid.

4 Figure 3 - Size Comparison of U.S. Nuclear Warheads Over Time, Lawrence Livermore National Laboratory, September 15, 1998.


6 Premier Zhu Rongji recently praised the efforts and progress of PRC and U.S. scientists who attended the 19th Meeting of the Sino-U.S. Joint Committee on High Energy Physics. Reportedly, Zhu expressed pleasure that the “two nations have conducted wide-ranging in-depth exchanges during the meeting and put forward many helpful proposals, which will not only be conducive to the development of high energy physics in PRC and the U.S., but also help expand scientific and technological cooperation between the two countries.” An area of concern is the PRC intelligence practice of mining even ostensibly cooperative scientific exchanges for useful information. “Premier Meets U.S. Science Group,” China Daily, November 18, 1998.


8 See Chapter 3, High Performance Computers, for additional information about the PRC’s interests in this area, and the linkage between modern nuclear development and the importance of high performance computing, especially for stockpile maintenance under a Comprehensive Test Ban Treaty.


10 The Department of Energy conducted a damage assessment of the Peter Lee losses that the Select Committee requested to review but did not receive.
Chapter 3 - High Performance Computers

1 Background Paper on High Performance Computers to Countries of Concern, Defense Department, November 19, 1998.

2 Ibid.


7 Interview of Dr. David Kahaner, October 19, 1998.


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11 Ibid.

12 Ibid.

13 Ibid.

14 Commander in Chief, U.S. Pacific Command Memorandum to the Joint Chiefs of Staff, Ser: 444-98,
November 9, 1998.


16 “Chinese Prove To Be Attentive Students of Information Warfare,” Jane’s Intelligence Review, October 1997.


19 Ibid.

20 Ibid.

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22 Testimony of Notra Trulock.


24 “Export Controls and China,” briefing prepared for the House Committee on Commerce by Dr. Thomas L. Cook, Los Alamos National Laboratory, September 17, 1998.


26 “Export Controls and China,” briefing prepared for the House Committee on Commerce by Dr. Thomas L. Cook, Los Alamos National Laboratory, September 17, 1998.

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31 “Export Controls and China,” briefing prepared for the House Committee on Commerce by Dr. Thomas L. Cook, Los Alamos National Laboratory, September 17, 1998.

32 “Key Projects in China’s Computerization,” Asian Technology Information Program report 98.048.


34 “Building on the Basics: An Examination of High-Performance Computing Export Control Policy in the
1990s,” Seymour Goodman, et. al.
35 “High-Performance Computing, National Security Applications, and Export Control Policy at the Close of
the 20th Century,” Seymour Goodman, et. al.
36 “Building on the Basics: An Examination of High-Performance Computing Export Control Policy in the
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37 “High-Performance Computing, National Security Applications, and Export Control Policy at the Close of
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39 “Building on the Basics: An Examination of High-Performance Computing Export Control Policy in the
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40 “Information Warfare Grips China,” Jane’s Intelligence Review.
41 “Building on the Basics: An Examination of High-Performance Computing Export Control Policy in the
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44 “High-Performance Computing, National Security Applications, and Export Control Policy at the Close of
the 20th Century,” Seymour Goodman, et. al.
of Defense, p. 8-7, Background Paper on High Performance Computers to Countries of Concern, Defense
Intelligence Agency, November 19, 1998, cover letter to the Honorable Floyd Spence.
46 “Building on the Basics: An Examination of High-Performance Computing Export Control Policy in the
1990s,” Seymour Goodman, et. al.
#ATIP98.022, Book #1, Selected Reports of Asian Technology Information Project.
48 “Building on the Basics: An Examination of High-Performance Computing Export Control Policy in the
1990s,” Seymour Goodman, et. al.
49 Commander in Chief, U.S. Pacific Command Memorandum to the Joint Chiefs of Staff, Ser: 444-98,
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444-98, November 9, 1998.
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58 Memorandum for the Record, Joint Investigative Staff Visit to the Mitre Corporation, Bedford, MA, October 6, 1988.

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116 Export Administration Regulations, April 1998, Supplement No. 1 to Part 774.
117 Ibid.
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131 Ibid.
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133 Ibid.
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137 “Export Controls: Information on the Decision to Revise High Performance Computer Controls,”

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149 Arrangement between the United States and China for end-use visits.

150 Ibid.

151 Interview of Iain S. Baird, November 17, 1998.

152 Response to Committee questions from William Reinsch, James Lewis, and Mark Menefee, November 17, 1998.


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164 Ibid.
165 Ibid.
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171 Ibid.
174 Ibid.
175 The military uses are the design or development of nuclear, biological or chemical weapons; the design or development of weapons of mass destruction; the design or development of missile or rocket systems; and any cryptoanalytic or cryptographic purpose.
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179 “U.S. Technology Transfers to the People’s Republic of China,” by Kathleen Walsh, DFI International, dated December, 1997. This report was produced at the request of the Commerce Department’s Bureau of Export Administration. It was the first in a series of studies into technology transfers to the PRC commissioned by BXA.
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Commerce Department, Bureau of Export Administration’s Export Control Automated Support System (ECASS).

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263 http://www.phys.unm.edu
265 “High-Performance Computing Technologies: Where We Are Today,” Jack Dongarra, University of Tennessee and Oak Ridge National Laboratory.
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268 University of Mannheim and Netlib (a repository maintained by Bell Laboratories, Oak Ridge National Laboratory, and the University of Tennessee to serve the computer community) publish statistics on HPCs to, among other things, provide a better understanding of the HPC market.
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271 Ibid.
272 “Logic Design for Array-Based Circuits,” Dr. Donnanaie E. White, September 11, 1996.
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280 Ibid.

Chapter 4 - PRC Missile and Space Forces

2 The participation of this individual, Qian Xuesen, in the PRC’s ballistic missile programs is presented in detail later in this Chapter.
3 Department of Defense Briefing to Select Committee, December 11, 1998.
4 PRC biography of Qian Xuesen.
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9 Ibid.
15 The Fifth Academy became the Seventh Ministry of Machine Building in 1965.
21 Ibid.
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36 Ibid.
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62 Testimony of Paul Wolfowitz before the Senate Committee on Commerce Science and Transportation, September 17, 1998.

63 The Reagan Administration’s decision to relax export control regulations will be discussed in more detail in Chapter 9, U.S. Export Policy Toward the PRC. “China’s Space Program: A Brief Overview Including Commercial Launches of U.S.-Built Satellites,” Marcia Smith, CRS, June 23, 1998.


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108 Memorandum for the Record: Claims that proposed Hughes satellite sale poses SIGINT risk, October 20, 1998.


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139 LM-3 Mission & LM-3B Failure: APSTAR-1A Pre-flight briefing, April 15-16, 1996.
140 “Question/Answer derived from the IMU specific splinter meeting,” as part of the Meeting Minutes from the Second IRC Meeting, Materials provided to the Select Committee by Space Systems/Loral.
141 “Benefits of Commercial Space Launch Assistance and Use for Foreign Intercontinental Ballistic Missile Programs,” Dr. William Graham, presentation to Senate Committee on Governmental Affairs, May 20, 1998.
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