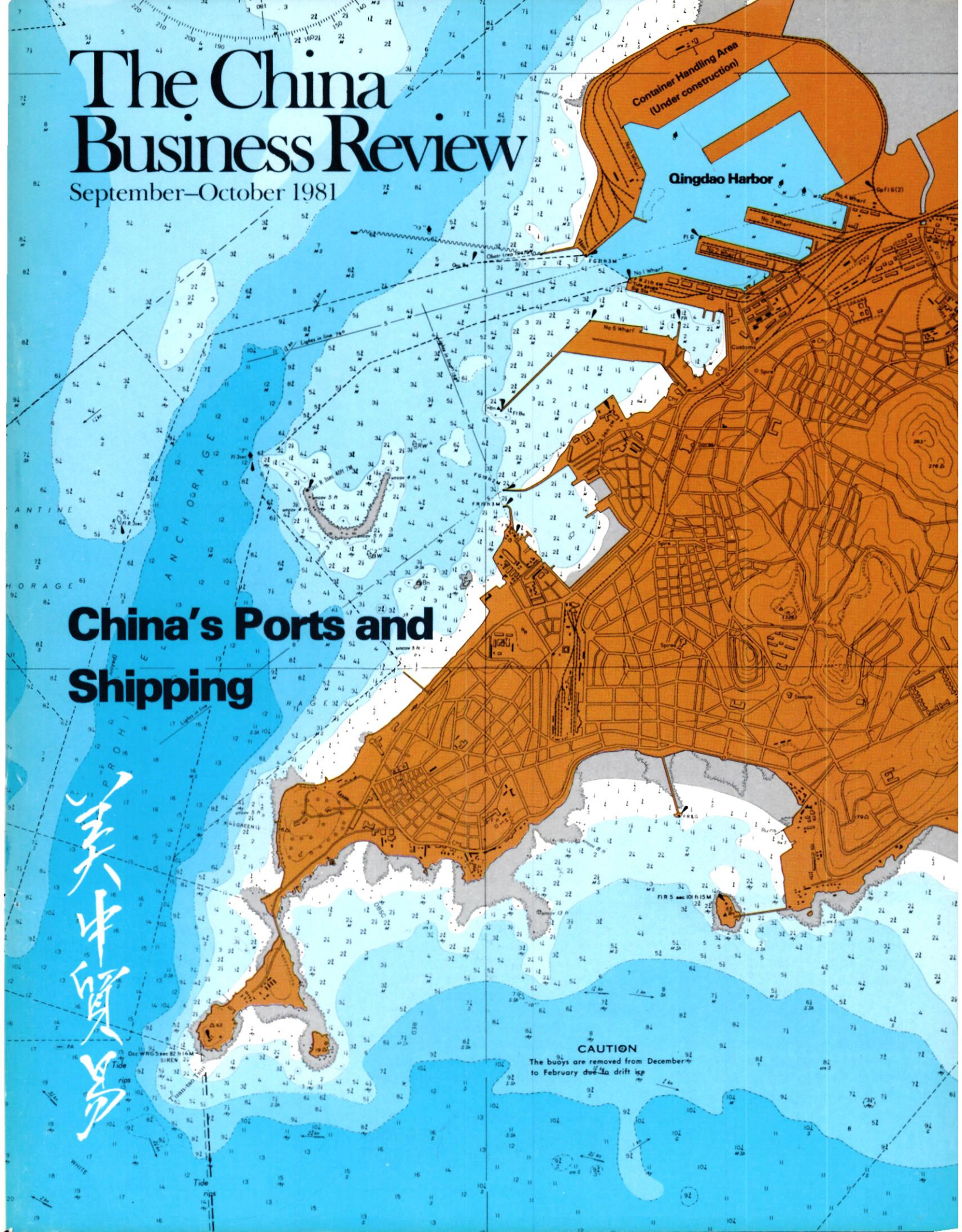
The China Business Review

September–October 1981



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The China Business Review

The Magazine of the National Council for US-China Trade

September–October 1981 Volume 8, Number 5

CONTENTS

Front Cover: *Artwork by John Isaacs*

DEPARTMENTS

CHINA DATA

The China Business Review welcomes articles from outside contributors. Manuscripts submitted for consideration should be typed double-space and normally may not exceed 5,000 words. They should be sent to the Editor, *China Business Review*, Suite 350, 1050 17th Street, NW, Washington, DC 20036, USA.

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Foreign trade is up, the economy is down, and a Bank of China branch is coming to New York...

Nicholas H. Ludlow

Just as China's FTCs are flocking to New York and other American cities, foreign companies are spreading their wings in China. Besides the 200 foreign firms, including 24 US companies, registered in Beijing (*see The CBR*, July–Aug. 1981, p. 53), plenty more have established themselves in other cities. Among the firms with offices in Shanghai are Scheuer, Nike, Pan Am, China Trade Corporation, Hong Kong Bank, Standard Chartered Bank, and East Asiatic. A half dozen more are soon to arrive. In Guangzhou is another group of US firms—Diamond Shamrock, CTI, American Hospital Supply, Bank of America, Coopers & Lybrand, and Dow Chemical.

Japanese firms lead the pack, however, in Beijing and elsewhere. There are seven Japanese firms in Tianjin (Mitsui, Sumitomo, Wako Koeki, Daiei, Isukura Sangyo, Tenshin, and Kanematsu Gosho), nine in Dalian (Marubeni, Mitsubishi, Sumitomo, C. Itoh, Tomen, Meiwa Sangyo, Nomura Boeki, Chori, and Hyogo Prefecture), and at least one—Marubeni—in Qingdao.

This proliferation of offices—on China's terms and according to Chinese law—is establishing a welcome precedent that will facilitate long-term trade relations as never before.

New York Welcomes Bank of China

On March 25, the Bank of China filed with the Federal Deposit Insurance Corporation (FDIC) for permission to open a branch in New York at 415 Madison Avenue, New York 10017. The opening date is yet to be announced. The BOC's representative in Washington and New York for the past several years, Zhang Xueyao, will manage a staff of at least 70, most of them Americans.

The BOC's business will include L/C, travelers checks, trade finance, remittances, and regular retail and wholesale commercial banking. The bank's special role of catering to New York's more than 76,000 Chinese-Americans is emphasized in its application to the FDIC, a business that hitherto had largely been handled by the Chinatown branches of American banks. The BOC sees a doubling of its letter-of-credit business within three years (1982–84), an activity that will also reduce the amount of business handled by US banks.

The critical speed of document processing and fund transfers could become a monopoly of the BOC if US banks are not permitted to open fully-fledged offices in the PRC. At present only representative offices of US banks are allowed in China. And that is a costly proposition.

China's Economic Outlook—Cloudy with Occasional Sunshine

While China's foreign trade has continued to expand, its economy has not. China's total trade rose 18.8 percent in the first half of 1981, with exports increasing more slowly than imports (¥14.9 percent versus ¥22.7 percent). At ¥15.6 billion for the first six months, imports topped exports by ¥800 million. Those imports were marked by a 40 percent rise in shipments to China of cotton, fertilizer, synthetic yarns and fibers, sugar, and timber products. Machinery imports fell by more than 50 percent, notwithstanding a 79 percent surge in Japan's machinery exports to China, led by motorcycles, cars, and trucks. Conversely, China's exports of machinery increased by about 45 percent.

In January–June 1981, China's trade with Japan increased by 29.3 percent to $5.2 billion, and by 42.1 percent with the US to $2.74 billion. Agricultural exports continue to dominate US sales, boosted by the 8-million-metric-ton order for American wheat placed by the CEROILS delegation that visited Washington in early September. US imports from China continue to be dominated by an unprecedented, temporary surge in peanuts shipments, worth $158 million—twice the value of petroleum-related imports.

While trade expands, China's industry continues to stagnate. Industrial output grew only 0.8 percent in the first half of 1981; profits were down 12.3 percent over the same period in 1980. The total deficit of industrial enterprises reached ¥2.2 billion, 55 percent higher than that of the first half of 1980. Only Tianjin Municipality, Guangdong, Hubei, and Zhejiang provinces registered increases in profits.

Meanwhile, the tilt toward light in-

dustry continues with extraordinary momentum—TV production doubled over 1980 half-year figures, while cameras were up more than 50 percent, and bicycles, sewing machines, and watches by about 25 percent.

Heavy industry, now providing less than half of China's industrial output (49.6 percent) as of mid-1981, continues to decline in nearly all categories. Power-generating equipment fell by 78 percent in January–June 1981, rail freight cars by 40 percent, tractors by 39 percent, mining equipment by 35 percent, and machine tools by 18 percent. Plants in the heavy industry sector continue to be converted to light industrial use; the Benxi Tractor plant in Liaoning now makes sewing machines only; the Luoyang No. 1 Tractor Plant now produces motor vehicles, bicycles, and consumer goods; and the Shanghai Tool Plant is now making plastic eyeglass frames instead of metal-cutting tools.

Why the continued skyward trend in consumer goods production? A major incentive is to keep inflation down. China's "depression" (the term used by the official Xinhua News Agency) is the result of budget cutbacks and tighter monetary control. The People's Bank of China has been trying to control the money supply by encouraging consumer goods production, developing service trades, increasing personal savings, and cutting inventories. The PBOC withdrew ¥1.5 billion more than in the same period last year.

But inflation is unlikely to be seriously checked until the economy settles down and good planning is in place. Expect a 12–15 percent increase in China's cost of living this year, and an unbalanced budget. With such major economic changes under way, it may take several years to achieve a balanced budget in the PRC, as in the US.

China's summer harvest of 60 million metric tons of grain is 3 million tons more than last year's crop, but much less than the 68-million-ton harvest of 1979. Consequently, the USDA believes China's total grain output will be 318–325 million tons in 1981. That will require imports of 13.5 million tons, almost two-thirds of which will be supplied by the US. The good news is that China's summer harvest was not only bigger than last year's, but it was produced on a total acreage 1.3 million hectares smaller. And industrial crops were sown on an area larger than the wheat acreage.

Straws in the Wind?

Pan Am reports that passenger seats are booked on its Beijing-bound 747s from JFK, and that airfreight traffic is so heavy its cargo is waitlisted. Shanghai is set to develop a complete new industrial town at Hung Chau, in the western suburbs en route to the airport, with offices and plants of foreign and domestic companies. Guangdong's nuclear power plant scheme has been shelved, but the Second Ministry of Machine Building has entered into a nuclear technology exchange agreement with a Japanese group. John Deere has signed a major combine-harvester technology transfer agreement with the Chinese. And one of Beijing's better known hotel projects is off to an inauspicious start; according to an unconfirmed report it is $11 million over budget before getting past the ground floor. A major complaint: having to pay workers for sleeping on the job.

Gabriel Hauge

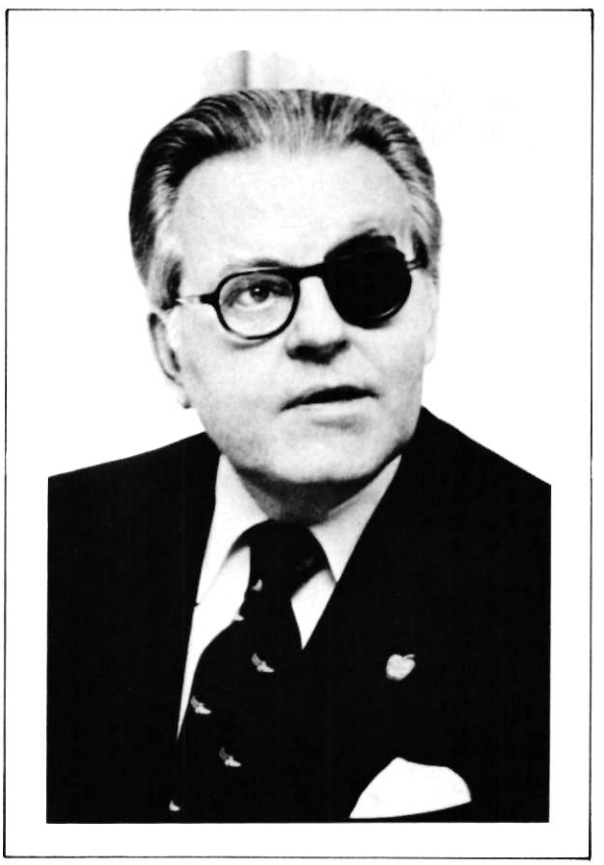
The recent death of Gabriel Hauge, former chairman of Manufacturer's Hanover Trust, saddened many members of the National Council who recalled his early association with the Council as a member of its initial board of directors and first secretary-treasurer.

In November 1973, while in Beijing as a member of the first National Council board delegation to China, Hauge delivered a letter to the acting chairman of the Bank of China on behalf of the American banking community. During the course of that meeting, the acting chairman told Hauge that China was a "no borrowing, no inflation, no devaluation" country—a description that is in rather striking contrast to subsequent events in China.

In the years before Sino–US relations were normalized, Hauge encouraged his own bank to normalize its relations with the Bank of China.

He acted as a genial host to a number of important Chinese groups visiting New York City, including the first high-level Chinese trade group to visit the United States since 1949. Hauge had a wonderful sense of humor and patience that stood him in good stead in early contacts between the US business community and Chinese officials.

The contributions Hauge made to the Council during its formative years are deeply appreciated. In a very real sense he was a pioneer in the development of US–China business relations. He will be greatly missed by all of us at the National Council who valued him both as a friend and as a wise counselor.



China Trade Museum Honors Phillips with Samuel Shaw Award

Christopher H. Phillips, president of the National Council for US-China Trade, will receive the Samuel Shaw Award on November 4 from the China Trade Museum for having made a "significant contribution toward friendship and understanding between Chinese and American people." Phillips has been president of the National Council since its establishment in 1973. In that capacity he has served as a key spokesman for American business interests during the long but ultimately fruitful normalization of US-China economic relations.

The award bears the name of the United States first consul to China. Samuel Shaw also served as "supercargo," or business manager, on the first American vessel to engage in direct US-China trade, the *Empress of China*, that left New York in 1784 bound for Macao.

The China Trade Museum was founded in 1964 in the town of Milton, Massachusetts, nine miles south of Boston, and is the only museum in the world devoted solely to China trade decorative arts. The museum's collection now numbers over 10,000 objects, including the painting on this page depicting Canton's eighteenth century foreign "factories" or trading depots. A special exhibition on "Chinese Export Silver" will open on October 21 at the museum's headquarters in Milton's historic Forbes House.

Courtesy of China Trade Museum

New offices open as 'China fever' gives way to more realistic business strategies

Scott D. Seligman

Press reports earlier this year described a mass exodus of foreign companies from China in the wake of canceled projects and general economic retrenchment. But these reports painted a distorted picture of the actual situation here. As far as we know, only one US firm can be said to have packed its bags and left its Beijing office. And this firm, far from abandoning the China market, concluded a major contract in South China just a week or so later.

The number of representative offices of US firms has in fact continued to grow during the first half of 1981, to the point where we now count more than 70 offices, including 51 National Council member firms in China. If one adds to this list companies which rent rooms continuously for their personnel rather than keep permanent representatives here, the numbers are substantially larger.

This is not to imply that China's readjustment has not affected the business climate. The staffing patterns of resident offices in particular have undergone change. Some firms have substituted lower-ranking representatives and even, in one or two cases, local Chinese office assistants for their higher-paid expatriate executives. Two trading firms drastically cut their resident staff rolls earlier this year, and several have opted to maintain current numbers rather than to expand.

The most striking change for companies engaged primarily in the export of industrial products and technology, whether or not they maintain offices here, seems to be that top-level staff are taking fewer trips to China this year. No one is writing off the China market yet, but the costs and benefits of frequent trips in and out are being scrutinized more carefully these days.

Significantly, new companies opening China offices are not, by and large, manufacturing concerns. Rather, the major influx has been by service firms assisting others engaged in trade. Beijing now hosts the offices of three American banks, two American insurance companies, one American accounting firm (another is based in Shanghai) and representatives of at least five US law firms. Their presence here is justified not only by current activities, but also by the promise of expanded trade.

As the Chinese explain again and again, economic readjustment means retrenchment only in certain areas. The flip side of the cutbacks in capital construction and heavy industry has been a go-ahead in areas such as light industry, infrastructure development, agriculture, and energy. An all-out effort is also under way to promote exports in order to earn foreign exchange. Those foreign firms which are responsive to this revised list of Chinese priorities can have no quarrel with the policy of readjustment: They have by and large been rewarded with business opportunities, whether they are engaged in buying, selling, or in countertrade activities.

Buying from China is proving profitable to many American firms. Resident and nonresident traders alike are doing brisk business in such commodities as chemicals and minerals. Textiles and light industrial goods are also popular areas.

"There are hundreds of products yet to be found by the US that Europe started importing a long time ago," asserts Charles Haigh of Dragon Lady Traders, "and there's no doubt that if you're buying, US dollars talk." An executive of a major US drug firm who recently visited here commented, "China has a lot of pharmaceuticals to sell, and they're of good quality. In some cases, quality exceeds standard US specifications, and prices are often quite reasonable by world standards. The market is wide open."

Despite China's more selective purchases of foreign equipment, many export firms continue to find profitable endeavors. "There is a certain amount of creative business being done," says Don Altman, chairman of Altman, Inc. "It may not be the large business that many major corporations are looking for, but there are a certain amount of small- and medium-sized orders—under $1 million—that are being placed on a daily basis." Electronics is also a major area of activity.

A representative of a major US computer manufacturer adds that "a number of projects have gone through the shock stage and been scaled down tremendously, but there is a realization that such projects on a reduced scale are doable, and could provide a base for positive expansion of business in the future. We're beginning to see the final negotiations and signings of some of these agreements."

China also offers an excellent market for various types of instruments, and for inexpensive or used equipment for the manufacturing of textiles and light industrial goods. "Although the big orders aren't coming in consistently, the odd orders are," reports a veteran trader. "The same people you're trying to sell things to come back with inquiries for other pieces of equipment and spare parts."

Even certain manufacturers of heavy equipment are succeeding in China, as their equipment appears on China's revised shopping list. Westinghouse has concluded a technology transfer agreement for steam turbines, and is currently competing with General Electric

and some European firms for a contract in the area of electrical transmission equipment. Ebasco Corporation has signed a contract with the China National Technical Import and Export Corporation (TECHIMPORT) for four coal-fired power plants.

"China is still emphasizing energy development and conservation," says C. T. Huang, director of Combustion Engineering's newly established Beijing office, "and these are precisely the areas in which CE is strongest. Despite economic readjustment, China is still keen for foreign cooperation in energy and transportation, and purchases are continuing."

An increasing number of foreign concerns are being persuaded to invest in China in any of a number of ways. Short of joint venture agreements, which have received the most publicity, the Chinese are ready and willing to discuss a variety of co-production, countertrade, and material-processing arrangements. Coca-Cola is now being bottled in a plant outside of Beijing by the China National Cereals, Oils, and Foodstuffs Import and Export Corporation (CEROILS), and Nike, Inc. will shortly commence production of athletic shoes in four factories in Tianjin and Shanghai. Avon Products, Inc. is soon to begin co-production of skin cream. Philip Morris, Inc.'s L and M cigarettes are already being made in Guangzhou, and the R. J. Reynolds Company expects to begin production of Winston cigarettes in Fujian Province—where Camel filters have been manufactured successfully since late last year.

Equipment manufacturers eager to boost their sales in China have established a number of servicing operations or parts warehouses this year. Firms such as Xerox, Hewlett-Packard, Cannon, and Beckman Instruments have sought out Chinese partners and trained local technicians to service their equipment. Caterpillar recently opened a distribution center for spare parts outside Beijing in cooperation with the China National Machinery Import and Export Corporation (MACHIMPEX). The warehouse will stock parts for the firm's construction machinery, as well as diesel engines and generators—all product lines Caterpillar is pushing in the China market.

Business is admittedly slower for most manufacturers of heavy machinery and large-scale engineering firms. For them the situation is not likely to change in the foreseeable future, and it was a completely rational response for some of these firms to trim their operations. This they did in early 1981. Though such action gave rise to headlines announcing the death of the China market, in reality opportunities abound here for firms taking a realistic view of China's current priorities and constraints.

July 23, 1981

China Calendar

☐ **Shanghai, October 20–November 19.** The Museum of Fine Arts' collection of 70 paintings will continue to Shanghai after its opening in Beijing in September. The exhibition is the first US government-sponsored art exhibition to travel to China. For information contact Meredith Palmer, program coordinator, International Communication Agency, (202) 724–0907.

☐ **Portland, Oregon, November 30.** Consul General Hu Dingyi and Vice-Counsel Xie Heng will speak on US–China relations following a 7:30 dinner. The event will be held at the Red Lion Inn, 310 SW Lincoln, and is organized by the World Affairs Council of Oregon. For reservations, contact Jane Larson, Northwest Regional China Council, (503) 229–3049.

☐ **Portland, Oregon, November 30–January 17.** "In China," a photography exhibit by Eve Arnold, will be held from 12–5 PM in the Vollum College Center at Reed College. The exhibit is co-organized by the Northwest Regional China Council (NRCC) and the college, and is sponsored by Exxon Corp. For information, call Jane Larson, NRCC, (503) 229–3049.

☐ **Beijing, August 1982.** Organizers of the International Conference on Finite Element Methods invite engineers, scientists, and mathematicians to present articles. The conference is being organized jointly by the Architectural Society of China, the Society of Civil Engineers of China, the Society of Mechanics of China, and the Department of Civil Engineering at the University of Hong Kong. For information write Y. K. Cheung, Department of Civil Engineering, University of Hong Kong, Hong Kong.

EXHIBITIONS IN CHINA

☐ **Guangzhou, January 1982.** A toy exhibition will be organized by Great Sincere Technology Exchange Co., Ltd. (GSTCL). For information, contact Ling Min, deputy managing director, GSTCL, 7th floor, Fung Woo Bldg. 279–281, Des Vœux Rd., C., Hong Kong. Tel. 5–457087; telex, 74045 GSTCL HX.

☐ **Beijing, March 1982.** Great Sincere Technology Exchange Co., Ltd. will organize a medical exhibition. For information contact Ling Min (*see* above).

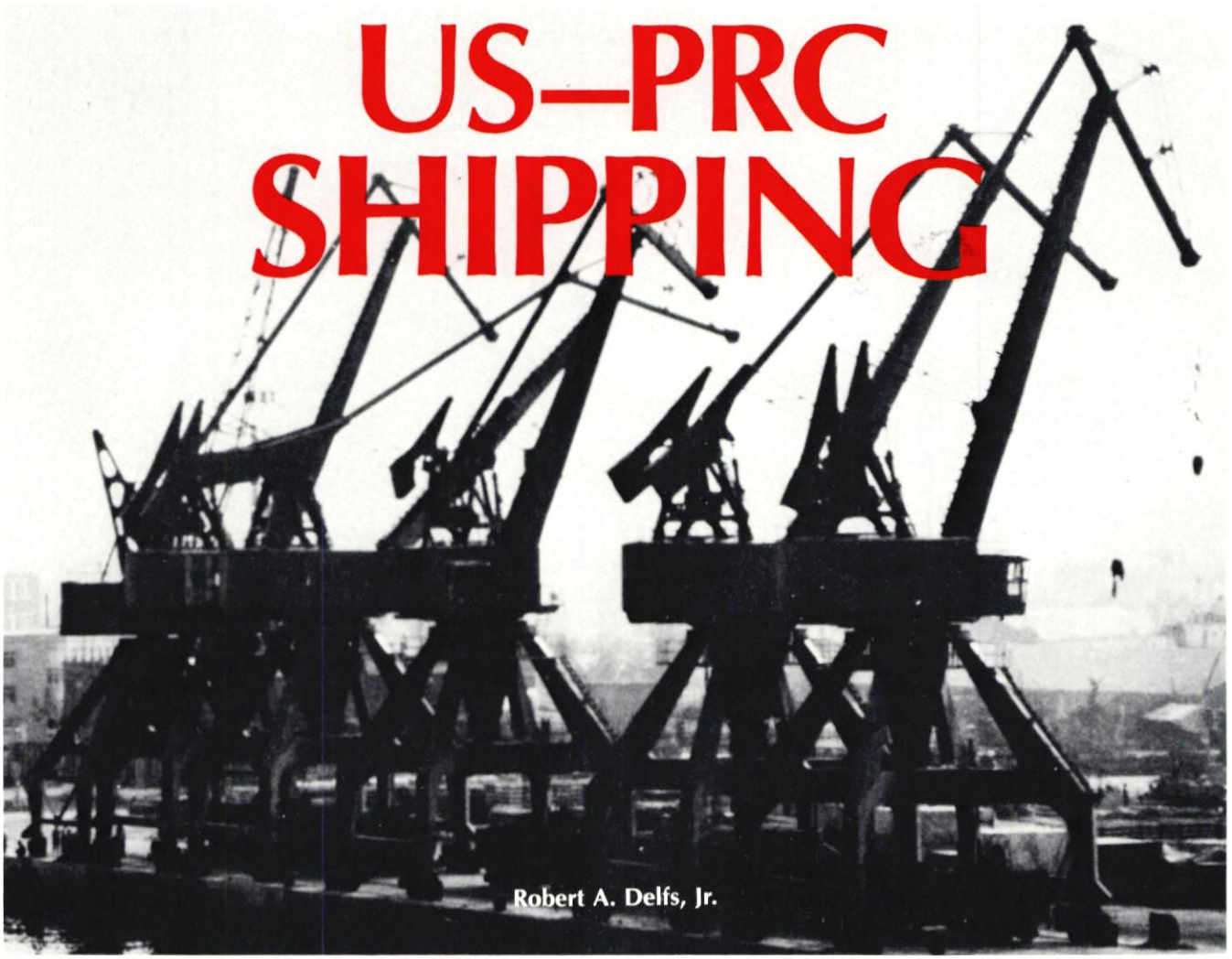
☐ **Guangzhou, August 11–20, 1982.** "The International Electronics Exhibition/China" will be organized by the Guangzhou branches of the China Council for the Promotion of International Trade and the China Electronics Import and Export Corporation, and Chiu Hwa Electronic Enterprises, Ltd. For information, contact Peter W. Pang, Chiu Hwa Electronic Enterprises, Ltd., Block "C," 6th Floor, Shun Wai Industrial Bldg., 15 Yuk Yat St., Tokwawan, Kowloon, Hong Kong.

☐ **Beijing, September 7–18, 1982.** An international trade fair entitled "Environmental Protection, New Sources of Energy and Related Products" will be held in the Beijing exhibition center. The fair's sponsor is May Lee International, Inc. For information contact Fair Manager H. Edward Tavetian, Tradeshow Management and Sales, 1400 Longworth Ave., Los Angeles CA 90049; (213) 394–4412.

☐ **Shanghai, November 1982.** Great Sincere Technology Exchange Co., Ltd. will organize a printing and office equipment exhibition. For information, contact Ling Min (*see* above).

Correction: For information about the spring catalogue exhibition sponsored by DHL International and CHINATRANS (*see The CBR*, May–June 1981, p. 3), contact Elizabeth Werner, CHINATRANS, 1735 K St., NW, Suite 210, Washington, D.C. 20006; (202) 296–3244.

US–PRC SHIPPING



Robert A. Delfs, Jr.

Since the resumption of direct calls by US and PRC national-flag vessels two years ago, shipping services between the United States and China have expanded rapidly to meet the needs of our burgeoning two-way trade. The main developments:

▶ A bilateral Agreement on Maritime Transport signed last year provides reciprocal port access, and allocates equal shares of bulk and general cargoes between both countries' national flag carriers. But achieving this formula will take time, because nearly 70 percent of US-China shipping was being handled by third flag carriers just prior to the ratification of the agreement last fall.

▶ Delays of up to three months in Chinese ports continue to bedevil foreign shippers, although major port development efforts are under way in Shanghai, Tianjin, and other congested PRC ports.

▶ Eastbound shipping rates have not yet found a level fully satisfactory to all parties, thereby potentially restricting the expansion of PRC exports to the US.

▶ US carriers have established a PRC-US Eastbound Rate Agreement which allows collective rate-setting, while not binding parties to the rates established under the agreement.

Maritime Pact Sets Cargo Shares

"Their national flag vessels will carry not less than one-third of bilateral cargoes." So proclaimed the bilateral Agreement on Maritime Transport the US and the PRC signed on September 17, 1980. The agreement calls for national-flag ships of the two countries to carry the same proportion of both bulk and general cargoes.

But third-flag carriers (including Chinese flag of convenience fleets) continued to carry the lion's share of US-China shipping through last year: 97.1 percent of exports on a tonnage basis, and 91.1 percent of imports (*see* Table 1). Chinese flag vessels did not participate in the trade until 1978 for fear that they would be seized in order to settle now-resolved frozen asset claims. The Carter administration affirmed in 1978 that the Sovereign Immunities Act of 1977 protected Chinese vessels from seizure. The Chinese-flag share remains small, but is growing rapidly.

In the important category of eastbound general cargo imports, Bureau of Census data processed by Sea-Land shows that the US-flag share declined from 51 percent in 1978 to 28 percent in the first half of 1980; the share borne by third-flag carriers increased from 49 percent to 69 percent over the same period (*see* Table 2).

The bilateral's goal of a one-third division of bulk and general cargoes among Chinese, American, and third-flag carriers will not be realized overnight. The Department of Commerce is still finalizing procedures to monitor cargo movements under the agreement.

For example, bulk shipments of

grain to China, which previously were carried by third-flag vessels, are being shifted to Chinese-flag carriers, according to agents for COSCO (China Ocean Shipping Corporation). But the change will be gradual, since a significant portion of the trade is under long-term contracts which predate the US-PRC pact.

China's shipping authorities will have a big say as to if and when the cargo-sharing goals of the pact are achieved. The pact calls for cargo shares to be adjusted through the routing of controlled cargoes—cargoes for which either government is empowered to designate the carrier. For the US side, cargo preference laws can be applied only to shipments financed through the US Export-Import Bank. The PRC, on the other hand, generally arranges imports fob (free on board) and exports cif (cost, insurance, and freight), and therefore is in a position to select carriers and control routing for almost all US-PRC trade.

COSCO Begins Direct Container Service

Direct US-PRC service by Chinese-flag vessels began in February 1980, when COSCO initiated its breakbulk service to the Port of Portland (*see The CBR*, May-June 1981, p. 41) incorporating an ocean-rail mini-landbridge service on a single ocean bill of lading to more than 20 cities in the US and Canada. This monthly service may be expanded to two ships per month in the near future. Breakbulk service to the US Gulf ports is also available, and direct service to the Atlantic Coast began in June of this year. COSCO's freight volume is gradually increasing as long-term contracts to third-flag carriers (including Chinese-owned or chartered vessels) gradually expire.

Direct container service began in March of this year, with the arrival of the 750-TEU ro/ro (roll-on/roll-off) vessel Zhang Jia Kou at the Port of San Francisco. COSCO containers travel intact to inland container freight stations in California, operated by Container Freight, Inc., which handles the documentation required for the containers to travel in bond outside of the customs district of arrival. Container Freight also accepts export container cargo at its container freight stations in Los Angeles, San Diego, and Oakland.

The majority of the COSCO containers are stripped at San Francisco, and the cargoes transloaded into one-way piggyback railroad trailers for rail and highway shipment to destinations outside California. This system allows COSCO to avoid the overhead costs of moving containers inland, and to take advantage of relatively low one-way lease and rental rates from the West Coast, where there is a surplus of piggyback rail trailer capacity.

US Flag Carrier Services

Four US-flag carriers now provide service to and from the PRC: American President Lines, Ltd.; Lykes Bros. Steamship Co., Inc.; Sea-Land Service, Inc.; and United States Lines, Inc.

Lykes Bros. is the only carrier offering regularly scheduled direct liner service to PRC ports at this time; it also picks up PRC cargoes transshipped to Hong Kong. Serving Gulf Coast and Pacific ports in the US, Lykes Bros. was the first US carrier to call at a PRC port (in March 1979). It also played a key role in the process that led to the resumption of direct calls by US and PRC vessels prior to the US-PRC Agreement on Maritime Transport.

American President Lines offers biweekly container ship service to PRC ports via the feeder service to Hong Kong operated by China Merchants Steam Navigation Co. (CMSN), a Hong Kong firm acting as general agent and performing other services for COSCO. APL also picks up cargoes in Hong Kong tendered by the Far East Enterprising Company (FARENCO), the Hong Kong arm of the Chinese

Table 1. US–PRC Shipping by Flag Carrier and Type of Service in 1980

(Million US dollars)

	Flag Carrier										
	US exports					US imports					
Type of service	US flag	US percent of total	PRC flag	Third flag	Total	US flag	US percent of total	PRC flag	Third flag	Total	Total
Liner											
Long tons	65,276	34.6	0	123,524	188,800	74,814	33.8	0	146,222	221,036	409,835
Value	76.2	26.2	0	214.3	290.5	292.3	44.2	0	369.4	661.7	952.2
Tanker											
Long tons	212	0.1	0	229,243	229,455	48	0.0	0	389,713	389,761	619,216
Value	2.0	2.2	0	88.7	90.7	0.1	0.1	0	106.2	106.3	197.0
Tramp											
Long tons	10,626	0.1	224,359	9,843,102	10,078,087	238	0.1	36,644	616,301	643,184	10,731,127
Value	5.7	0.2	42.0	2,946.7	2,994.4	0.29	0.2	60.6	97.5	158.4	3,152.8
Total											
Long tons	76,114	0.6	224,359	10,195,868	10,496,342	75,100	5.9	36,644	1,152,236	1,263,980	11,760,322
Value	83.8	1.9	42.0	3,249.7	3,375.5	292.7	31.6	60.6	573.1	926.4	4,302.0

NOTE: Census Bureau figures do not distinguish among types of cargo, but only among types of carriers (scheduled liner, nonliner vessels, and tankers). Therefore, the above cargo shares should not be confused with the target shares for general and bulk cargo under the US–PRC Agreement on Maritime Transport, which refers to type of cargo.
SOURCE: Commerce Department Bureau of the Census, May 1981.

National Chartering Corporation (SINOCHART) under the Ministry of Foreign Trade.

APL makes direct calls at PRC ports on an inducement basis, using its C-5 combination bulk/breakbulk/container vessels. APL calls at the US ports of Seattle, San Pedro, and Oakland, and offers intermodal service to the Atlantic and Gulf coasts.

Sea-Land Service, Inc. offers biweekly container ship service from Shanghai via a feeder service to Hong Kong operated by the Hong Kong Ming Wah Shipping Company (affiliated with CMSN), and accepts cargoes from FARENCO. Serving the ports of Seattle, Long Beach, and Oakland from the Far East, Sea-Land offers intermodal service to the Atlantic and Gulf coasts, as well as to certain interior points.

United States Lines' weekly container ship service primarily serves Huangpu via the Hong Kong feeder. It also accepts FARENCO cargoes from other PRC ports, and in the US calls at the ports of Oakland, Long Beach, Honolulu, Savannah, New York, Norfolk, and Baltimore.

For the purpose of simplifying operations, PRC shipping authorities tentatively have allocated US container service at major PRC ports to a number of container ship operators: Sea-Land at Shanghai, US Lines at Huangpu, and APL at Qingdao, when its container berth is completed.

The system is designed to minimize the number of empty containers awaiting cargo at each port, simplify routing procedures on the Chinese side, and facilitate cooperation between the carriers and individual port authorities. The allocation system does not, however, confer exclusive rights of any kind, and all four carriers handle cargoes from all PRC ports.

Third Flag Carriers' Majority Share

Third-flag carriers continued to carry the largest share of bilateral cargoes through 1980, according to US Bureau of the Census data. Some of these third-flag carriers (exact figures are not known) are vessels chartered by the PRC or by PRC-controlled offshore shipping companies.

Major third-country carriers involved in the trade include Maersk Lines, Neptune-Orient, K Line, Barber Blue Sea Line, Hapag-Lloyd, Rickmers Line KG, Yamashita-Shinnihon, Mitsui-OSK, and Seapac Container Service, the successor to Seatrain Pacific. Seapac Container Service, a US-based third-flag carrier, is now owned by the Hong Kong C. Y. Tung Group, formed by the British firm Inchcape and its Hong Kong subsidiary, Dodwell & Co.

Maersk, Neptune-Orient, and Seapac, among other third-flag carriers, offer westbound and eastbound container and breakbulk service via Hong Kong feeder service, including eastbound cargoes tendered by FARENCO. Other carriers, including Yamashita-Shinnihon, offer breakbulk and container service via a PRC-Japan feeder service with US cargoes transshipped at Osaka.

Why Importers Are Assessed "Container Usage Charges"

Given the long hiatus in direct US-China shipping and trade, it is not surprising that some problems still have to be ironed out. Foremost among these is the controversy over rates on eastbound exports to the US.

US importers are being assessed freight surcharges on goods purchased from China on a C&F basis. Normally, C&F (cost plus freight) would mean that all freight charges to a named point of destination are borne by the shipper, and are included in the total price paid by the importer. The extra fees, generally termed "container usage charges," are assessed on a tonnage basis, commonly $6 per ton, plus a $1–$2 destination container yard or container freight station charge. The Federal Maritime Commission has held that the practice does not violate their regulations, which simply require that tariffs clearly indicate the conditions and terms of payment. Importers, however, justifiably expect their purchases to be handled in a manner that conforms with standard international practice.

US and third-flag carriers justify the fees on the grounds that rates currently paid by China on eastbound cargo do not cover their costs. Until US-China shipping becomes a money-making proposition, most shippers argue, the situation will continue to inhibit the expansion of Chinese exports to the US.

Carriers seem to have grounds for complaint. For example, most nonbulk cargo shipped to the US is picked up in Hong Kong, where it is delivered by carrier feeder services operated by the China Merchant Steam Navigation Company (CMSN), its affiliates and subsidiaries, or by the Far East Enterprising Company (FARENCO). For shipments on a through bill of lading from the PRC to the US, the total freight fee paid by the Chinese shipper includes an arbitrary for the first leg from the PRC port to Hong Kong. But foreign carriers receive only 60–62 percent of the sum that they must pay to CMSN for transporting their containers to and from Hong Kong, according to an August 1980 report in *Containerisation International*. (Sample charges: $265 per 20-foot container from Huangpu, and $347 per 20-foot container from Shanghai.)

In addition, carriers must pay storage fees for containers awaiting cargo in Chinese ports, and stuffing fees if the container is loaded at a SINOCHART-operated warehouse (but not, according to the *CI* report, if the container is loaded at warehouses located in the port under the authority of the Ministry of Communications). In instances where vessels call directly at Chinese ports, carriers have charged that port

China's Growing Merchant Fleet

A twenty-fold expansion in ships permits China to carry 54 times more freight than in 1961

Year	Number of PRC flag ships	Deadweight tons	Volume of freight (tons)
1961	20	180,000	800,000
1965	41	380,000	2,460,000
1970	70	750,000	4,990,000
1975	214	4,040,000	24,250,000
1980	431	7,920,000	42,820,000

SOURCE: *People's Daily*, July 20, 1981.

tariffs, equipment storage fees, and bunker (fueling) charges are unrelated to actual costs, and are excessive in comparison with charges at other ports.

In the case of cargoes transshipped in breakbulk form from Chinese ports and consolidated into containers in Hong Kong, a transshipment fee of $8–$10 per ton is deducted from the payment to the carrier, a charge which some carriers feel is excessive and unrelated to the actual cost of the service.

Carriers seem to have decided it is better to lose money or just break even in order to maintain a presence in the trade, at least until the problems are solved through the annual consultations provided for by the US-PRC Maritime Agreement. (The first meeting is scheduled for September.) In the meantime, overtonnage in the transpacific eastbound trade allows carriers to accept low-rated PRC cargoes from Hong Kong to the US, since it is filling the estimated 20–30 percent of capacity that would otherwise be unused.

Westbound US-PRC shipping is already covered by the Pacific Westbound Conference (PWC). Its rates have been open since January 1980, although conference members are now considering a vote on whether to establish fixed rates for westbound cargo.

Rate Agreement

Five US-flag carriers have established a PRC-US Rate Agreement which permits collective action on rates and other matters by ship operators engaged in the PRC-US eastbound trade. Four of the carriers—the American President Lines, Ltd.; Lykes Bros. Steamship Co., Inc.; Sea-Land Service, Inc.; and United States Lines—already offer PRC-US services. The fifth, Waterman Steamship Corporation, is planning to offer LASH (lighter aboard ship) service in the near future. The Federal Maritime Commission approved the Rate Agreement on September 17.

Membership in the Rate Agreement is open to any vessel-operating common carrier providing regular service in the PRC-US eastbound trade. Members are classified into three flag groups: US-, Chinese-, and third-flag vessel operators. Each flag group is authorized to establish its own collective tariff rates or take other joint actions on matters related to the shipping services.

The most important effect of the agreement is to allow US carriers to negotiate as a collective body with Chinese shipping organizations. Under amendments to the Shipping Act of 1916, carriers involved in rate agreements and conferences approved by the Federal Maritime Commission are permitted to set common rates and engage in collective negotiations—activities normally prohibited by US antitrust laws.

The PRC has strongly criticized existing rate conferences, charging that they are controlled by major US and European operators to the disadvantage of third-world carriers and shippers. Essentially, a conference is empowered to set fixed rates binding upon all members, enforcing those rates by withholding standard rebates from shippers who patronize nonconference carriers.

The Rate Agreement, in contrast, apparently was designed to meet many of the Chinese objections. Not only is each of the three flag groups free to establish its own rates and other practices, but each individual operator retains the right to act independently in all matters, provided advance written notice is given to other members.

Supporters of the Rate Agreement hope it will implement the US-PRC Agreement on Maritime Transport by allowing frequent consultations among the parties in addition to the annual government-level meetings called for in the bilateral pact.

So far China has not issued an opinion regarding the Rate Agreement. The ministries of Communications and Foreign Trade received formal notice of the proposed agreement earlier this year, but never issued any response. Nor did they file any communications with the Federal Maritime Commission before the April 27 deadline for comments.

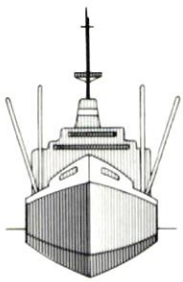
Nevertheless, observers feel China recognizes the need to set rates at a level that will encourage carriers to increase PRC-US shipping services. Since the PRC has become a major vessel operator in recent years, US carriers hope the rate stability provided by a consultative body may yet induce China to work closely with, and possibly join the Rate Agreement.

Table 2. US General Cargo Imports from the PRC by Flag Carrier and by Coast of Entry
(In percent)

Coast of entry	1978			1979			First half of 1980		
	US flag	PRC flag	Third flag	US flag	PRC flag	Third flag	US flag	PRC flag	Third flag
West Coast	55	0	45	42	0	58	32	6	62
Gulf Coast	96	0	4	89	0	11	63	0	37
N. Atlantic	42	0	58	32	0	68	23	0	77
S. Atlantic	55	0	45	28	0	72	25	0	75
Other	79	0	21	55	0	45	50	0	50
Total	51	0	49	38	0	62	28	3	69

NOTE: US general cargo imports include breakbulk and containerized cargo, but exclude bulk shipments.
SOURCE: Data processed by Sea-Land Service, Inc., using Bureau of Census statistics as of January 20, 1981.

The Move to Containerize General Cargo



The impetus to develop container operations in China came largely from China's trading partners in the West and Japan. Containerization is efficient because it eliminates the need for dockside handling of individual cargo items.

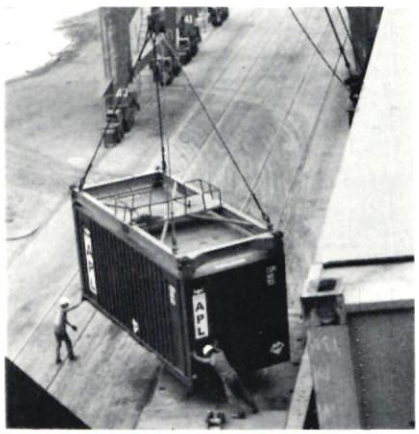
Containers can be dropped onto truck trailer chassis or rail trailers and shipped intact, a system known as intermodal transport. Actual unloading takes place at inland container-freight stations that are much nearer to the cargo's ultimate destination.

Last year China handled more than 64,300 containers, a 96 percent increase over 1979. A May 11, 1981 report in the *China Economic News* also revealed that China has introduced containers on 10 international shipping routes, including: Shanghai (or Tianjin)–Hong Kong; Shanghai–Australia (the route was extended to New Zealand last year); Shanghai–Hong Kong–America (including a Hong Kong–Manila route); Huangpu (Guangzhou)–Hong Kong–Europe; and Tianjin–Shanghai–US West Coast.

Time is the most important savings offered by container transport. Three shifts of longshoremen using two container cranes can unload 1,000 containers in a 24-hour period. At ultramodern facilities, 1,400 containers have been unloaded in a single 8-hour shift, reducing turnaround time to 24 hours, versus six to 10 days for traditional breakbulk vessels.

Savings in manhours are estimated at 60 to 80 percent or better, and there are also appreciable reductions in in-transit damage and loss due to theft. These factors more than outweigh the costs of increased tare weight (a 20-foot steel container weighs about 5,000 lbs) and the costs of owning or leasing. As a result, the container has rapidly become the standard mode of transport for most categories of general cargo.

But China only recently has begun to realize the full benefits of containerized freight transport, owing to its poor inland-road and rail-transportation infrastructure and inadequate port facilities. Most Chinese ports are still using general-cargo cranes for container operations, a practice which is very slow and, because of the difficulty in controlling swaying or rocking, can result in damage to cargo.



American President Lines offers biweekly container service to China via a Hong Kong feeder service. Here an APL container is unloaded at Dalian.
Photo by Marc Felice

As is true with many US ports built in the age of breakbulk shipping near metropolitan areas, major Chinese ports such as Shanghai lack the temporary storage and handling space required to support major container-shipping operations. Moreover, large second-generation container ships (carrying 2,000 20-ton equivalent units, or TEUs), cannot enter most Chinese ports fully laden because of shallow water depths.

Most of China's container traffic is therefore diverted through Hong Kong via feeder services. Cargoes are transported from Chinese ports in small (130–250 TEU) container vessels, or in breakbulk vessels for consolidation into containers in Hong Kong. There the containers are loaded for shipment to foreign ports on China Ocean Shipping Company (COSCO) vessels or foreign ships.

Direct container vessel service to and from Chinese ports will increase dra-

A Sea-Land container arriving in Shanghai via feeder service from Hong Kong.

Photo by Sea-Land Service, Inc.

matically in the next few years as specialized container-handling facilities in Chinese ports finally come on line.

Containers also are carried on China's growing fleet of 13 ro/ro (roll-on/roll-off) vessels, including five Japanese-made 430-TEU ro/ro ships purchased in 1980. Drawing only 6.8 meters, these smaller Kawasaki-built vessels can enter shallow river ports. Moreover, they do not require container cranes to be unloaded, since they are equipped with hinged stern-door rampways.

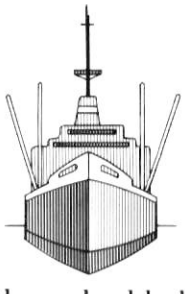
Container manufacturing in China began this year with the opening of a container factory in the Guangzhou Shipyard, built and operated with the assistance of Container Transport International, Inc. (CTI) under a $125 million compensation trade agreement. Civet Investment Company, Ltd. of Hong Kong, which financed the venture, will acquire the factory's total output over five years, and CTI in turn has the exclusive right to purchase a minimum of 50,000 20-foot containers from Civet over the five-year period. Initially, most of the containers are earmarked for Hong Kong, which suffers from a chronic shortage of empty containers.

The recent introduction of inland container handling and transport capabilities marks the real beginning of modern intermodal container transport in China. China's first container freight station, operated by the Beijing–Tianjin–Hebei Container Traffic Corporation, was established near Beijing last October. The corporation was established primarily to handle foreign trade and noncommercial (mainly diplomatic) container traffic. Additional container freight stations are planned for Shanghai, Huangpu, Qingdao, and Dalian.

Use of containers in domestic rail transport doubled in 1980, reaching 2 million tons, with appreciable savings in losses due to in-transit damages. More than 170 Chinese railway stations now handle containerized cargo. However, railway containers currently used in China are nonstandard, with weight specifications of 1 ton, 2 tons, 3 tons, and 5 tons. China does not yet have rolling stock capable of carrying internationally standard 20-foot and 40-foot containers. Inland transport of seagoing containers is by highway only, using imported Japanese and US chassis.

China has recognized that containerization is not only necessary to accommodate the freight-handling systems of Western nations, but that it has intrinsic advantages in simplifying freight movements and reducing cargo-handling costs and losses due to damage. Moreover, China would like to expand its exports of light industrial goods, and in most of the world such cargo is now shipped in containerized form. —RD

China's Port Modernization Plans



The dramatic increase in Chinese foreign trade, which more than doubled in value from 1977 to 1980, has placed an enormous strain on China's port system. Congestion is a particularly serious problem at Shanghai, Tianjin (Xingang), and Huangpu (Whampoa).

In response, the pace of construction of new berths has accelerated; 18 new berths were added in 1980. China has embarked on an ambitious program to modernize port facilities in order to reduce turnaround time in port and accommodate modern bulk carriers and containerized vessels. The characteristics and plans of China's principal ports:

Shanghai

China's greatest port, Shanghai, handled more than a quarter of the total tonnage that passed through Chinese ports in 1980–84, amounting to 71 million tons (approximately the same as the port of Los Angeles). But berthing capacity is inadequate, and congestion in the port is a serious problem.

A riverine port, Shanghai can accommodate fully loaded vessels of 20,000 deadweight tons (dwt). Some observers have reported that 30,000-dwt bulk-carrier berthing is available. Larger vessels (of up to 100,000 dwt) unload at an offshore station, a converted 100,000-dwt bulk carrier equipped with bulk conveyors, gantry unloaders, and ship loaders. Deep-draft vessels can also transfer part of their cargoes to lighters while anchored at mooring buoys before entering the port.

Only half of Shanghai's 100 berths can accommodate vessels of more than 10,000 dwt. A recent article in Shanghai's *Liberation Daily* reported an average of 223.2 ships in the harbor in September 1980, of which 82 were vessels engaged in foreign trade. By November the average number of foreign trade vessels had increased to 101, two-thirds of which had to anchor while awaiting berthing spaces. Some vessels reported delays up to three months.

Container-handling facilities consist of two berths in District 10 using both general-cargo equipment adapted for container use and some special container equipment, including two Ferranti straddle carriers. A Ferranti 30-ton self-propelled gantry crane under assembly should become operational in 1981. The container-handling area currently in use measures only 220 square meters. The volume of containers handled in 1980 was 31,500 TEU (twenty-foot equivalent units), double the 1979 figure, with a 50,000–60,000 TEU capacity planned for 1982.

The port is equipped with automatic coal-unloading equipment, pneumatic

grain-unloading equipment, and grain elevators. In 1980 Shanghai handled 6 million tons of grain. Bulk iron ore imports are handled at District 8.

Two new container berths under construction in District 9 are scheduled for completion in 1982. Eventually, District 9 will be exclusively used for container operations, with a 300,000-square-meter working area, and direct railroad connections.

Port authorities also hope to enlarge bulk-handling and storage facilities for grain and coal. Total container-handling capacity may reach 250,000 TEU by 1985, according to Hong Kong Marine Department projections.

Although some underutilized space downstream (currently not under the jurisdiction of the harbor authorities) could be converted to deepwater berthing space, the possibility of further port expansion is limited. Solving Shanghai's congestion problems will require extensive development of subsidiary ports, a process that is now under way.

Dalian

China's second largest port, Dalian, handled 32.63 million tons of cargo in 1980, a tenth of the national total. Twenty-two of the port's total of 48 berths can accommodate vessels over 10,000 dwt. Although an oil terminal can handle tankers up to 100,000 dwt, shallow water depths of the general-cargo and bulk facility restrict access to vessels drafting 10.5 meters or less. Shippers currently report no congestion problem.

The oil terminal, which is separated from the rest of the port, consists of two berths, accommodating 50,000- and 100,000-dwt vessels. The terminal is equipped with five oil booms, four 10,000-ton-per-hour pipelines, 300,000 tons of oil tank storage, and a wastewater-treatment facility.

Exports from Dalian in 1980 were valued at $3.9 billion, up 52 percent over 1979.

Container volume has been negligible, but the general-cargo facility will be adapted to provide 30,000 TEU capacity this year; and a new container berth is planned.

Qinhuangdao

With 26.38 million tons of cargo in 1980 (8.6 percent of the national total), Qinhuangdao ranks third among Chinese seaports in tonnage volume. Dredging is under way to improve deep-draft vessel access, previously limited to 25,000-dwt vessels, in order to accommodate 50,000-dwt bulk carriers.

A current project funded by the Japanese Overseas Economic Cooperation Fund (OECF) will expand the coal facility to handle 20 million tons per year by 1985. Two 50,000-dwt-class berths will be built along with coal-loading equipment. Under a separate OECF project, a double-tracked railroad will link the port to Beijing and North China coal fields in 1983.

Qingdao

A natural harbor on the Shandong Peninsula, Qingdao handled a 1980 cargo volume of more than six million tons, including oil-product exports of 3.5 million tons. The port can accommodate vessels of up to 30,000 dwt; supertankers are loaded at sea by feeder vessels from an oil wharf at Huangdao Island.

Container vessels berth at a general-cargo wharf. The port's 1980 volume is estimated at 7,000 TEU.

A new container berth and container-handling area with an adjoining general-cargo berth and container-handling area is currently under construction on new landfill adjacent to Wharf 4. The 238-meter wharf, to be equipped with two container cranes, may be completed this year. Port authorities also plan to expand the bulk-coal facility (see p. 21).

Xiamen

Construction of the new Dongdu facility at Xiamen (Amoy) will provide 10,000- to 50,000-dwt berths on wharves to be completed in 1982. That will increase tonnage capacity to 1 million tons in 1982 (1979 volume was 640,000 tons), with a further increase to 2 million tons by 1984. (For detailed statistics and a map, *see The CBR*, Sept.–Oct. 1980, pp. 21–23.) A rail and road causeway links the island to the mainland, with further connections to the Zhejiang-Jiangxi railway line. A special economic zone is planned at Huli adjacent to the Dongdu facility.

Zhanjiang

Planned as a major base for China's offshore oil development in the South China Sea, Zhanjiang can accommmodate tankers up to 50,000 dwt. The port is currently used to handle crude-oil imports from the Mideast, which are transported via a 10-million-tons-per-year pipeline to a refinery at Maoming, 120 km. to the north.

Oil-storage capacity is over 100,000 tons. Oil imports through the port have been estimated at 2.2 to 2.9 million tons. The port is also used for forward shipments of Ghuizhou coal. Cargo-handling volume is approximately 10 million tons per year.

To provide support services for offshore oil exploration and production, the China Petroleum Corporation has established its South Sea Branch (SSB) base across the bay and north of the city. Base facilities include berthing, storage, a floating crane, and office and apartment buildings.

Shijiusuo

Another Japanese OECF project, Shijiusuo will have a coal export capacity of 10 million tons per year, and iron ore import-handling capacity of 5 million tons per year. Phase one of the project will construct a 100,000-dwt bulk-carrier berth and a 25,000-dwt berth along with specialized coal-loading equipment. Phase two will provide another 100,000-dwt berth and equipment to handle bulk imports of iron ore destined for processing at Baotou, Taiyuan, and other steel works.

A separate OECF project will build a 300-km. railroad linking the port to the Yanzhou coal fields and the Beijing-Shanghai truck line.

Beilun

A new port built to handle imported iron ores for the Baoshan Steel Works near Shanghai, Beilun will ultimately be able to handle 20 million tons of ore per year. (For detailed port specifications and map, *see The CBR*, July–Aug. 1980, p. 49.) One 100,000-dwt berth and two 25,000-dwt berths already have been completed, along with storage capacity for 500,000 tons of ore. Automatic unloading equipment and a 1,000-meter conveyor system is under construction. Ores unloaded at Beilun will be transferred to Baoshan using smaller 20,000- to 25,000-dwt vessels. Some larger vessels will be able to enter the Changjiang estuary and berth at Shanghai and Baoshan after partially unloading at Beilun.

Huangpu

Directly serving Guangzhou, Huangpu (Whampoa) handled 12.10 million tons of cargo last year, approximately 4 percent of the national total.

Vessels up to 25,000 dwt can enter the port, which has 12 berths of more than 10,000-dwt capacity. Thirty percent of the total tonnage in 1980 was bulk steel, grain, and fertilizer.

Containers are currently handled with modified general-cargo equipment. Container-handling capacity is estimated at 6,000 TEU.

Construction is under way on a new container terminal consisting of two berths and a 20,000-square-meter backup area, designed to increase handling capacity to more than 100,000 TEU by 1983, and more than 200,000 TEU by 1985.

Tianjin

Tianjin's total cargo volume in 1980 was 11.91 million tons, approximately 4 percent of the national total. Directly serving the Beijing region, Tianjin is the gateway to North China, and its container facility is, in relative terms, the most advanced in China. As in Shanghai, delays due to congestion are a serious problem.

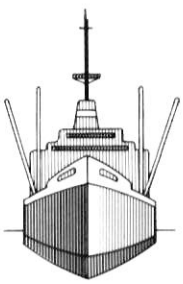
The port of Tianjin consists of three working areas; only Xingang (New Harbor) is used for foreign trade. The port can accommodate vessels of up to 20,000 dwt, with 22 berths of 10,000-dwt class or higher.

Container-handling facilities on Pier 5 include both container and ro-ro (roll-on/roll-off) berths, with two Chinese-built 40-ton gantry cranes. Although a handling capacity of 100,000 TEU was projected for 1980, actual volume may have been only 25,000 TEU or less, reflecting problems with the two Chinese-built gantry cranes.

Pier 5 also has a bulk petroleum berth equipped with automatic oil booms, storage, and pumping equipment. Bulk-cargo facilities on Pier 2 include nine deep-draft berths, pneumatic grain-unloading equipment, and 16 railroad spurs on the pier. The port has three large floating cranes.

Additional container berths either planned or under construction will increase handling capacity to 250,000 TEU by 1985. New general-cargo facilities are also under construction in the Tanggu working district, including 650,000 square meters of warehousing space. —RD

Changjiang Shipping



A dramatic development in China's recent modernization effort has been the increasing stress on waterborne freight transport. Over the past three years, waterway cargo has grown at an average rate of more than 20 percent per year, increasing as a percentage of total domestic freight movement from 33 percent in 1977 to 42 percent in 1980.

Railway freight, growing an average rate of 7.9 percent per year for the same period, has declined from 54.5 percent of total freight movement to 47.5 percent.

These trends apparently reflect the realization on China's part that its superb water transport resources, both natural rivers and man-made canals, have been seriously underutilized. Water transport is highly energy efficient, and the capital investment needed to achieve a unit increase in shipping capacity can be much less than the cost of a comparable increase in rail or highway capacity.

Modernizing Shipping on the Changjiang

The Changjiang (Yangzi River) is China's most important water transport artery, handling an estimated 60 percent of China's total inland shipping volume. Flowing through nine provinces from its headwaters high on the Tibetan (Qinghai–Xizang) plateau, the Changjiang is navigable for almost half its 6,000 km. length, with navigable waters in the Changjiang system (including tributaries) totaling 18,000 km. Oceangoing vessels up to 10,000 deadweight tons (dwt) now proceed as far as the Yangzi Bridge at Nanjing; 5,000-dwt vessels can navigate to Wuhan in Hubei year-round. Service to Chongqing in Sichuan by specially designed 700-ton flat-bottom boats was interrupted by construction at Gezhouba but service resumed in July.

Barge shipping is the most important mode of inland shipping on the river's lower reaches. There, the modern "push-barge" system is beginning to replace towboats. Dravo Corporation is supplying four new pushboats and a fleet of 30 barges to the Changjiang Shipping Administration this year. Each of the 6,000-hp vessels can propel a string of 20–30 1,500–2,000-ton barges. Dravo's Engineering Works Division and Dravo Mechling, a subsidiary, will also provide training for Chinese crews using identical craft on the Mississippi and Ohio Rivers.

Reversing a Pattern of Underinvestment

In an interview with the Hong Kong *Jingji Daobao* in October last year, Minister of Communications (then Vice-Minister) Peng Deqing stated that the State Council will henceforth stress Changjiang shipping and water transport in general, reversing a historical bias in favor of rail and vehicular transport. He predicted that the volume of shipping along the Changjiang will double by 1990, and that the total tonnage of vessels navigating the river will increase from 2.5 million to 4 million

tons within a decade.

Peng also promised cooperation between central and local agencies and uniform regulations for shipping on the Changjiang. In the past, he said, "feudalist separatism" among different agencies controlling shipping on different sectors of the waterway system had hindered through-shipping between the main waterway and its tributaries and between the river and ocean ports.

According to the minister, major construction at Changjiang ports and waterway improvements will be undertaken over the next 10 years. The opening of eight Changjiang ports to foreign trade in April 1980, followed by a ninth port in December (*see* map), has made it possible for export goods from the Changjiang region to be shipped directly to Hong Kong or foreign countries. Previously goods had to be transshipped at Shanghai or moved overland to Hong Kong.

Water transport and port operations on the river are overseen by the Changjiang Shipping Administration (CSA), an organization under the Water Transport Bureau of the Ministry of Communication. Based in Wuhan, CSA has branch offices in Chongqing, Wuhu, Nanjing, and Shanghai, and port authority offices in 25 Changjiang ports.

The CSA's own vessels include barges, tugs, passenger and cargo vessels, numbering some 1,800 bottoms and totaling 1.5 million tons.

The exact nature of administrative control over foreign shipping on the Changjiang is unclear. Foreign shipping from Nanjing, Zhangjiagang, and Nantong is handled by COSCO-Jiangsu, an organization jointly managed by the Jiangsu Provincial Transport Bureau and the regional branch of the China Ocean Shipping Corporation (COSCO). COSCO-Shanghai operates some foreign shipping services, including shipping between Wuhan and Hong Kong offered by the Haixing Steamship Co., a COSCO-Shanghai subsidiary.

Minister of Communications Peng Deqing indicated last fall that the Changjiang Shipping Administration would organize a separate foreign trade shipping company. Its shareholders would be those provinces engaging in Changjiang foreign trade. Dividends would be paid in foreign exchange.

At present, foreign shipping to and from Changjiang ports is being carried out by Chinese-registry vessels only, but the question of allowing access to foreign ships is under study. There are rumors that Nanjing, Nantong, and Zhangjiagang are now making preparations to receive foreign ships.

Facilities at Major Changjiang Ports

To relieve pressure on Shanghai as a transshipment port, China has begun the rapid expansion of port facilities and support services (*see* map), allowing a steadily growing volume of goods to move directly to and from Changjiang ports, reportedly totaling 3.34 million tons in 1979 and perhaps reaching 5 million tons in 1980.

A delegation from the Japanese Association for the Promotion of International Trade (JCPIT) visited Changjiang ports last March. The delegation's report, published as a series of articles in the association's weekly publication *Kokusai Boeki*, provides a firsthand look at the expansion effort currently under way.

Photo courtesy of Dravo Corporation

Bound for service on the Changjiang are four 6,000-horsepower river towboats manufactured by Dravo Corp. at its Pittsburgh shipyard. The boats, weighing more than 800 tons each, are shown as they leave New Orleans aboard the *Dock Express II*, a specialized heavy lift ocean vessel. In China the vessels will join 30 Dravo barges also commissioned for operation on the Changjiang between Shanghai and Wuhan.

Nantong

The farthest downstream of the 25 Changjiang ports, Nantong is situated 150 km. from the mouth of the Changjiang on the north bank of the river. Comprising three working districts—Nantong, Langshan, and Tianshenggang—the port handled a total cargo volume in 1980 of 3 million tons. The Langshan Working District, completed last year, handled 0.58 million tons, a figure that is expected to increase to 1.1 million tons.

Chief cargoes handled at the port include coal, gravel, crude oil, locally produced cotton and cotton goods, machinery, and light industrial goods. Imports from overseas include iron ore from North Korea and sulphur from Japan; chief exports are cotton products and light industrial goods.

The port is open to 10,000-dwt vessels year round, with berthing depths at the Langshan Working District in excess of 15 meters.

The new 10,000-dwt berths were completed in late 1980. Specifically designed to accommodate oceangoing vessels, the new facilities will be used for coastwise shipping of cotton to North China, iron ore imports, and barite exports to the US.

The district is equipped with two 5-ton and three 10-ton cranes. One deepwater berth and two container berths will be added to the Langshan Working District, and plans exist to add 10 more berths at the Nantong Working District downstream. Warehousing space of 12,300 square meters is now linked to the berths by direct bulk conveyor lines.

The port lacks rail connections. However, 10 km. of new canals have been dug to provide connections to the north Jiangsu water-transport network. Direct access from the river to the canal network will be provided by a lock under construction upstream from Nantong City. Annual through-tonnage shipments between the river and canals is projected at 4 million tons.

Zhangjiagang

Zhangjiagang, a new port on the south bank of the river directly north of Wuxi, was built as an auxiliary port to Shanghai. It serves as a domestic shipping port for Suzhou, Wuxi, Changzhou, and other cities in the Jiangnan region. Imports include coal, grain, lumber, and gravel, while exports consist mainly of locally produced textiles and light industrial goods. Cargo handling through the single berthing facility now in use is only 1.8 million tons, but its capacity is expected to be enlarged. The berth is a floating type, supported by three pontoons. Cargo-handling equipment consists of twelve 10-, 25-, and 16-ton truck cranes. Warehousing space totals 12,000 square meters, and the working area amounts to 250,000 square meters. Within the harbor are mooring buoys for 10,000- and 5,000-dwt vessels for unloading to lighters and barges.

Plans to develop container-handling facilities at Zhangjiagang are under consideration. The JCPIT delegation raised the possibility of using Zhangjiagang as a relay point to transfer containers between seagoing vessels and barges.

Nanjing

Nanjing is a major Changjiang metropolis and a crossroads in north–south rail and highway transportation. Total cargo handling at Nanjing in 1980 was 32 million tons—more than

Freight Movements by Mode
(Million tons per kilometer)

PRC	1977	1978	1979	1980
Total Freight	**836,719**	**1,025,197**	**1,137,423**	**1,202,640**
Waterway cargo	276,243	377,900	456,400	505,300
Percent of total	33.0	36.9	40.1	42.0
Percent increase/prev. yr.	—	36.8	20.8	10.7
Railway freight	455,700	533,300	558,800	571,700
Percent of total	54.5	52.0	49.1	47.5
Percent increase/prev. yr.	—	17.0	4.8	2.3
Highway freight*	66,000	72,000	74,500	76,400
Percent of total	7.9	9.1	6.5	6.4
Percent increase/prev. yr.	—	9.1	3.5	2.6
Air freight	76	97	123	141
Percent of total	0.0	0.0	0.0	0.0
Percent increase/prev. yr.	—	27.8	27.2	13.9
Oil/gas pipeline	38,700	41,900	47,600	49,100
Percent of total	4.6	4.1	4.2	4.1
Percent increase/prev. yr.	—	8.3	13.6	3.2

*Road freight volumes for 1977 and 1978 based on figures for highway freight movements by state enterprises, using adjustments of known 1979 ratio of total highway freight to freight movement by state enterprises.

SOURCES: 1980 data: Communiqué of State Statistical Bureau issued April 29, 1981; 1977–79 data: State Statistical Bureau, various dates; *1980 China Statistical Yearbook;* and National Council files. Table prepared by Robert A. Delfs, Jr.

10 percent of the national total—which almost tied Dalian for the title of China's second busiest port in terms of volume.

The port is located to the northwest of the city, extending upstream and downstream on both sides of the Changjiang bridge. Its three separate working districts handle general cargo, coal, and petroleum. Forty berths are under the jurisdiction of the Nanjing Port Authority, with additional berths operated by large-scale state enterprises. The port can accommodate vessels of up to 10,000 dwt. Railroad connections are available in all working districts.

Nanjing's most important cargoes are crude oil and refined petroleum, coal, iron ore, steel, and cement. Foreign trade cargoes include iron ore and cement. The coal district on the bank facing the city has a yearly handling capacity of 6 million tons. Two coal loaders each can load vessels at 1,000 tons per hour. Coal storage capacity is 36,000 tons; automatic unloaders each day can unload an additional 400 railcars of 50–60 tons. The JCPIT delegation reported that one of the vessel loaders was under repair at the time of its visit.

Though the Yangzi Bridge at Nanjing is a major link in China's north–south land transportation, its low clearance is a serious obstacle to navigation, limiting upstream passage of ocean-going vessels to a size of 5,000 dwt. According to the JCPIT delegation report, clearance is only 20 meters during the flood season and 26 meters during the dry period. A new class of low-profile 10,000-dwt vessels is currently being designed that could safely navigate upstream past the bridge.

Wuhu

The Port of Wuhu in eastern Anhui Province encompasses both the Wuhu Working District on the Wuhu City side and the Yuxikou Working District on the opposite bank. Cargo-handling volume last year totaled 5 million tons, 80 percent of it being Huainan coal shipped out of the Yuxikou Working District.

Foreign trade exports began after the port was opened to foreign trade in April 1980. Last year's total came to 5,000 tons, including bagged cement for Hong Kong and scrap exported to Japan.

The coal facility at Yuxikou is equipped with two 600-ton-per-hour coal loaders. The coal is transported by rail from the Huainan coal mines, 180 km. away. The 50–60 ton railcars are then unloaded by a screw-device sweep system linked to the coal-storage area by an underground conveyor belt. From Yuxikou, the coal is shipped to Shanghai, Hubei, Wuhan, Jiangxi, and to the Maanshan Ironworks on the river's opposite bank.

Plans are proceeding to add two 3-million-ton-per-year coal terminals upstream to supply Huainan coking coal to the Baoshan steel works.

The Yuxikou facility currently allows access by 2000-dwt vessels; the new berths planned for shipping coal to Baoshan will accommodate 5,000-ton vessels. General-cargo berths at Yuxikou are used for shipping industrial products from Hefei City and agricultural products from Anhui Province.

Three berths, with a combined annual handling capacity of 100,000 tons, have been earmarked for foreign trade in the Wuhu Working District. The floating wharves do not allow installation of large fixed cranes; floating cranes are used for cargo handling. There is no bulk-handling equipment for the cement, which is exported in bags.

Planners hope to ease congestion at Shanghai by improving harbor facilities at the nine Changjiang ports recently opened to international trade.

Eleven new berths are under construction 7 km. downstream. Two of them are slated for completion in 1981. A spur connection to the Tongling railway line is also planned, with future cargo-handling capacity of the district expected to approach 5 million tons.

Jiujiang

The only foreign trade port in Jiangxi Province, Jiujiang has a cargo-handling capacity of 2.7 million tons per year. Cargo handling in 1979 amounted to 1.37 million tons. Jiujiang is the shipping point for world-renowned Jingdezhen ceramics, as well as for Jiangxi handicrafts and foodstuffs.

Wuhan

Located at the confluence of the Changjiang and the Hanshui, Wuhan is a major industrial center. Annual cargo-handling capacity is estimated to be between 9 and 11 million tons. The port is divided into three working areas: Hankou, Jiangan, and Hanyang. An iron and steel bulk-handling facility receives iron ore and coal shipped by barge for the Wuhan Steelworks, unloaded by floating cranes to hoppers linked to storage areas by conveyor belts. The facility is also used for forward shipments of iron and steel products. (For further information on Wuhan's port and foreign trade, *see The CBR*, Sept.–Oct., 1980, pp. 39–47.)

—RD

Qingdao's Expansion Plans

Stephen Markscheid

Qingdao's modern harbor traces its history back to the years of German occupation from 1898 to 1915, when the natural deepwater harbor that served a small fishing village was turned into a major naval base

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istraint upon the more rapid expansion of Qingdao's foreign trade are bottlenecks in storage and loading. The port is characterized by extremely limited warehouse space, for instance. Unlike Dalian and Tianjin, whose ports average 120–130 square meters of warehouse space for each meter of wharf, Qingdao has only 160,000 square meters of warehouse space, an average of 52 square meters per meter of wharf. Rail lines into the port are also very tight.

Only about 10 percent of Qingdao's exports are currently containerized (8,000 containers were handled in 1980), of which 37 percent are bound for the US. An American shipping company even supplied the port with some containers and ancillary equipment. The port, however, lacks the 35-ton cranes needed to load and unload containers. Without these cranes, the port can only handle smaller container ships which have their own cranes on board.

Moreover, such vessels must share space with coastal passenger liners which travel daily to Shanghai. The combination of limited container facilities and inadequate equipment raises the port's unit cost of container usage to an uneconomical level.

But Qingdao is engaged in an aggressive expansion program that includes the construction of numerous specialized wharfs and berths. Wharf No. 8, now under construction, will have seven berths ranging from 25,000- to 50,000-dwt capacity. One berth, specially dedicated to container shipping, is 238 meters long and has already been dredged to 10.5 meters. Work is now proceeding on access roads and storage areas. Ultimate plans call for a container factory to be built just behind the storage area. The finished wharf will measure 600 meters by 225 meters and will include five rail lines, two warehouses (one for food grains and one for general cargo), and 70,000 to 100,000 square meters of open storage area. Landfill isn't yet completed and the wharf will probably not be fully operational until 1984 or 1985, but it may be available for limited use by late next year.

Most equipment for Qingdao's new wharves will be supplied domestically, but large cranes must be imported. All equipment imports will be routed through the Ministry of Communications in Beijing. Right now, the port lacks equipment for transferring containers from ship to rail cars, so that container cargo must be broken at the port. This both wastes space and increases cost.

Even these ambitious efforts, however, will not meet Qingdao's future requirements. To alleviate congestion and meet the needs of future trade, plans are already being developed to build an entirely new container port in 10 or 15 years near the offshore oil wharf.

August 7, 1981

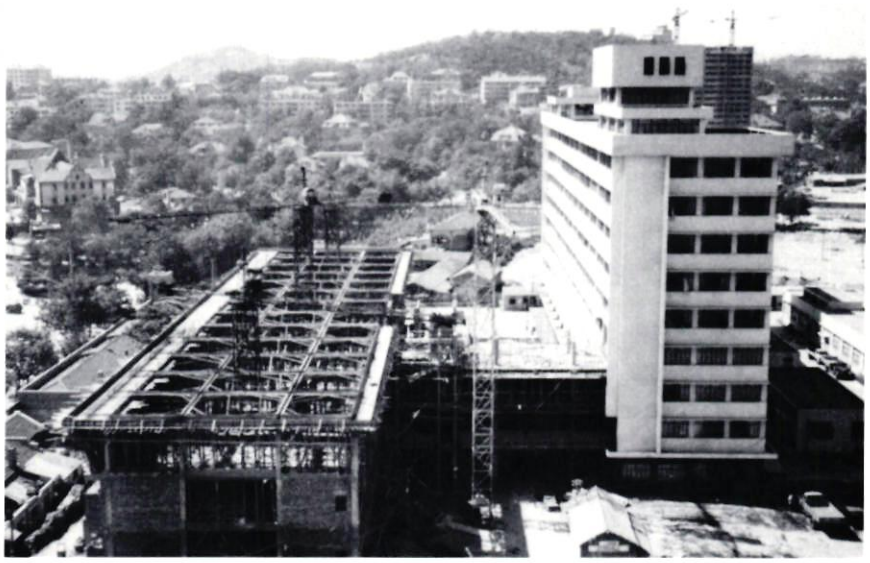


Photo by Stephen Markscheid

New exhibition center attached to Qingdao's Foreign Trade Bureau Building

China's Port and Maritime Program

John M. Pisani

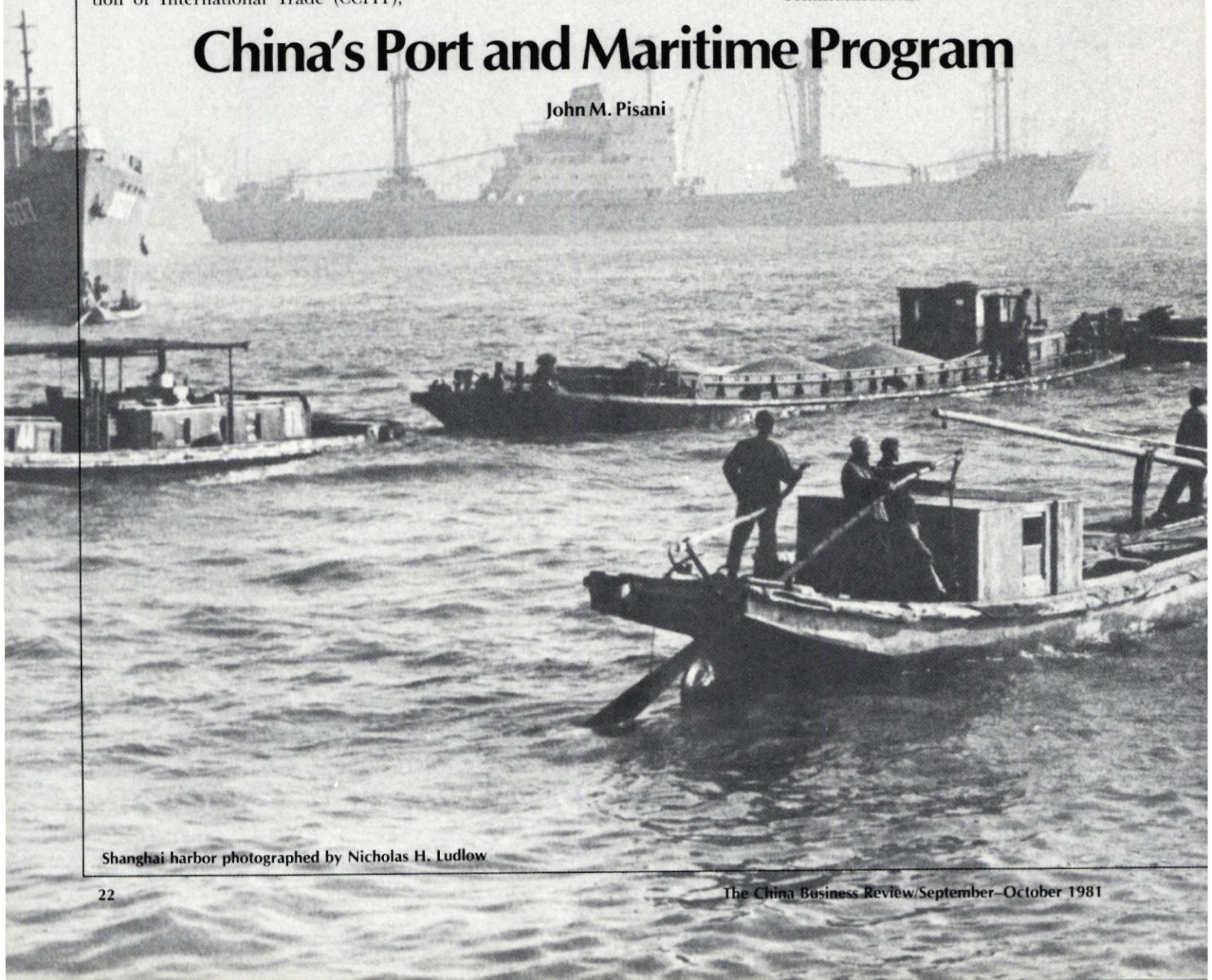
During a visit to China from March 11 to April 4 of this year, I had the unique opportunity as chairman of a marine and port equipment delegation to gather detailed information on the organization and management of China's ports.

Our group consisted of representatives from Harnischfeger P&H, Grove Manufacturing Corporation, Raygo Wagner Company, Ellicott Machine Corporation, the US Embassy in Beijing, the China Council for the Promotion of International Trade (CCPIT), and the US Department of Commerce, which sponsored the trip. We toured the ports of Guangzhou (Huangpu), Shanghai, Qingdao, Yantai, and Tianjin (Xingang), as well as the city of Beijing.

During these visits, I spent considerable time discussing the organizational structure of the American port and maritime system. I tried to convey to the Chinese the state of the art of the US port and maritime industries, using a study recently published by my office entitled *National Port Assessment: 1980–1990,* together with a 16-mm motion picture in Chinese on technological changes in maritime shipping and port development. The film was provided by the Port Authority of New York and New Jersey.

In turn, through long tea-drinking sessions and friendly discourses with the Chinese officials and technicians, I was able to piece together the organizational structure of the Ministry of Communications—the entity responsible for operating China's principal ports.

Realizing that this information was not available in great detail, I was frank with the Chinese about my aims. Each day I sought confirmation from the Chinese of the accuracy of the organizational charts I constructed based on our previous day's discussion. This process started in Huangpu during my meetings with Chen Zhiqiang, the manager of that port's container operations, and culminated in Beijing in a meeting with Guo Jian, vice-minister of communications.



Shanghai harbor photographed by Nicholas H. Ludlow

Ports and Shipping: The Administrative Structure

The results of my investigation are contained in the accompanying chart, which gives details of each component bureau, division, corporation, institute, and department under the Ministry of Communications. It also indicates the relationship between the Communications Ministry and other maritime-related ministries and top-level planning commissions under the State Council.

The PRC's principal maritime activities are carried out by the Ministry of Communications, the First and Sixth Machine Building ministries, and the Ministry of Foreign Trade. The Ministry of Communications controls the merchant fleet, port development, inland waterway and coastal shipping, dredging, maritime research, container transport, and a number of shipyards. The major shipyards, however, are the responsibility of the Sixth Ministry of Machine Building through its China Corporation of Shipbuilding Industries. The research institutes of the First Ministry of Machine Building determine the country's port and marine transportation equipment needs.

Furthermore, the state buys and sells vessels through the National Machinery Import and Export Corporation (MACHIMPEX), one of the many foreign trade corporations under the Ministry of Foreign Trade. Also under the latter is China's "shipper and freighter forwarder," the National Foreign Trade Transportation Corporation (SINOTRANS). This organization handles China's cargo and controls chartering through the National Chartering Corporation (SINOCHART) and FARENCO, its Hong Kong affiliate. Foreign trade promotion and maritime arbitration come under the Ministry of Foreign Trade, while commodity inspection and customs are supervised directly by the State Council. Additionally, several state commissions set China's industrial targets and foreign trade plans.

Long-range planning is in the hands of the State Planning Commission, which then turns its projections over to the State Economic Commission for development into detailed annual plans. A vice-chairman within the SEC is responsible for coordinating the transportation activities of all ministries.

Two other bodies advising the State Council on maritime affairs are the Capital Construction Commission and the State Science and Technology Commission. These monitor the capital construction and research activities of China's industrial ministries, including their ports and maritime shipping programs.

Decentralization of Shipping

Administrative decentralization during China's Four Modernizations probably benefitted China's maritime industries. All authority once came from ministries in Beijing; now a large degree of autonomy has been granted to entities under the ministries and also to provincial authorities outside the capital. This has increased competition in China, although officials would deny this with a smile that suggests cooperation might be a more suitable word. Whatever one calls it, shipyards under the control of the Ministry of Communications (such as the Shanghai Shipyard) compete with those under the Sixth Ministry of Machine Building (such as the Jiangnan and Hutung yards in Shanghai).

How far China plans to carry out decentralization is still not clear. The China Ocean Shipping Company (COSCO) was once controlled through Beijing, but now is decentralized into five regional offices and fleets. While several ports open to foreign trade remain under provincial control, most of China's major ports are still operated by the Bureau of Water Transportation under the Ministry of Communications. And while some regional dredging companies have considerable autonomy, it is the China Harbor Engineering Corporation, also under the Ministry of Communications, that is responsible for coordinating China's vast dredging fleet.

Ultimately, new programs must win the financial support of the Bank of China and the approval of the State Council, even for certain shipyards, ports, and shipping companies that operate with a high degree of independence.

Capital construction is one of the eight areas identified in the readjustment report on China's 1981 economic plan that will undergo general recentralization and tightening-up. "All funds for capital construction," according to the plan, "must be controlled by the State Planning Commission." Moreover, "the scale of construction and related investments in the provinces, autonomous regions, and municipalities must be examined by the State Planning Commission and approved by the State Council, and the capital construction of all the ministries and

commissions under the State Council must be put under the unified management of the State Planning Commission."

Vital Role of Communications Ministry

While the State Council has ultimate authority over port and maritime matters, the various bureaus and corporations under the Ministry of Communications coordinate the activities of shipyards, shipping companies, dredging corporations, machinery plants, and port design and construction companies within their respective jurisdictions. Other bureaus have responsibilities in communications, navigational aids, hydrography, rescue and salvage, ship registration, and other areas similar to those handled by our Coast Guard.

A further breakdown of the Ministry's major components is provided in the accompanying chart. The Bureau of Harbor Superintendency controls various port services, such as pilotage and tugs. The bureau also coordinates customs administration with the General Administration for Inspection of Import and Export Commodities and joint port inspection with the ministries of Public Security and Public Health. The Bureau of Planning develops and coordinates a unified plan for the Ministry of Communications that reflects the goals set out in the state's short-term and long-range economic plans. The implementation of maritime agreements with China's trading partners is the responsibility of the Bureau of Foreign Affairs. Finally, the ministry has recently created a Container Transport Corporation to coordinate all of China's container traffic. In 1985 the country expects to handle 700,000 containers through 10 of its major harbors.

A key agency advising the Ministry of Communications is the Institute of Transportation Technical Information. Previously under the Bureau of Science and Technology, the director of the institute now reports to the minister of communications. The institute has a staff of 200 people and an annual budget of ¥40 million ($24 million). Utilizing automated and nonautomated information sources maintained in Beijing, its divisions conduct technical transportation studies for the state in areas such as shipping, shipbuilding, highway transport, and ports. Through its China Transport Technical Service Division, the institute also provides consulting services to foreigners on transportation-related problems.

In March 1980, the minister of communications commissioned the institute to undertake 10 major technical transportation policy studies that will form the basis for recommended changes in China's transportation system. These studies are being carried out by the institute in cooperation with the Communications Ministry's Bureau of Science and Technology, the State Science and Technology Commission, and other ministries. Due to be completed by early 1982, the studies will cover:

- rationalization of surface transportation routes;
- rationalization of the uses of waterways with regard to such issues as transportation, power, recreation, and flood control;
- development of an inland transport infrastructure for marine containers;
- energy conservation in transportation;
- future port facility requirements;
- systems analysis of cargo handling for coal, grain, and cement;
- future vessel types;
- rationalization of shipbuilding programs;
- feasibility of slurry pipelines; and
- location of new ports.

Playing a major role in the coordination of these studies is Lin Hongci, an engineer in the Institute of Transportation Technical Information. Of the many Chinese officials and technicians that I met during my visit, Lin undoubtedly was the most knowledgeable about ports and shipping—in either China *or* the United States.

As Lin proudly pointed out, China is emerging as a major maritime power, owing to the continued rapid expansion of its merchant fleet. Its shipping program is under the control of the Bureau of Ocean Transportation, while responsibility for fleet operations is in the hands of the China Ocean Shipping Company (COSCO). COSCO, the major client of China's ports, is also carrying 70 percent of the country's foreign trade. In 1980, China earned about $430 million in foreign exchange receipts from shipping services, according to official balance of payments figures. The reorganization of COSCO into separate regional fleets, the joint shipping ventures with Albania, Poland, and Tanzania, and the growth and diversity of the Hong Kong-based China Merchant Steam Navigation Company and its affiliated companies, make it easy to see how decentralization has accelerated China's merchant shipping program.

China's fleet now stands at about 12 million deadweight tons (dwt), consisting mainly of bulk and general cargo vessels. This includes the nearly 2 million dwt of vessels operated by Yick Fung and Ocean Tramping in Hong Kong. The rapid buildup of China's fleet has been achieved mainly through ship acquisitions in the secondhand market and, more recently, by the ordering of new ships from abroad. Chinese yards currently are building more sophisticated tonnage themselves, particularly multipurpose ships. Some shipyards are ready to construct cellular container vessels.

China's present merchant fleet has doubled in the last three years, and is expected to double again by 1990.

World Bank Port Project

Port development is a priority in World Bank development loans to China. Plans are now under way to expand and equip a coal handling terminal at the port of Huangpu and container and bulkhead handling facilities at the ports of Shanghai and Tianjin. China's Ministry of Communications is financing the civil works for these projects.

Of the World Bank's $150 million contribution, $135 million will be earmarked for equipment procurement. Bank personnel have just completed an appraisal mission to China and are preparing a report. Loan negotiations with the Chinese are scheduled for early next year, and the projects could be presented for board approval in March 1982. International competitive bidding for the equipment sales will follow shortly thereafter.

In this manner, China earns hard currency from shipping services while its shipyards gear up for export production to earn even more. It is an unbeatable combination, and one particularly suited to China's development plans.

Supporting the operation of China's oceangoing fleet is the China Ocean Shipping Agency (COSA), which maintains regional branch offices in every major port. Under the Communications Ministry's Bureau of Ocean Transportation, COSA conducts agency business for oceangoing vessels calling at Chinese ports, arranges sea passage, books shipping space, and arranges the transshipment of cargo. The Bureau of Ocean Transportation also operates the China Ocean Shipping Tally Company, China Freight Management Corporation, Ship Fuel Supply Corporation, and the Foreign Registered Ship Supply Corporation.

In conjunction with its fleet expansion program, China has put significant emphasis on the expansion and modernization of its port facilities. China's 18,000-km coastline is dotted by ports actively engaged in coastal shipping. But only 20 ports are open to international trade. Of these, 15 operate as state-controlled enterprises under the unified plan of the Ministry of Communications and its important Bureau of Water Transportation. These 15 foreign trade ports are: Dalian, Yinkou, Qinhuangdao, Tianjin, Qingdao, Yantai, Lianyungang, Shanghai, Ningbo, Shantou, Huangpu, Zhanjiang, Haikou, Sanya, and Basuo. The Water Transportation Bureau also will operate the new port of Shijiusuo in the province of Shandong, presently under construction with Japanese assistance. The remaining five foreign trade ports of Wenzhou, Fuzhou, Xiamen, Shanwei, and Beihai are administered by local authorities in the various provinces.

The 15 ports of the Ministry of Communications have a total of 320 berths, which handled 210 million metric tons of cargo in 1979. This was 70 percent of China's total waterborne trade that year.

The Bureau of Water Transportation also administers inland waterway shipping and ports on the Changjiang (Yangzi) River. These port and shipping operations are carried out by the bureau's various divisions in Beijing in cooperation with three regional shipping administrations. Each of these operates its own fleet of vessels and barges, and maintains branch offices in state-controlled ports within its jurisdiction.

The Guangzhou Shipping Administration's operating area extends from the North Vietnam border to the port of Wenzhou. Shipping between Wenzhou and the North Korean border is handled by the Shanghai Shipping Administration. The Changjiang River Shipping Administration has five branch offices that operate river traffic from the Port of Chongqing to Shanghai.

Controlling port congestion is a major responsibility of the Water Transportation Bureau. The job is carried out by the bureau's Vessel Dispatch and Traffic Planning divisions. Every vessel that calls at a Communications Ministry port must report its vessel and cargo tonnage to these divisions which, in turn, are empowered to divert vessels to less congested ports. Similarly, the Port and Harbor Division is principally concerned with the daily operations of the ports under its control. It works closely with the local port authorities and the three shipping administrations.

Shipbuilding and Dredging

Apart from the shipyards under the Sixth Ministry's China Corporation of Shipbuilding Industries (CCSI), some 20 shipbuilding and repair yards, in addition to a number of marine equipment plants, are under the Ministry of Communications and are operated by the Bureau of Water Transportation. Some of these yards are being upgraded in an attempt to secure export orders. The various marine equipment factories manufacture a wide range of products, such as hatch covers, winches, rudderstocks, and propellers, but presently do not make sophisticated navigation and communication equipment.

China also has many machinery plants that manufacture port equipment, such as floating and shoreside cranes, forklifts, and container yard handling equipment. The Shanghai Port Machinery Plant has been operating since 1960, and now has some 4,000 employees working in its machine, assembling, founding, forging, and welding shops.

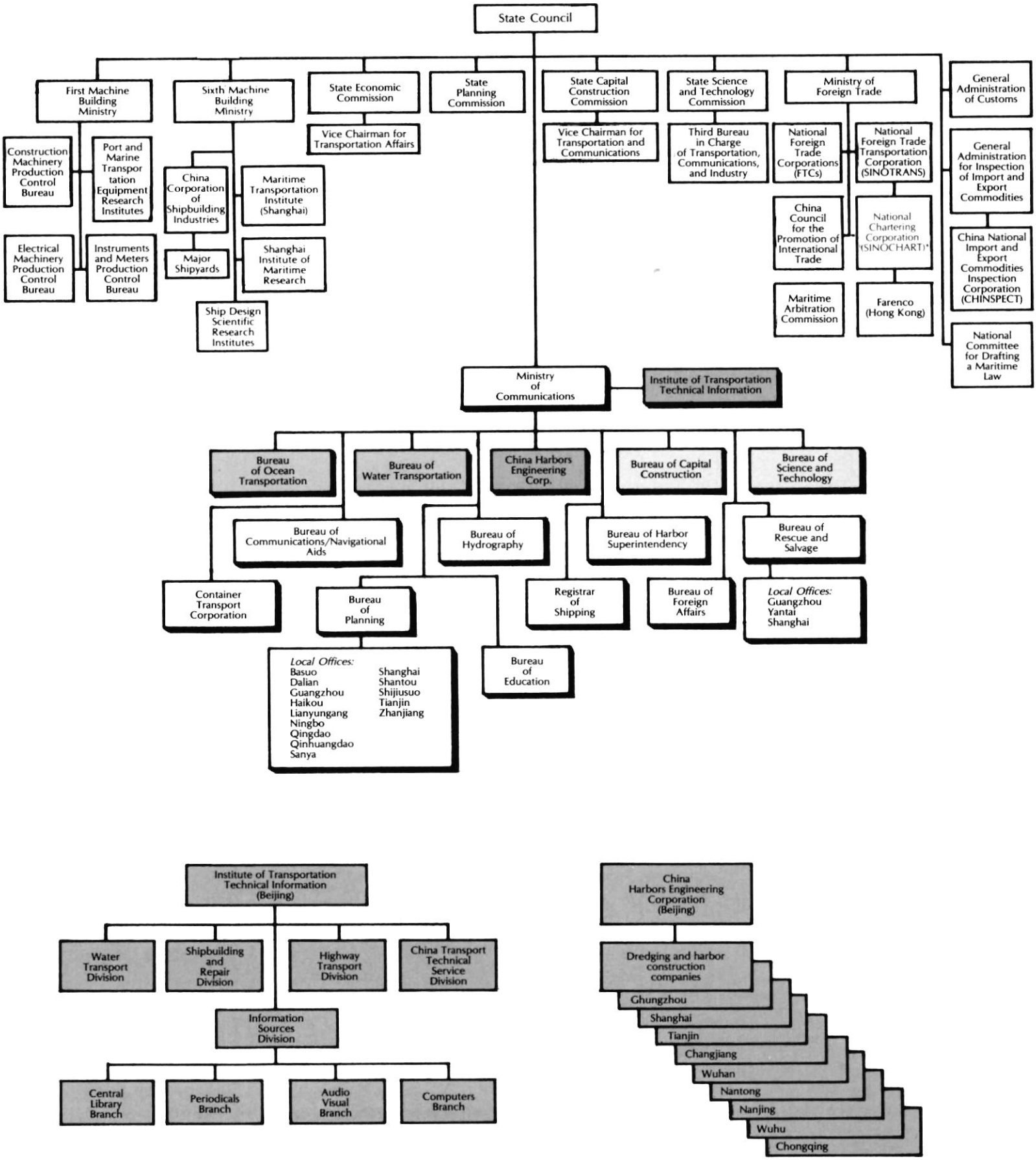
In addition to its considerable merchant fleet, China has amassed the world's largest and most modern dredging fleet, boasting more than 500 vessels and some 3,000 items of ancillary equipment. Much of the equipment was built domestically, though many dredgers were obtained from IHC Holland and several Japanese shipbuilders in the mid-1970s. These include dredgers of the trailing suction hopper type with 1,400/1,500 and 4,500/6,500 cubic meter capacities. The smaller vessels are used 24 hours a day, every day of the year, for maintenance dredging on China's siltation-prone rivers. Deepening navigation channels is accomplished with the larger dredgers.

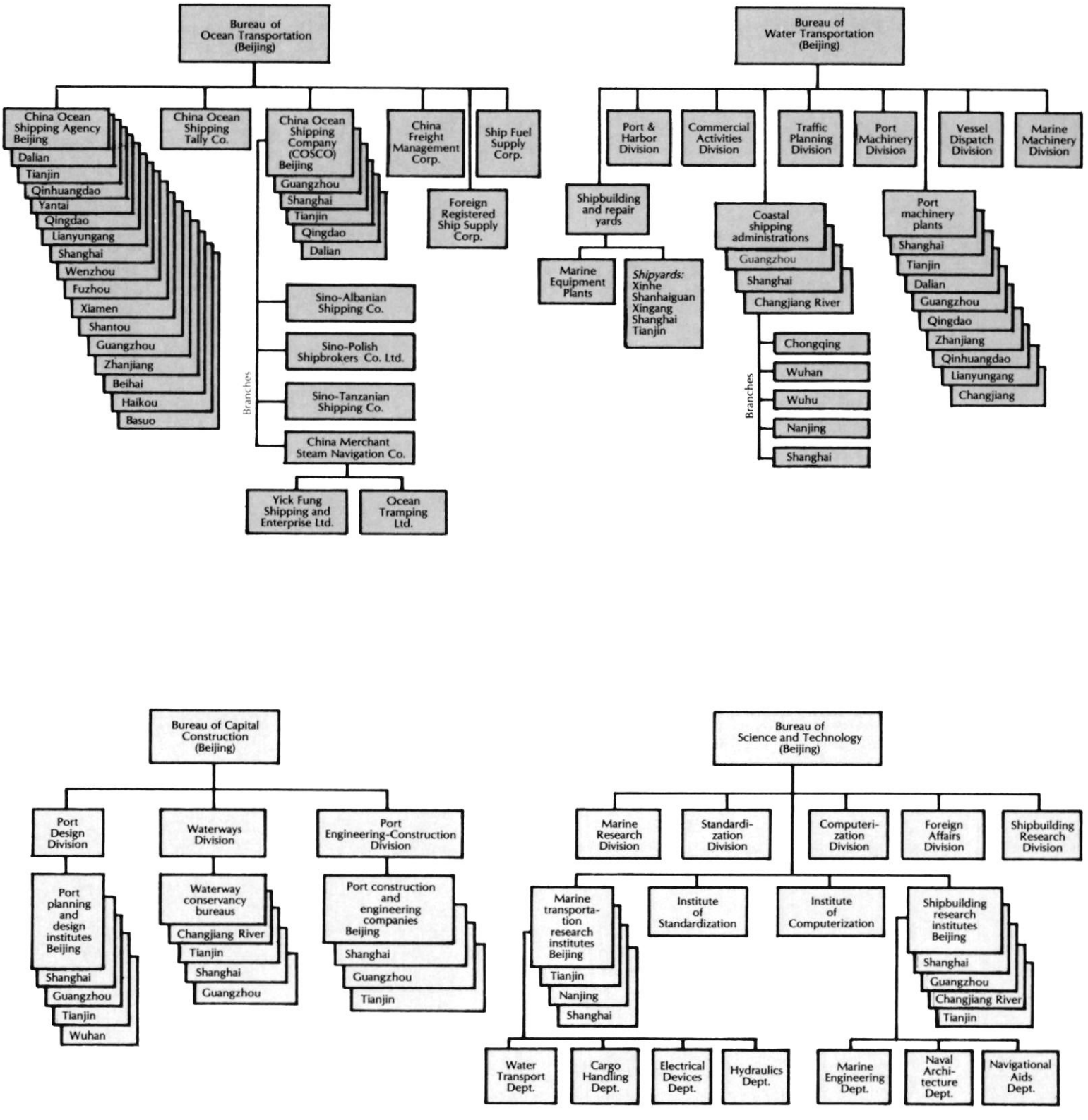
The China Harbors Engineering Corporation (CHEC) was formed in 1980 to coordinate China's far-flung dredging activities, and to utilize its equipment for overseas contracts. This action was apparently part of China's decentralization program, since the work was previously undertaken directly by the Ministry of Communications. Now CHEC is a separate agency under the ministry with a staff of more than 33,000 under the supervision of some 3,000 engineering, technical, and research experts. As indicated in the chart, they are employed with nine regional dredging and harbor construction companies under the overall direction of CHEC's Beijing office.

Each of these regional dredging companies has considerable operational autonomy, except in budgetary matters. With sufficient equipment at its disposal to satisfy both domestic and foreign demand, it should not be too long before China's dredgers are seen on port projects around the world.

While CHEC performs all dredging work, the Bureau of Capital Construction in the Ministry of Communications conducts the necessary studies to justify all proposed navigation improvements. Coordinated by the Waterways Division in Beijing, these feasibility studies are undertaken by the Capital Construction Bureau's four regional water-conservancy bureaus at the request of the Bureau of Water Transportation, China's main dredging user. Recommendations are made to the Capital Construction Bureau director. These cover the volume of existing and potential trade and vessel traffic at the port requiring a deeper channel, as well as the cost and economic benefits of the proposed project.

ORGANIZATIONAL STRUCTURE OF CHINA'S PORT AND MARITIME ADMINISTRATION





*In December 1980 SINOCHART incorporated two subsidiaries in the US, Sino-American Marine Co. Inc., and China Interocean Transport, Inc. Both are located in New York's World Trade Center.

Source: Author's interview notes, March 11-April 4, 1981

The Bureau of Capital Construction, after consultation with the Bureau of Planning, Bureau of Science and Technology, and CHEC, forwards the results and recommendations of the studies to the Ministry of Communications. It then seeks approval from the State Capital Construction Commission and State Planning Commission. Once these hurdles are surmounted, and the project is approved, the appropriate regional construction company under CHEC goes into action and performs the required dredging.

Similarly, when a major shoreside port project is approved by the State Council, the planning and construction phases are coordinated in Beijing and carried out by one of the Bureau's regional port design institutes and engineering companies. Such projects would include the construction of piers, wharves, warehouses, transit sheds, and other facilities within a marine terminal.

Shipbuilding Research and Design

The primary research and development arm of the Ministry of Communications is the Bureau of Science and Technology. While the Bureau of Water Transportation, CHEC, and COSCO act principally as the ministry's operating arms, the Bureau of Science and Technology devotes its resources entirely to marine transportation and shipbuilding research. Each of its regional institutes has one or more specialized departments, as indicated in the chart. The bureau's newest institutes are concerned with the standardization of equipment and facilities, and the application of computers to shipbuilding and marine transportation.

Significantly, the Ministry of Communications now looks more to the Bureau of Science and Technology and the Institute of Transportation Technical Information—rather than to the Bureau of Water Transportation—for their recommendations on the types of technology and equipment needed in shipping, shipyards, and ports. Their recommendations cover whether the equipment should be built domestically or imported, and what supplier should be used. This shift in influence has taken place because the Ministry of Communications feels the Bureau of Science and Technology and the Transportation Technical Institute have greater opportunity than the Bureau of Water Transportation to research plant and equipment requirements and potential suppliers. Furthermore, the Ministry of Communications, together with other ministries, is seeking to reduce the authority of the Foreign Trade Ministry's import and export corporations to tender orders placed on price alone, regardless of whether the equipment meets the requirements of the local enduser.

Understanding the Investment Process

An interesting institutional process is set in motion when capital improvements are proposed in China's ports.

First of all, any port under state or provincial control can make small improvements to its facilities and equipment, provided it has sufficient revenues and the proposed investment is reviewed and approved by the State Planning Commission and the State Council. For the 15 Ministry of Communications ports, the Bureau of Water Transportation has full control over small capital improvements if the local port administration can finance the project from operating revenues, retained earnings, or state funds. Each port has considerable engineering capability to construct small additions to marine terminal capacity, or to augment or repair equipment.

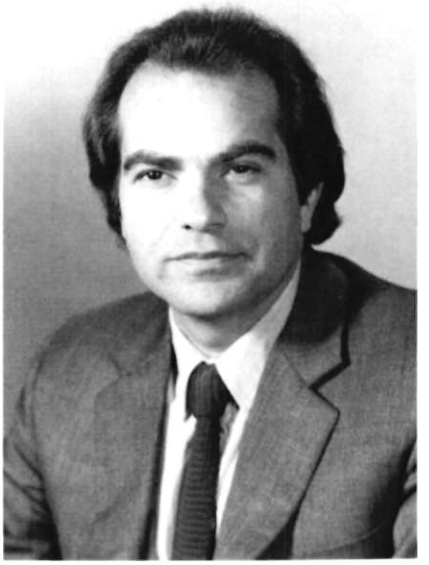
But major port improvements involving new facilities and significant equipment purchases must undergo lengthy scrutiny. A project proposal could come from the port or the Bureau of Water Transportation. In either case, once the proposal is approved by the Ministry of Communications and the State Council, a formal document is authorized by the Water Transportation Bureau. This outlines the particulars of the project, including cost, terminal acreage, pier length and depth, vessel size capability, and equipment capacity, among other items.

The Capital Construction Bureau then assigns the document to one of its regional port design institutes. Designers prepare preliminary drawings and consult with local port management to reach agreement on a final design. After approval is secured, the bureau selects the appropriate regional port construction company to begin work.

Major purchases of port equipment involve an identical process, except that the Ministry of Communications decides whether the equipment will be built by one of China's many port machinery plants or imported through MACHIMPEX under the Ministry of Foreign Trade.

In all, China has done a remarkable job of building up its merchant marine and dredging fleet. To some extent it also has made notable improvements in certain ports. But overall, new port construction has not kept pace with the country's rising level of trade. China must double its port handling capacity by 1990 to meet its foreign trade needs, as well as its domestic transport requirements. This will require some 60 new deepwater berths.

The country's ability to maintain and expand its export markets will in large part be tied to the pace of its port and maritime development. China, however, probably cannot achieve the requisite pace of development in isolation. It must continue to seek foreign technical and financial assistance, acquire more hard currency, and improve its maritime and port management. In this manner, China will surely develop a modern and efficient port system by the end of this century, commensurate with the world's leading maritime countries.



John M. Pisani was appointed director of the Office of Port and Intermodal Development at the Maritime Administration in January, 1981. Previously, he worked at Dorf International Ltd., a New York international freight forwarder and customs-house broker, before becoming manager of the Maritime Administration's Port Planning Program.

CHINAMAGS

US publishers are playing the China business reply card in a growing number of trade and technical magazines.

Carol S. Goldsmith

Imagine a crowd of Chinese huddled together at the Guoji Shudian, China's official bookstore, all straining for a glimpse of the Pneumatic Scale Corporation's ad in *Western Technology and Management*, or for a peak at the four-color spread run by ARCO Solar in *US–China Electronics*.

The day might not be far off. US publishers, sensing a measure of market potential, are beginning to make some headway in circulating ads and editorial matter in China. During the past year at least a dozen US publications have joined the 13 or more American magazines already taking advantage of China's need for technical and market information. Three more-or-less competing publications—*World Farming*, *US–China Agriculture*, and *Agribusiness WorldWide/China*—are catering to China's insatiable appetite for data on the agricultural field. *Offshore Magazine* and *Petroleum Processing and Production* are trying to capitalize on China's desire to develop its oil resources. Even an occasional magazine in the unlikeliest field makes a China debut: One of the newest entries covers bread-baking technology.

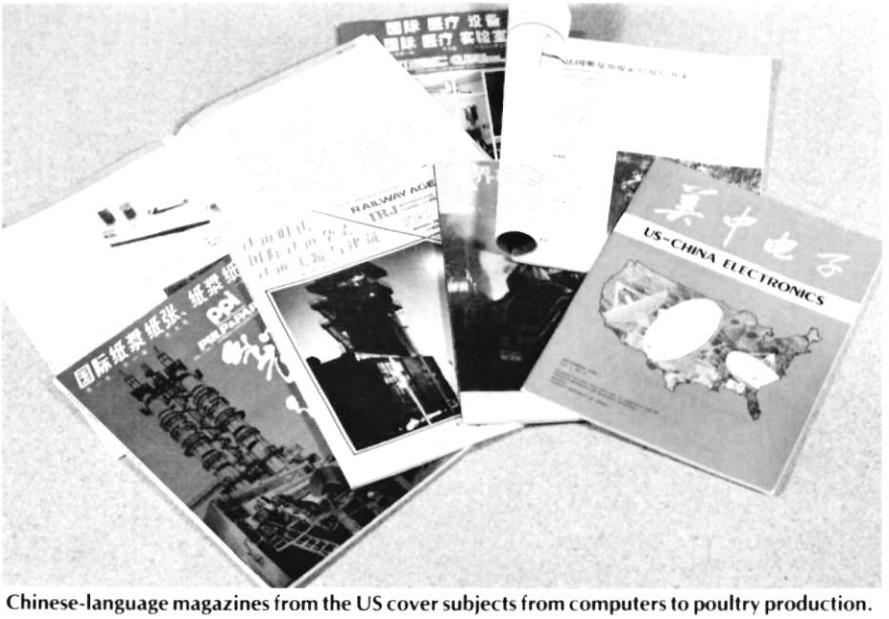
It is the best of times and the worst of times to launch a publication in China. The idea sounds perfect. The country's craving for industrial data has never been stronger; companies' reluctance to spend a small fortune delivering a personal sales pitch makes advertising in controlled-circulation, China-bound journals a fairly attractive option. At the same time, market projections are widely off course. Disappointed publishers in every field have been watching hot advertising prospects disappear, or at least delay their insertion orders until the business picture brightens. Some publishers have chosen to wait with their advertisers. In the meantime, they're watching with interest and anticipation as a handful of publishers go into China with one goal in mind: to surpass the successes of a chosen few.

Every publisher dreams of reaching China in a sturdy vessel bearing a masthead recognized as the leader in its field. The *American Industrial Report* stands as the model in the China field. Started in 1973 by a skeleton staff in Hong Kong (now the 46-strong China Consultants, International), *AIR* signed on with McGraw-Hill two years later for advertising services, formed a joint publishing venture with the company in 1978, and then really took off when the China market opened around that time. Suddenly the monthly technical magazine was sailing along with about 10 pages of advertising above the norm (which generally runs about 10 pages on a 40-page issue), according to China Consultants Director Jane Sharp.

But a year later the prevailing winds shifted, and now *AIR* and other Chinese-language periodicals are watching the enthusiasm of many advertisers wane. For most publishers just entering the market, it has been a challenge to surpass the break-even point. Their initial optimism has given way to the realistic view that the market takes time to develop. Those unfortunate few who have met with an absolutely grim response from advertisers have chosen not to publish for now.

IIR finds itself in the enviable position of communicating directly with much of its audience and of handling fully half the China distribution itself. Most US publications stand one step removed from their readership, relying on some official organization, like the China Council for the Promotion of International Trade, for mailing lists and handling.

How well that works is difficult to gauge. Publishers frequently describe the distribution setup as a "trust" arrangement; a number of them admit to having little or no idea whom the periodicals reach. Russ Pomerantz of East–West Trade Publications, which publishes *Western Technology and Management*, says each quarter the CCPIT "hand-addresses" all 50,000 *WTM*s to a different audience, depending on that



Chinese-language magazines from the US cover subjects from computers to poultry production.

Recently *AIR* made the weighty decision to alter its successful editorial and advertising formula in response to the changing market. The magazine that made its name acquainting China with American information on the PRC's main industrial areas has widened that base and renamed itself the *International Industrial Report*. *IIR* now carries technical articles and ads of interest to China from around the world. The editors' conviction that readers need to compare foreign technologies suggested the change. Fading opposition from US advertisers allowed it to take effect.

Sharp says *IIR* will continue to circulate to *AIR*'s coveted list of some 20,000 endusers, researchers, and officials in various industrial sectors, as well as to roughly 20,000 other Chinese readers who receive the magazine through PRC organizations.

issue's theme. "After they do it, they tell us what they've done," he explains, by sending a list of the readership's names.

"We find it's like betting on a race and finding out later who the horses were."

China Consultants likewise found itself operating in a blind alley during the early years of the *American Industrial Report*. Very few endusers communicated with the editors during those years. Only later, as the Chinese became more accustomed to Western editorial practices, did *AIR* feel the time was right to include a line soliciting readers' comments. After some discussion the Chinese agreed. And the readers responded. According to Sharp, a grand total of four letters came back saying, in essence, "Thank you for this publication."

In time both sides arrived on some

common ground. The Chinese permitted *AIR* to send its first business reply cards (BRCs) into China in 1975, and in 1978 allowed the staff to start conducting ad hoc conferences there to discuss the editorial needs of an *AIR* audience selected by the CCPIT.

As is the case with most BRCs sent into China today, the CCPIT initially collected, translated, and forwarded the response to the editors. Those early replies came back in the form of long laundry lists that specified the sought-after material, but gave advertisers little clue about the readers' position, authority, and particular needs. In time the operation improved on both ends: *AIR* became more specific with its questions, and the readers became more cooperative as they discovered that foreign companies actually *did* send the requested information.

The resulting workload made it desirable for China Consultants to take on some of the translation work itself. Names, titles, and positions began coming to light. As the trust between *AIR* and the Chinese continued to develop, Editor Jeff Muir says *AIR* was able to begin the gradual process of upping its circulation by compiling its own mailing lists from the BRCs. Today the *International Industrial Report* handles about half the distribution itself, and contracts the roughly 30 percent directed at the foreign trade corporations to the Publications Import and Export Corporation (which Muir finds more expensive than many other distributors, but very efficient). The CCPIT still handles about 12 percent of the magazine's distribution.

Recently *IIR* even conducted a readership survey that gleaned a surprising amount of information about the readers. Though the total results have not been tabulated, Muir says a great number of people expressed interest in a broader range of topics than the multiple-industry *IIR* takes into account. "You tend to look at [China's] economic priorities and assume, 'Yes, they want to read about coal mining,' " he remarks. "You have to temper overemphasizing economic priorities and try to reach readers with specialized knowledge in various fields."

Also the survey tended to confirm the sales pitch that most advertising agents try on their clients: One or two-time repeaters score low on the recognition scale.

These days mailing in China strikes no one as a particular bargain. Russell Lowe, general manager of the San Francisco firm CTPS (China Translation and Printing Service) estimates that to mail *US–China Electronics* he pays the Chinese anywhere from 50 fen to one yuan per piece, which he considers the upper limit on a reasonable price. (And the in-country mailing charges do not include postage *to* China. The July–August issue of *The China Business Review* cost $4.06 per copy to mail to China via printed-matter airmail.) Most services in China cost plenty, publishers claim. One businessman who does all the production of an annual catalogue there remarks, "By the time you get done with the number of trips you make to China, it would be a helluva lot cheaper to do it in the States."

But there's a practical, if not an economic, reason for contracting work to China—one which a California publisher credits with much of its growing success. Miller Freeman Publications, a 70-year-old publisher of trade magazines, recommends that publishers send everything outside the magazine's writing and advertising work to the PRC—through Miller Freeman, of course. The advice is working, and the firm is well on its way to becoming the Time, Inc. of China. So far seven publications, in addition to Miller Freeman's half-dozen own Chinese-language periodicals, follow this course into China.

George H. Roman, the bulky, bearded managing director of Miller Freeman's China business division, first hit on the idea of producing Miller Freeman's Chinese-language periodical while leading a mining delegation through China in 1979. A November pilot issue combining *World Mining* and *World Coal* drew an unexpected 170 pages of ads from 10 countries. Optimistic, Miller Freeman jumped into a contract with the China Coal Society and the Xinhua printing works to have the manuscripts translated and the magazine produced in China. Not long afterward the company brought out Chinese-language editions of five other established publications: *Pulp and Paper International/Pulp and Paper; Forest Industries; World Wood; International Hospital Equipment and Clinical Laboratory;* and *Modern Power Systems.*

For these and the seven outside periodicals the company represents, Miller Freeman has developed a beguilingly simple business arrangement that seems to buck every problem in China but the market itself. First Roman seeks out an official PRC entity involved in the particular subject area to "sponsor" the publication—which basically means translating and distributing it. For *Poultry International* (Watt Publications), the sponsor is the Agricultural Research and Information Institute; for *Broadcast Engineering* (Intertech Publishing), it's the China Central Broadcast Administration; for *Railway Age/Railway International* (Simmons-Boardman Publishing), it's the Ministry of Railway's Research Institute for Technical Information; and so on.

For a 15 percent commission (including a $10,000 advance), the company coordinates the translation, typesetting, and mechanical production of all furnished materials in China. Contractually, Miller Freeman covers itself three ways. Apart from the sponsor contact, Roman signs for printing and production work with Xinhua on behalf of the publisher. A third contract provides for coordination and backup work with a "publishing liaison" from another organization. That designated person seeks to maintain quality control and work flow among the parties.

The Chinese provide the paper, ink, and film for Miller Freeman's publications. So far Roman has had no cause to stop the presses because of sloppy work. Aside from early complaints over scheduling delays, the clients are pleased with the overall production work. Miller Freeman has had to demand only two make-readies (replacements) for ads run out of register. And Roman says the Chinese were so appalled to learn they had to absorb the cost that he doubts the problem will happen again.

Of course some elements of diplomacy and some measure of risk have worked their way into Miller Freeman's grand scheme. By producing the printed piece in China, the company has made a conscious decision to contribute to the country's economic and information base; the ventures provide China with "money from printing, money from translations, and foreign technology journals," Roman points out. By taking its fee on commission, the company also is sharing in the US publishers' fortunes. "If they win, we win," Roman says.

Unfortunately few people are "winning" in China these days. Some publishers who a year ago wanted to join in the game have opted to sit on the sidelines and watch. Of five McGraw-Hill publications that either considered or actually sent a Chinese-language edition into the PRC, only *Engineering News-Record* tried it a second time. (Its

September 1979 issue circulated to 13,000 Chinese and carried $350,000 worth of advertising; this summer's issue took $150,000 in ads to 20,000 Chinese.) George Roman's plans for semiannual issues of *World Mining/World Coal* have produced only three issues so far; the number of ads in the second and third issues dropped by more than a third. John Kennedy of The Gardiner Company spent "a fortune" over the past year trying to launch his ambitious *Monthly Business Review/China*. The nontechnical, horizontal* glossy originally targeted at 200,000 Chinese officials needs about 20 advertisers to make a 64-page issue go, says Kennedy. But at $16,000 a page on a one-year contract, the ads have captured few clients.

Those remaining publishers who have stoically elected to stay in the market "for the long haul" are doing it with a marginal profit, and on a publishing schedule often dictated by ad demand. At somewhere between $2,000 and $3,000 for a full-page black and white ad, a typical 64-page China edition has been falling somewhat short of the 50-50 advertising/editorial split most publishers seek. Production costs, roughly comparable in China and the US, tend to eat up most of the profit.

CTPS's Russell Lowe, who took a $20,000 loss on the first *US-China Agriculture* issue to honor his commitment to China, estimates that total in-house production and distribution costs for his journals run about $2,000–$2,500 per page. The company handles its own translating and production costs through its Hong Kong office. That breaks down to an average per-copy cost of $6.45 on a 20,000 run. Roman comes up with an average $6.00 per-copy cost, including editorial expenses, for producing a publication inside China.

As part of its preliminary service, Miller Freeman provides the client with a pro-forma budget which, if followed, Roman believes would make it "feasible to have a return of 15–20 percent." A typical 82-page issue with a 10,000 press run might average $20,000–$25,000 for mechanical costs, he estimates; $20,000 for production (which includes layout and design as well as the services of the publishing liaison); $9,000–$12,000 for editorial costs; and $6,000–$8,000 for the BRCs.

*The term horizontal refers to a publication that circulates to readers in various industries. A vertical publication is industry-specific.

Miller Freeman is willing to recommend advertising rates and help clients target Chinese audiences, if asked. The firm even will go so far as to propose to a publisher the starting of a Chinese-language periodical if its research demonstrates a need. Roman says he can recall a couple of instances in which he talked publishers *out of* increasing their magazines' frequency prematurely. But on the whole Miller Freeman stops short of second-guessing the publisher's research or suggesting what kind of periodical should be produced.

Publishers tend to agree that the China market is vast enough to absorb any number of foreign publications. What concerns some of them more is competition from China itself.

Several schools of thought contend as to the type of publication that best suits China. Most publishers lean toward compiling and translating editorial material from past issues of an English-language vertical, which is directed through controlled circulation to an industry-specific audience. Some examples are *Milling and Baking Technology* (Sosland Publishing) and *World Construction* (Technical Publishing Company). There are technical publications that service a horizontal readership; Gulf Publishing's *Petroleum Production and Processing*, now in its sixth edition, goes to readers interested in translated articles from Gulf's *World Oil, Hydrocarbon Processing, Pipe Line Industry* and *Ocean Industry*.

Others, like *Infrastructure China* (formerly Intercontinental Publishing's *Modern Engineering Technology*) and the biweekly *China ComputerWorld* (ComputerWorld Communications, Inc.) see enough potential to create a publication for China—from writing through production—in China. The ambitious *ComputerWorld* company entered into a joint venture with the Fourth Ministry of Machine Building, and is now constructing a Beijing office building that will house its 20-member Chinese staff. *China ComputerWorld* is unique in that the 60,000 copies circulate on a *subscription* basis, at a cost of five yuan per year. Publisher Patrick McGovern says the Chinese have told him to expect 200,000 subscribers next year.

CTPS likewise develops its magazines specifically for China through a combination of commissioning and reprinting articles. In Russell Lowe's opinion, "You don't take an American publication and use that as a mold, although logically and mechanically it sounds like an easy thing to do."

Few publishers actually reprint an American issue word-for-word. The respected journal *Scientific American* happens to be an exception, but then it entered China under exceptional circumstances. In January 1979 Publisher Gerard Piel "ran across" a Chinese-language edition being produced without his knowledge by the Chinese. So he immediately struck up a joint venture whereby *Scientific American* sells the ads, deducts its editorial and shipping costs from the gross revenue, and then splits the remaining profit evenly with the Chinese.

A couple of English-language periodicals also circulate in China—one with a unique editorial/advertising supplement that seems to be working quite well. Johnston International Publishing Company last year produced four split-run issues of *Modern Asia* that included a "specially written and highly technical" supplement for 2,000 Chinese readers. Total advertising for the supplements ran 137 pages. Johnston's executives believe they "really came up with the right formula" by adding China to *Modern Asia's* 28,000 circulation. Remarks Johnston President Hugh Hyde, "We say to advertisers, 'We give you the Asia market and China on top of that.' "

And then there are those in-between publishing ventures in which editorial space is sold like advertising or ads are run alongside company listings in a reference catalogue. A sales executive describes *Western Technology and Management* as a "technical publication that allows Western corporations to present bylined articles on their products or services." Actually it's a catalogue in magazine clothing that runs company copy at $1,000 a page. Chilton Publishing's five annual reference volumes, called the American Engineering and Industry Series, carry advertising but primarily "promote the catalogue concept," according to AE&I President George Hutter.

The $90 million publishing house is convinced that the vertical marketing concept is much more effective for cen-

trally planned economies than more general periodicals. In addition to the catalogues, the company once a year sends a 5,000 overrun of *Iron Age Metalworking International* (in English) to Chinese officials involved in metals and the metalworking industry. (The November 1981 issue will be the third to China.) If Chilton marketed any more broadly, Hutter explained, "We would need hundreds of thousands of copies" to do the same job.

Competition is a word that concerns few US publishers in China right now—even publishers who are going after the same ad dollars. Most point to some difference in focus between theirs and a related publication that blunts the competitive edge. *Offshore Magazine* is vertical while *Petroleum Production and Processing* is horizontal; *Computer Design* (Computer Design Publishing Corporation) circulates to design engineers and researchers while *China ComputerWorld* reaches endusers.

Publishers tend to agree that the China market is vast enough to absorb any number of foreign publications. What concerns some of them more is competition from China itself.

Foreign advertisers now have access to the PRC through a number of Chinese publications produced in that country but represented abroad. General Telephone and Electronics is acting as the exclusive sales agent of advertising space in five China phone directories. Joel Martz, head of Laivan Scientific Corporation, as a favor to his Chinese colleagues recently began representing the 150,000-circulation *New Chinese Medicine* in the US.

East-West Trade Publications now handles what could be the biggest PRC ad account. In May the company agreed to act as the sales agent for China's esteemed, but as yet unseen, *International Trade News*. The biweekly newsletter is put out by a research institute of the Ministry of Foreign Trade and distributed to 100,000 high-level officials.

Even more recently, East-West Trade Publications took on the added assignment of representing the ministry's new *International Trade News Industry Focus*, a quarterly technical supplement to *ITN* published in 20 industry-specific editions. East-West President Lou Sharp says the ministry plans to start out this year with supplements on textiles, agriculture, transportation, chemicals, packaging, and plastics.

The demographics sound great, but as usual very little information can be confirmed. In February *ITN* Editor Ho Ling-shen expressed to *The CBR* his concern that the publications cannot be shown to prospective advertisers. East-West Trade's Russ Pomerantz confirms the difficulty, remarking that in essence, "we're selling a song."

A New Jersey firm that used to represent 50 Chinese scientific publications learned the hard way that its "song" was being undersold—by none other than the Chinese themselves. In 1979 SINO Information Resources was designated as the official worldwide sales agent for the Chinese Academy of Science publications. But it turned out there was nothing exclusive about the arrangement. According to Stephen Miller, then involved in the venture, the Chinese were trying to sell the same ad space as SINO at a lower rate.

Complains Miller, "It made us look like fools."

Publishers in general share an optimism about the market that is tempered by the caution advertisers express. On the one hand they're excited at being part of the China trade scene, experiencing—as novices do—the certainty that *theirs* is the venture to beat all odds. On the other hand, of course, they're questioning the wisdom and the timing of entering a market where so many brave publishers dare not go.

George Roman attributes the prevailing attitude to what he calls the African Water Hole Theory. "Even big business has been hurt" by readjustment, he says, "so they've all gone home. The little guys go down in the water hole and are afraid to come out, because they don't see the big guys out there anymore."

How long the business drought will last and how publications should handle the wait are questions on everyone's mind. Publishers disagree over the timetable but reach a consensus on one crucial point: Only those publishers who are more interested in China's future than in an immediate profit should start up their presses now. Remarks CTPS's Russell Lowe, the real test of this market is not so much how many publications are entering the China market, but "which publications will be around in 10 years."

US Chinese-language Periodicals

Name	Type	Frequency	Circulation	Ad rates (Full-page b/w)
Agribusiness Worldwide/China (Intercontinental Publishing)	Vertical business magazine to officials, endusers, and researchers in agriculture	First issue just published; indefinite plans to publish quarterly	18,000	$1,800
American Engineering and Industry series (Chilton International)	Series of industry-specific reference volumes on oil and gas, metalworking, mining, building, agriculture, and construction	Annually	25,000	$2,865
Broadcast Engineering (Intertech Publishing)	Vertical technical journal to engineers, researchers, and officials in broadcasting	Annually	8,500*	$2,350
China ComputerWorld (ComputerWorld Communications)	Vertical business magazine to officials, researchers, endusers, and students in the computer sector	Biweekly	50,000	$3,000
Computer Design (Computer Design Publishing Corp.)	Vertical technical journal to engineers and researchers in the computer sector	Annually	20,000	$2,985
Engineering News-Record (McGraw-Hill)	Horizontal business magazine covering all types of construction other than home-building	Annually	20,000	$2,300
Forest Industries (Miller Freeman Publications)	Vertical technical journal to researchers, endusers, and officials in the forestry sector	Annually	8,000	$2,000
Infrastructure China (formerly *Modern Engineering Technology*); (Intercontinental Publishing)	Horizontal technical magazine for endusers, engineers, researchers, and officials involved in public-works projects, petroleum, communications, transportation, power, and financing	Bimonthly	32,000	$2,400
International Hospital Equipment and Clinical Laboratory International (Miller Freeman Publications)	Vertical technical tabloid to endusers, researchers, and officials in the medical sector	Annually	8,500	NA
International Industrial Report (formerly the *American Industrial Report*); (China Consultants, International/ McGraw-Hill)	Horizontal business magazine dealing with the major industrial sectors	Monthly	40,000	$3,344
Marine Engineering Log (Simmons-Boardman)	Vertical technical journal to endusers, engineers, researchers, and officials in marine engineering	Annually	8,000	$2,300
Milling and Baking News (Sosland Publishing)	Vertical technical journal to endusers, researchers, and officials interested in baking, flour milling, grain handling, and distribution	Annually	10,000	$2,750
Mining Equipment International (Technical Publishing)	Vertical technical journal to endusers in the construction sector	Semi-annually	25,000	$2,250
Modern Asia (Johnston International Publishing)	Horizontal business magazine dealing with the major industrial sectors	Quarterly split-run editions with Chinese-language supplements	2,000	$2,180**
Modern Power Systems (Miller Freeman Publications)	Vertical technical journal to endusers, researchers, and officials in power generation	Annually (not definite)	NA	NA
Offshore Magazine (Penn Well Publishing)	Vertical technical journal to endusers, engineers, researchers, and officials in the petroleum sector	First issue due Nov. 1981	8,500	$2,350
Petroleum Production and Processing (Gulf Publishing)	Horizontal technical journal to endusers, engineers, researchers, and officials in oil, hydrocarbon processing, pipeline construction, and oceanics	Bimonthly	7,734	$1,500

Poultry International (Watt Publications)	Vertical technical journal to endusers, researchers, and officials involved in poultry production	Annually	7,500	$1,800
Pulp and Paper International/Pulp and Paper (Miller Freeman Publications)	Vertical technical journal to endusers, researchers, and officials in pulp and paper production	Annually	8,000	$1,900
Railway Age/International Railway Journal and Track and Structures (Simmons-Boardman Publishing Co.)	Vertical technical journal to endusers, engineers, researchers, and officials in the railway sector	Annually	8,500	$2,350
Scientific American	Horizontal magazine to the "interested layman" on scientific developments at the research level	Monthly	25,000	$10,000
US-China Agriculture (China Translation and Printing Service)	Vertical technical magazine to endusers, researchers, and officials in the agricultural sector	Annually	20,000	$3,000
US-China Electronics (China Translation and Printing Service)	Vertical technical magazine to endusers, engineers, researchers, and officials in electronics	Annually	20,000	$3,000
Western Technology and Management (East-West Trade Publications)	Horizontal technical magazine presenting paid company articles to endusers, engineers, researchers, and officials in various industries	Quarterly	50,000	$2,700
World Construction (Intertech Publishing)	Vertical technical journal to endusers, engineers, researchers, and officials in construction	Semi-annually	30,000	$2,700
World Farming (Intertech Publishing)	Vertical technical journal to endusers, engineers, researchers, and officials in the agricultural sector	Annually	11,350*	$2,300
World Mining/World Coal (Miller Freeman Publications)	Vertical technical journal to endusers, engineers, researchers, and officials in the mining sector	Three issues published since 1979	20,700	$2,245

Chinese Publications Represented in the US

Name	Type	Frequency	Circulation	Ad rates (Full-page b/w)
International Trade News (Advertising representative: East-West Trade Publications)	Horizontal trade journal published and distributed by the Ministry of Foreign Trade	Biweekly	100,000	$5,100
International Trade News Industry Focus (Advertising representative: East-West Trade Publications)	Series of 20 vertical technical journals published and distributed by the Ministry of Foreign Trade	Quarterly	10,000–60,000, depending on the industry featured	$3,000 (Bylined articles from Western companies are run at one-third the ad price)
Telephone directories for Beijing, Shanghai, Guangzhou, Nanjing, Shenyang, and Tianjin (Advertising representative: General Telephone and Electric)	Public telephone directories	Annually, except Beijing and Shanghai, which are published biannually	95,000, except Beijing, 390,000; and Shanghai, 156,000	$4,675, except Beijing, $8,200; and Shanghai, $7,000
Chinese Medicine (Advertising representative: Laivan Scientific Corp.)	Vertical magazine published and distributed by the Zhongshan Medical College in Guangzhou, to all major hospitals and decision-makers in the medical sector	Monthly	150,000	$880

*Audit pending from the Business Press of America. BPA has a special category for verifying the circulation of periodicals in communist countries. Three items are required, in addition to a fee: proof of delivery to the PRC sponsoring society, a distribution breakdown from the society, and a copy of the printing bill.

**Includes both English-language ad in *Modern Asia* and translated version in the China supplement.

BEIJING'S CONSUMER MARKET

Domestic and foreign consumer goods go through a wholesaling and retailing system unlike that in any Western economy. The need for reform is as great as the pent-up consumer demand.

Kenneth Lieberthal

Kenneth Lieberthal had an opportunity during March–June 1981 to examine the possibilities for reform in Beijing's retail commercial system. His research included in-depth interviews at three department stores—one municipal-level and two district-level—and related interviews in organs of the municipal and national governments. Under the auspices of the US–China Educational Exchange Program, Professor Lieberthal investigated the management practices of the Beijing municipal government's First Commercial Bureau, which oversees the retailing of manufactured goods. Lieberthal is associate professor of political science at Swarthmore College, and a consultant to the China Advisory Group of the Government Research Corporation in Washington, D.C.

The Chinese are fond of using the term "basically," and any detailed investigation of a specific unit or system reveals why. Nothing, it seems, ever works exactly the way the regulations say it should, but then again things do have a certain uniformity and consistency that enables a persistent outsider to "basically" understand the system. This article "basically" explains the urban retail commercial system for manufactured goods; in reality there are minor exceptions to almost all of the observations here. Things, in short, are never quite as they appear in China—but they usually are close enough that only someone concerned with munitiae need fear for his sanity.

Inside Beijing's Commercial System

Beijing's First Commercial Bureau (FCB) is responsible for retail sales of manufactured consumer goods. This bureau runs the department stores, clothing shops, appliance stores, and other retail shops throughout the municipality. The Second Commercial Bureau performs a comparable function for all foodstuffs (except for restaurants, which are under the jurisdiction of the Second Service Bureau). In reality, some items manage to slip through the nets of these two commercial bureaus, as certain other units try to control every aspect of the items they handle—including retail sales. For example, the Xinhua bookstores are under the Culture Bureau, which has taken control of some antique sales. But "basically," the First Commercial Bureau handles retail sales of manufactured goods.

As is typical in Chinese administration, the First Commercial Bureau is subordinate to both a territorial authority and a higher-level functional organ. The territorial authority is the Beijing Municipal Finance and Trade Staff Office (*Caimao Bangongshi*), whose purpose is to ensure that financial and trade policies among the various specialized organs in Beijing remain reasonably coordinated. The functional body in charge of the First Commercial Bureau is the Ministry of Commerce (MOC) of the national government, which is responsible for overall commercial policy for the entire country. There are inevitably conflicts in this structure of dual subordination, but most are resolved through consultation among the units concerned.

On the municipal level, the First Commercial Bureau manages the city's wholesale companies. These are organized by product line and include companies in charge of sundries, textiles, stationery, clothing, shoes and hats, and hardware. The First Commercial Bureau also runs several major department stores, such as the Beijing Department Store.

The FCB supervises the business affairs of the district sundry companies (*qu baihuo gongsi*), that run smaller department stores in each of Beijing's nine urban districts. Each district has a finance and trade staff office under the Municipal Finance and Trade Staff Office. Department stores within the districts are subordinate to both of these district-level organs. Altogether,

the FCB controls more than 500 commercial outlets, either directly or through the district sundry companies. Other major Chinese cities have comparable administrative structures to govern retail commerce.

The Ministry of Commerce is concerned primarily with overall commercial policy, including the basic distribution of goods throughout the country. It exercises fairly close control over some commodities in especially short supply (the list changes periodically), and pays constant attention to the balance between overall purchasing power and the availability of goods in major market areas. Within these market areas, however, the local authorities are given great latitude to determine the actual distribution of goods.

The First Commercial Bureau is the key organ in this effort on the municipal level. It has the following departments (*chu*): business affairs (*yewu*), which manages the market and allocates sales; planning (*jihua*), which does basic commercial planning; finance (*caiwu*), in charge of profits, expenses, and accounting; prices (*wujia*), which plays a role in market prices; basic construction (*jiben jianshe*), in charge of new capital construction; enterprise management (*qiye guanli*), which is concerned with managerial techniques in department stores; labor (*laodong*), in charge of workers, but not of cadres, in the units subordinate to the FCB; organization (*zuzhi*), in charge of cadres and Party members; and propaganda (*xuanchuan*), in charge of propaganda and education work.

Each of these departments, in fact, works with a number of other units in different enterprises and organs in carrying out the responsibilities listed above. Thus, being "in charge" often means playing a very limited role in the actual decisions made in a particular sphere of Beijing's retail commerce.

Within the department stores there are several levels of management, the exact number depending on the size and complexity of the store. At the top, the all-store management is normally divided into functional sections (*ke*), such as finance and personnel. Lower-level departments are usually organized according to product line, such as "hats and shoes," "hardware," and so forth. Each store has autonomy in deciding what its internal organizational chart should look like, thus considerable variation can be found even within Beijing.

Pricing

The outline of China's pricing system for retail goods is rather simple, although the details for determining the final price of any particular item can be enormously complex. Two systems of pricing are currently in use—one for imported goods and the other for domestically produced items. The following discussion excludes consideration of items sold in free markets, as these are mostly foodstuffs that in any case comprise only a miniscule percentage of Beijing's retail sales of manufactured goods.

Six cost factors figure into the price of imported goods: the import price (cif), currency conversion markup, customs duty, market stabilization markup (my term, not China's), and normal profit markup at wholesale and retail levels. The import price is agreed to by the importing agency and the foreign firm supplying the item. This price is then converted into Chinese yuan at the "internal" exchange rate of ¥2.8 per US dollar (the official exchange rate in China as of August 1981 was about ¥1.8 per US dollar). Then a customs duty is levied on the imported item (*see* page 52).

Besides the artificial currency conversion (which substantially increases the yuan price of an item) and the customs duty, an additional markup is specified by the Ministry of Commerce. The MOC markup is designed to maintain market stability by bringing the imported item in line with the prices of comparable items produced in China. It is also designed to protect domestic Chinese industries, as it includes a quality differential that typically puts imported items at a higher price than their domestically produced counterparts. No general principles or formulas determine the size of this MOC markup—other than the idea that it should establish a reasonable differential between foreign and domestic prices. After this markup has been figured into the price, the item is passed along to the appropriate wholesale company. From there it is treated exactly like a domestically produced item (discussed below). The typical department store, therefore, cannot guess the price at which an item was imported.

Moreover, that price has no effect on either the eventual retail price or on the retail unit's rate of profit on the item.

Pricing of domestically produced goods is somewhat more complicated. The output of a factory is priced at a particular level which, in general, is determined by the average cost of producing that item for the entire industry (rather than the factory), plus the industry and commerce tax the factory must pay. The wholesale company pays this price plus transportation costs—which, again, are figured on the basis of a nationwide average for that commodity rather than for the particular shipment. The wholesaler then adds on its own markup. (In Beijing the wholesale markup averages 8 percent for goods that are directly sold to retail outlets.) Wholesale companies do not pay taxes, but on top of their own markup they charge an additional percentage that reflects wholesale circulation expenses. And this again is stipulated as an average for the item rather than as an accurate reflection of real costs in a particular transaction.

The retail unit purchases the item at this wholesale price. To this, the retail unit adds a markup that is stipulated by the government for that type of item. This markup has been established with some regard to the expenses of the average department store, the need to pay a business tax (3 percent of gross sales), and the retail circulation expenses, such as for transportation and storage. The average retail markup for most daily necessities is about 15 percent over the wholesale price, while major consumer items such as washing machines, televisions, watches, and bicycles tend to have somewhat lower retail markups—in the neighborhood of 8–12 percent. The overall gross profit rate for department stores in Beijing now stands at 13 percent of total sales.

On the retail level, some prices are fixed nationally, and Beijing Municipality has no power to affect them. On other items, the Ministry of Commerce sets a standard price, but localities have the power to take account of differences in type and quality in establishing some price differentials above and below that standard. In such cases the price section of the relevant local wholesale company reports its proposed price to the price department of the FCB, which can confirm the price if the Ministry of Commerce has previously set a standard price for a comparable item. If the commodity is so new or different that the Ministry of Commerce has not set a standard price, then the FCB price department must report its recommendation to the Beijing Municipal Price Bureau (*Shi Wujia Ju*) for the latter's approval.

The same system prevails with respect to goods produced in Beijing Municipality and those imported to Beijing from elsewhere in China. In the latter case, there are price differentials established in national lists that indicate how a good produced in Yunnan, for example, should be priced in Beijing. The Beijing wholesale companies have these lists for the items they handle, and thus set the prices on the items themselves.

Where the FCB does set the price for a retail commodity, the relevant wholesale company uses that amount in the future as a reference price. But wholesalers retain the freedom to set the actual price for particular goods above or below the reference price, depending on quality, styling, and so forth. The few hypothetical examples given to illustrate this point suggest that wholesale companies may have discretion of up to 20 percent or more around the price set by the FCB.

The vast majority of goods—my data suggest about 80 percent—go to the retail stores via the municipal wholesale companies. But recent reforms have permitted stores to buy some of their items directly from the factories that already have met their quotas. In such cases, the store indicates to the relevant wholesale company (the municipal wholesale company that normally handles that type of commodity) the retail price at which the item should be sold. It arrives at this price by adding to the factory price the standard transportation costs and the permitted markup for that type of good. The wholesale company must approve this price before the item can go on sale.

These commodities typically sell for the same price as their counterparts sold through the wholesale network. It is not clear what happens to the extra profits made from skipping the 8 percent or so wholesale markup.

Two characteristics of the retail pricing system for manufactured goods stand out from this overview. First, retail stores do not have the power to price their own goods. A partial exception is made to this rule only when retail stores must dispose of excess inventory—at which time they can lower the prices of warehouse goods.

Second, the prices of items are generally figured according to industrywide averages, rather than on the basis of particular transactions, where the rationale is to try to maintain uniform prices in the Chinese retail market.

Finally, price differentials are allowed for quality and styling. Indeed, a portion of the inflation at the retail level in China stems from the fact that any change in style can permit an adjustment in price of several percentage points. While the authorities pretty much insist that an item that sold at a particular price in 1980 stay the same price in 1981, any change in the pattern can produce a price rise to reflect the styling "improvement." Many new patterns are appearing on Chinese commodities these days.

Distribution

How goods are distributed in China depends on their relative priority. Category 1 commodities—296 items (as of January 1981) of greatest importance to the economy—are controlled by the State Planning Commission. Of these, at least 10 are consumer durables, such as cameras, TV sets, tape recorders, washing machines, watches, and bicycles. Category 2 goods include 580 items that are mainly under the ministries' control. Category 3 items are controlled by provinces, cities, and other local units. The consumer goods handled by the Ministry of Commerce fall into all three categories, but goods in the first two categories must be requisitioned through central government supply channels—namely, those controlled by ministries and the State Bureau of Supplies (*see The CBR*, Nov.–Dec. 1980, pp. 14–19).

Distribution patterns also depend somewhat on whether or not the item represents above-quota production by the factory, and whether the commodity is imported.

Typically the Ministry of Commerce determines the distribution of imported consumer items if a foreign trade corporation has been the purchasing agent in China. The ministry decides where to funnel the commodity and then sells it to the relevant local wholesale company. That company, in turn, allocates the item (if it is in short supply) among the stores that it serves. If the item is not in high demand, any store is free to purchase whatever it wants.

Most domestically produced items sold in Beijing retail stores are the products of factories in or near the city, and are sold via the Beijing wholesale companies. In these cases, the wholesale companies typically contract with the factory for one year's purchases in advance, and often the contract is for the entire amount of the factory's output quota.

As the item is delivered to the wholesale company, the company makes it available for sale to the department stores. Each store has a number of buyers (how many depends on the size and organization of the store). These buyers specialize by commodity, and visit the relevant wholesale companies as often as necessary to arrange purchases. On these visits, they physically inspect the items before ordering. Payment is done strictly via bank transfers (cash transactions over 10 yuan—roughly six dollars—are forbidden) and is done three days after receipt of a consigment from the wholesale company.

When a commodity is in plentiful supply, the wholesale companies are anxious to promote sales. Wholesale companies cannot compel retailers to stock particular items, nor do they typically buy items at the direct request of retailers. Instead they contract for bulk purchases, and then count on selling the goods to their retail clients. The retailers, in turn, make up their own annual plans without discussing these plans in advance with their wholesale suppliers.

Very often, especially for daily necessities, the wholesale companies cannot obtain sufficient commodities to meet retail orders. In this situation, the wholesale companies allocate the goods available on a fixed percentage basis to each district sundry company in the city, and to the few major municipally operated stores. The district sundry companies then allocate these items to the department stores under them, and the stores send buyers directly back to the municipal wholesale companies to complete the transactions.

The percentage shares of scarce goods allocated to each district were devised in the mid-1950s, based on consumption patterns at the time, and have been modified only slightly. Since then, substantial changes have occurred in Beijing's population distribution, and in buying power. The result—a distribution pattern for scarce commodities that is seriously out of tune with current market conditions—reflects the political difficulties in trying to reallocate scarce consumer goods.

When a new store opens in Beijing, it must obtain scarce items from within the allocation available to its district. This, in turn, reduces goods otherwise available to other stores in the district. Conversely, when a store closes, its allocation is distributed to other stores

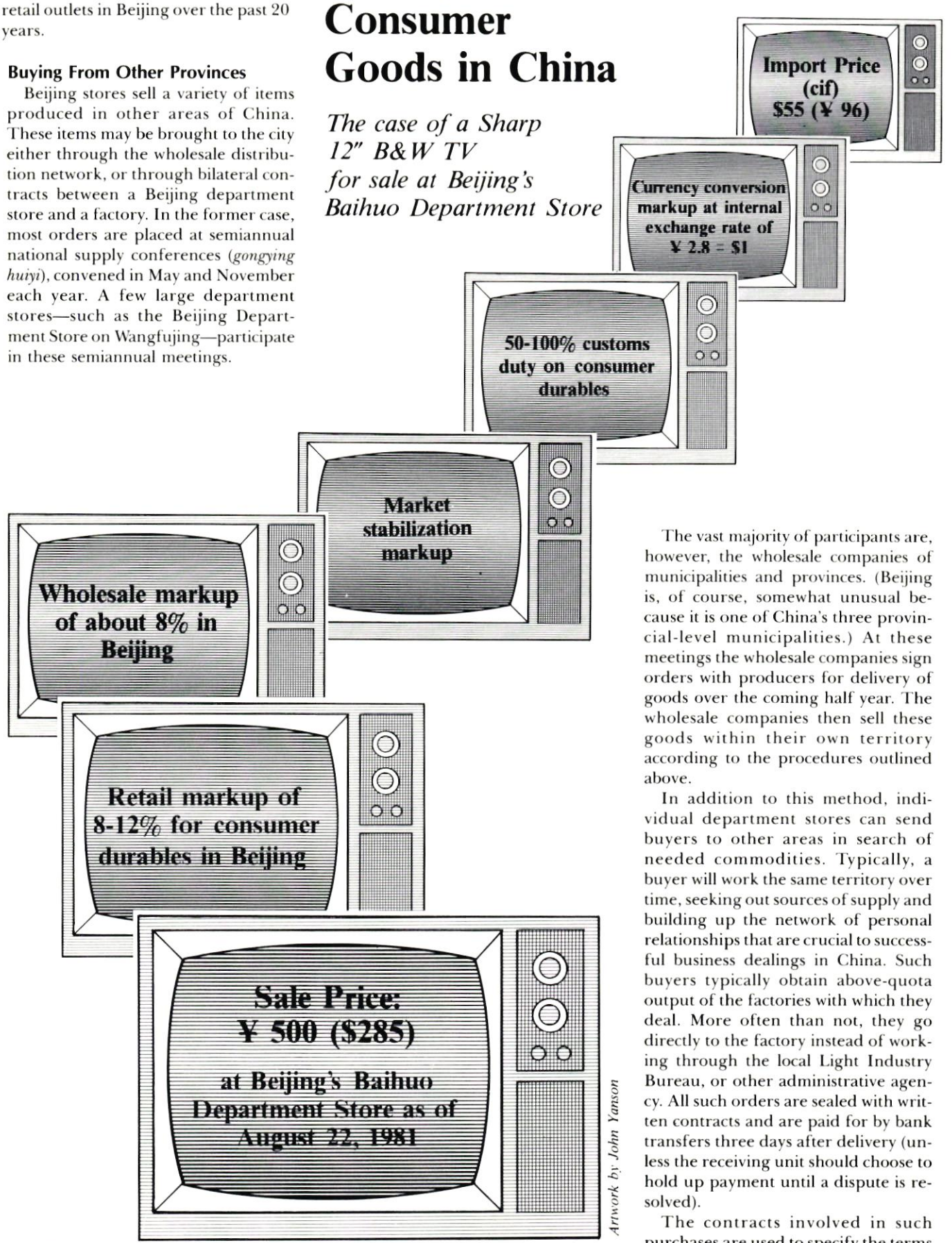
in the same district. This structural arrangement has probably contributed to the sharp decline in the number of retail outlets in Beijing over the past 20 years.

Buying From Other Provinces

Beijing stores sell a variety of items produced in other areas of China. These items may be brought to the city either through the wholesale distribution network, or through bilateral contracts between a Beijing department store and a factory. In the former case, most orders are placed at semiannual national supply conferences (*gongying huiyi*), convened in May and November each year. A few large department stores—such as the Beijing Department Store on Wangfujing—participate in these semiannual meetings.

Pricing of Foreign Consumer Goods in China

The case of a Sharp 12" B&W TV for sale at Beijing's Baihuo Department Store



Artwork by John Yanson

SOURCE: National Council

The vast majority of participants are, however, the wholesale companies of municipalities and provinces. (Beijing is, of course, somewhat unusual because it is one of China's three provincial-level municipalities.) At these meetings the wholesale companies sign orders with producers for delivery of goods over the coming half year. The wholesale companies then sell these goods within their own territory according to the procedures outlined above.

In addition to this method, individual department stores can send buyers to other areas in search of needed commodities. Typically, a buyer will work the same territory over time, seeking out sources of supply and building up the network of personal relationships that are crucial to successful business dealings in China. Such buyers typically obtain above-quota output of the factories with which they deal. More often than not, they go directly to the factory instead of working through the local Light Industry Bureau, or other administrative agency. All such orders are sealed with written contracts and are paid for by bank transfers three days after delivery (unless the receiving unit should choose to hold up payment until a dispute is resolved).

The contracts involved in such purchases are used to specify the terms

of an agreement, rather than to protect the rights of the participating parties. Even the largest stores shy away from contracting for goods with another firm unless there is a personal relationship between the key people in the two firms that will provide the trust necessary to make the agreement work.

Disputes over nonfulfillment of contracts are ironed out through consultation between the two parties. Given the fact that the parties are members of different functional systems (one being commercial and the other industrial) in different localities, the structure of authority in China would make it almost impossible to resolve the dispute by kicking it up to higher levels. In like manner, all parties would see referring the problems to one of the newly established economic courts as disastrous. As it was repeatedly explained to me, a dispute could only go to the court if all attempts at resolving the problem through consultation had failed. This would suggest a lack of personal ties between the two units—a situation that should have been avoided, if possible, from the outset.

There are also occasions where a Beijing department store will buy items directly from a Beijing factory. This is likely to be above-quota production of that factory, although it may be simply that the producing enterprise is very small, and its product is not easily handled by wholesalers.

In this case, all of the above observations about dealing directly with a factory remain relevant, although it becomes slightly easier to resolve a dispute by sending it up to the municipal-level authorities, who have at least some leverage over each of the parties in the dispute.

Finally, producing firms may send out their own salespeople directly to department stores to promote their wares. In addition, some firms (and occasionally the light industry or trade department for an entire city or province) organize sales-promotion exhibits at major department stores in other cities. The Beijing Department Store received almost half of its products this way.

Store Finances

The operating expenses of Beijing's retail stores come from grants allocated to individual stores by the First Commercial Bureau, and from short-term loans from local branches of the People's Bank of China. Grant amounts are fixed, but each store's loan ceiling is reportedly set annually.

Grants originally were supposed to cover 100 percent of a store's operating expenditures, according to procedures established in 1955–56. Although these grants were adjusted in some cases in the early 1960s, most stores have found that their grant allocations do not meet their needs. Today grants provide less than one-half of the operating expenditures of the average Beijing retail store.

Loans to stores are normally extended for about one month, and carry interest charges of 0.42 percent per month. The rate is the same for long-term loans. But if a store falls into arrears, the interest penalty is slightly higher than on long-term loans. Loans for new investment can only be obtained from local branches of the People's Construction Bank of China.

Commercial Reforms

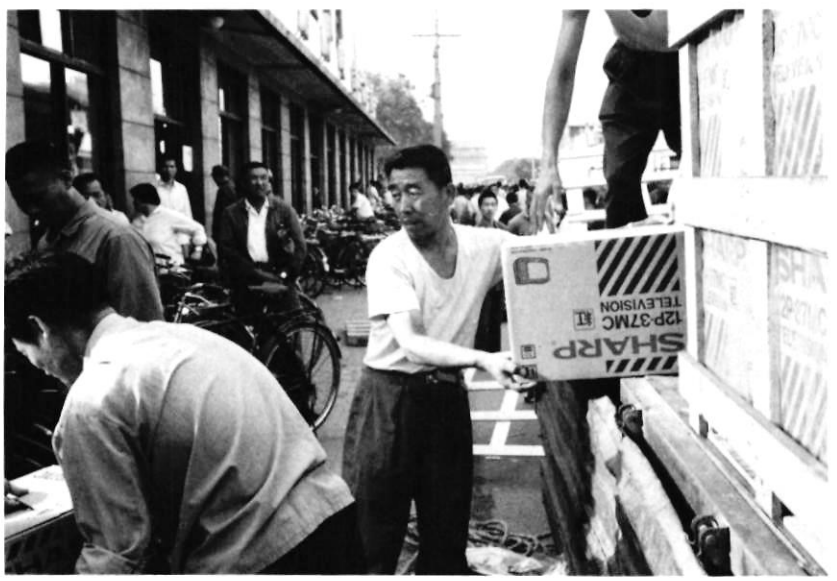
The relative neglect of consumer needs from the mid-1950s to the late 1970s in China created a seller's market for virtually all types of manufactured consumer goods. The government's chief concern at the time was to ensure a reasonable distribution of very scarce commodities and to maintain price stability. It also sought to keep tight administrative control over consumption to maximize the available funds for basic capital construction.

But now priorities are changing, and Beijing is trying to enhance its residents' standard of living—at least partly in response to a person's contribution to the modernization effort. Hence, there is new interest in product variety and changing fashions, in market research, and in finding the right products to eat up the new yuan that are in the pockets of most urban consumers.

To date, only the faintest signs of these changes have been evident in the structure and operations of the Beijing retail commercial network, as Beijing has not been designated a key city in national experiments with commercial reforms. There have been some repercussions of the reform effort in capital's retail system, however. The fact that stores can now buy above-quota items directly from factories represents a change from several years ago. Indeed, even the fact that stores again keep track of their own financial accounts, and report these to higher levels, represents a reversal of the situation at the height of the Cultural Revolution.

But both of these "reforms" in fact "basically" reestablish pre-Cultural Revolution practices, as do related efforts to reward employees with bonuses, and so forth. While these changes are necessary and beneficial, any serious restructuring of the retail system will have to cope with such fundamental problems as:

Lack of performance measures. The present retail system provides municipal and higher-level authorities with almost no way to evaluate the performance of a store, other than to read the qualitative reports done by the store itself or by investigators sent there. The store's gross profit rate simply reflects the mix of products that it sells, as each item has a retail margin determined by



Courtesy of White House, Washington, D.C.

Foreign consumer goods arriving at Beijing store.

Photo by Dennis Brack

Beijing residents admiring Sanyo radio cassette recorders.

administrative fiat. Actual gross profit rates in Beijing department stores range from 10–13 percent of sales, with the average near 12 percent. The tax burden is also fixed at 3 percent of gross sales. There are no rent charges, utility costs are low, and a portion of operating capital is granted interest-free by the government. Labor costs, at least for medium and large stores, are virtually free: the total labor compensation package, including bonuses, welfare, and basic wages, typically amounts to only 0.8 percent of gross sales.

As a result, a poorly run store may have operating costs other than labor of about 3 percent of gross sales, while such costs in a well-run store might be 0.6 percent. The difference is so small, and can be attributed to such a wide variety of causes, that upper levels have virtually no way of differentiating a well-run store from a badly run operation on the basis of a store's financial performance.

Another approach would be to look at total sales volume and how inventories are managed. But total sales volume is not determined primarily by the store's promotional efforts or efficiency. Rather, the single greatest determinant of total sales volume is more likely to be the amount of scarce consumer goods allocated to a store by wholesale companies, based solely on historic distribution patterns. Even if a store is well run and manages to obtain from suppliers an increasing volume of goods, the store would probably not receive permission to expand its operation in order to enable it to enlarge its sales volume still further.

Store mismanagement can, of course, show up in terms of slow stock turnover. But of course focusing too much attention on this indicator also can bring unwanted consequences. As it is, store managers devote great attention to managing the level of their inventory, and the ideal turnover period is considered to be about 30 days. But if turnover rates become the central indicator of good management, managers will then have an incentive to hold down inventory levels, even at the cost of running out of goods on the shelves. They also will have greater incentives to limit their goods to relatively "safe" high-demand items, at the cost of providing a wider range of goods needed by the community. Since many Chinese department stores are virtually the sole source of general goods for large neighborhoods, this kind of incentive can have serious consequences for customers.

A fundamental problem is that the prices of goods in China generally are determined by administrative fiat rather than by supply and demand. If prices do not make sense, then financial objectives such as bigger sales, turnover, or profits—all of which reflect the prices of goods one way or another—will encourage store managers also to behave in senseless ways.

Irrational pricing. As noted earlier, the price system is designed to assure basic price uniformity. It achieves this goal at very high cost to other potential functions of prices—such as measuring scarcity, cost, quality, and the relative difficulty of distribution. Some discretion is given local authorities to vary prices according to the quality of product, but the single-minded determination to keep all prices of the same good uniform is quite impressive. Equally impressive is the degree to which the price of an item is separate from that commodity's production and transportation costs. Some factories, such as those that produce watches, are permitted to reap enormous profits. Other factories making low-price items are permitted little if any profit. Given the industrywide averaging techniques used for assigning transportation costs, and the practice of tacking on fixed markups regardless of market demand, prices in the final analysis play few of the roles in the Chinese system that they do in the West. Since Chinese stores have little authority in pricing matters, they can exercise practically no influence over their profit margins.

Bureaucratic supply channels. The complex lines of authority in the Chinese supply system represent major barriers in the circulation of goods. These bureaucractic difficulties exact higher prices in terms of transportation, storage, and other costs than would a more market-oriented system.

The Chinese are beginning to take some steps to cope with these problems. To a small degree collective enterprises are being permitted to compete with Beijing's department stores, although only on a level where the collectives are adjuncts to the state system rather than major components of it. Future plans call for more use of interest-bearing loans, instead of financial grants, to provide operating capital for stores. Also, stores may gain greater direct access to factories for their goods.

All of these initiatives—and others like them—should improve service in the retail commercial system. But none of them can really confront in a serious way the fundamental problems of evaluation, pricing, and distribution. Until reforms are introduced (an unlikely occurrence in the near future) this article's description of Beijing's retail commercial system is likely to remain a "basically" accurate portrayal for years to come. 完

Foreign Investors Are Encouraged Despite The Labor Problems

Anita Li

Despite Beijing's economic retrenchment, medium and small foreign investment projects continue to spring up across the Chinese landscape. By the end of June 1981, 25 joint-equity projects, 360 "contractual" joint ventures, and 350 compensation trade agreements had been launched in China with total foreign backing of $182, $500, and $187 million, respectively. For the most part, Chinese entrepreneurs from Hong Kong and Macao dominate the action—mainly across the border in Guangdong's and Fujian's four special economic zones. To better acquaint our readers with how such deals are put together, The CBR's *correspondent in Hong Kong, Anita Li, investigated six successful projects under way in Shenzhen—Guangdong's largest special economic zone—and prepared the following report.*

The Shenzhen economic zone, with a population of 330,000, extends over one-sixth of Shenzhen county (320 sq. km.). Common border, road, rail, and sea links with Hong Kong have made Shenzhen China's model for development with foreign capital. Since the first set of regulations governing Guangdong's three economic zones (Shenzhen, Zhuhai, and Shantou) were promulgated in August 1980, 610 foreign projects have been concluded in Shenzhen.

The total potential investment could exceed $400 million, approximately 70 percent of which will be provided by Hong Kong investors. Hotel and property development schemes have proceeded at the fastest rate, accounting for 60 percent of all projects. Agricultural and recreational facilities make up 30 percent of the total, while manufacturing enterprises account for the remaining 10 percent.

The legal and financial arrangements for these agreements have taken on four different forms:

I. Compensation Trade and Processing

Under compensation trade, the foreign investor supplies technology and equipment which becomes the property of the Chinese partner as soon as delivery is made. China provides land, labor, management personnel, and raw materials. Repayment is usually made over a period of 3 to 15 years in the form of a reduction in the fee per unit output, which takes into account the value of the initial contribution by the foreign party of equipment and know-how.

China's definition of compensation trade also includes processing agreements whereby a foreign company supplies the raw materials, but not the equipment, to process or assemble commodities for export. This form of production is common in labor-intensive handicraft industries. In Guangdong alone, foreign businesses have signed 3,600 contracts for processing and assembly comprising 57 percent of all such ventures in China.

The Millie's Factories. Alan Lau, Chairman of Millie's Holding, Ltd., was one of the first Hong Kong businessmen to invest in a compensation trade deal in Shenzhen. "I noticed during a number of visits to China that due to poor management, the capacities of many Chinese factories were not fully utilized and productivity was low. I feel that Hong Kong businessmen have a role to play in introducing modern industrial management techniques to these factories," he said.

In mid-1978 Millie's signed its first compensation trade agreement after two meetings with Guangdong and Shenzhen officials to construct and equip three Shenzhen factories to produce shoe uppers, shirts, and work gloves. Millie's provided all the equipment and construction materials, and a number of supervisors to train workers.

Millie's initial investment of HK$3 million ($545,000) was to be repaid over five years by a 20 percent reduction in the price that would normally be charged for each unit of output. Millie's cost covers wages, workers' welfare, electricity, rent, and taxes, and amounts to approximately 90 percent of the cost of manufacturing the same products in Hong Kong.

The firm's initial experience was by no means free from difficulties. Like other early investors, Millie's had to contend with inconveniences caused by poor infrastructure and bureaucratic red tape.

Because neither Millie's nor the Chinese had had any experience in operating compensation trade ventures, the formal contract remained brief; it was agreed that specifics would be incorporated as the work progressed.

In 1979 Millie's signed two other agreements that set up a handbag factory and a tannery, thereby increasing its total investment in Shenzhen to HK$10 million ($1.8 million). Repayment terms are modeled on those of the first deal.

Lau noted that Millie's industrial ventures are now running smoothly. And he remains very optimistic that Shenzhen will become a booming commercial and tourist center. Recently Millie's began constructing residential apartments and a tourist hotel in Shenzhen.

The Harpers Vehicle Assembly Plant. The Harpers International Corporation (HK) signed a compensation trade agreement in February 1979 with the Guangdong branch of the China

National Machinery Import and Export Corporation (MACHIMPEX) and the Guangdong Motor Vehicle Industrial Corporation. The agreement calls for establishing the Bao An Automotive Plant to assemble Ford 42-seater, air-conditioned tourist coaches at a rate of 7,000 vehicles per year.

Harper's investment of HK$10.5 million ($1.9 million) covers the supply of all plant equipment, steel structures, and building materials. China is providing a 57,000-square-meter site and factory foundation in Shenzhen. The road network within the complex should be completed at a total cost of ¥2.5 million ($1.6 million).

The contract stipulates that the entire plant and all its equipment become Chinese property upon delivery. Repayment of Harper's contribution, with accrued interest, is to be made by a 50 percent reduction in unit costs incurred over a five-year period.

According to Harpers' spokesmen, labor and management problems were major headaches when the plant began operations in late 1980. Workers supplied by the local labor bureau lacked sufficient technical and mechanical skills. Though Harpers provided several months' training before the plant began production, the workers were unable to master the assembly operations. After numerous complaints to Chinese officials, skilled workers were recruited from other parts of Guangdong Province. Harpers was also granted a greater say in management decisions. The firm hopes these reforms will bring the plant closer to required productivity and quality standards.

The Goodyear Printing Plant. The April 1979 compensation trade agreement between the Goodyear Printing Press, Ltd. (HK) and the China National Packaging Corporation calls for general printing and the production of packaging materials and lithograph tin plates. Goodyear's investment of HK$18 million ($3.27 million) covers the construction expenses of four factory premises, two godowns, two six-story living quarters for workers, and printing equipment imported from West Germany. The Chinese are contributing labor and a 46,000-square-meter factory site.

Goodyear is responsible for canvassing business orders from Hong Kong. Though the contract specifies that 80 percent of the production will be for foreign orders and 20 percent for the local market, the plant's Chinese managers are intent on using the factory's full capacity for foreign orders. That way the Chinese can earn hard currency to repay Goodyear in the required five-year period.

Goodyear is training the initial work force of 150 (it eventually will grow to 500). About 10 company technicians will be stationed at the plant to provide training and supervise production. Previous printing experience is not essential, but workers must have completed a high school education. In fact, a Goodyear spokesman said the firm prefers workers without printing training, believing it is easier to teach modern techniques to inexperienced but well-educated laborers than to change the habits of experienced workers.

II. Cooperative Production

This form of investment grants the foreign partner the right to participate in agricultural, mining, or commercial property ventures by paying China a land rent and a share of the profits derived from the project's business. In Shenzhen, annual land rents are sometimes as low as HK$2 ($0.36) per square foot, varying with the type and size of industry and other factors. Property projects generally pay profit rates of 30 to 40 percent, according to *The Asian Wall Street Journal*.

The Ready Mixed Concrete Quarry. A cooperative production agreement was signed in late 1979 between the Shenzhen City Construction Materials Corporation, and Construction Materials, Ltd. (HK), a subsidiary of Ready Mixed Concrete, Ltd. of Australia. Under the contract terms, Ready Mixed Concrete expects to produce about 500,000 cubic meters of concrete aggregate a year from the Wushigu Quarry located five kilometers from downtown Shenzhen.

The company's investment of HK$32 million ($5.8 million) covers the supply of quarry mining equipment, conveyor belts, and other key operating supplies. The Shenzhen company is providing land, stone deposits, and about 40 miners who will be supervised by two Australians and three Hong Kong Chinese.

Initially, at least 80 percent of the quarry's production will be exported to support the construction industry in Hong Kong and the New Territories. China has the right to purchase up to 20 percent of the production in RMB. Ready Mixed Concrete is paying a royalty of HK$12 ($2.20) to the Chinese for every cubic meter of quarry mined.

At the end of the 10-year contract period, the quarry and equipment will be handed over to the Chinese. Ready Mixed Concrete will be given the first option to renew the agreement.

III. Wholly Owned Foreign Enterprises

Under article one of the regulations on Guangdong's special economic zones, foreign investors are "to be encouraged to set up plants, enterprises, or other business undertakings with their own investment." Reportedly, only one company has been willing to take such a risk.

The Lo's Mee Kwong Printing and Dyeing Factory. Shenzhen's first 100 percent foreign-owned enterprise will be a printing, dyeing, and finishing factory established by the Lo's Mee Kwong Group of Companies (LMK) of Hong Kong. Although the agreement was signed in may 1980 before the promulgation of the special economic law, and the plant is actually located outside the boundaries of Shenzhen in the Mirs Bay area, LMK has been granted all of the law's privileges and guarantees (*see The CBR*, Sept.-Oct., 1980, p. 54).

LMK was awarded a 25-year lease for a 34,000-square-meter factory site at a monthly rental of HK$2.00 ($0.36) per square meter. The rent is subject to review after five years. The agreement includes other major incentives such as a five-year tax holiday and a free water supply.

To date, LMK has spent more than HK$70 million ($12 million) to build the factory and workers' housing and to buy printing and dyeing equipment from the US. The factory is expected to turn out 5,500,000 square meters of piece goods during the first year of operations beginning in October 1981.

Initially, the plant will have about 200 workers from Shenzhen. LMK has the right to hire and fire its own workers. Employees will sign two-year contracts and receive a monthly wage of ¥100 ($60) (China's national average is ¥63 [$38] per month). In addition, it is required to pay Shenzhen authorities HK$420 ($76) per month to cover each worker's welfare and fringe benefits.

LMK is extremely pleased with the terms of the Shenzhen deal. It points out that the cost of operating a similar plant in Hong Kong would be several times more because of the colony's higher land and labor costs.

IV. Joint Ventures

The basic principles applying to joint ventures in China were spelled out in the PRC's joint venture law issued in July 1979 (*see The CBR*, July–Aug. 1979, pp. 46–47). Since then Beijing has promulgated detailed rules and regulations pertaining to the registration and taxation of joint ventures, and outlining the role of each party in managing labor relations (*see The CBR*, Nov.–Dec. 1980, pp. 39–41).

Unlike joint ventures in other parts of China, which require approval by the Foreign Investment Control Commission in Beijing, the Guangdong Provincial Administrative Committee in Charge of Special Economic Zones (headquartered in Shenzhen) has the authority to approve all but the very largest joint ventures established in Guangdong's special economic zones.

The Pepsi Plant. An agreement signed in February 1981 by the Shenzhen City Canning Factory and Pepsi Co. International, will bring about the first operating US–China joint venture when production is inaugurated in early 1982.

The 15-year contract calls for Pepsi to invest $5.6 million to build and equip a plant expected to produce 24 million bottles of Pepsi-Cola in the first year. The contract runs for 15 years and can be extended by the two parties.

China is providing a 1,454-square-meter factory site, 30 workers, five supervisors, and one factory manager. Pepsi will pay the factory manager an average salary of HK$5,000 ($909), the supervisors HK$2,000 ($364), and the workers $1,000 ($182). Beginning in the second year, all salaries will be increased by 10 percent per annum.

Under the venture's articles of association, six persons will constitute the board of directors. Each party will appoint two board members while China selects the chairman and Pepsi appoints the vice-chairman. The board will make major decisions regarding production planning, accounting and financial control, profit sharing, and personnel hiring and dismissal.

Pepsi is responsible for exporting 80 percent of the plant's production; the remaining 20 percent will be sold in the local market for RMB. The Chinese are guaranteed a pretax profit of HK$1.50 ($0.27) per case of 24 bottles for the first six months of operations. It was agreed that the setting of a "realistic" profit before taxes will be revised after the six-month experiment and following an audit. China and Pepsi will share net profits after costs and taxes have been covered, according to a 55:45 ratio for the first five years, and a 60:40 split after 1985.

The Chinese also were granted the right to use the plant's excess capacity to produce local drinks using indigenous ingredients, provided that all contractual commitments to Pepsi have been met. The use of Pepsi's trademarks is forbidden, however.

Shenzhen's Prospects

The early experiences of some business executives reveal that despite Beijing's sincere determination to make China's special economic zones work, a number of obstacles remain:

▶ *Unskilled labor.* Most investors in Shenzhen, including those involved in the six projects discussed, cite poor-quality labor as the zone's single most serious problem. Most workers are recruited from neighboring farming and fishing villages, and tend to be unskilled and unaccustomed to factory work. The companies generally must provide three to six months' training for these workers, and even so, their lack of a strong general education makes it difficult for the workers to master the skills necessary for more complex tasks.

The "iron rice bowl" (guaranteed lifetime employment) system accounts for the general lack of initiative and ambition among Chinese workers. Their productivity is rarely more than half that of Hong Kong laborers, some business people report. It was only when some investors threatened to pull out and go home that they were allowed to dismiss inept or undisciplined workers and introduce bonus systems to stimulate productivity. Today most Shenzhen workers are paid on a piece-rate basis, and can earn up to ¥150 ($90) per month. This has proved effective in raising productivity and labor quality.

▶ *Poor infrastructure.* Shenzhen, like many parts of China, lacks the basic prerequisites for industrial development. Electric power is in short supply; some foreign firms have had to install generators at their own expense to prevent production interruptions caused by sporadic brown-outs. Though Shenzhen has been buying electricity from Hong Kong since mid-1979, the electric-transmission network is still under construction.

The Shenzhen authorities have announced that help is on the way with the construction of a high-capacity microwave link running through Guangzhou, Shenzhen, Shekou, and Hong Kong. A report on the feasibility of building a nuclear power plant in Shenzhen is being studied by Guangdong officials.

Old and unpaved roads in Shenzhen make it difficult to transport goods and people to and from Hong Kong. Housing and schooling facilities for foreign staff and their families do not exist.

Foreign investors must anticipate problems with power, transportation, communications, and infrastructure for at least the next two or three years.

▶ *Murky regulations.* Other problems concerning the cost of land and labor, and the setting of import duties and tax incentives, can be traced to the vagueness of the zone's regulations themselves, which leave such issues open to individual negotiation. The lack of precedents necessitates a lot of bargaining in most cases. And that in turn slows down the negotiating process.

As a result of these many problems, investors have lobbied for greater concessions in the form of new laws. With the exception of two regulations regarding customs and taxes, several of these laws already have been drafted by the Guangdong Provincial Administration Committee in Charge of Special Economic Zones. These have been approved by the State Council and are expected to be announced shortly.

The new body of law will give foreign partners more autonomy to hire, fire, and introduce new incentive programs, possibly involving partial payment of bonuses in Hong Kong dollars. Requirements for business registration and travel visas have been streamlined. Shenzhen authorities have hinted that duties for imported materials and equipment will be waived and that the maximum 15 percent tax rate on enterprise income will be reduced.

Undoubtedly Beijing hopes that such changes will heighten international interest in Shenzhen. In the meantime, however, substantial foreign investment seems unlikely, and Hong Kong businessmen must remain the trail blazers.

Anita Li is the trade liaison officer at the American Chamber of Commerce in Hong Kong.

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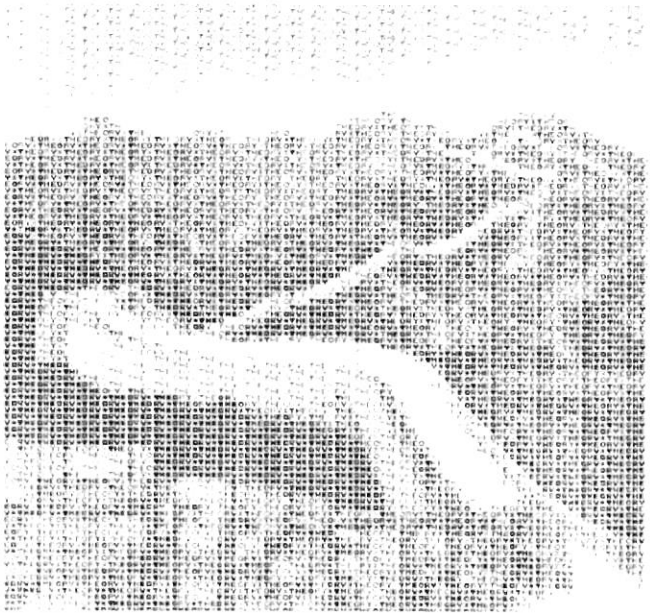

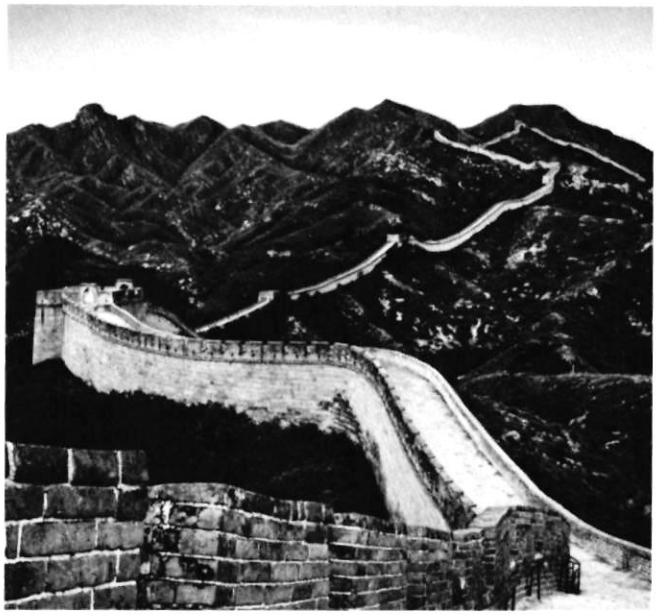

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China's Labor System

Lessons on How Enterprises Hire, Fire and Train Workers

Karen Berney

The labor troubles experienced by foreign firms in China—chiefly the lack of skilled workers and low productivity—are by no means unique. Similar problems plague domestic Chinese industries. Basically, the problems stem from China's acute shortage of highly educated professionals (*see* tables), which is exacerbated by cumbersome methods used in China to hire and transfer skilled workers. Though foreign firms may have legal "rights" to hire, fire, and transfer Chinese workers, they should be aware of the obstacles to exercising those rights.

Getting Skilled Labor

Obtaining skilled labor—graduates from China's colleges, universities, and specialized technical schools—poses the greatest difficulty for Chinese employers.

In theory, the allocation of new graduates is coordinated with the economic planning process. Units submit estimates to their supervisory organizations of the number of graduates required in each field, and state enterprises route requests through their respective ministries. The State Planning Commission then convenes a nationwide conference to decide upon graduate quotas by branch of industry and for each province and municipality, in light of Beijing's current economic priorities. Based on these plans, educational institutions assign graduates to specific enterprises, schools, research institutes, and government departments. The Ministry of Education also uses this information to fix the size of annual enrollment in each university and college.

Two major outcomes of this process should be anticipated by foreign firms. First, Chinese organizations are seldom assigned the total number of graduates they asked for. The Shanghai Municipal Planning Commission, for example, estimates that only one-fifth of the city's demand for highly trained scientists and engineers can be fulfilled each year. Worst off is Shanghai's computer industry, which can only expect to meet 8 percent of its need for skilled manpower.

Second, there is no guarantee that a job assignment will match an individual's area of specialization. In the

China's Labor Force

(Million persons)

	1979	1980
Total population	970.90	982.6
Total labor force	405.80	—
Of which:		
Employed by state *in:*	76.93	80.19
Industrial enterprises	30.38	—
Military and civil service	32.80	—
Service trades	13.75	13.95
Employed in urban collectives	22.74	24.25
Urban self-employed	0.31	0.81
Employed in agriculture	305.82	—
Of which:		
Commune and brigade enterprises	29.09	—

SOURCE: World Bank, and State Statistical Bureau *Communiqué on the 1980 Plan,* issued by Xinhua on April 29, 1981.

1950s, universities and ministerial training institutes maintained contacts with their industrial endusers and planned work assignments accordingly. That system collapsed in 1958 during the Great Leap Forward. Today party cadres in charge of placing new graduates make random block assignments without considering how best to use an individual's talents. As a result, scientists and technicians frequently are improperly used and underutilized.

Given such severe scarcities, factory personnel welcome any university graduate they can get. Even one with a completely inappropriate background can be trained more quickly and easily than a worker with marginal schooling.

Labor Immobility

Time-consuming procedures also are encountered when Chinese enterprises transfer workers. Units first apply to their supervisory industrial bureaus which must apply through another organ depending on the kind of worker involved: university graduates are handled by the State Planning Commission and its branches, unskilled workers by the labor bureaus, and office staff by government personnel departments. In each case an effort is made to recruit a worker from the same branch of industry and province making the request.

Except for temporary and short-term transfers, Chinese managers are loathe to let go of well-educated employees. Finding a replacement can sometimes take years. As a result, there is a surplus of skilled labor in some industries and a shortage in others.

These problems have made it very hard to transfer skilled labor to light industry, one of the government's high-priority sectors. Efforts to make heavy industries release skilled people have come to naught. In fact, some heavy industrial plants and engineering firms that now find themselves underutilized are actively seeking work abroad building bridges, apartments, and railroads in Africa and the Middle East. In this way the enterprises can earn foreign exchange and manage to hang on to their employees.

Meanwhile, light industrial producers languish for want of engineers. According to one Chinese source, nearly one-quarter of Beijing's consumer goods factories and two-thirds of those in Shanxi Province lack even one technician.

Transfers are most likely to succeed when a Chinese enterprise tries to rid itself of incompetent personnel. In the past, authorities have permitted enterprises to fire workers only for serious offenses. Even then, they remain on their original employer's payroll through a cost-of-living subsidy paid to the Public Security Bureau. Foreign investors therefore will want to stress transfers as the most feasible means to relieve their Chinese partners of the cost of maintaining inept workers.

Unskilled Workers

Most Chinese units hire more unskilled workers than they need.

Each year, the State Labor Bureau develops hiring targets for each branch of industry, commerce, and administration. These targets are sent down to provincial and municipal industrial bureaus and are further disaggregated until each unit receives a quota for new workers and apprentices. (Apprentices normally receive a cost-of-living subsidy during the first year of employment, entitlement to fringe benefits in the second, and status as full-time wage earners by the third.) The state adjusts each unit's wage fund to ensure that the hiring targets are fulfilled.

Planners are under great pressure to send as many workers as possible to state-owned enterprises. In China state jobs mean ideal employment. They offer good pay, lifetime job security (known colloquially as the "iron rice bowl"), and enhanced marriage prospects.

Once units receive their hiring targets, they must recruit labor from nearby areas. Résumés of recent high school graduates and unemployed people are kept at the headquarters of each neighborhood street committee (administrative units under urban districts). With labor quality becoming a growing concern in Beijing, enterprises have been given more choice about whom (though not how many) they hire. Standard aptitude tests and personal interviews are becoming commonplace tools for job placement.

Tips for Companies

For the most part, foreign companies engaged in buying from China have had to accept overstaffing and shortages of well-trained specialists as a fact of life in Chinese enterprises. To help overcome these shortcomings, firms have relied on stringent quality control measures in the form of:

- strict contract clauses that allow firms to reject and replace at the manufacturer's expense products failing to meet design and quality specifications.
- training programs for Chinese workers which guarantee the foreign party that newly trained workers will not be transferred to other jobs; and
- the stationing of company technicians at the work site in China to perform testing, inspection, and certification services. Firms also have the option to contract for these services the China National Import and Export Commodities Inspection Corporation or Underwriter Laboratories of the US, which is in the process of establishing its service under the auspices of the China Commodity Inspection Bureau. Other

Educational Profile of China's Labor Force

Only one-half percent of China's workers have college educations, well below the figure for other developing Asian nations.

Educational level (1979)	Number (millions)	Percent of total labor force
University and college	2.1	0.5
Technical and vocational	3.6	0.9
Senior secondary	27.0	6.7
Junior secondary	83.3	20.5
Primary	153.3	37.8
Minimal education	136.5	33.6
Total	405.8	100.0

SOURCE: World Bank.

widely used international certifying agencies have representative officials in Hong Kong.

Improving Existing Skills

One of the most encouraging aspects of the labor situation in China is the intensive efforts increasingly given to on-the-job training. Officially at least, all of China's managers and workers with a substandard education will receive some professional training by 1985.

Significantly, the major burden for organizing and financing training programs rests with the enterprises. Workers study in enterprise-built classrooms and laboratories. The teachers are paid enterprise employees who receive the same benefits and bonuses as other staff. According to Yuan Baohua, minister of the State Economic Commission and concurrently chairman of the National Committee in Charge of Workers' Education, more than 50 percent of China's state enterprises have set up training schools with the help of 68,000 full-time and 250,000 part-time teachers.

Enterprises also pay the tuition fees of workers who pass the competitive exam for entrance to TV universities. The TV university offers the equivalent of a two-year college curriculum in three years. Annual expenses for the average enterprise are estimated at $300 per fulltime student—about one-fourth the annual cost of a regular university education. Current TV university enrollment of 324,000 students is scheduled to increase to 1.2 million by 1985, and to 2.0 million five years later. New broadcasting equipment, measuring and testing instruments, and electronic teaching materials for the TV university will be purchased next summer under the terms of a $30 million World Bank loan. Beijing has requested information on products and prices in order to issue a tender for the project by March or April of 1982.

Only recently has the central government decided to help finance workers' education. This year it will set aside the equivalent of 1 percent of the national wage bill for enterprise training programs, while the Ministry of Education has promised to provide textbooks free of charge.

Higher Education Plans

In the long run, Beijing plans to offset shortages of skilled manpower by increasing university enrollment. The Ministry of Education's 1981–90 plan as revealed to the World Bank in June calls for doubling the country's present enrollment of 1.1 million students in about 700 universities and colleges to 2.2 million in 1,100 institutions by 1990. During this period 4.2 million graduates will enter the labor force. Meanwhile, some 6 million students will graduate from technical and vocational schools. The present enrollment of 1.3 million in such schools will grow to 9 million students by the end of the decade.

But even after achieving these goals, China's scientific and technical manpower will be spread rather thin. The World Bank estimates that between now and 1990 110 million new workers will join China's labor force. This will bring the total working population to about 515 million, of which nearly 2.9 percent will hold degrees in higher education. Though this represents a significant gain over the present figure of 0.5 percent, it will be only a slight improvement over Thailand's current figure of 2.2 percent, and will still lag behind Japan's 5.5 percent and South Korea's 10.4 percent averages.

Distribution of China's Skilled Manpower by Occupation and Sector, 1980

The shortage of skilled manpower is greatest in the agricultural sector, where there are only 1.2 technicians per 1,000 workers. The ratio in the industrial workforce is 42 per 1,000.

	Number (millions)	Percent of skilled labor
Occupation		
Engineers and technicians	1.7	36
Medical personnel	1.4	30
Teachers	1.0	22
Agricultural technicians	0.3	6
Scientific researchers	0.3	6
Total	4.7	100
Economic Sector		
Culture, health, and education	1.70	36
Manufacturing	1.20	26
Construction	0.38	8
Agriculture and forestry	0.36	8
Research	0.29	6
Transportation	0.16	3
Other	0.61	13
Total	4.70	100

SOURCE: World Bank.

China's Future Skilled Labor Needs

(Million persons)

	Existing (1979)	Required (1990)	Annual additional need[1]	Current output per year	Output per year by 1990
Scientists and engineers	0.9	1.65	0.106	0.03	0.12-0.13[2]
Mid-level technicians	1.6	2.90	0.190	0.05	1.2[3]
Skilled workers	16.0	23.00	1.20	0.40	

[1]Due to economic growth and attrition.
[2]This would be part of a graduating class of some 400,000.
[3]From formal technical and vocational schools only.
SOURCE: World Bank.

One Billion and Counting

China's 1982 census—the country's largest—should also be its most accurate, as Beijing pours $100 million into computer equipment and training.

Karen Berney

China will launch the world's largest population census in July of 1982, one year later than originally scheduled. To ensure more accurate results than were obtained in China's earlier national censuses in 1953 and 1964, Beijing has budgeted $100 million to:

- ▶ train a census work force of six million, recruited from among the statistical units of ministries, household registration offices, and communes;
- ▶ establish census bureaus at each administrative level and enumerating stations in every neighborhood, all under the leadership of the State Council's Population Census Office;
- ▶ train enumerators and conduct pilot censuses in each province to test procedures; and
- ▶ install a national computer network to process and analyze the census data.

The UN's United Fund for Population Activities (UNFPA) has given Beijing a $15.6 million grant for the acquisition of an IBM 4341 central processor, 19 IBM 4331s for the provinces, and 650 IBM 5280 data entry systems. Using its own funds, Beijing has purchased eight Wang VS-2200 machines for the pilot censuses, and is also seeking to buy high-speed printers to publish the census results.

The one-year postponement of the census was attributed to the heavy burden of organizational work and to Washington's hold on approving export licenses for the IBM computers. While in Beijing in mid-June, Secretary of State Alexander Haig said that the US is determined to facilitate the flow of high technology to China and has finally cleared the IBM package for export.

Scope and Quality Control

According to UNFPA officials, Beijing plans to include 15 to 20 items in its census questionnaire, about 10 more than were asked in 1964. The data will provide China with its most complete profile of the population's age and sex, ethnic composition, marital status, fertility, and educational and occupational levels. Special questions about housing conditions may be included for China's estimated 130 million urban dwellers. Other questions under consideration are aimed at China's nonworking population, which totaled about 405 million in 1979. These will enumerate by age and sex the number of those persons who are students, domestic workers, unemployed, "waiting for employment," or retired. A final decision on the contents of the questionnaire will be made in October and reviewed in December in light of the results of the pilot censuses.

Beijing is committed to ensuring the quality and integrity of the census data. Ministry of Public Security offices, which provide the State Statistical Bureau (SSB) with annual and quarterly reports on changes in vital rates, household size, and migration, are in the process of updating local registers for the purpose of drawing up a current address list of households. At each enumerating station, these records will be opened to the general public to allow

The Challenge Ahead: China's Population Growth Through the Year 2000

Persuading China's baby-boom generation of the 1960s to have only one child, Vice-Premier Ji Pengfei has said, will be the first order of business for China's new State Family Planning Commission established in March.

	China's estimates*		World Bank estimates			
			Intermediate projection		Pessimistic projection	
	Population total (year-end, million)	Rate of natural increase (percentage)	Population total (year-end, million)	Rate of natural increase (percentage)	Population total (year-end, million)	Rate of natural increase (percentage)
1980	977	1.32	977	1.26	977	1.26
1990	1,106	1.00	1,107	1.17	1,111	1.31
2000	1,202	0.10	1,239	0.93	1,264	1.16

*Assuming the PRC achieves its goal of 1.2 billion population by the year 2000.
SOURCE: World Bank.

for grass-roots scrutiny of household information. A post-enumeration national survey conducted jointly by the SSB and Population Census Office will further check the census results.

In addition, Beijing is mounting a massive publicity campaign to enlist the population's cooperation in census-taking. The public has been warned that deliberate acts of statistical deception will be penalized. Overcounting family size, for example, will result in the reduction of grain rations.

Despite Beijing's best intentions and UNFPA's assistance, some US demographic experts contend that planners of the 1982 census simply have not had the time or opportunity to study and resolve defects in China's methods of data collection and verification. They point to discrepancies between provincial rates of natural increase and total population counts. Some Chinese demographers have attributed this to the propensity of local cadres to exaggerate the success of their area's birth control efforts.

To guard against deliberate and unintentional errors, Beijing has developed computer software that will scan data for completeness and consistency. These packages are being evaluated by comparison with the UN's internationally used COCENTS, XTALLY and UNEDIT programs. The UNFPA is also sponsoring a training program for 125 Chinese programs, systems, and maintenance engineers. Moreover, the US Census Bureau is exploring the possibility of holding an international conference in Beijing on the principles of editing census data in mid-1982.

After counting every Chinese within the first 10 days of July, according to the current timetable, the raw material is expected to reach provincial computing centers by September; and by early 1983 a 1 percent sample of the data should be ready for dissemination. It will then take at least 400 working days to draw the complete picture of the population. Afterward, Beijing will set up 10 demographic centers to use the computing equipment for follow-up research on economic and social issues.

Impact on Planning

Due to the near dissolution of the SSB during the Cultural Revolution, only limited and relatively simple data has been available to China's policymakers. The population census will go a long way toward restoring the SSB's institutional apparatus by training a new crop of statistical personnel in the modern techniques of data compilation, processing, and analysis.

Significantly, the census will give Beijing the primary data necessary for developing macroeconomic plans, especially in the areas of education, employment, and public health. With nationwide data on the population's educational qualifications, Beijing will be able to project the labor requirements of various sectors and plan school enrollment and staffing. Information on the nonworking population will be important for creating new employment opportunities. Sharp regional and local differences in vital rates could determine the location of new medical facilities.

To the extent that census data is reliable, the census results will serve as an indicator of the population's willingness to comply with Beijing's stringent family planning program. China's official goal is to limit the population to 1.2 billion in the year 2000 (*see* chart). This can only be achieved if the 65 percent of the population now under 30 agrees to have one-child families. The economic incentives to do so are strong: children of single-child couples now receive priority consideration in education, employment, and housing.

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The China Council for the Promotion of International Trade (CCPIT) is the official Chinese sponsor for the exhibition. CCPIT was established in 1952 to promote economic and trade relations between China and other countries. It is the sole authority responsible for all exhibitions in China.

Organizers

The American organizer is China Translation and Printing Services-USA (SF), Inc. Established in 1979, CTPS-USA is an American company providing high-quality technical translation, printing, and dissemination of American products literature to the People's Republic of China. CTPS-USA is affiliated to CTPS-Hong Kong with branch offices throughout Europe. CTPS-Hong Kong was founded in 1965 and has a proven track record of providing of high-quality translation and exhibition catalogs for over 30 major exhibitions held in China.

The Chinese organizer is China Electronics Import and Export Corporation (CEIEC). CEIEC is affiliated to the Fourth Ministry of Machine Building. It is a nation-wide state-run corporation linking production with foreign trade. The corporation is supported by more than 3,000 electronic enterprises with over one million workers throughout China.

Exhibition Cities

Electro Lit Expo '81 will be held in the month of December in three of China's major electronic development centers:

Beijing	15-21 December 1981
Nanjing	19-25 December 1981
Chengdu	23-29 December 1981

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You are invited to supply 500 copies of your catalogs, handbooks, technical manuals, or brochures on products, processes, or services of interest to the Chinese. CCPIT will distribute your materials to the related end-users throughout China. The material need not be in Chinese. However, CTPS-USA highly recommends that introductory letters and brief summaries be provided in Chinese to facilitate inquiries.

The material will be shipped in bulk to the Chinese exhibition halls in Beijing, Nanjing, and Chengdu. 5 copies of each item will be on display for the more than 21,000 technicians, end-users, engineers, managers, and officials invited to Electro Lit Expo '81.

Participating American companies will be listed in the official Chinese-language "Electro Lit Expo '81 Catalog". The official Catalog and literature reply cards will be distributed to all attendees to facilitate on-the-spot inquiries regarding specific American products. Your company can also increase its exposure by advertising in the "Electro Lit Expo '81 Catalog". (Rates are available upon request.)

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Electro '81 Lit Expo

Contact Judy Poon,
153 Kearny St., #511, San Francisco, CA 94108 (415) 362-2445.
CHINA TRANSLATION & PRINTING SERVICES–USA (SF) INC.

CTPS

Inside China's Tariff System

Xue Hua

China exempts from import duties 65 top priority items such as wheat, cotton, and improved strains of live animals. Low duty rates of 5-20 percent are levied on chemical fertilizer, pesticides, industrial machines, timber, paper pulp, and other items the country badly needs. Higher duties of 25-40 percent are levied on less important imports such as sugar, dyestuffs, ordinary medicines, and calculators, while duties of 50-100 percent are placed on watches, plastics, and other goods produced in large quantities in China. Luxury items including cigarettes and wine are charged the highest rates, ranging from 120 to 200 percent.

China's tariff system has long been a mystery to traders. In this issue the behind-the-scenes role played by China's tariff structure is revealed in an article written exclusively for The CBR *by China Features, an affiliate of the official New China News Agency. Imports, it turns out, are subjected to differing tariffs according to whether their country of origin has signed a trade treaty with China, China's need for them, and the gap between their production costs in China and abroad. The article goes on to describe the PRC's tariff structure, including the types of commodities imported at various rates, as well as the organization and distribution of China's customs services.*

The General Administration of Customs of China, an organ directly under the State Council of the People's Republic, is responsible for unified control over all the country's customs houses. It has 11 subdivisions: the general office, freight transport department, luggage and parcel post department, customs duty department, smuggling inspection department, science and technology department, statistics department, research office, personnel department, finance department, and administration department.

At present there are 38 customs houses located in 21 of China's 29 provinces (*see* box). The work of these customs houses is especially heavy in the southern province of Guangdong. A branch office of the General Administration of Customs was set up in the provincial capital of Guangzhou in 1980.

Customs Legislation

The basic responsibilities of China's customs houses are laid out in such government decrees as the country's Customs Law, Regulations for Chinese Customs Houses on Import and Export Duties, Law on the Administration of Foreign Trade, and other government regulations. These responsibilities include: supervision and control over commodities, currency, gold and silver, postal matters, travelers' luggage, means of transport, and other articles carried on transport vehicles going into or out of China; the assessment of customs duties and other taxes; and the interception of smuggling and other illegal activities.

China has a protective tariff policy. As the document "Tariff Policy and Decision on Customs Work" issued on January 27, 1950 points out, "Regulations for customs houses on import and export duties must protect domestic production and the competitive position of Chinese-made products against foreign ones."

"Regulations for Customs Houses of the People's Republic of China on Import and Export Duties" adopted on May 16, 1951, divides imported and exported commodities into 17 categories, containing a total of 1,726 classifications according to natural properties, composition, and use.

Four Tariff Categories

The regulations set different import duty rates on the basis of China's degree of need for the goods and the gap between their production costs in China and abroad.

Exempt from taxation are 65 items of imported goods such as rice, millet, wheat and other grains, cooking oil, tree saplings, crop seeds, fodder, improved strains of live animals, cotton, certain special medicines, books, newspapers, magazines, metal ores, gold, silver, platinum, and astronomical and nautical instruments. Low duty rates, ranging from 5 to 20 percent, are levied on certain imports which China needs, including chemical fertilizer, pesticides, crude oil, rubber, timber, paper pulp, some special kinds of rolled steel, industrial machines, farm machinery, aircraft, rolling stock, and trucks.

Other less crucial imports such as sugar, ordinary medicines, dyestuff, paint, cement, asbestos, gasoline, cotton yarn, hemp, woolen fabrics for industrial use, typewriters, and calculators, have duty rates ranging from 25 to 40 percent.

Imported goods which can be produced in large quantities in China, and are not necessities for the national economy, are taxed at rates of 50 to 100 percent. They include fresh fruit, furs, coal, porcelain, watches, cotton cloth, electrical instruments, metal products, plastic, and wooden products.

Higher duty rates—120 to 200 percent—are imposed on imports like cigarettes, wine, edible delicacies including bird's nests, sea cucumbers and dried scallops, silks and satins, cosmetics, and other luxuries.

China's Customs Administration

Office	Address
General Administration of Customs*	
Headquarters	2 Dongchangan Street, Beijing Director General: Wang Rensheng
Guangdong Branch Office	29 Yanjiangyi Road, Guangzhou Director: Sun Chuanlu
Customs Houses	
North China	
Beijing	12 No. 1 Lane, Taijichang, Beijing
Tianjin	2 Yingkoudao, Heping District, Tianjin
Qinhuangdao	6 Nanshan Street, Qinhuangdao, Hebei Province
Manzhouli	Erdao Street, Manzhouli, Nei Monggol
Erlianhot	Erlianhot, Nei Monggol
Northeast China	
Dalian	100 Stalin Street, Zhongshan District, Dalian, Liaoning Province
Shenyang	6 Third Section, Zhonghua Road, Heping District, Shenyang, Liaoning Province
Dandong	1 Jiangan Road, Zhenxing District, Dandong, Liaoning Province
Changchun	56 Stalin Street, Changchun, Jilin Province
Jian County	Jian County, Jilin Province
Tumen	Tumen City, Jilin Province
Harbin	55 Heping Street, Dongli District, Harbin, Heilongjiang Province
Suifenhe	Suifenhe City, Heilongjiang Province
East China	
Shanghai	13 Zhongshan Dongyi Lu, Shanghai
Qingdao	1 Dagangyan, Qingdao, Shandong Province
Nanjing	1 Baixia Road, Nanjing, Jiangsu Province
Lianyungang	Hehua Street, Lianyungang, Jiangsu Province
Hangzhou	Yanan Road and Fengqi Road No. 1, Hangzhou, Zhejiang Province
Ningbo	74 Jiefangbei Road, Ningbo, Zhejiang Province
Wenzhou	Haitanshan, Wenzhou, Zhejiang Province
Wuhu	Tuanjie Road, Wuhu, Anhui Province
Fuzhou	82 Dong Street, Fuzhou, Fujian Province
Xiamen	34 Haihou Road, Xiamen, Fujian Province
Jiujiang	Benjiang Road, Jiujiang, Jiangxi Province
Central-South China	
Wuhan	72 Yanjiang Road, Hankou, Hubei Province
Guangzhou	29 Yanjiangyi Road, Guangzhou, Guangdong Province
Jiulong	49 Heping Road, Jiulong, Shenzhen Municipality, Guangdong Province
Huangpu	Huangpu Port, Guangzhou, Guangdong Province
Gongbei	Gongbei District, Zhuhai Municipality, Guangdong Province
Shantou	Shantou, Guangdong Province
Haikou	4 Fandi Road, Haikou, Guangdong Province
Zhanjiang	Xiashan-Renmin Road, Zhanjiang, Guangdong Province
Jiangmen	Jiangmen, Guangdong Province
Nanning	13 Jinan Road, Nanning, Guangxi Zhuang Autonomous Region
Southwest China	
Chongqing	Third Guest House, Huanghuayuan, Chongqing, Sichuan Province
Kunming	555 Beijing Road, Kunming, Yunnan Province
Lhasa	Renmin Road, Lhasa, Xizang (Tibet)
Northwest China	
Urumqi	10 Tuanjie Road, Urumqi, Xinjiang Uygur Autonomous Region

*The GAC was established in February 1980, replacing the Customs Bureau of the Ministry of Foreign Trade.

Trade Treaties Make a Difference

The regulations set two different scales of import duty rates: most favorable duty rates for countries which have signed trade treaties or agreements with China, and general duty rates, applicable to countries lacking such treaties or agreements. The general duty rates are usually 20 to 100 percent higher than the most favorable duty rates for the same goods.

Duties are assessed according to the value of imports, as measured by their cost, insurance, and freight (cif). In China, cif includes the wholesale prices of the imported goods in places where they were purchased, export duties levied abroad, and all expenses for packing, transport, insurance, and service. The cif figure is calculated by Chinese customs houses according to bills and contracts provided by importers. If the information is not available, then the cif value is estimated by the customs house.

To encourage exports, the Chinese government does not levy export duties. In the past, groundnuts, peanut oil, peppermint oil, and menthol crystals were exceptions, but these export duties were terminated on February 1, 1980.

Foreign trade in China is conducted mainly by the 10 import and export corporations under the Ministry of Foreign Trade that are responsible for paying import duties. The total value of their imports and exports accounts for some 90 percent of the country's total.

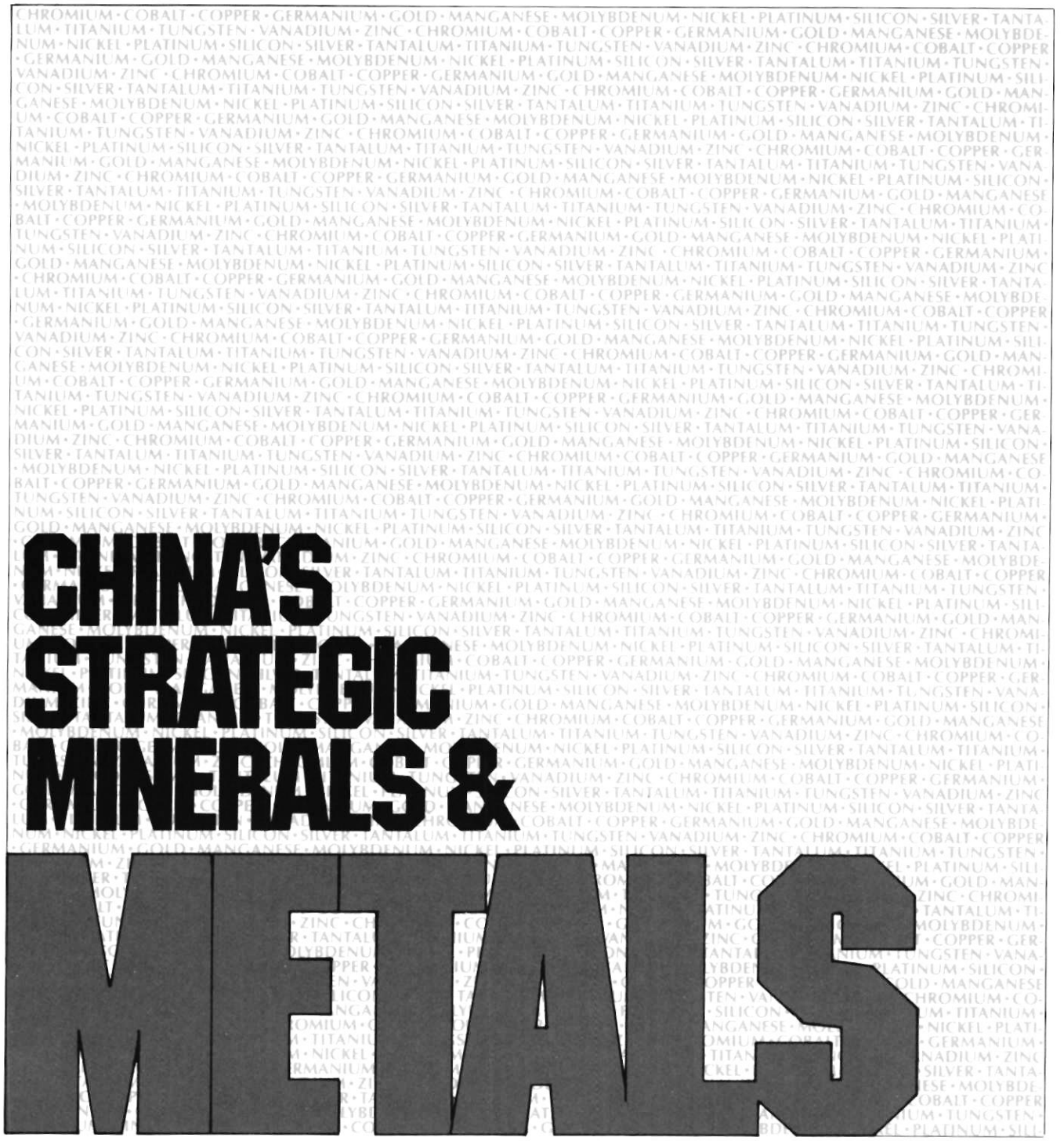
The country's main exports are rice, live hogs, cotton cloth, garments, tea, drawnwork, pottery and porcelain, coal, and petroleum. China's major imports in recent years have been wheat, chemical fertilizer, pesticides, rolled steel, paper, paper pulp, chemical materials, and complete sets of machinery. The total value of China's imports and exports reached $37.53 billion in 1980, a 23.6 percent increase over 1979.

China's customs houses also levy import duties on passengers' taxable articles and personal postal parcels, according to rules which were simplified in August 1978. The rules list only 13 headings and five duty rates—20, 50, 100, 150, and 200 percent. Textbooks, films, slides, gold, silver, and contraceptives may come in duty-free. Additionally, China levies tonnage duties on foreign ships which have arrived in Chinese ports.

RMB:DOLLAR RATES

	RMB/ US$	US¢/ RMB
June 23		
Bid	1.7423	57.3954
Offer	1.7511	57.1070
Median	1.7467	57.2512
July 2		
Bid	1.7528	57.0516
Offer	1.7616	56.7666
Median	1.7572	56.9087
July 7		
Bid	1.7598	56.8246
Offer	1.7686	56.5419
Median	1.7642	56.6829
July 13		
Bid	1.7510	57.1102
Offer	1.7598	56.8246
Median	1.7554	56.9671
July 16		
Bid	1.7422	57.3987
Offer	1.7510	57.1102
Median	1.7466	57.2541
July 20		
Bid	1.7509	57.1135
Offer	1.7597	56.8279
Median	1.7553	56.9703
July 21		
Bid	1.7579	56.8861
Offer	1.7667	56.6027
Median	1.7623	56.7440
July 28		
Bid	1.7667	56.6027
Offer	1.7755	56.3222
Median	1.7711	56.4621
July 31		
Bid	1.7755	56.3222
Offer	1.7845	56.0381
Median	1.7800	56.1798
August 3		
Bid	1.7844	56.0412
Offer	1.7934	55.7600
Median	1.7889	55.9003
August 4		
Bid	1.8023	55.4847
Offer	1.8113	55.2090
Median	1.8068	55.3465
August 6		
Bid	1.7951	55.7072
Offer	1.8041	55.4293
Median	1.7996	55.5679
August 7		
Bid	1.8054	55.3894
Offer	1.8149	55.0995
Median	1.8102	55.2425
August 11		
Bid	1.8275	54.7196
Offer	1.8367	54.4455
Median	1.8321	54.5822
August 12		
Bid	1.8183	54.9964
Offer	1.8275	54.7196
Median	1.8229	54.8576
August 17		
Bid	1.8128	55.1633
Offer	1.8218	54.8908
Median	1.8173	55.0267
August 20		
Bid	1.7820	56.1167
Offer	1.7910	55.8347
Median	1.7865	55.9754
August 24		
Bid	1.7642	56.6829
Offer	1.7730	56.4016
Median	1.7686	56.5419
August 25		
Bid	1.7722	56.4270
Offer	1.7872	55.9534
Median	1.7797	56.1892
August 26		
Bid	1.7907	55.8441
Offer	1.7997	55.5648
Median	1.7952	55.7041
August 27		
Bid	1.7763	56.2968
Offer	1.7853	56.0130
Median	1.7808	56.1545
August 31		
Bid	1.7639	56.6926
Offer	1.7727	56.4111
Median	1.7683	56.5515
September 1		
Bid	1.7727	56.4111
Offer	1.7815	56.1325
Median	1.7771	56.2715
September 3		
Bid	1.7585	56.8666
Offer	1.7673	56.5835
Median	1.7629	56.7247
September 9		
Bid	1.7708	56.4717
Offer	1.7796	56.1924
Median	1.7752	56.3317

NOTE: Bid is for US dollars.
SOURCE: Standard Chartered Bank, Ltd., New York.



E. Sabina Brady

Major surges in Chinese exports to the US of such stratgegic metals as germanium and titanium have aroused curiosity as to China's resources and production capabilities for these metals. The following special report examines past developments and the future export potential of these critical products.

Tin and antimony, two of China's major traditional export metals, will be covered in future issues. **The CBR** *has previously published articles on bauxite (Nov.–Dec. 1979, pp. 60–63), and tungsten (March–Apr. 1979, pp. 28–33). The sections on titanium, vanadium, and tantalum were written by Martin Weil.*

Chromium (Cr) For the last year and a half China has reportedly been supplying between 5 and 10 percent of the noncommunist world's chromium needs. In 1980 the US imported more than $1 million worth of Chinese chromium. US imports of ferrochrome and chrome from China exceeded $1.5 million in the first four months of 1980. Ironically, most observers assumed until recently that the country had little, if any, chromium.

Xinjiang produces the country's largest share of the metal, and claims to be the only exporter of chromite ores in China. All of its ores come from the Junggar Basin, with the largest share from the Salthohai chromite mine in the basin's northwestern region. The mine has more than 1 million tons of ore, of which 35 percent is chromium. Chromite production in Xinjiang began in 1967, and prospecting continues as new mines are being built. A highway now links the mining area to the provincial capital of Urumqi. Xinjiang's chromite ores, used to produce chromium and refractory material, are exported in lump and powder form. The aluminum oxide content of the ore is 18 percent, its magnesia content 13–14 percent, and chromium hemitrioxide content is 32 percent.

Other major chromite deposits are located on the Xizang (Tibetan) Plateau. These deposits contain a number of platinum-rich veins. Dali, in Yunnan Province, has similar platinum deposits containing chromite. Jiangsu claims to have deposits of chromite powder. Two other mines, the Panzhihua titanium ore mine and a columbium iron ore mine in Inner Mongolia, also contain chromium.

The major consumers of China's chromite ore are Japan and Southeast Asian countries. The PRC made its first export sales of the material at the fall 1979 Guangzhou Trade Fair, signing contracts for 1,000 tons. At the fall 1980 fair, contracts for 9,000 tons of the ore were concluded, and during the 1981 spring fair, 2,000 tons of ferrochrome were sold to a British company for shipment to the US.

Both CMIEC and MINMETALS (*see* page 75) offer chrome and ferrochrome for export. CMIEC's 1980 export catalog lists ferrochromium (60 percent chromium), chrome oxide (95–57 percent Cr_2O_3), and metallic chrome (98.5 percent chromium). MINMETALS' 1980 catalog offers ferrochrome with 60 percent chromium content. Its nine grades of ferrochrome are differentiated by levels of carbon, silicon, phosphorous, and sulphur content. In addition to ferrochrome, MINMETALS also offers two grades of chromium metal.

Cobalt (Co) Exact cobalt production and reserve figures are unavailable, and it is not known whether recent Chinese cobalt exports represent excess production capacity above domestic needs, or merely the sale of surplus inventories. US imports of Chinese cobalt sulfate were valued at $100,000 during the first four months of 1981.

Major cobalt deposits have been found at the Jinchuan nonferrous metallurgical complex in Gansu Province. These total an estimated 100,000 tons. Cobalt content of the mine's raw ore is 0.035 percent. One authority estimates that the mine produces at least 100 tons of contained cobalt annually.

Other cobalt deposits have been found in Liaoning, and at Donghongshan, in Yunnan. The world's largest deposit of titanium at Panzhihua in Sichuan contains cobalt, nickel, chromium, scandium, and gallium. Inner Mongolia recently reported that the region has a columbium iron ore mine that also contains cobalt; in the late 1970s, a British group was consulted with regard to the possible exploitation of cobalt sulphide deposits on Hainan Island.

During the first quarter of 1981, a US trading firm received price quotations from Beijing for cobalt oxide. The prices quoted by the Chinese reflected the world prices for oxide at the time. The US trading firm initially expressed interest, but events later in the spring changed the situation considerably.

On March 2, Zaire lowered its selling price of cobalt metal by 20 percent, to $20 per pound. Zambia quickly followed suit. The two countries rank first and second in the world in cobalt production, with Zaire alone producing more than 50 percent of the world total. In lowering the price of the metal, Zaire effectively established a new world price level for cobalt, thus making Beijing's earlier quotations noncompetitive. Moreover, the US government announced in June that it had contracted to purchase more than 5 million pounds of cobalt from Zaire for the US strategic material stockpile at a price 25 percent below the producer price list. This announcement further dampened the cobalt market, and will probably discourage China and other new entrants to the world market.

Copper (Cu) China's known contained copper reserves easily exceed 80 million tons. The country's six major copper-producing centers are located at Daye in Hubei, Tongling in Anhui, Zhongtiaoshan in Shanxi, Dongchuan in Yunnan, Baiyanchang in Gansu, and in northern Jiangxi. Recently there have been a number of new copper deposits discovered throughout the country. A large deposit, suitable for strip mining, has been reported in Zhangdu, Xizang with reserves estimated at 6.4 million tons. The undeveloped copper deposit in Anjing, Anhui is said to have copper reserves of 20 million tons, while the copper mine in Tongshankou, Hubei, has reported copper reserves of 50 million tons.

The Dexing copper mining area in Jiangxi and Anhui contains four major copper deposits and has been mined for more than 1,000 years. Proven reserves are 8–10 million tons of contained copper, with byproducts of gold, silver, rhenium, and molybdenum. Beginning in late 1978, Fluor Corporation signed contracts with the Chinese to develop the mine and the entire porphyry copper area. Completion of the multiphased project was scheduled for 1983, but retrenchment caused the development plans to be delayed.

Other porphyry copper deposits (one of eight major types of copper ore in China) are located in a ferrotungsten mine in eastern Xizang, in Yuanqu, Shanxi, and in the Changjiang River valley of Anhui. The Xizang deposit located in the Qamdo Prefecture is estimated to have metal reserves of 6.4–8 million tons. Copper reserves have also been discovered in a 260-million-ton ore body in the Fengchang area of Liaoning Province.

The Zhuzhou metallurgical complex in Hunan reports that two elements recovered from the processing of zinc concentrate are copper and cobalt. The complex has a copper operating division that recovers gold, silver, platinum, and nickel. The copper and cobalt products produced by the complex are: electrolytic copper (99.96–99.97 percent copper), galvanizing alloys containing copper, and cobalt oxide with 70–72 percent cobalt content. The complex uses an impurity extraction process

to produce cobalt oxide. In addition, Xinjiang Province recently announced the existence of a copper mine at Shikebutai.

Germanium (Ge) The US imported $45,000 worth of germanium from China in 1980. During the first four months of 1981 alone, imports of germanium from China totaled nearly $2.5 million, averaging 450 to 670 kilograms per month. A year ago China barely sold any germanium abroad; this year it is expected to export seven tons. Before this increase in germanium exports, China's annual production capacity was estimated to be 6,000 kilograms.

There is both a US and worldwide shortage of germanium, which reflects the rapid growth of the industries that utilize germanium, as in the construction of infrared lenses and fiberoptics. Since early 1980, the world price for germanium has increased from $557.50 per kilogram to a list price of $945 per kilogram (April 1981 price). On the open market, the metal often sells for more than $1,000 per kilogram.

There is speculation about where China obtains its germanium, as the metal is a byproduct of both zinc and coal. Though China possesses large coal reserves, the prevailing view is that China's germanium is largely a byproduct of its zinc.

Gold (Au) Total gold output in 1981 is expected to exceed 25 metric tons. And if past growth trends continue, China soon will displace Canada as the world's third largest gold producer, after South Africa and the Soviet Union.

China has been trading gold shrewdly for years. During the mid-1970s it resorted to gold sales to finance crucial food and raw material purchases from the West (exact export figures are not available, however). In June 1981, China released data on its monetary reserves, showing that the Bank of China held gold reserves of 12.8 million ounces, worth nearly $6 billion at current market prices.

Since 1976, the Chinese government has stepped up its gold mining development throughout the country. Even small-scale production by commune cooperatives has been encouraged. Beijing recently announced that all gold mined in Xinjiang (mainly small deposits) is tax exempt, and will be purchased by the state from individual panners and communes at ¥700 per 50 grams of gold, a price 40 percent above the fixed prices prevailing in other provinces. Moreover, for each 50 grams of gold sold to the state, the individual or commune will receive 100 kilograms of grain. Small wonder that in parts of China peasants have reportedly been seized by a "gold mining craze." With gold output at an "all-time high," Xinjiang produced in the first six months of this year 3.5 times what it did in 1980.

Thirty percent of China's total output in 1979 was produced by local enterprises and sold to the state at fixed prices.

Shandong Province reportedly produces more than 60 percent of China's gold output. The province claims 450 short tons of gold reserves, and in 1981 is expected to produce 543,000 ounces, or 15.4 metric tons of gold. The output of small-scale units accounts for about half of the province's total production, though the most rapid expansion in capacity is taking place in large state-run mines. Most of the larger mine sites are in Zhaoyuan and Yexian counties in eastern Shandong. Zhaoyuan has one of the oldest gold mines in China, with production dating back 900 years.

Another large gold mining center is in Lingbao County in western Henan. During 1979 an ore dressing plant with a planned annual production capacity of 100,000 ounces of gold was under construction near the mine center. When complete, this plant will supply approximately 12 percent of China's gold output. It is estimated that the province as a whole has gold reserves of around 30 tons.

Hunan Province possesses medium-sized mines near its capital of Changsha that supply the Zhuzhou metallurgical complex and others in Heilongjiang. Hunan and Heilongjiang produce 68,000 ounces and 32,000 ounces respectively, an output equivalent to around 12 percent of China's total gold output. Hunan's Zhuzhou metallurgical complex recovers gold from the processing of lead and copper. The recovered precious metal is of refined quality, and contains 99.993 percent gold.

Additional gold production in China comes from small collective enterprises and individual gold panning in Nei Monggol, Xinjiang, Zhejiang, and Hebei. Placer gold also has been discovered in riverbeds in Heilongjiang, Jilin, and Sichuan. Annual production from these riverbed placer deposits is estimated at 100,000–200,000 ounces.

China has been developing three gold mines in Shandong with limited foreign technical assistance. In 1980, Davy McKee Corporation conducted a feasibility study at the Xincheng and Jiaojia mines in Yexian county, the first step in a three-phase project. The study examined ways to increase daily production at each mine from 500 metric tons to 2,000–3,000 metric tons of ore and to triple gold output to 24 kilograms per day. In June 1981, the China National Technical Import Corporation (TECHIMPORT) informed Davy McKee that phase two will go ahead in the latter part of 1981 or early 1982. In the project's second phase, Davy McKee will continue to give detailed analysis of the mine and its deposit, provide engineering and technical expertise, procure necessary equipment, and serve in an advisory capacity on construction.

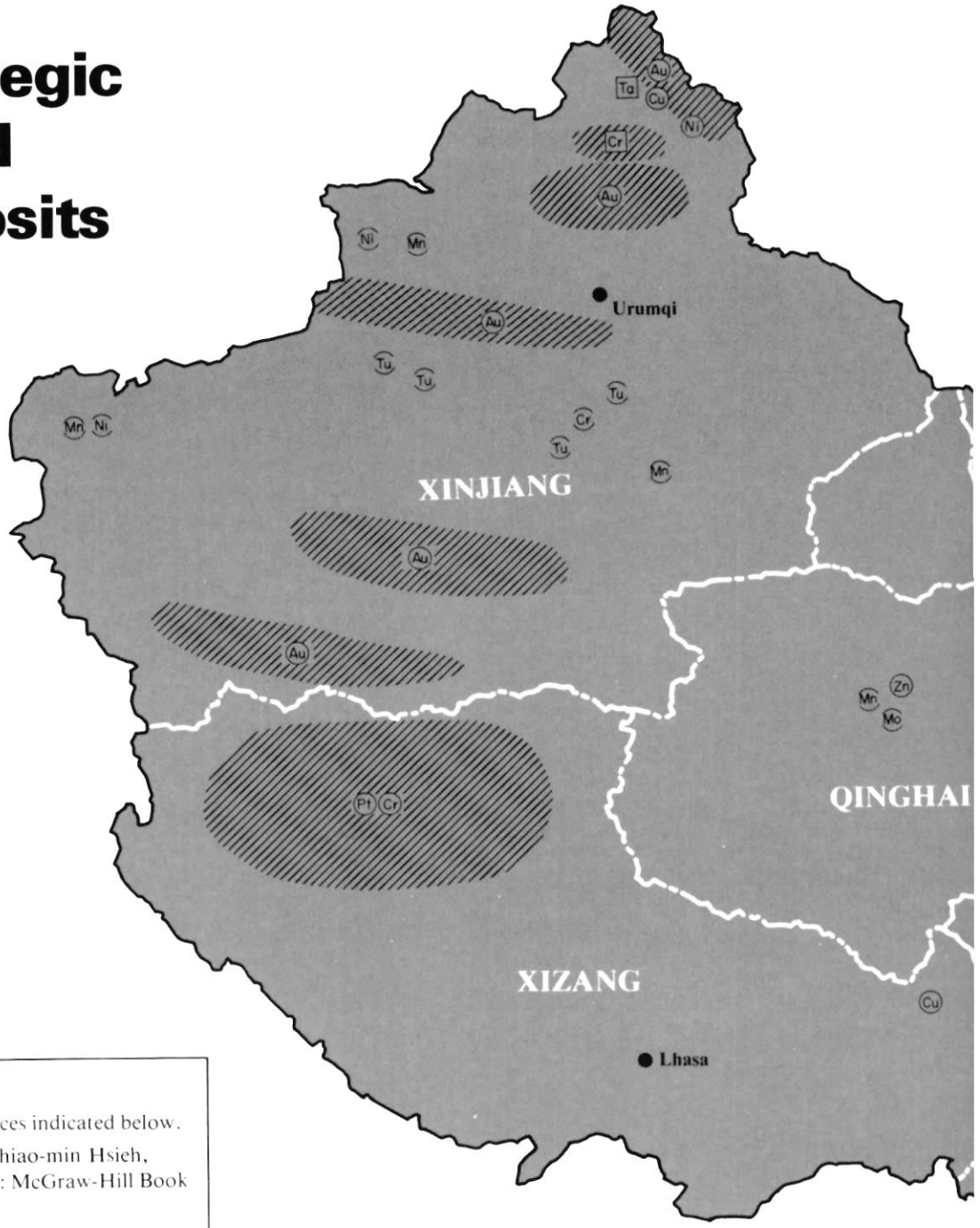
Similarly, at the nearby Sanshandao mine, Wright Engineering of Canada has conducted a feasibility study to expand ore production capacity from 500 metric tons per day to 1,500–2,000 metric tons per day. Wright Engineering has yet to be awarded any contracts for additional mine development.

Even without further foreign technical or financial assistance, the Chinese probably possess the know-how and equipment to partially implement the findings of the McKee and Wright feasibility studies. Thus, if the Chinese went ahead with expansion without any additional foreign participation, it is estimated that full production capacity at these mine sites could be achieved by mid-1982.

No other foreign contracts related to gold mining were signed in 1980, apart from the decision to import three dredgers from the Netherlands. These were purchased from the Mining and Transportation Engineering BV of Amsterdam, and are to be used in Huma County in Heilongjiang.

Despite the problems and setbacks experienced by foreign companies, China's gold mining program remains a top priority—one which could roughly double the country's current gold output by 1983 or 1984. Current production amounts to at least 25–30 metric tons a year, although some estimates go much higher. For example, Consolidated Gold Fields, which sent two teams to China in 1979 to examine the country's gold mining industry, believes that production now ranges between 30 and 60 metric tons a year. By 1983 China will be

China's Major Strategic Mineral and Metal Deposits



Legend

Cr	Chromium
Co	Colbalt
Cu	Copper
Au	Gold
Mg	Magnesium
Mn	Manganese
Mo	Molybdenum
Ni	Nickel
Pt	Platinum
Si	Silicon
Ag	Silver
Ta	Tantalum
Sn	Tin
Ti	Titanium
Tu	Tungsten
V	Vanadium
Zn	Zinc (includes associated lead)

- Area of known deposits
- Deposits. Partial list of sources indicated below.
- Deposits according to Dr. Chiao-min Hsieh, *Atlas of China*, New York: McGraw-Hill Book Company, 1973.
- Mine

SOURCES:

US government translations from the Chinese press and radio broadcasts appearing in JPRS and FBIS; periodicals including *American Metal Market, Roskill's Letter from China, The Economist, Far Eastern Economic Review,* report of the *Fourth Meeting MMIJ-AIME 1980, Tokyo, World Business Weekly, East-West Trade Council Newsletter, China Reconstructs, China Business Report, E/MJ Mining Activity Digest, Mining Magazine, Energy Asia, China Economic News, Metals Week, Mining Annual Review, Metal Progress,* and *The China Business Review*; interviews with US Bureau of Mines staff and US General Services Administration staff; official literature of China's foreign trade corporations involved in the trade of minerals and metals; and discussions with mineral and metal traders.

Map prepared by Sabina Brady

The China Business Review, September-October 1981

producing at least 50 metric tons of gold. At current world prices, such a production level would have a value of at least half a billion dollars.

Manganese (Mn) Since 1952, the annual output of diverse manganese ore has risen from 200,000 tons to a maximum of 1.5 million tons, and has now stabilized at between 1.0 and 1.5 million tons.

Exports of manganese from China to the US have been few and far between; no manganese from China entered this country between January and April 1981. Last year, imports to the US of manganese compounds totaled a little more than 95 tons. This small amount does not necessarily reflect a low volume of production or export by the Chinese. For the past seven years sizable quantities of manganese have been exported to Japan. Exports of manganese ores, concentrates, and oxides to Japan in 1980 alone exceeded 5,700 tons—more than 50 times the level of China's manganese exports to the US during the same period.

The international market for manganese has been depressed for nearly a decade, and the major consuming nations—Japan, the US, South Korea, and Taiwan—are not likely to increase their demands for the mineral for some time.

The major world producers of manganese are Australia, India, South Africa, and the USSR. Although the Soviet Union is the world's largest manganese producer, the grade of its ore is comparatively low. Australia is the major supplier for US needs (which annually exceed 1 million tons). Autralia's massive manganese reserves are possibly 10 times larger than China's known reserves.

There is a continuing debate about the size of China's manganese reserves. A 1979 report states that although China has five different geologic types of manganese deposits distributed widely throughout the country, the majority of them are so small that the development of a major mine is unlikely. The US Bureau of Mines estimates that China's manganese resources total approximately 32 million short tons. Another estimate places China's manganese reserves in Hunan Province alone at 25 million tons.

The largest known deposit in China is located in Daxin County, Guangxi. (In May of 1980 there were reports that a large mine was being planned there.) The three principal manganese producing areas in Guangxi are all located in the eastern and southeastern parts of the province. Other principal producing areas include Shaoshanchang in Hunan; Zhunyi, Qin Xian, and Fancheng in Guangdong; and Wafangzu in Liaoning. Within the last year, two deposits of manganese have been discovered: one, a large high-grade deposit in southern Yunan, and the other, the Daxin deposit in Guangxi.

Molybdenum (Mo) The world molybdenum market continues to be a very weak one as it closely follows the conditions of the US steel industry. Considerable discounting is now being practiced, and molybdenum producers are even delaying billing until molybdenum sales are actually used. Moreover, US steel companies this year began to buy "off-grade" molybdenum oxide instead of standard molybdenum. But despite these conditions, China's molybdenum exports to both the US and the world have increased in the past two years due in part to a long-term effort by China to become known as a reliable supplier.

During the first half of 1981, CMIEC signed contracts to export 2,200 tons of molybdenum concentrate. The Liaoning branch of MINMETALS announced that it also exports molybdenum, in addition to a host of other minerals and metals.

The US Geological Survey estimates that China's present production capacity of contained molybdenum is 4,000,400 pounds per year. The country has a number of porphyry molybdenum deposits, and molybdenum is an important byproduct in all of China's porphyry copper deposits. Because molybdenum is often a byproduct of copper, and to a lesser degree of tungsten, there have been a number of US companies involved in the exploitation of molybdenum.

But retrenchment in China has slowed mine development projects. Fluor Corporation, for example, is no longer actively involved in the Dexing copper deposit project in Jiangxi, which contains 0.03–0.08 percent molybdenum. One of the few mining projects with foreign funding that has not been delayed or canceled is the half-completed Jinduicheng mine in Shaanxi province. Earlier this year the Chase Manhattan Bank reportedly agreed to loan the Chinese $20 million for the mine's development, accompanied by a $30 million investment by the China International Trust and Investment Corporation. The loans will be repaid through the joint marketing of the mine's porphyry molybdenum. Metalgesellschaft is also financially involved in the Jinduicheng mine as the result of negotiations conducted late last spring.

Liaoning, Jilin, Shandong, and Jiangsu contain other major porphyry molybdenum deposits. The Yangjiachangzu mine in Jinxi County, Liaoning produces 1,000 tons of concentrate molybdenum annually. It has several million tons of ore reserves which contain 0.1–0.3 percent molybdenum. This single mine's annual production figure is half of the US Geological Survey's estimate for China's concentrate molybdenum production capacity as a whole.

As a byproduct of tungsten, molybdenum is also found in the tungsten fields located in Jiangxi and Yunan, and in the Shizhuyuan tungsten mine (where Fluor is reportedly involved) located in the Wuling mountain range in Hunan. Ore reserves in this mine are estimated to be 190 million tons, of which 0.06 percent is molybdenum.

Nickel (Ni) Earlier this year the *People's Daily* ran two advertisements for the sale of nickel and cobalt extracted from the Jinchuan mine in Gansu Province. The advertisements substantiated the opinions of a number of mineral and metal traders that China not only has reserves of nickel and cobalt, but that it has a sufficient production capacity to export both.

In 1980, the US imported only $20,000 worth of nickel sulfate from China, but in the first four months of 1981 this figure rose to nearly $110,000.

In the last five years, China has discovered deposits of nickel, copper, and associated cobalt throughout the country, particularly in the provinces of Hebei, Hubei, Hunan, Jiangsu, and Shandong.

Nickel reserves are estimated at 7.67 million tons, and in 1979, total production was about 20,000 tons. China's largest nickel deposit is in Gansu Province at the Jinchuan nonferrous metallurgical complex, which also contains reserves and deposits of copper, silver, gold, platinum, and a half dozen other metals. The Jinchuan nickel mine itself has estimated reserves of 5 million tons.

Raw ore reserves contain 1.06 percent nickel and are thought to exceed 500 million tons.

Platinum (Pt) The Jinchuan nonferrous metallurgical complex in Gansu Province produces platinum, gold, and silver as byproducts. There are reportedly 515 million tons of ore at Jinchuan containing approximately 0.32 grams of platinum per ton of raw ore, while the Xizang Plateau chromite deposits are said to contain veins rich in platinum. There is also an ore body deposit which contains platinum with chromite, palladium, osmium, and iridium in the Dali Autonomous Prefecture in Yunan. It also has been announced that a deposit of ruthenium, a member of the platinum family group, has been discovered in Guangdong Province. It is the first such discovery in China.

One American company recently studied the feasibility of extracting platinum from a large deposit in Yunnan. The company determined, however, that there was not a sufficient quantity of platinum to make extraction financially feasible, since the deposit's platinum content averaged 0.5 grams per ton of mined rock.

Silicon (Si) China's silicon metal production was estimated at 12,000 tons in 1980. The world and US markets for high-grade silicon metal, used in the construction of semiconductors, is continuing to grow, while the market for low-grade silicon, used as an alloying agent, is declining. Although the US is the world's largest silicon producer, it is also a major importer of the metal, in particular from Canada and Yugoslavia. That small shipments of silicon from China have entered the US during the last 18 months may be indicative of a desire to further diversify foreign suppliers of the material.

Less than half a ton of silicon metal was imported from China to the US in 1980. During the first four months of 1981, two shipments of silicon—43,651 pounds of silicon metal and 452 pounds of polysilicon, respectively—entered the US from China.

China's exports to other countries were considerably larger. In 1980, China supplied Japan with 618 tons of ferrosilicon and 200 tons of silicon metal. In late 1980 MINMETALS signed contracts with the Japanese firms of Kyokuei Industry and Meikai Boeki, agreeing to supply 5,500 short tons of silicon in 1981, 11,000 short tons in 1982, and 16,000 short tons in 1983. In addition, during the first half of 1981, CMIEC signed contracts worth $290 million with a number of Japanese companies for the exportation of industrial-use silicon and ferrosilicon, the latter with 75–80 percent silicon content.

CMIEC's 1980 catalog lists pure silicon, ferrosilicon, smelting quartz, and silica brick for export. The quartz and silica brick contain silicon dioxide contents of greater than 99.9 percent and 94.5 percent, respectively. The ferrosilicon has a 72–80 percent silicon content, while the pure silicon metal content exceeds 98 percent. MINMETALS in its 1980 export catalogue lists only ferrosilicon with a minimum silicon content of 75 percent.

One of China's major quartzite deposits, from which silicon is obtained, is located at Basuo on Hainan Island. It is estimated that the total quantity of Basuo quartz is 3.5 million tons, of which 2.5 million can be exploited. The quartz crystals contain 98.6 percent silicon dioxide, 0.31 percent alumina, and 0.065 percent iron oxide. The processing of low-grade silicon from quartzite requires great amounts of electric power. The processing of the silicon crystals from low-grade silicon is more labor-intensive, although exacting procedures must be observed.

Henan Province, also said to be rich in quartzite, recently established a metallurgical import and export company in Zhengzhou under the aegis of the Metallurgical Bureau of Henan, which in turn is administered by the Provincial Import and Export Administrative Commission. The company's exports include silicon iron, and silicon bricks, with a silicon oxygen content at or above 94.5 percent.

The Jilin ferroalloy complex in Jilin Province has an annual production capacity of 170,000–180,000 tons, and exports ferrosilicon, silicochrome, silicomanganese, and ferrochrome. Although it appears that most of the plant's ferroalloys are sold to Japan, some products are exported to the US, UK, Romania, and North Korea. The shipping ports used are Dalian, Tianjin, and Shanghai. It is reported that a number of representatives from Japanese iron and steel companies such as Manibeni, Sumitomo, Hanwa Kogyo, Daigen, Mitsui and Co., among others, have already visited the complex.

Silver (Ag) Although there is little specific information on Chinese reserves and production of silver, reports frequently mention silver production in association with copper, nickel, zinc, lead, and tin mining activities. In addition to being a byproduct of various metals, silver is a coproduct of gold. Shandong's Zhaoye gold mine contains copper sulphide ores with high gold and silver content. There are also reports of a large gold-silver deposit in Zhejiang Province.

Other finds: a silver lode of 250 tons located in the Miyun area outside of Beijing; silver deposits in Poshan, Henan Province, also containing lead, zinc, gold, cadmium, and germanium; deposits in Weishancheng, also in Henan, with the largest and best grade silver reserves in China, averaging 300 grams of silver per short ton; silver, cadmium, and germanium deposits (and possible production of these materials) at zinc mines in the Qinting Mining District, Lanping County, Yunnan Province; silver deposits at the Dexing copper mines in Jiangxi; ore deposits in west central Sichuan with rich deposits of silver, in addition to copper, aluminum, zinc, and gold; and miscellaneous silver deposits in Tongbai County in Henan, Beiyun County in Sichuan, Xinlong County in Hebei, as well as in the provinces of Guangdong and Nei Monggol.

Tantalum (Ta) China has become a moderate-sized tantalum producer in the early 1980s, increasing its annual output to perhaps 50 tons of contained metal, 3 percent of the world total as estimated by the US Bureau of Mines. Tantalum, which is used mainly in electronic capacitors and secondarily as a steel or carbide alloying element, is a metal for which the Chinese have recently shown active interest in further development, presumably for export as well as domestic consumption. Its importance in electronics makes it less likely than some other metals to be cut back by readjustment.

Production and Expansion

China is extracting tantalum from at least four separate deposits and has the resources to greatly expand production. Its deposits, however, appear to be fairly low grade.

The largest known deposit is an apogranite type located in Yichun,

Jiangxi Province. It contains 100 million tons of ore with approximately 200 grams per ton of tantalum pentoxide (Ta_2O_5), equivalent to about 16,000 tons of tantalum metal in all. This is only about one-fifth the concentration of a major Canadian deposit.

An open-pit mine went into production at Yichun in late 1977. Its targeted 1981 output is 200,000 tons of ore, which the Chinese reportedly hope to raise to 250,000 tons in 1982 through better mining methods, and possibly mine expansion. A downstream processing plant produces concentrates of about 28 percent Ta_2O_5 content, with recovery rates of about 60 percent. At this rate, the complex should extract about 19–20 tons of tantalum metal in 1981, and perhaps 24 tons in 1982. The concentrates are believed to be further processed into powder at the site. Tin is extracted at Yichun as a byproduct in amounts roughly equal to tantalum.

At one point in 1980, the Ministry of Metallurgical Industry was seeking foreign investment in this complex on some sort of compensation trade basis. Industry observers believe that, given the size of the deposit, production at Yichun could easily be increased by a factor of 10.

Tantalum is also recovered at Limu, Guangxi (near Guilin), as a byproduct from the slag of a tin smelter. About 300,000 tons of ore containing 0.1 percent tin, and 0.00015 percent (150 grams per ton) of Ta_2O_5 are mined per year. The Ta_2O_5 content of the slag may be as high as 10 percent. Integrated downstream facilities are present at Limu. Company reports on tantalum recovery range from about 10 to 20 tons; enough tantalum is certainly present in mined ore to reach 20 tons, although recovery rates are uncertain. A new underground tin mine is under construction in the vicinity, which should substantially increase tantalum production at Limu in the near future. A third ore body in the area awaits development. Tungsten is also recovered as a byproduct at Limu.

Neighboring Guangdong Province is apparently also yielding some tantalum. There are reportedly four major pegmatite deposits about 100 kilometers northeast of Guangzhou containing 100–200 grams per ton of Ta_2O_5. One of these deposits is mined at a rate of about 250 tons of ore per day with about 50 percent tantalum recovery, suggesting a total metal output in the order of 4–5 tons per year.

Another major mined pegmatite deposit is in the Altai mountains of Xinjiang, north of Urumqi. Like all pegmatites, it is difficult to block out and mine, but according to one report, the deposit may be yielding 12 or more tons of tantalum in concentrates of 20–50 percent Ta_2O_5 content.

A "gold mining craze" has seized Chinese peasants, now that the government is paying them about $200 an ounce for the precious metal. Panning is especially encouraged in the highland riverbeds of Tibet, Xinjiang, and Sichuan as the country tries to gear up production in the major mines.

There has been some speculation that the accumulation of over 50 years of tin slag in Gejiu, Yunnan, China's largest tin smelter, could yield significant amounts of tantalum, as in Thailand. These slags have not been systematically explored, but a German company which was given slag samples reported Ta_2O_5 content of 1.8–2.0 percent. Many observers believe this signifies that tantalum extraction is not economically justified. Thai slags, by contrast, contain 12–13 percent Ta_2O_5.

China's downstream tantalum industry is clearly in need of technical upgrading. Ministry of Metallurgical Industry officials indicate that China's powder is suitable for metallurgical, but not electronic use. Western companies confirm that the capacitance capabilities of Chinese powder are about one-quarter of those in the US. Officials at the Limu complex negotiated technical assistance with one US company on a compensation trade basis in 1980, but the company found the Chinese terms far too demanding and rigid.

Foreign Trade

One analyst estimates that China consumes 60–70 percent of its tantalum domestically, which means that about 30 tons or more per year are available for export. Chinese exports appear to have developed rapidly in 1979–80 from a negligible base. The buildup occurred about one year after the Yichun development came on stream, but knowledgeable observers believe that Chinese exports originate mainly from Xinjiang. There concentrate quality is higher. Although small amounts of powder are exported, the quality problems with powder probably mean that most exports will take the form of concentrates.

The US consumes a large proportion of Chinese tantalum exports. About 9 tons, almost exclusively in concentrates, were imported from China in 1980. This, however, was only about 1–2 percent of total US imports. Japan is another important customer for China.

It appears that MINMETALS controls almost all of China's tantalum exports, which is not surprising given the predominance of concentrates in the export picture. The China Metallurgical Import and Export Corporation (subordinate to the Ministry of Metallurgical Industry, the producing entity) advertises powder for export, and may be the driving force behind recent powder sales.

Both organizations are having difficulty selling in 1981 due to the simple fact that tantalum market prices have plummeted. Shipments to the US could decrease by over 50 percent compared to 1980. MINMETALS is apparently following its typical strategy of withdrawing from the market when prices are low. A prolonged slump in the market could conceivably dampen Chinese enthusiasm for tantalum expansion.

Titanium (Ti) China will probably remain a significant supplier of titanium, whose high strength-to-weight ratio makes it an important material for aircraft and aerospace production. Recent indications, however, suggest that China will not retain the approximately 15 percent share of the US import market that it so suddenly obtained during the acute shortage of 1979–80.

Reserves

The Chinese estimate their total titanium resources at approximately 80 million tons, or more than 10 percent of the world's total, according to the US Bureau of Mines. How much of this is technically or economically recoverable, however, is not known. Natural rutile (TiO_2), the high quality raw material preferred for making titanium metal, is

known to be present in China but not in large quantities. One US firm suspects that small amounts of rutile are being mined along the coast of Jiangsu Province. Some rutile is also said to be mixed in among several of the deposits described below.

An enormous, mineralogically complex deposit near Dukou, Sichuan Province, accounts for 90 percent of total reserves, according to Chinese estimates. This 1.05-billion-ton deposit is one of several in the world known as titaniferous magnetite—in which titanium in the form of ilmenite ($FeOTiO_2$) is intermingled with iron ore (magnetite). The concentration of titanium is approximately 7 percent, and that of iron 33 percent. The deposit has been mined since the late 1960s to serve the Panzhihua iron and steel complex, which currently produces about 1.5 million tons of steel per year. At the same time the deposit is thought to be a major source of titanium metal, which at present is reportedly extracted from Panzhihua furnace slag. Outside of China, only four titaniferous magnetite deposits are yielding titanium.

The next largest known titanium deposits in China are those on the Guangdong–Guangxi coast, including Hainan Island, consisting primarily of ilmenite. The Changan, Hainan deposits are probably typical mineralogically, containing 11 million tons of 53 percent TiO_2 (32 percent titanium) in association with zircónium and other heavy materials. The Guangxi deposits reportedly differ physically from those in Guangdong. The deposits are being mined and upgraded by rather labor-intensive methods in amounts of about 25,000 tons per year in Guangdong, and 10,000 tons per year in Guangxi.

Most of this is believed to be diverted to titanium dioxide pigment production, which calls for a lower grade raw material than is required for metal. Pigment, which is an important constituent for light paints and varnishes, accounts for a far greater proportion of mined titanium than metal on a worldwide basis (in the US, about 90 percent is for pigment). China produces about 10,000 tons of pigment per year, according to one US company.

A relatively small titaniferous deposit is being mined near Chengde, Hebei Province, in conjunction with a provincially administered iron and steel plant. At one mine with 4.37 million tons of reserves, approximately 700,000 tons per year of 4.6 percent titanium iron ore are mined. A total of 6,000 tons of furnace slag with 46 percent TiO_2 have been generated and presumably used as raw material for metal. Another mine contains 5.1 percent titanium, including some rutile.

There are probably some other mined titanium deposits in the North and Northeast in view of the downstream titanium metal facilities that have been constructed in Liaoning Province. Some titanium also may be extracted from yet another titaniferous iron deposit in Anhui Province, which is being exploited to serve the Maanshan iron and steel plant.

China's Titanium Exports to the US

(Tons and million dollars)

	1979		1980		First quarter 1981	
	Volume	Value	Volume	Value	Volume	Value
Sponge	99.0	0.93	861.0	16.51	108.0	—
(Percent of US imports)	(4.0)	—	(18.0)	—	(6.2)	—
Scrap	0	0	454.0	4.84	—	—
(Percent of US imports)	—	—	(11.0)	—	—	—
Ingot and billet	0	0	45.0	5.43	16.0	—
(Percent of US imports)	—	—	(23.6)	—	(69.6)	—
Total	99.0	0.93	1,360.0[1]	26.78	124.0[1]	—

[1]The total of contained titanium is slightly lower than these totals, since a proportion of ingot and scrap imports may contain alloys of approximately 90 percent titanium composition.
SOURCE: US Department of Commerce.

Producing Facilities

China's capacity for producing titanium sponge (the primary form of the metal, named for its spongy appearance) is probably around 2,500 tons per year, or about 3 percent of the world's total and 12 percent of US production. Actual production, however, has been reported in the 1,000–2,000-ton-per-year range. The largest sponge plant, according to one US firm, is located in Chengdu and uses Panzhihua raw materials. Its capacity of 1,000 tons is quite small by world standards.

A magnesium-process plant currently producing about 500 tons per year was built in the 1950s in the Fushun, Liaoning light metals complex (which also produces magnesium and aluminum) according to Soviet design. A plant of similar size and design is located in Shanghai.

Two other plants, one of them possibly located near Wuhan, use the sodium reduction process and are rated at 250 tons per year. Technical problems apparently have limited output to about 60 percent capacity. A sponge plant in the Jinzhou, Liaoning ferroalloys complex—which may be one of these sodium method plants—was reported by the Chinese media in late 1979 to have been unable to produce any metal since its completion three years earlier due to the failure to complete the construction of key auxiliary projects.

Some pilot units in China are reported to be experimenting with an electrolysis method of sponge production, now being researched in Japan and the US. No commercial results have been obtained anywhere yet.

Further treatment of titanium into ingots and finished products (often in the form of alloys) takes place at plants in Baoji (deep in the mountains of Shaanxi Province), Shanghai, and Shenyang. The Baoji plant was built in the mid-1960s when strategic plants were located in remote mountainous areas for reasons of national defense. It produces three-ton ingots, as opposed to the one-ton ingots made at other less advanced facilities. Baoji ingots are nonetheless small by world standards (larger ingots mean less loss of metal in processing).

Uncertain Expansion Projects

China's titanium expansion plans have centered around the Panzhihua deposit. Grandiose plans to construct a 5,000–10,000-ton-per-year sponge plant using Panzhihua raw materials were revealed to various US engineering, titanium-manufacturing, and

mineral-processing firms in 1979, from whom China requested technical assistance. A major hydroelectric plant was planned at Ertan, near Dukou, to support the project.

Apart from their high cost, the plans encountered numerous technical problems. The Chinese hope to conserve energy and boost output by using iron ore tailings instead of furnace slag as raw material. But it is apparently very difficult to separate titanium-bearing ilmenite from iron-bearing magnetite, and there are further difficulties in eliminating such byproducts as silica, magnesium, and calcium.

Some US firms view the entire project as uneconomical. Others, while agreeing that the project would be difficult and expensive, believe that it might prove feasible. One company would like to license a process for upgrading Panzhihua tailings into commercial grade TiO_2.

The Chinese, at any rate, are committed to Panzhihua in principle. Discovering how to utilize Panzhihua's ore byproducts has become a major prestige project of the Chinese Academy of Sciences. If past precedent is any indicator, the Ministry of Metallurgical Industry probably is conducting parallel, but completely separate research on the same subject.

Actual construction of the plant at Panzhihua, however, has been postponed by readjustment. In addition to the project's other difficulties, it is not at all clear where the new production would be marketed. New capacity for extracting titanium from ore apparently will be limited to a recently completed 50,000-ton-per-year plant, which is using a three-stage process to produce concentrates of about 46 percent TiO_2. This will furnish raw material for a new 1,000-ton-per-year sponge plant currently under construction in Sichuan, which reportedly is scheduled to begin production in mid-1982 and reach full capacity by 1983.

One of the very interesting features of this new sponge plant is that Sichuan Province, through a company called Changjiang Enterprises, apparently has invested in the project along with the Ministry of Metallurgical Industry—evidence that provincial interests are an important force behind this development. It also suggests that the province may control some of the plant's output or profits, or both.

Provincial initiatives were also a factor in a titanium compensation trade project discussed with US firms in 1979–80 involving the smaller Chengde, Hebei iron ore deposit. But the talks did not reach the point of a feasibility study, possibly because provincial authorities were unwilling to bring the central authorities into the picture.

Provincial authorities also may have been behind discussions of a 5,000-ton sponge plant based on Guangdong–Guangxi ilmenite. This project, too, was aborted before it began. A compensation trade deal involving a titanium plant on Hainan Island met the same fate.

It would be surprising if Beijing allowed local authorities to develop such a strategic material as titanium outside the central plan. But this is not stopping provinces from exploring compensation trade opportunities, which circumvent a number of central-government controls and the need for a foreign exchange allocation.

Exports

The bulk of China's titanium output traditionally has gone to the domestic market, but in recent years as much as

25–35 percent of production has been exported. Of this, about 80 percent is exported to the US. With Chinese aerospace production probably declining in the 1980–81 readjustment, the amount available for export may have risen even higher.

China first began to sell titanium to the US in late 1979, when supply was extraordinarily tight and prices were at a premium. The combination of increased demand and the withdrawal of the Soviet Union from the European market meant that China could receive more than $20 per pound for sponge. Thus, sponge and scrap from China poured into the US in the beginning of 1980 (*see* accompanying table). The almost $27 million worth of Chinese titanium exports to the US constituted one of the more significant categories in our bilateral trade.

By the middle of 1980, however, the market had softened considerably. Traders agree that China was slow to lower its price when the market price plummeted to below $10 per pound. Exports to the US have thus fallen off considerably in 1981, despite the fact that overall US imports of titanium sponge seem to be rising slightly. One US company, however, apparently convinced the Chinese of the need to stay active and competitive in the market when prices are somewhat lower, and entered into a long-term titanium sponge purchase agreement in 1981.

Confusion in Marketing

It is now very hard to pin down who is in charge of China's titanium exports. There is rivalry between MINMETALS and the China Metallurgical Import and Export Corporation (CMIEC), which is subordinate to China's titanium producer, the Ministry of Metallurgical Industry. And even departments within these two exporting bodies are competing. An example is the uncoordinated exportation of titanium sponge and other titanium products such as ingot and billet. One enterprising US trading company apparently is finding a market in the aerospace industry for Chinese ingot. This company signed an agreement in 1981 to purchase 680 tons of ingot alloy over a year-and-a-half period from the Baoji plant via CMIEC. This was at precisely the same time that CMIEC's sponge department was separately reaching its long-term agreement with the other US firm. US importers may well have trouble selling the Chinese metal if China floods the market with simultaneous sponge and ingot exports.

Part of the reason for the apparent rivalry between sponge and ingot manufacturers probably lies in the familiar phenomenon of provincial competition. Provincial authorities were involved in at least one of the above-mentioned deals, and Hebei Province recently began to advertise titanium sponge and scrap through its branch of MINMETALS in Shijiazhuang.

China's Third Ministry of Machine Building (in charge of aircraft production) also has begun exporting titanium semifinished and finished products. Several US consumers probably would prefer to buy from the Third Ministry, particularly if they plan to sell technology and equipment to China's aircraft industry. McDonnell-Douglas has given a Third Ministry exporting group temporary office space in California, according to *Aviation Week* and *Space Technology*.

Tungsten (Tu) China is the world's largest tungsten producer and exporter. In 1978 and 1979 China exported approximately 10,000 tons of tungsten. Last year, the US imported slightly more than $16 million worth of tungsten ore and concentrate from China. In the first four months of 1981, imports of tungsten from China were valued at $5.3 million.

Total reserves are estimated to be 60 percent of the world's total reserves. The US Bureau of Mines puts contained reserves at around 3 million pounds, and total reserves at 1.8–4.0 million tons. The country's major deposits are located in the south and contain five types of ore deposits, the quartz vein type being the most important.

The world's largest tungsten deposit is located in the Xikuang Mountain in Hunan. The deposit also contains antimony in the ores. Fujian Province reported tungsten ore production of 800 tons in 1979, principally from 23 counties with active mines. This June the province announced that it would concentrate on building the Qingliu tungsten ore mine, which has an estimated annual production capacity of 5,000 tons of fine tungsten ore.

Guangdong Province is another major tungsten producer with deposits at Dachishan, Tangjiang, and Yaoling, while southern Jiangxi boasts of 10 large tungsten mines. The Nanling mountain range, which stretches across Jiangxi, Guangdong, and Hunan, is reported to contain 80 percent of the country's tungsten reserves.

The oldest and largest tungsten mine in China is the Xihuashan mine in Huashan, Jiangxi. Despite the fact that it has been mined for nearly three-quarters of a century, the mine's tungsten deposit remains rich in ore. Xihuashan produces 2,500 tons of tungsten concentrate a year—up to 4,500 tons of ore a day. In addition to the tungsten in the mine, the deposit contains 20 different kinds of minerals including scheelite, molybdenite, and some rare earths. The mine's ore-dressing plant is located by the Changjiang River and produces a commercial, 65 percent tungsten concentrate from low-grade 0.22 percent tungsten ore.

Chen County in Hunan has ore reserves of 190 million tons, containing 0.33 percent tungsten. The reserves are located in the Zhizhuyuan tungsten mine in the Wuling mountain range. Yaogangxian and Yangjiatan in Hunan also report tungsten deposits.

Guangxi Province is said to have ore reserves of 118,000 tons, with 1.36 percent tungsten. Apart from mines in the Nanling range, three other large tungsten mines in the province are the Mashan, Lingma, and Dongxing mines. Guangxi's tungsten output is primarily for export to Japan.

Jin Xian, in Hebei Province, recently announced the discovery of a new ore bearing the name of the county in which it was discovered that contains tungsten, lead, iron, and water. There is also a tungsten mine located in Dajishan, Zhejiang, which began operation shortly after 1949.

China's history of tungsten mining extends back into the early part of this century. Foreign involvement in the extraction and processing of the ore has been, and continues to be, fairly strong.

Among the US companies involved are Union Carbide, Bechtel, AMAX, and Li Tungsten. In 1980, Li Tungsten formed a joint venture with the China National Minerals and Metals Import and Export Corporation (MINMETALS) to market Chinese tungsten in the US and Canada on a partially exclusive basis. A company representative said that as the company expands and gains ground in the North American tungsten market, it hopes that its contract will become increasingly "exclusive." Both Union Carbide and Bechtel have been working on the development of a tungsten mine in Fujian Province, although their efforts have suffered

under China's economic readjustment program. In 1980, Bechtel financed and conducted a feasibility study in an attempt to interest the Chinese in pursuing the development of the Fujian tungsten operations. Sources at Union Carbide feel that one of the mining projects in Fujian will soon be "back on again," although to date, they report that nothing beyond feasibility studies have occurred.

The compensation trade deals proposed by Bechtel for the development of China's tungsten mining operations and other promising mining projects have all fallen through.

Vanadium (V) Since it began exporting vanadium just two years ago, China has become an important supplier of this metal, which is used primarily as an alloying element to strengthen steel. Barring a sudden upsurge in Chinese domestic consumption, which seems unlikely under the current readjustment policy, China is likely to remain a significant vanadium exporter well into the future.

The Chinese estimate their total vanadium resources at some 2.2 million tons, or about 5 percent of the world's total as calculated by the US Bureau of

America's Strategic Stockpile:

A unique opportunity for China to increase its mineral and metal exports to the US has arisen from the US government's 1980 resumption, after a 20-year hiatus, of a program to purchase strategic materials for the national defense stockpile. For the last two decades the management of the $15 billion stockpile has involved only the maintenance and disposal of the nation's strategic materials.

The Strategic and Critical Materials Stock Piling Act of 1980 sets the ground rules for the acquisition and disposal of strategic materials (*see* box), which consist mainly of metals and minerals, but also include items ranging from feathers and down to opium. Broad target dates for material purchases are laid out in the act, but actual progress will depend on a number of political and economic factors, including the amount of money that Congress makes available for purchases, and world market conditions for the commodities to be acquired for the stockpile. The act specifies that purchases can be made from direct congressional appropriations, or with funds acquired from the sale of excess items in the stockpile (stocks of 24 of the 61 strategic materials either meet or exceed the new 1980 targets). It also permits barter of items in excess supply for those in short supply.

The first step in the government's program was the appropriation of $100 million to the General Services Administration (GSA) in fiscal year 1981 for the direct purchase of materials in which inventories are currently below the new target. Seventy-eight million of these dollars were committed in June to obtain 5.2 million pounds (2,359 metric tons) of cobalt from Zaire, the world's largest producer.

China is supplying the US with large quantities of a commodity that has become the GSA's next purchase priority: refractory grade bauxite. In early August GSA has announced its intention

US National Defense Stockpile of Minerals and Metals[1]

(Metric tons unless otherwise indicated)[2]

Needs

Material	Stockpile target	Amount to be purchased
Aluminum group		
Aluminum metal	635,030	633,458
Bauxite, metallurgical grade (dry)	27,100,000	12,941,523
Aluminum oxide, abrasive grain group (tons of abrasive grain)	578,785	343,711
Bauxite, refractory grade (calcined)	1,400,000	1,225,401
Beryllium (contained metal in ore, alloy, and metallic forms)	1,107	144
Bismuth	998	54
Cadmium	5,307	2,436
Chromium (contained metal in ore, ferroalloy and metallic form)	1,227,422	163,085
Chromite ore, refractory grade (dry)	771,108	416,023
Cobalt[3]	38,737	17,870
Columbium (contained metal in concentrate, carbide, ferroalloy and metallic form)	2,200	1,061
Copper	907,186	880,834
Fluorspar, metallurgical grade (dry)	1,542,216	1,168,693
Fluorspar, acid grade (dry)	1,270,060	457,237
Graphite, Ceylon amorphous lump, and Malagasy crystalline	23,859	2,623
Lead	997,904	452,653
Mica, muscovite, and phlogopite block	2,908	484
Nickel	181,437	181,437
Platinum group metals		
Iridium (troy oz.)	98,000	81,009
Palladium (troy oz.)	3,000,000	1,744,997
Platinum (troy oz.)	1,310,000	857,360
Rutile (dry)	96,162	60,613
Tantalum (contained metal in carbide, powder, metal, and mineral forms)	3,248	2,163
Titanium sponge	176,901	147,571

Mines. Vanadium always mineralizes in very small concentrations, which means that in China, as in most other places, it is extracted as a byproduct from other ore bodies. China's vanadium output currently originates completely from titaniferous magnetite iron ore (as does more than half of the world's vanadium).

The massive Panzhihua, Sichuan deposit (*see* page 63) which contains 0.3 percent vanadium pentoxide (hereafter referred to as "pentoxide" or V_2O_5), represents 80 percent of China's known vanadium. The deposit has been mined for iron for more than 10 years, but it was only in 1979 that a workshop was first installed to recover vanadium from slag produced by the Panzhihua steel mill's basic oxygen furnaces. The workshop has a capacity of about 50,000 tons of slag, but is only producing about 30,000 tons per year. In addition, the Chinese have been unable to raise the V_2O_5 content of the slag beyond about 14 percent, compared to South Africa's 27 percent. The high vanadium content of Panzhihua steel products, furthermore, continues to mar their quality. Technical problems may be one reason why the major expansion discussed for Panzhihua in 1979–80 has not been carried out.

Export Opportunities for China

Vanadium group		
Of which:		
Ferrovanadium (contained vanadium)	907	907
Vanadium pentoxide (contained vanadium)	6,985	6,495
Zinc	1,292,740	951,665

Overstocks

Material[4]	Stockpile target	Amount of disposable excess
Antimony	32,659	4,291
Asbestos	18,144	29,476
Manganese dioxide, battery grade (dry in natural ore and synthetic dioxide forms)	78,925	148,455
Manganese, chemical and metallurgical grade (contained metal in ore, metal, and ferroalloy form)	1,360,779	78,545
Mercury (flasks)	10,500	180,891
Mica, muscovite film and splittings, phlogopite splittings	6,192	4,169
Quartz crystals	272	827
Silicon carbide	26,308	46,764
Silver (troy oz.)	0	139,500,000
Talc	25.4	965
Tin	42,000	158,472
Tungsten (contained metal in concentrate, metal powder, carbide powder, and ferroalloy form)	22,982	14,160

[1]List does not include nonmineral strategic materials. Interested National Council member companies may contact the Council or the GSA for a list of these commodities.

[2]Some extremely minute inaccuracies may result from rounding in the conversion of units specified by the US government, such as pounds and English tons, to metric tons.

[3]Cobalt purchase target does not include 5.2 million pounds ordered in June 1981 from Zaire.

[4]Commodities GSA might offer in a barter arrangement.

SOURCE: GSA, Washington, D.C.

to purchase 25,000 tons of bauxite (about 20 percent of China's exports to the US in 1980) worth an approximate $5 million, with an option to buy an additional 25,000 tons. GSA also offered to barter excess tin or tungsten for 1.8 million pounds (816 metric tons) of vanadium pentoxide, a commodity China has been exporting in increasing quantities since 1980.

The vanadium pentoxide barter arrangement will probably not appeal to China, as the country is more than adequately supplied with many of the commodities GSA has to offer, including tin and tungsten. There remains a possibility, however, of a three-party barter arrangement where a metals trading company, for example, would find customers for the materials offered by GSA. One US company reportedly is considering such an intermediary role to supply GSA with Chinese vanadium pentoxide.

In the future China should be able to supply a portion of stockpile demand for several other metals and minerals as well, including titanium sponge. The GSA has expressed a desire to diversify suppliers, a move which could favor China, a relatively new entrant to the US minerals market.

Procurement of strategic stockpile materials takes place through negotiation. The GSA is not required to advertise bid offerings, but is supposed to allow second bids. Some companies complain that in the Zaire cobalt purchase, GSA did not carry out this stipulation.

In the case of the cobalt deal, the GSA proved itself a shrewd purchaser, obtaining a price 25 percent below the prevailing market price. This highlights a dilemma that suppliers may face, namely that sales to the US government may adversely affect the price the exporter could obtain for its products elsewhere, despite GSA's express disavowal of any desire to influence world market prices. —*SB*

The second most important vanadium source in China is the Chengde, Hebei steel mill, which produces about 8,000 tons per year of slag with about 13 percent V_2O_5 content. One of the mined deposits in the area contains about 0.35 percent V_2O_5. The other, and probably the oldest source of vanadium in China, is the iron deposit mined to serve the Maanshan, Anhui steel mill, which contains about 0.8–1.0 percent V_2O_5. Approximately 5,000 tons per year of slag with V_2O_5 content as high as 17.5 percent are generated at the mill.

China has been investigating extracting vanadium from certain coal tailings, and a nonferrous metals research institute in Daye, Hubei, (a province apparently rich in vanadium-containing coal tailings) claims to have developed a process to mix table salt with the tailings under heat to extract V_2O_5. No commercial amounts of vanadium, however, are believed to be produced at present via this process.

Thus, in 1981, China is producing high-vanadium slags containing approximately 6,000 tons of vanadium pentoxide (about 3,400 tons of metal), of which perhaps 85 percent is recovered, yielding a total vanadium output of about 2,900 tons of metal. About 4,500 tons of pentoxide, an important intermediate product, are produced per year, indicating a slight gap between pentoxide and slag capacity.

Half of the pentoxide is produced in the important Jinzhou, Liaoning ferroalloys plant, which probably upgrades several other nonferrous metals as well. The remaining pentoxide plants are located in Shanghai, Nanjing (near Maanshan), and Emei, Sichuan (near Panzhihua). A new pentoxide plant was planned for Emei, but was aborted by readjustment, suggesting that vanadium expansion at Panzhihua, and probably throughout China, is similarly suspended. There are apparently significant variations in the technology and production costs of the various upgrading plants.

Pentoxide is converted to ferrovanadium (the form in which it is added to steel) at Jinzhou, as well as at a plant in Jiangsu Province, and probably at others as well. In general, Chinese plants have been unable to manufacture ferroalloys of greater than 40–50 percent vanadium content. At one plant, however, they have reportedly succeeded in producing small quantities of ferrovanadium containing 80 percent vanadium.

Foreign Trade

China's current vanadium production probably accounts for less than 10 percent of the world's total. Informed sources estimate that only one-third of Chinese output is consumed domestically (possibly even less in 1981 due to declining steel production), which means that China has large amounts (about 2,000 tons) of vanadium available for export. So far, only a small (although growing) percentage of this has come to the US.

About 35 tons of Chinese vanadium were imported to the US in the first five months of 1981, perhaps 1–2 percent of total US vanadium imports. Traders cite high Chinese prices for relatively low-quality products, high US pentoxide tariffs relative to Europe, and stagnation in the US steel industry as reasons for this low figure.

In Western Europe, however, Chinese vanadium exports have had a major impact beginning in 1980, the year after the large Panzhihua slag workshop (the major source of China's

surplus capacity) came onstream. In the first four months of 1981, for example, West Germany imported more than 500 tons of Chinese vanadium. Austria has similarly begun to buy large quantities. These increased supplies have had the effect of lowering the market price of European ferrovanadium, a development which some US firms view with concern.

Bureaucratic control over Chinese vanadium exports is fragmented and confused. Vanadium slag and ferrovanadium are both handled by MINMETALS (the metals trading subsidiary of the Ministry of Foreign Trade). The China Metallurgical Import and Export Corporation (CMIEC, a subsidiary to the Ministry of Metallurgical Industry) has made some attempt to compete, at least in ferrovanadium. Vanadium pentoxide, the intermediate product, on the other hand, is handled by SINOCHEM (the chemicals trading subsidiary of the Ministry of Foreign Trade).

China's exports thus far have been almost completely in the form of either slag or pentoxide. One German firm bought an enormous quantity (about 5,000 tons) of slag in 1980–81, possibly in connection with negotiations for technical assistance for the expansion of Panzhihua vanadium extraction. Readjustment, however, has laid any such plans to rest, and China is reportedly planning to discontinue its slag exports completely. One of the apparent reasons is that slag has been selling abroad for less than its cost of production and transportation (expressed in RMB, probably at the internal ¥2.8:$1 exchange rate). Financial authorities are apparently unwilling to continue export subsidies, and this has deprived the metallurgical ministry of any incentive to continue exporting.

Thus, it would appear that China's future exports will be concentrated in pentoxide. There is some price competition between provincial branches of SINOCHEM in pentoxide, which could influence the amounts sold.

Ferrovanadium exports are currently limited by the Chinese inability to manufacture the high-vanadium-content alloys which are in demand on the world market. The report of the production of 80 percent vanadium ferroalloy, however, could presage a Chinese push to export more ferrovanadium. Indeed, some five tons of ferrovanadium arrived in the US in April 1981. There is undoubtedly interest in the metallurgical ministry in improving this area of technology and acquiring control of a new export (and one with high value added). Thus, there might be opportunities for Western technological assistance in ferrovanadium (and other ferroalloy) manufacturing via compensation trade.

Zinc (Zn) The US has imported small quantities of zinc sulfate and unwrought zinc from China since the mid-1970s. Zinc sulfate imports were $53,000 last year, and $6,634 in the first four months of 1981. US imports of unwrought zinc were valued at $934,000 in 1980, and $479,208 in the first four months of this year.

Zinc reserves are estimated at nearly 53 million tons. China's total annual production in 1979 was estimated to be 300,000 tons, and China's major lead-zinc smelting facilities are Shaoguan in Guangdong, Shenyang in Liaoning (each with an annual output of 20,000 tons of zinc), and Zhuzhou in Hunan, which has an annual production capacity of 70,000 tons of zinc.

Zinc deposits and reserves are located throughout the country, and are found most often in association with lead. Zinc has also been discovered in a number of copper and molybdenum deposits in Anhui, Hubei, Hebei, Liaoning, and Jilin.

One of the largest and most important lead-zinc deposits in China is the Fankou deposit in Shaoguan, Guangdong. Although extraction and processing have proved difficult, the mine's production capacity of both lead and zinc reportedly increased by 16 percent between 1979 and 1980. Zinc constitutes 11 percent of the 40 million tons of raw ore in the deposit. The deposit also contains germanium, although its percentage content is unknown. Another major lead-zinc deposit is located in the Qinting Mining District in Lanping County, Yunnan. Ore reserves total 14 million tons, with an 8–10 percent lead-zinc content. The deposit also yields germanium, silver, sellurium, tellurium, and cadmium. Fairly extensive lead-zinc mining and milling is also located near the Zhehai district near Lanping.

The most important lead-zinc producer at present is in Changsha County, Hunan, home of Shuikoushan mine and Zhuzhou metallurgical complex. The complex processes zinc, copper, silver, gold, cadmium, and lead, and has four divisions for the production, smelting, and refining of lead, zinc, copper, and various byproducts. The forms of zinc produced are: electrolytic (99.99 percent zinc), powder, zinc oxide, and zinc chloride, as well as various alloys of the metal. The elements recovered from the processing of the zinc concentrate include germanium, cadmium, cobalt, copper, lead, and silver. Hunan also has another lead-zinc mine, Totaolin, located in the north-central part of the province that produces lead, zinc, and fluorspar.

The Urad Zhonghou Lian He Banner region of Inner Mongolia has a lead-zinc and sulphur deposit 1,400 meters deep. The Chengchengcu copper mine in Fushun, Liaoning has deposits of zinc, and there is a lead-zinc smelter located not far from the mine, in Huludao. Liaoning Province also has three smelters located in Shenyang, which process lead, zinc, and copper, respectively.

In Central China, Sichuan's Huili County contains deposits of zinc in association with silver, sulphur, copper, and aluminum. On the outskirts of Beijing in Miyun County, there is a silver lode with lead and zinc deposits estimated to contain 20,000 metric tons each. Cheng County, Gansu, and Xitieshan, Qinghai also have reported discoveries of zinc and lead-zinc deposits. Gansu's lead-zinc reserves are said to be high-grade, and are estimated to contain seven million tons. Guangxi, Xizang, and Yunnan provinces are reported to each produce 20,000 tons of ore annually. Changpo in Guangxi has both ore extraction and dressing facilities. In addition to zinc, these facilities produce 5,000 tons of lead, 3,000 tons of antimony, and 4,000 tons of tin annually.

West European and Japanese companies have participated in the development of China's lead-zinc and zinc reserves, but few US companies have been similarly involved. Chinese metallurgical plans in early 1980 called for the development of a mine at Houding near Yunnan, and the establishment of a zinc refinery with an estimated annual production of 100,000 tons. It is unclear whether any foreign companies became involved in these plans before budget cutbacks caused their postponement.

After working for a year in China, Sabina Brady joined the Importer Services Department of the National Council in early 1981. She recently briefed National Council delegations going to China on the PRC's mineral and metal resources.

PRC STRATEGIC MINERAL AND METAL DEPOSITS

Province	Deposit or mine site	Other information
Chromium (Cr)		
Hunan	Near Shaoyang	Major deposit located near cobalt, manganese, and tungsten deposits.
Liaoning	West of Suizhong	Deposit.
Nei Monggol	NA	Ores in columbium iron ore mine contain chromite.
Sichuan	Dukou	Panzhihua iron ore mine processes chromium.
Xinjiang	Junggar Basin, with concentration in northern Saltohai	Saltohai chromite mine produces largest share of country's chromium; reserves contain 1 million tons ore with 35% chromium. Xinjiang claims to be China's only exporter.
Xizang	Xizang Plateau	Extent of deposits unknown.
Yunnan	Dali Autonomous Prefecture	Extent of deposits unknown.
Cobalt (Co)		
Gansu	Lanzhou	Location of Jinchuan nonferrous metallurgical complex.
Guangdong	Hainan Island Guangdong–Guangxi border	Cobalt sulfide; cobalt also found on Hainan Island at Dabaoshan. Scattered deposits have been found along Guangdong's coast; other deposits located at Shaoguan.
Guangxi, Hunan	Guangxi–Hunan border	Deposits.
Hunan	Zhuzhou Near Xintian	Zhuzhou smelter processes cobalt oxide. Deposit near Xintian.
Nei Monggol	NA	Cobalt obtained from columbium iron ore mine.
Sichuan	Dukou	Panzhihua mine complex also produces cobalt oxide from titanium processing.
Yunnan	Along Ailao mountains Dongchuan	Three major deposits along Ailao mountains. Location of copper mine at Dongchuan.
Copper (Cu)		
Anhui	Tongling Anjing Southern Anhui	Mine at Tongling; Anjing deposits have estimated reserves of 20 million tons; southern Anhui contains extension of Dexing copper deposits.
Gansu	Lanzhou Baiyanchang	Jinchuan nonferrous metallurgical complex at Lanzhou has reserves of 3.5 million tons; Baiyanchang is one of six major porphyry copper producing centers in China.
Guangdong	Jiangmen Mei Xian	Deposits; small deposits scattered elsewhere in province.

Henan	NA	Exact deposits unknown; province began exporting copper in 1980, and has set up provincial mineral and metal import and export corporation.
Hubei	Daye Tongshan	Mines located at Daye and Tongshankou; latter contains reserves of 50 million tons.
Jiangxi	Dingnan Suichuan Huichang	Deposits.
Liaoning	Dandong, Fencheng area	260-million-ton raw ore body containing copper.
Shanxi	Zhongtiaoshan Yuanqu	Mine at Zhongtiaoshan; deposit at Yuanqu.
Xinjiang	Altai mountains Shikebutai	Kalaton mining area in Altai mountains. Mine at Shikebutai.
Xizang	Zhangdu Qamdo Prefecture Eastern Xizang	Deposits with reserves of 6.4 million tons at Zhangdu; deposits are suitable for strip mining. Reserves of 6.4–8.0 million tons in Qamdo Prefecture. Ferrotungsten mine with copper in eastern Xizang.
Yunnan	Dongchuan	Location of copper mine with traces of nickel.

Gold (Au)

Fujian	Zhangzhou North of Quanzhou	Major deposits.
Gansu	Lanzhou	Location of Jinchuan nonferrous metallurgical complex.
Guangdong	Hainan Island	Two minor and one major deposit.
Hebei	Zhangjiadou	Extent of deposits unknown.
Heilongjiang	Wulaga Tuanjiegou Huma	Gold found at three sites, and in riverbeds and scattered deposits throughout province; Helazha gold mine and dressing ore plant located at Tuanjiegou. Province produces 32,000 ounces per year.
Henan	Western Lingbao	Lingbao has planned capacity of 1,000 ounces per year. Provincial reserves are 30 tons.
Hubei	Near Huangshi	Extent of deposits unknown.
Hunan	Changsha	Province produces 68,000 ounces per year.
Jilin	Yanbian Autonomous Region	In 1980 Yanbian region produced 1,800 ounces of gold, an increase of 200% over 1979.
Liaoning	Qianshan mountains	Two major deposits.
Nei Monggol	Aohan and Qahar You Yi Zong Banner regions	All counties in area but one reportedly contain gold; Zhuangshanxi mine produced 1,549 ounces of gold in 1980.
Qinghai	NA	Scattered deposits; gold production in 1980 up 177% over 1979.
Shaanxi	Tongguan	Deposits near Huashan.
Shandong	Zhaoyuan and Yexian counties	Mines in Zhaoyuan at Fushan; mines in Yexian at Yincheng, Jiaojia, and Sanshandao (the latter under development with assistance of Wright Engineering). Provincial reserves are 450 tons.
Shanxi	NA	Four small mines scattered over 20 sites.
Sichuan	Near Chongqing Chengdu Ganzizhou (Bai Yu)	Nine minor deposits in scattered sites near Chongqing. Extent of deposits in Chengdu and Ganzizhou unknown.
Xinjiang	Kunlun, Tianshan, and Altai mountains Talimu (Tarim Pendi), and Junggar Pendi basins	In addition to these areas, 56 out of 80 counties in province reportedly contain gold.
Yunnan, Sichuan	Yunnan–Sichuan border Near Dukou	Major deposits.
Zhejiang	NA	Scattered deposits; gold found in riverbeds.

Manganese (Mn)

Fujian	Tailao mountains	Deposit.
Guangdong	Guizhou Wuzhou Near Heping	Zhunyi principal mine in Guizhou; deposits in Wuzhou and area near Heping.
Guangxi	Daxin Wuxuan Mugui	Mine being developed in Daxin; deposits in Wuxuan and Mugui.
Hunan	Xiangtan North of Changsha	Shaoshanchang principal mine at Xiangtan. Deposit north of Changsha. Province has estimated reserves of 25 million tons.
Jiangsu	Qianji near Nanjing	Deposit.
Jilin	Yanji	Deposit.
Liaoning	Jinzhou Dandong Wafangzu	Deposits at Jinzhou and Dandong. Mine at Wafangzu.
Sichuan	Lunan and Daxue mountains Yibin	Deposits.
Xinjiang	Kashi	Deposit.
Yunnan	Yanshan Xian Wumeng mountains Southern Yunnan	Principal deposits.

Magnesite (MgO)

Anhui	Between Wuhan and Maanshan iron and steel works	Reserves of raw ore 500 million tons with one-fifth ore reserves containing iron content of 50% or more.
Gansu	Dingxi	Deposit.
Hebei	Xingtai	Dahe magnesite works has reserve of magnesium limestone of 5.5 million tons, deadburned magnesite of 30 million tons, and 40 million tons of dolomite reserves. Production capacity of deadburned magnesite 20,000 tons per year; of calcined magnesite 10,000 tons per year; basically mined communally, although now trying to upgrade the process by tunnel mining.
Liaoning	Lianshanguan Dashiqiao	Resources extensive and high grade at Lianshanguan; magnesite associated with talc; 1980 production 2 million tons. Dashiqiao largest magnesite deposit in China, of very high grade, with two mining sites and a kiln plant. Reserves 6 miles long, 1,200 feet wide, and 2,300 feet thick. Total annual production capacity 3 million tons, currently producing 1.7 million tons annually. Liaoning magnesite mainly exported through port of Dalian, which shipped 4,320 tons of magnesite to Hong Kong and Macao, 16,718 tons to Japan, and 5,473 tons to the US in the first six months of 1981.
Shandong	East of Weifang	Deposit.

Molybdenum (Mo)

Guizhou	Guiyang	Deposit.
Hunan	Wuling mountains	Shizhuyuan tungsten mine has molybdenum as byproduct.
Jiangsu, Jilin, and Shandong	NA	Porphyry molybdenum found in provinces.
Jiangxi	Dexing	Dexing copper deposits contain 0.03–0.08% molybdenum. Molybdenum also found in Jiangxi tungsten fields.
Liaoning	Jinxi	Yangjiachangzu mine produces 1,000 tons molybdenum annually.
Shaanxi	Jinduicheng	Location of molybdenum mine containing some copper.
Shandong	Between Mend and Yi mountains	Deposit.
Shanxi	Changzhi	Deposit.
Sichuan	Yibin	Deposit.
Yunnan	West of Kunming	Molybdenum found near Kunming and Yunnan tungsten fields.

Nickel (Ni)

Guangxi	Haiyang mountains	Deposit located near antimony and cobalt deposits.
Gansu	Lanzhou	Jinchuan nonferrous metallurgical complex contains reserves of 5 million tons.
Jilin	Panshi	Deposit.
Liaoning	Near Anshan	Deposit.
Sichuan	Dukou	Panzhihua iron ore mine produces nickel as byproduct.
Xinjiang	Altai mountains Kashi Yining	Kalaton mining area in Altai mountains. Nickel found near large manganese deposit at Kashi, and at Yining.

Platinum (Pt)

Gansu	Lanzhou	Jinchuan nonferrous metallurgical complex has 515 million tons raw ore, containing 164.8 million grams platinum at 0.32 grams platinum per ton raw ore.
Guangdong	NA	Deposit of ruthenium, in platinum family group.
Xizang	Xizang Plateau	Chromite deposits with rich veins of platinum.
Yunnan	Dali Autonomous Prefecture	Extent of deposits unknown.

Silicon (Si)

Guangdong	Guangdong coast and Hainan Island	Hainan quartzite resources at Basuo; other reserves along Guangdong coast.

Silver (Ag)

Beijing	Miyun	250-ton silver lode.
Fujian	NA	Near major gold, aluminum, and tin deposits, and along the coast.
Gansu	Lanzhou	Jinchuan nonferrous metallurgical complex.
Guangdong	Guangzhou	Silver and polymetal mine.
Guangxi	Gui Xian Xing An	Deposits.
Hebei	Xinlong	Location of Shijiazhang mine.
Henan	Weishancheng Poshan Tonghai	Largest mine at Weishancheng, also country's best grade, with 300 grams silver per short ton ore. Mine at Poshan and deposit in Tonghai.
Hunan	NA	Deposits near Changsha, and along Jiangxi and Hunan border.
Jiangxi	East of Fuzhou	Deposit.
Shandong	Zhaoyuan County	Location of Fushan gold mine.

Sichuan	Baiyu	Extent of deposits unknown.
Yunnan	Lanping	Location of Qinting mining area.
Zhejiang	NA	Gold-silver deposits.

Tantalum (Ta)

Guangdong	100 km. northeast of Guangzhou	Mine site.
Guangxi	Limu near Guilin	Tin and tungsten produced as byproducts; expansion under way.
Jiangxi	Yichun	Minor amounts of tin byproduct also recovered.
Xinjiang	Altai mountains north of Urumqi	Deposit also contains beryllium.

Titanium (Ti)

Guangdong	Hainan Island Western coastal area	Extent of deposits unknown.
Hebei	Chengde	Location of Chengde iron and steel works, which has two titanium mines.
Jiangsu	Coastal area	Extent of deposits unknown.
Sichuan	Dukou	Panzhihua iron ore mine has one billion tons raw iron ore reserves containing 11.6% titanium dioxide.

Tungsten (Tu)

Fujian	Qingliu	Province announced in 1981 it will concentrate development efforts at Qingliu tungsten ore mine; 23 counties in province reportedly mine tungsten.
Guangdong	Dachishan Yangjiang Yaoling	Deposits.
Guangdong, Guangxi, Hunan, Jiangxi	Nanling mountains	Nanling tungsten reserves. Mountains contain 80% of China's tungsten.
Guangxi	Mashan Lingma Dongxing	Three mines produce most of tungsten in province; most is exported to Japan. Reserves at three locations total 118,000 tons.
Hubei	Jin County	Location of new tungsten ore discovery.
Hunan	Chen County Wuling mountains Yaogang Yangjiatan	Shizhuyuan tungsten mine in Chen County has reserves of 190 tons containing 0.33% tungsten; Xikuang mountain in Wuling range has largest deposit in country; other deposits located at Yaogang and Yangjiatan.
Jiangxi	Huashan Southern Jiangxi	Xihuashan mine at Huashan produces 2,500 tons per year; mine has been active 75 years. Ore dressing plant by Changjiang River. Southern Jiangxi has 10 large tungsten mines.
Zhejiang	Dajishan	Deposit.

Vanadium (V)

Anhui	Maanshan	Maanshan iron ore mine.
Hebei	Chengde	Chengde iron and steel works has two titanium mines that contain vanadium.
Sichuan	Dukou	Panzhihua iron ore mine; of one billion tons raw ore reserves, 0.3% is vanadium pentoxide.

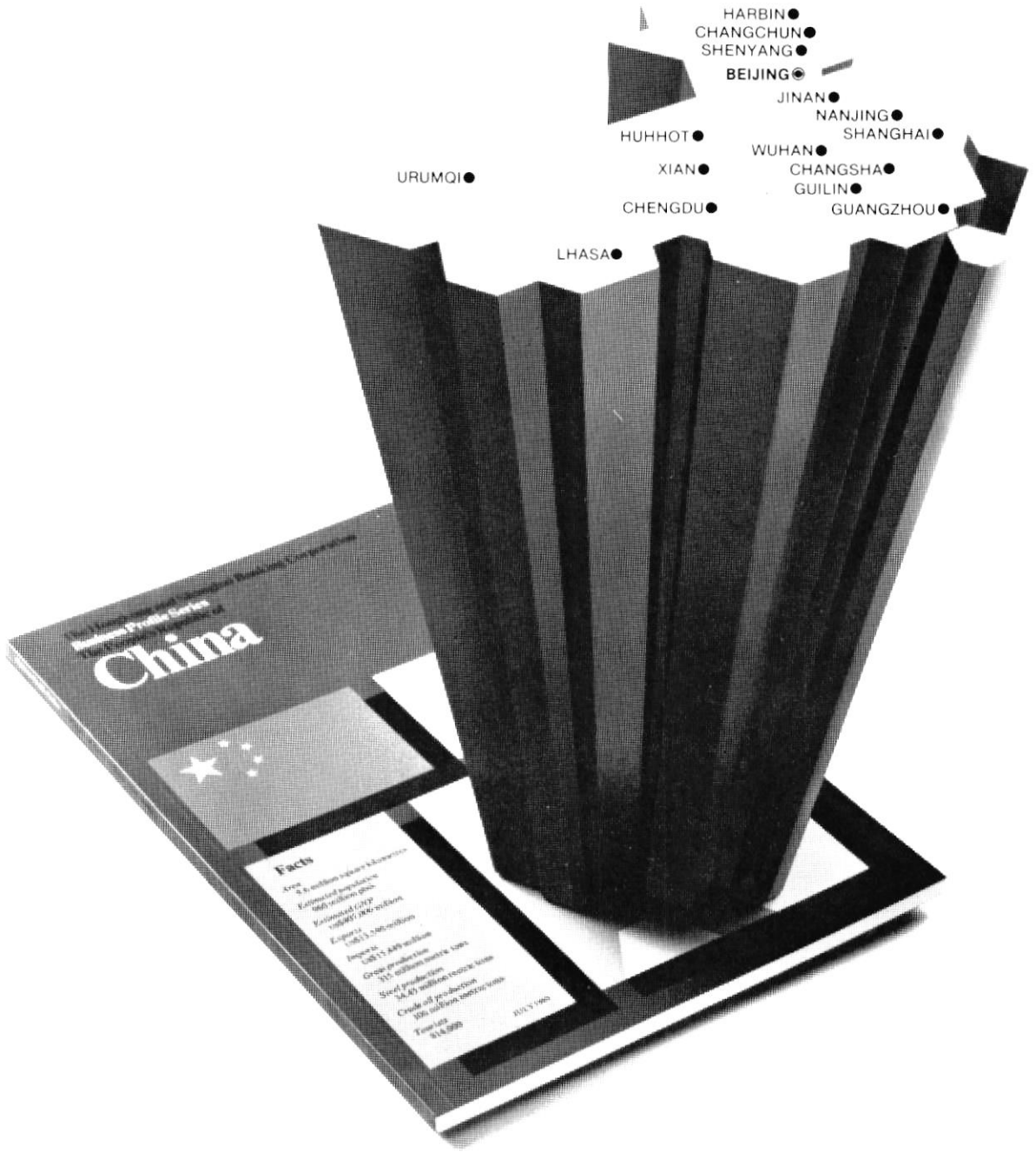
Zinc (Zn)

Beijing	Miyun	Silver lode with lead and zinc, each containing 20,000 tons ore.
Gansu	Cheng	High-grade zinc reserves contain 7 million tons.
Guanxi	Changpo	Ore extraction and dressing facilities.
Guangxi, Xizang, Yunnan	NA	Each province reportedly produces 20,000 tons zinc ore per year.
Guangdong	Shaoguan	Fankou mine, largest and most important lead-zinc deposit in China. Has germanium as a byproduct. 40 million tons raw ore, with 11% zinc, germanium as byproduct. Shaogual smelter produces 20,000 tons zinc annually.
Hunan	Changsha Prefecture Taolin	Shuikoushan mine, most important zinc producer. Zhuzhou metallurgical complex smelter produces 70,000 tons zinc annually. Totaolin mine in Taolin produces lead-zinc.
Liaoning	Fushun Shenyang Huludao	Chenchengcu copper mine at Fushun also produces zinc; Shenyang smelter produces 20,000 tons zinc per year; small zinc smelter operating at Huludao since at least late 1960s.
Nei Monggol	Urad Zhonghou Lian He Banner	Lead-zinc deposit runs 1400 meters deep.
Qinghai	Xitieshan	Deposit.
Sichuan	Huili	Deposit.
Yunnan	Houding Qinting, Lanping Zhehai	Qinting mining area in Lanping contains lead-zinc deposits and germanium as byproducts. 14 million tons raw ore with 8–10% lead-zinc. Zhehai lead-zinc mining and milling center.

SOURCES: National Council mineral and metal files, US government sources, mineral and metal traders and associations, and official Chinese sources.

Table prepared by E. Sabina Brady.

We bring China into focus.



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China Metallurgical Import and Export Corporation

The Ministry of Metallurgical Industry's own trading agent, the CMIEC, is aggressively marketing titanium, molybdenum, and rare earth concentrates.

Shu Yao

Leading China's mineral export drive is the China Metallurgical Import and Export Corporation, set up last year directly under the Ministry of Metallurgical Industry. Like so many of the new trading entities under ministry auspices, the division of labor between the CMIEC and the Ministry of Foreign Trade has never been clearly defined. Indeed, the CMIEC frequently has found itself in competition with MINMETALS, the corporation under the Ministry of Foreign Trade that once monopolized China's mineral trade. The following exclusive report by China Features, a subsidiary of Xinhua News Agency, and the accompanying article by Martin Weil on page 76 explore the CMIEC's growing authority as well as the disputed gray areas in China's metallurgical trade.

The China Metallurgical Import and Export Corporation, the official trading arm of the Ministry of Metallurgical Industry, has signed more than 350 contracts worth some $300 million with foreign businesses since its founding in January last year. Some of the corporation's more important export commitments in recent months include: 2,200 tons of molybdenum concentrates, 3,701 tons of silicon, 295 tons of tungsten products, and 165,000 tons of bauxite; in addition, contracts have been signed for 447 tons of titanium sponge and 183 tons of titanium products (of which more than 80 percent is going to the US), and 600,000 tons of pig iron (all contracted for by Japanese firms). Until very recently, China was a net pig-iron importer.

The corporation also is exporting tungsten trioxide, ammonium paratungstate and tungsten powder, tantalum powder, gallium, ferromolybdenum and ferrotungsten, ammonium molybdate and molybdenum powder, rare-earth concentrates, silicon, metallic germanium and indium, magnesium ingots, beryllium concentrates and products, zincite, zinc ingots, alumina, aluminum ingots, and mercury. Altogether, the corporation is offering more than 100 separate metals products for export.

Opening Foreign Markets

Lin Hua, general manager of the corporation and concurrently a vice-minister of metallurgical industry, recently explained that the corporation helps the Ministry of Metallurgical Industry market its products abroad. As an export agent for the ministry, the corporation has connections with all major iron and steel companies, as well as with mines and metallurgical plants of rare, rare earth, and nonferrous metals throughout the country. The corporation currently has branch offices in Guangdong, Hunan, Henan, Zhejiang, Guizhou, Sichuan, Gansu, Liaoning, and Guangxi provinces, and in Wuhan Municipality.

During contract negotiations, the corporation invites production enterprises to take part in meetings with foreign firms. In the past, when China's foreign trade was monopolized by the Ministry of Foreign Trade, Chinese enterprises had less direct contact with foreign buyers. The new approach is designed to give producers direct knowledge of the needs and specifications of their buyers. Under the auspices of the corporation, more than 60 Chinese metallurgical enterprises have signed contracts directly with foreign dealers.

China's Metallurgical Base

The corporation's export capabilities reflect China's vigorous development effort over 32 years. Lin Hua noted that geological prospecting in China has shown significant reserves of 132 of the 140 most important commercial minerals in the world.

Deposits of tungsten, tin, antimony, zinc, vanadium, titanium, and lepidolite rank first in the world. Those of copper, lead, molybdenum, bauxite, mercury, and nickel are also large.

Iron has been found in more than 1,000 areas in two-thirds of the provinces, with proven reserves of 44 billion tons. That places China third in the world for iron. Among the 16 high-yield areas, Anshan and Benxi in Liaoning Province have resources of more than 10 billion tons. Sichuan, Hebei, Shanxi, Anhui, Hubei, Inner Mongolia, Shandong, and Yunnan rank next. China's steel output at present is 37.1 million tons a year, but its known iron deposits are sufficient for an annual output of 80–100 million tons.

Among China's well-known concentrations of other metals are the Nanling tungsten reserves, which amount to 80 percent of the country's total, and copper on the middle and lower reaches of the Yangzi River in the provinces of Hubei, Jiangxi, and Anhui, which contain about one-third of the national total. Tungsten deposits in Shizhuyuan and antimony at Xikuang Mountain,

both in Hunan Province, are the largest known deposits in the world. Mixed deposits of copper, sulfide, and nickel ores at Jinchuan, Gansu Province, are the world's second largest.

Many deposits in China contain a variety of minerals. For example, the iron ore of Bayan Obo in Inner Mongolia yields 114 other minerals; at the same site is one of the world's largest known deposits of rare earths and metals. The iron ore of Panzhihua in Sichuan Province includes considerable amounts of titanium, vanadium, chromite, copper, cobalt, nickel, gallium, and scandium.

China's metal mining industry has developed steadily since the founding of the People's Republic. Metal ore production has registered an average yearly growth rate of 16.6 percent; 18.5 percent for iron ore; and 14.7 percent for nonferrous metal ores.

At present, China produces 120 million tons of iron ore and 68 million tons of nonferrous metal ores a year. The quality of the metal products has been upgraded, Lin Hua said. China previously produced rolled steel based on Soviet quality standards. But beginning in 1980, West German and United States quality standards have been applied in Chinese steel complexes. Moreover, under past inspection procedures, Chinese metallurgical enterprises producing ferrosilicon did not examine its aluminum content. Modified rules call for producing ferrosilicon containing only 1 or 2 percent aluminum to meet the specifications of Japanese buyers. China has already exported more than 5,000 tons of ferrosilicon to Japan.

Lin Hua said the CMIEC also handles imports of equipment and technology for the development of the metallurgical industry in the forms of processing materials supplied by buyers, compensatory trade, and joint ventures. In addition, it handles exports of labor services, technology, and equipment for construction of metallurgical enterprises overseas. 完

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The MMI Fights To Expand Its Export Market

Martin Weil

As its elitist aura has become tarnished over the last two years, China's Ministry of Metallurgical Industry (MMI) has looked more and more to exports as a source of revenues. In the process, it has taken advantage of China's decentralized environment to engage directly in foreign trade, breaking the erstwhile monopoly of the Ministry of Foreign Trade.

This is not illegal; indeed, China's leaders intended to foster intramural rivalry among the state's bureaucratic monoliths. The problem is that the toes of foreign traders are being stepped on more often than the jealously guarded prerogatives of China's giant ministries.

By virtue of its own bureaucratic muscle as well as a national policy bias favoring heavy industry, the MMI has enjoyed unparalleled access to China's funds and resources throughout most of the history of the PRC. Recently, however, the MMI has fallen on hard times as most of its major projects launched in the heyday of the "four modernizations" have been suspended. The lack of transportation infrastructure, energy shortages, drastic cuts in capital construction spending, and the Baoshan steel mill fiasco contributed to the MMI's problems.

Early reports of the MMI's demise, however, were overstated. Minister Tang Ke, whose dismissal was widely predicted within the Beijing bureaucracy in late 1980, has apparently managed to maintain his position. Certain expansion projects in such metals as gold, tin, tungsten, nickel, molybdenum, lead-zinc, tantalum, and titanium, which were begun prior to 1979, are continuing. A few new ones may be under way as well. Foreign investment is even being accepted for certain projects, including the Jinduicheng (Shaanxi) molybdenum development and the Shizhuyuan (Hunan) tungsten mine.

The MMI's Export Drive

One of the key weapons the MMI is using in its fight to regain power is exporting. In China's current climate, one of the strongest arguments that can be made for technology and equipment purchases is that they will generate export revenues. In January 1980 the MMI took advantage of the central leaders' tentative steps to end the Ministry of Foreign Trade's trade monopoly by establishing its own foreign trade arm, the China Metallurgical Import and Export Corporation (CMIEC). The corporation was originally intended to promote "new" kinds of exports outside the state plan, meaning that it could export minerals and metals produced by enterprises under its control that had already fulfilled their state quotas.

CMIEC's activities are primarily responsible, no doubt, for the jump in China's overall nonferrous metals exports to $400 million. Since its inception, the company claims to have signed export contracts worth $200 million.

To many outside observers as well as to MMI officials, the ministry's movement into metal exports seems a natural one. One company executive points out that in a Western metals firm production and marketing functions are often combined, and an executive's technical knowledge is a necessary complement to his or her marketing knowledge, and vice versa.

There is no question, however, that CMIEC's entrance into the metals market has contributed to the confusion into which China's metals trade has plunged during the past year and a half. This chaotic state of affairs can be traced both to CMIEC's inexperience and to bureaucratic opposition to the new corporation.

CMIEC's inexperience, in particular, has hurt both Chinese and foreign enterprises and manifests itself in several ways, including:

- A tendency to demand outrageous prices (200 percent above world market prices in some instances) at the outset of negotiations in order to establish a "tough" bargaining stance. This has led some companies to believe that CMIEC is not interested in doing serious business.
- An insensitivity to the volatility of nonferrous metal prices. By all accounts it took the CMIEC an extraordinarily long time to realize that the high prices in titanium and titanium products in the early part of 1980 were not necessarily the norm.
- A disregard for customer needs, particularly with regard to prompt shipment. A late delivery to a metals trading company gives the company's customers an option to cancel contracts, which the customer will often do if the price of the commodity has fallen. One company official comments that when China's metal trade was exclusively in the hands of MINMETALS, the minerals trading corporation under the Ministry of Foreign Trade, shipment schedules from China were among the most reliable in the world. Now they are among the most unreliable.

The MMI Versus MINMETALS

The battle between CMIEC and MINMETALS is another element in this struggle. The MMI, in its export drive, has brazenly entered the domain that was exclusively MINMETALS' for many years. In many commodity areas the two organizations are competing head to head.

In 1980, when CMIEC began exporting, the competition was fairly unregulated. On occasion CMIEC attempted to undercut MINMETALS' prices. Aside from causing confusion to traders, this lowered world market prices of tungsten, tin, and antimony—metals of which China traditionally has been a major supplier.

Such a situation was clearly not in China's best interest and by the end of the year, central government authorities gave MINMETALS, whose knowledge of world market prices far exceeds CMIEC's, exclusive authority for the exportation of tungsten concentrates, tin, and antimony. Some companies holding contracts with CMIEC for these commodities suddenly saw their contracts invalidated and had to renegotiate with MINMETALS. MINMETALS' control over these commodities is still in effect, US company executives report.

In other commodities, a *modus vivendi* has been reached under which MINMETALS has control over all metal exports within the state export plan (with the exception of intermediate metal products in chemical form such as ammonium paratungstate or vanadium pentoxide) and CMIEC is allowed to export above-plan production. For mines and factories under MMI control, the surplus does seem to be going to CMIEC. But MINMETALS and CMIEC apparently are engaged in direct competition for the surplus production from provincially controlled mines and factories, whose output is often outside the state plan.

A further division of labor may be taking place. In recent months, for example, MINMETALS seems to be playing a far stronger role in the area of metal concentrates. This is not surprising, inasmuch as metals in their primary form are more "commodity-like." Since less technical expertise is needed to market these products than would be the case for more processed metals, MINMETALS' trading expertise becomes more significant. For processed products such as ingots and billets, where technical specifications are more important, CMIEC appears to be playing the dominant role.

For iron and steel products as well, including pig iron, CMIEC is clearly taking the marketing lead. MINMETALS' traditional business has been importing, rather than exporting, these products. And CMIEC has a major incentive to sell, since its parent ministry, the MMI, must look abroad for new customers now that steel consumption has been cut back.

Another sign that the MINMETALS–CMIEC rivalry is being brought under control is the reduction in overt price competition. It would not be surprising if MINMETALS now has some control over the prices CMIEC charges, which might also explain why CMIEC has been so inflexible in recent compensation trade negotiations, none of which have yet resulted in a concrete deal.

Nonetheless companies still find the situation fluid and note that there remains intense competition between the two organizations in the area of titanium sponge, for example, a large export-earner in 1980.

Competing at the Local Level

MINMETALS' network of provincial branches is more extensive than CMIEC's, which gives it an advantage in dealing with provincial organizations. As of July 1981, CMIEC had established branch offices in only 10 provinces or so, although it was actively trying to expand its provincial network.

MINMETALS' local offices, however, have proved to be a mixed blessing. The decentralization policies initiated two years ago that brought CMIEC into the metals picture also reduced MINMETALS' control over its branches. These branches, which are under the joint authority of provinces and MINMETALS' head office, are often more responsive to the provinces. The price cutting in 1980 can be traced to competition between different provincial branches of MINMETALS as much as to MINMETALS–CMIEC rivalry. Significantly, a decision in late 1980 gave all authority over tungsten concentrates, tin, and antimony to the head office of MINMETALS. Perhaps for this reason, there was none of the price competition between MINMETALS branches at the spring 1981 Guangzhou Trade Fair that had characterized the preceeding fair.

So far, only two CMIEC branches, in Guangdong and Wuhan, have been given contract-signing authority. The Wuhan branch exports products of the Wuhan Iron and Steel Plant in order to help pay for the notoriously underutilized rolling mill imported from Japan and West Germany in the mid-1970s.

It remains to be seen whether CMIEC can control its branches that have fallen under strong provincial control. Many US firms, for example, note the intense jockeying among provinces for metals

development projects and compensation trade agreements.

New Faces Appear

The competition for metals exports is not limited to MINMETALS and CMIEC. For example SINOCHEM, the Ministry of Foreign Trade subsidiary dealing in chemicals, has been dealing in ammonium paratungstate, ammonium molybdate, and other semiprocessed metals in chemical form.

Metal endusers are beginning to compete; the Third Ministry of Machine Building, which builds aircraft, is now offering titanium for sale. The ministry gains access to the metal through the state plan (and perhaps through "back-door" channels) and now has an excess on its hands because aircraft production is down.

Individual provinces has begun to offer metals for export independently of both MMI and CMIEC. Some companies report that even individual factories are beginning to try their hand at exporting.

In short, any entity that can lay its hands on metals, through either legitimate or illegitimate means, is attempting to sell them abroad. It seems that it is as difficult for the central government to regulate these activities as it is to halt the rampant, illegal circulation of goods on the domestic market.

The net result is that China is not maximizing the profits it could earn from metals exports. This can be seen from the de facto competition between various organizations handling metals that have been processed to differing degrees. In the case of tungsten and molybdenum, for example, ammonium paratungstate (APT) and ammonium molybdate (AM) are handled by SINOCHEM and CMIEC, while tungsten and molybdenum concentrates (from which APT and AM are made) and tungsten and molybdenum metals (into which APT and AM are transformed) are handled mainly by MINMETALS.

It is not necessarily to China's advantage to export APT and AM, as the world market price differential between chemicals and the concentrates is small and the tariffs (at least in the US) for the more processed chemical intermediates are considerably higher than for concentrates. China could conceivably earn more foreign exchange per unit of tungsten by exporting concentrates rather than APT.

But the organizations handling APT and AM are promoting their export vigorously. Ammonium molybdate, in fact, has been one of China's largest exports to the US for several years. It is unclear why SINOCHEM, and possibly CMIEC, will offer attractive prices for chemicals when such exports may undermine the sales of more profitable concentrates.

Eventually, the MMI will surely become a more sophisticated trader and will avoid making some of these mistakes. The real problem, though, is that metal traders will most likely have to continue to contend with fragmented authority for quite some time to come.

Library Services of the National Council for US-China Trade

"I'm leaving for China next Wednesday, and I need to know. . ." Filling such information requests keeps the National Council's librarian, Marianna Graham, extremely busy. The need to know is so important that the library has become one of the most heavily used institutions serving the US–China trade community. Last year alone Marianna Graham and her staff filled more than 1,000 requests for information, while more than 500 company representatives and other visitors made extensive use of the library's facilities located at the National Council's offices at 1050 17th Street in Washington, D.C.

Since the establishment of the Council in 1973, the library has acquired probably the most comprehensive collection of information on China's economy, industrial sectors, and trade available in the United States today.

One of the library's most important resources is its vast clipping files that now include one-quarter million entries. The library also subscribes to eight daily newspapers, 75 magazines in English and other Western languages, and a clipping service that provides about 250 clips weekly from US trade journals, European newspapers, and English-language newspapers from Asia. Among the Chinese-language publications received are *Renmin Ribao*, *Guangming Ribao*, and *Wen Hui Bao*, and several specialized Chinese journals.

Since statistics are of vital interest to Council members and staff, the library collection is extensive and growing. At hand are dollar value statistics on Sino-US trade by Schedule B or TSUSA number, and on China's trade, by SITC number, with the industrialized nations of the world. Soon to be acquired are 1980 statistics on US exports to China by Schedule B number with tonnage and port of shipment.

Clockwise from top right: Marianna Graham, Catherine Yelloz, Janet M. Stanakis, Giorgia Cavallaro, Jennifer L. Little.

Other library materials include reference works, US government regulatory information, tourist guides, trip reports, and Chinese export catalogues.

In addition to her other responsibilities, Marianna Graham prepares the "China Bookshelf" column of *The China Business Review;* and Catherine Yelloz compiles the magazine's "China Business" section. They and their colleagues, Janet Stanakis, Jennifer Little, and Giorgia Cavallaro, remind member firms that the information the firms seek might be just a phone call away.

Library Staff and Services

Librarian: Marianna Graham
Assistant Librarians: Catherine Yelloz and Jennifer Little
Library assistants: Janet Stanakis and Giorgia Cavallaro
Address: 1050 17th Street, NW, Suite 350; Washington, D.C. 20036
Telephone: (202) 828–8375 or 828–8376
Library hours: Monday through Friday, 9AM to 5PM
Phone and mail requests: National Council members receive priority, but some assistance is given to all inquirers. Requests requiring more than 10 photocopies are charged 25¢ per sheet.
Library use: The library is open to all member firms, US government agencies, international organizations, and the graduate students and faculty of US academic institutions. Please make an appointment in advance. Photocopying facilities are available at 25¢ per sheet.

CHINA BUSINESS

Catherine Yelloz
Assistant Librarian

The following tables contain recent press reports of business arrangements exclusive of those listed in previous issues. The total-value figures for China's exports and imports distinguish between sales (which press reports indicate are definite) and negotiations (which are deals still under discussion). Joint ventures, licensing arrangements, and other forms of business arrangements are included if classified as such in Chinese and foreign media reports. The accuracy of these reports is not independently confirmed by *The CBR*.

National Council members can contact the library (202-828-8376) to obtain a copy of news sources and other available background information concerning the business arrangements appearing below. Moreover, member firms whose sales and other business arrangements with China do not normally appear in press reports may have them published in *The CBR* by sending the information to the attention of Jennifer Little.

中外贸易

EXPORTS TO CHINA: 1981 SALES AND NEGOTIATIONS THROUGH JULY 31st

Company/Country	Product/Plant/Technology	Value	Status Date Announced
Agricultural Commodities			
(Pakistan)	5,000 tons of rice	Free	Donated 5/16/81
Cotton Corp. (India)	Large quantity of cotton	NVG	Sold 6/17/81
(US)	An additional 200,000 metric tons of wheat for delivery in 1981–82	NVG	Sold 7/23/81
Agricultural Technology			
Nippon Meat Packers, Inc. and Hannan Chikusan Co. (Japan)	Will establish beef ranches by providing funds, technology, and raw materials	NVG	Agreement reached 6/2/81
US Wheat Associates (US)	Pasta-making	NVG	Proposed 6/15/81
The International Agricultural Development Fund	Loan offered for the modernization of livestock farming	$35 million	Agreement signed 7/21/81
Chemicals			
Central Glass Co. (Japan)	2,200 tons of compound fertilizers	NVG	Sold 6/16/81
Cansulex (Canada)	Sulphur	NVG	Announced 7/81
Chemical Plants and Equipment			
R. Stahl, Ltd. (UK)	Flameproof distribution boards and motor control equipment for chemical process plants under construction by Davy McKee, Ltd.	NVG	Order completed 6/81
Consumer Goods			
Sapporo Breweries; Kirin Brewery Co.; and Suntory, Ltd. (Japan)	47,300 cases of beer	NVG	Contracts signed 7/6/81
Electronics			
Olympia Werke AG (W. Germany)	1,000 Olympia 1011 word processors	$5 million	Accord reached 5/5/81
Dilor (France)	Cooperation with an optical plant in Beijing	NVG	Accord concluded 5/8/81
Nippon Electric Co. (Japan)	a) Six medium-size computers for the China National Machinery Import and Export Corp.	NVG	Orders received 5/25/81

	b) Joint software center in Beijing	NVG	Agreement signed 6/81
(Hong Kong)	A digital equipment PDP 11/34 computer system destined for installation at the Overseas Chinese University in Fujian Province	Donated	Announced 6/1/81
Low & Bonar (UK)	Electronic equipment	NVG	Order obtained 6/17/81
Mitsui & Co., Hitachi Chemical Co., and Hitachi Powdered Metal Co. (Japan)	Building of a plant to produce coloid graphite for color picture tubes	NVG	Order placed 6/19/81
Swiss Watch Federation (Switzerland)	Will open a sales and service center in Beijing	NVG	Announced 7/8/81
Electronic Associates (US)	Analog-hybrid computer system to the University of Harbin, Heilongjiang	$4.8 million	Will ship 7/29/81
Machine Tools			
VOEST-Alpine (Austria)	Cooperation agreement for the production of lathes; the product will be sold on the domestic market and elsewhere in Asia	NVG	Agreement signed 6/3/81
Machinery			
General Motors Corp. (US)	High-power diesel engines	$800,000	Will export 6/8/81
Mining Equipment			
Allis-Chalmers Canada, Inc. (Canada)	Contract with China National Technical Import and Export Corp. for two grinding circuits for a copper concentrator, including grinding mills, cyclones, and cyclone feed pumps, controls and instrumentation, and erection and start-up assistance	$8 million	Contract awarded 5/81
Bougainville Copper, Ltd. (Australia)	Copper concentrates	NVG	Contract negotiated 5/13/81
Petroleum and Natural Gas			
Bardahl Manufacturing (US)	Lubrication-improving oil additives for filtering systems	NVG	Commitment announced 4/21/81
Empire Oil & Gas Co. (US)	Mining, extraction, and foreign marketing of various minerals located in China	NVG	Proposal to be submitted 6/8/81
Japan Oil Public Corp. (Japan)	Cooperation in surveying and exploring for oil and natural gas in the Ordos Basin	NVG	Agreement announced 6/24/81
Scientific Instruments			
Beckman Instruments (US)	Technical service center in Beijing	NVG	Opened 4/8/81
Bison Instruments, Inc. (US)	Geophysical instruments including crosshole shear wave hammer, downhole triaxial geophones, six-channel signal enhancement seismograph, and various accessories	$380,000	Production and shipment completed 5/81
Shipping			
(Spain)	Seven merchant ships	NVG	To be sold 4/22/81
Hitachi Shipbuilding & Engineering Co. (Japan)	Supply of 11 ship engines, and technical guidance to help design 27,000-dwt bulk carriers for export	$13.595 million (¥ 3billion)	Orders won 4/28/81
Harmstorf-Werften (W. Germany)	Three self-sustaining cellular container ships	NVG	Order won 5/14/81
A. G. Weser (W. Germany)	Three container ships	NVG	Order announced 5/28/81
Steel and Steel Products			
Nippon Steel, Nippon Kokan, Sumitomo Metal Industries, Kawasaki Steel, and Kobe Steel (Japan)	530,000 tons of steel between July and September	NVG	Agreement announced 6/10/81

Textile Products

Pacesetter Industries (US)	Long-term agreement with China National Textile Import and Export Corp. as exclusive sales representative for silk neckwear in the US	NVG	Agreement reached 6/12/81
(Japan)	17,000 metric tons of polyester staple during the second half of 1981	NVG	Contract signed 6/17/81

Tourism

American-Standard (US)	Deluxe bathtubs, lavatories, toilets, and faucets for the 37-story, 804-room Jinling Hotel in Nanjing	NVG	Contract awarded 5/81
Eljer Plumbingware (US)	Plumbing fixtures for the Jianguo Hotel in Beijing	NVG	Contract obtained 6/81
Holiday Inns, Inc. (US)	A 500-room tourist hotel in Shenzhen	$30 million	Agreement in principle 7/21/81

Transportation

Yamaha Motor Co. (Japan)	Motorcycle service center in Guangzhou	NVG	Established 5/6/81
Magirus-Deutz (W. Germany)	Fire-fighting equipment	$436,395 (DM1 million)	Order received 6/17/81
Trans-Pacific Marketing (Canada)	Plan to manufacture fiberglass pleasure boats	NVG	Proposed 7/81

Miscellaneous

EEC	Food aid for Hubei and Hebei provinces stricken with drought and floods	$6.2 million	Agreement in principle announced 3/25/81
Volkswagen Works Foundation (W. Germany)	Donation to the Wuhan medical college to help establish a medical center	$436,395 (DM1 million)	Announced 4/8/81
(Sweden)	Disaster aid to the areas affected by drought and floods	$1 million (Sk5 million)	Offered 4/22/81
Fujita Trading Co. (Japan)	Export to Sichuan Province of integrated plywood manufacturing plant	NVG	Agreement reached 5/26/81
The Benjamin Co., Inc. (US)	Agreement with the Publishers Association to distribute low-cost books carrying foreign advertising	NVG	Agreement signed 6/81
Caterpillar Tractor Co. (US)	Opening of the MACHIMPEX Distribution Center for Caterpillar parts	NVG	Announced 6/1/81
Nike, Inc. (US)	Negotiations with four factories to produce running and court shoes for US distribution	NVG	Announced 6/1/81
High Noon Productions (US)	Co-production with China Film Production Corp. of a picture entitled "Sun Yat Sen"	NVG	Announced 6/3/81
(Romania)	Will supply drilling rigs, cars, diesel rail locomotives, combine harvesters, marine cranes, electronic components, measuring instruments, engineering products, coke, coal, nonferrous metals, and current-making equipment to the PRC under a trade protocol	NVG	Agreement signed 6/3/81
Trafalgar Housing (Hong Kong)	Feasibility study with Guangdong authorities to build massive "industrial park" in Shenzhen Economic Zone	NVG	Agreement forged 6/3/81
Walt Disney Productions (US)	Cooperation with China Film Production Corp. for a full-length documentary entitled "The Wonders of China"	NVG	Agreement announced 6/3/81
General Telephone and Electronics Corp. (US)	Exclusive five-year contract to sell advertising space worldwide for telephone directories in China	NVG	Signed 6/24/81
Honshu Paper Co. (Japan)	18,000 tons of paperboard	NVG	Contract signed 7/1/81
American Hospital Supply Corp. (US)	Donated 3,220 pacemakers and accessories to China through The American Friends Service Committee	$7.6 million	Donated 7/12/81

Total value of 1981 sales listed through July 31st ..... $989.7 million +
Total value of 1981 negotiations listed through July 31st ..... $4.2 billion +

CHINA'S EXPORTS: 1981 SALES AND NEGOTIATIONS THROUGH JULY 31st

Company/Country	Product/Plant/Technology	Value	Status Date Announced
Construction			
(Yemen Arab Republic)	China Engineering and Construction Corp. will build a review stand for major celebrations	$2.2 million	Contract awarded 5/29/81
Housing Corp. (Jordan)	The China Aerotechnology Import and Export Corp. will build a part of a residential area near Amman	$50 million	Agreement signed 6/9/81
Light Industries			
Continental Co. (W. Germany)	1.27 million meters of chains of various categories from the Hangzhou Chain Factory	$2 million	Order won 12/16/80
(Sudan)	A candy factory in Khartoum	$100,000	Financement announced 5/22/81
Advanced Affiliates, Inc. (US)	Exclusive contract with China National Light Industrial Products Import and Export Corp. for the manufacture and export to the US of padlocks and security devices	NVG	Contract signed 6/2/81
(Latin America)	Products from the Guangdong Machinery Import and Export Corp. including water meters, bearings, drills, grinders, handicraft tools, electrical machines, and microscopes	$26 million	Bought 6/19/81
Machinery			
Isuzu Motors, Ltd. (Japan)	12 sets of metal molds for making automotive exterior press parts	$135,955 (¥30 million)	Bought 4/28/81
Metals and Minerals			
(Nigeria)	The Wuhan Iron and Steel Mill sold a complete set of steel mill equipment	NVG	Announced 5/81
Osborne Engineering Co. (US)	Will import more than 30 kt of refractory grade bauxite	NVG	Agreement announced 5/81
(Japan)	300,000 tons or more for the first half of 1981	NVG	Bought 5/19/81
(Japan)	1.5 million tons of coking coal	NVG	Has agreed 6/2/81
(US)	Various contracts with US firms for 447 tons of sponge titanium, 183 tons of rolled titanium, 2,200 tons of molybdenum concentrate, concentrated rare-earth metals, silicon for industrial purposes, metallic germanium, metallic indium and magnesium ingots during the first half of 1981	$290 million	Signed 7/13/81
Shipping			
(Malta)	A built-to-order 5,700-ton oil tanker	NVG	Announced 6/81
Trade Agreements			
(Nigeria)	Agreement on economic, scientific, and technical cooperation	NVG	Renewed 5/11/81
(Iraq)	Two commercial, economic, and technical cooperation agreements	NVG	Signed 6/81
Transportation			
(Thailand)	300 Tai Shan Model 25 wheeled tractors from the Tianjin branch of the China National Machinery Import and Export Corp.	NVG	Imported 5/18/81

Miscellaneous			
(Morocco)	Part-financing and design of a sports complex	$9 million	Announced 5/15/81

Total value of 1981 sales listed through July 31st ..... $403.9 million +
Total value of 1981 negotiations listed through July 31st ..... $1,137.9 million +

中外贸易 JOINT VENTURES: 1981 PRESS REPORTS THROUGH JULY 31st

Foreign Party	Chinese Party	Technology/Terms	Value	Status
Wang Laboratories (US)	Nanjing	Venture to build small computers	NVG	Negotiations completed 4/81
Signode Corp. (US)	NA	Strapping systems	NVG	Negotiations announced 4/27/81
Choyo Boeki (Japan)	Beijing Economic Development Corp.	50-50 joint venture	NVG	Announced 5/6/81
Tele-Art (Hong Kong)	Hua Yuan (Hong Kong agent for the China National Light Industrial Products)	A 50-50 joint venture (Hua Ko Electronics) to produce integrated electronic microcircuits at the colony's main industrial park, Taipo Industrial Estate	$12 million	Announced 6/81
Empire Oil and Gas Co. (US)	NA	Oil exploration and production program	NVG	Negotiations announced 6/8/81
China Trade Corporation, and M. J. Kelley Co. (US)	China Construction Engineering Corp.	The China World Construction Corp. based in New York City; the US partners will provide design, engineering, construction management, and supervision, and the Chinese will provide construction equipment and labor	NVG	Launched 6/11/81
Shinritsu Koeki (Japan)	China National Native Produce and Animal Byproducts Import and Export Corp.	New Asia Trading, 50-50 joint venture based in Japan	NVG	Recently established 6/17/81
Toko Bussan Co. (Tokyo)	Liaoning Trust and Investment Corp.	The Liaoning Co., owned 51 percent by Toko Bussan and 49 percent by the Liaoning Trust and Investment Corp., will be based in Japan and will act as a trading agent handling a wide range of products	$225,000	Have set up 6/17/81
Occidental Petroleum (US)	NA	Interest in the Pingshuo coal mine project in Shanxi Province	NVG	Announced 7/23/81
Goodyear Estate, Ltd. (Hong Kong)	a) Shenzhen Forestry and Park Management Bureau	Hotel-resort project; Goodyear is providing capital and the forestry bureau land; partially financed by the Bank of China	$8.8 million	Contract announced 7/28/81
	b) Shenzhen Tourism Dept.	Marine resort project at Mirs Bay	$5.1 million (HK$30 million)	Project announced 7/28/81

中外贸易 LICENSES: 1981 PRESS REPORTS THROUGH JULY 31st

Foreign Party	Chinese Party	Technology/Terms	Value	Status
Herion-Werke (W. Germany)	China National Technical Import Corp.	10-year agreement for the manufacture of valves for compressed air systems, compressed air maintenance equipment, and valves for liquid control	NVG	Agreement signed 6/17/81
Standard Oil of Ohio (US)	China National Technical Import and Export Corp.	Complex and advanced state of acrylinitryl technology	NVG	Discussions announced 7/17/81

中外贸易

OTHER ARRANGEMENTS—1981 PRESS REPORTS THROUGH JULY 31st

Foreign Party	Chinese Party	Technology/Terms	Value	Status
Minermet SA (Italy)	China International Trust and Investment Corp.	Construction of a calcining plant in Henan Province expected to produce 200 kt/a of bauxite; Minermet will export 50 percent of the output to the world market	NVG	Preliminary agreement signed 5/81
(Czechoslovakia)	NA	China will supply tungsten concentrate, fluorite, talc, canned food, and some consumer goods in return for metal products, motorcycles, and machinery for leather, footwear, and textile industries	NVG	Announced 6/3/81
Atlantic Richfield Co. and Santa Fe International Corp. (US)	China National Oil and Gas Development Corp.	Will explore for and produce oil and gas cooperatively in the Yinggehai basin of the South China Sea	NVG	Agreement signed 6/6/81
Boeing (US)	China National Aerotechnology Import and Export Corp. and Xian Aircraft Co.	4,900 parts for Boeing 737 and 747 under a subcontracting agreement	$1 million	Agreement reached 6/11/81
Bohemia-Film (W. Germany)	Studio Beijing	Coproduction of two films: "Impressions from Germany," and "The Journey to the Sun"	NVG	Contracts made 6/16/81
Hitachi Seiki Co. (Japan)	China National Machinery and Equipment Import and Export Corp.	Will supply its technological know-how on the manufacture of milling machines for the Beijing No. 1 machine tool factory	NVG	Agreement reached 6/16/81
(Japan)	Ministry of Light Industry	Cooperation in making plastic processors in the form of either technological aid or joint venture production	NVG	Proposal made 6/16/81
(Pakistan)	Ministry of Foreign Trade	China will export steel items including billets, pig iron, and tools, while Pakistan will export cotton yarn, textile goods, and leather manufactures	NVG	Trade protocol signed 6/25/81
(Japan)	NA	Will jointly develop technology for smelting iron ore containing columbium (niobium) and other special elements	NVG	Agreement reached 6/26/81
General Motors of Canada (Canada)	Ministry of Metallurgical Industry	Compensation deal involving the exchange of components	NVG	Announced 7/81
T. M. Thomson and Associates (Canada)	NA	Will mount a technical exchange program to train Chinese foresters in Canada	NVG	Announced 7/81
Kamchun Enterprise Co. (Hong Kong)	Chongqing Clock and Watch Industrial Corp. and the Chongqing Industrial Products Import and Export Corp.	Compensation trade agreement to manufacture watches	NVG	Agreement signed 7/8/81
National Tanker Co. (Pakistan)	China Ocean Shipping Co.	Will transport crude oil from China to oil refineries in Pakistan	NVG	Contract signed 7/9/81
Dept. of Agriculture (US)	NA	Has supplied China with American-grown wasps and caterpillars in exchange for green lacewigs, predatory mites, and wasps	NVG	Announced 7/16/81

NVG = No value given

NOTES: Contracts denominated in foreign currencies are converted into US dollars at the most recent monthly average rate quoted in *International Financial Statistics (IMF)*.

Contracts concluded over two months ago are also included if they were not reported in the last issue of *The CBR*.

The National Council for US-China Trade

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	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1981*
US Exports	—	63.5	740.2	819.1	303.6	135.4	171.3	823.6	1716.5	3749.0	4,100
US Imports	4.9	32.4	64.9	114.7	158.4	201.0	202.7	324.1	592.3	1058.3	1,700
Total	4.9	95.9	805.1	933.8	461.9	336.4	374.0	1147.7	2308.8	4807.3	5,800

*National Council projection.

"我不知道你是谁
" I don't know who you are.
我不知道你的公司
I don't know your company.
我不知道你的公司的产品
I don't know your company's product.
我不知道你的公司代表什么
I don't know what your company stands for.
我不知道你的公司有那些顾客
I don't know your company's customers.
我不知道你的公司办得怎样
I don't know your company's record.
我不知道你的公司的声誉如何 ——
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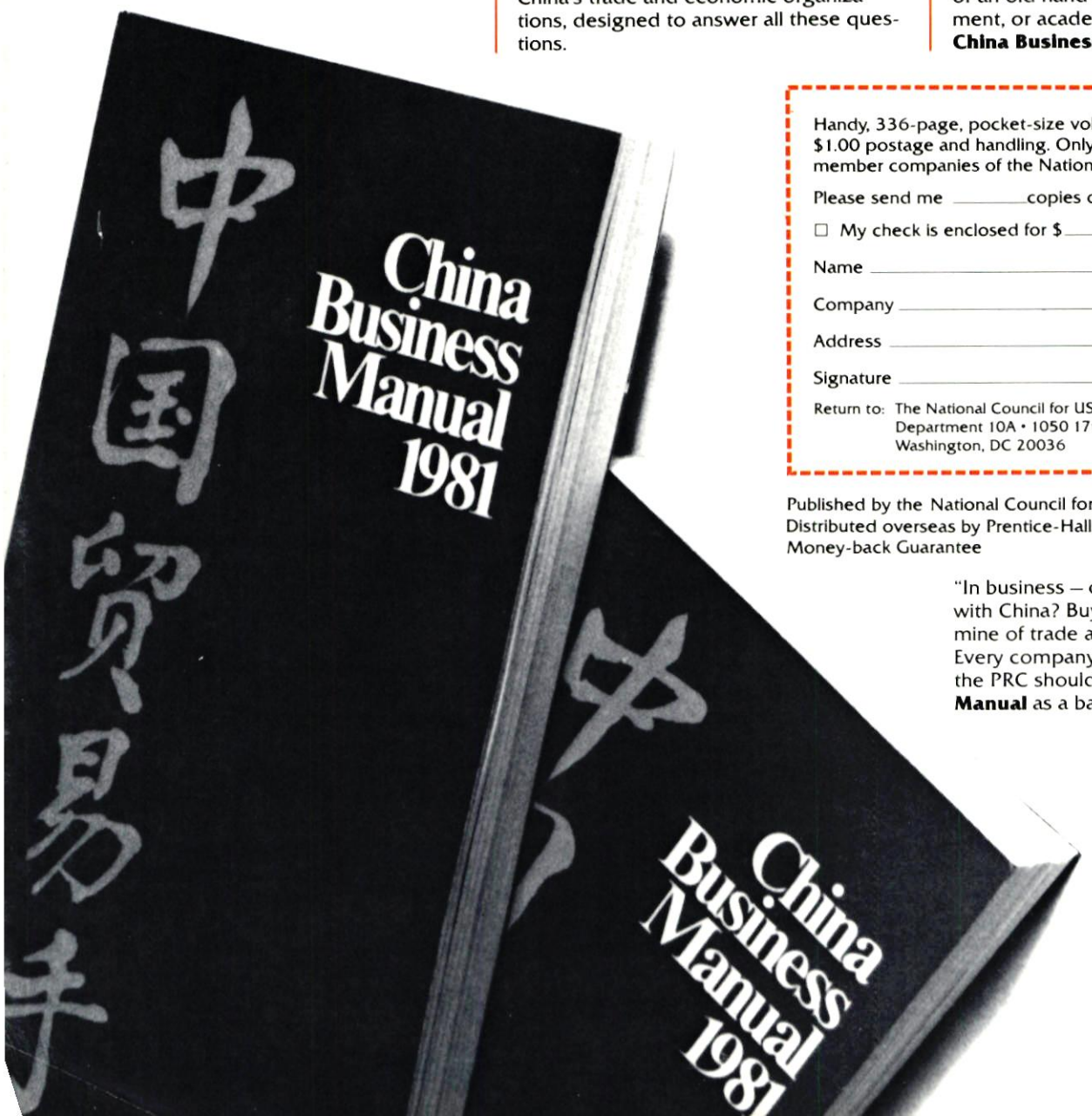

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