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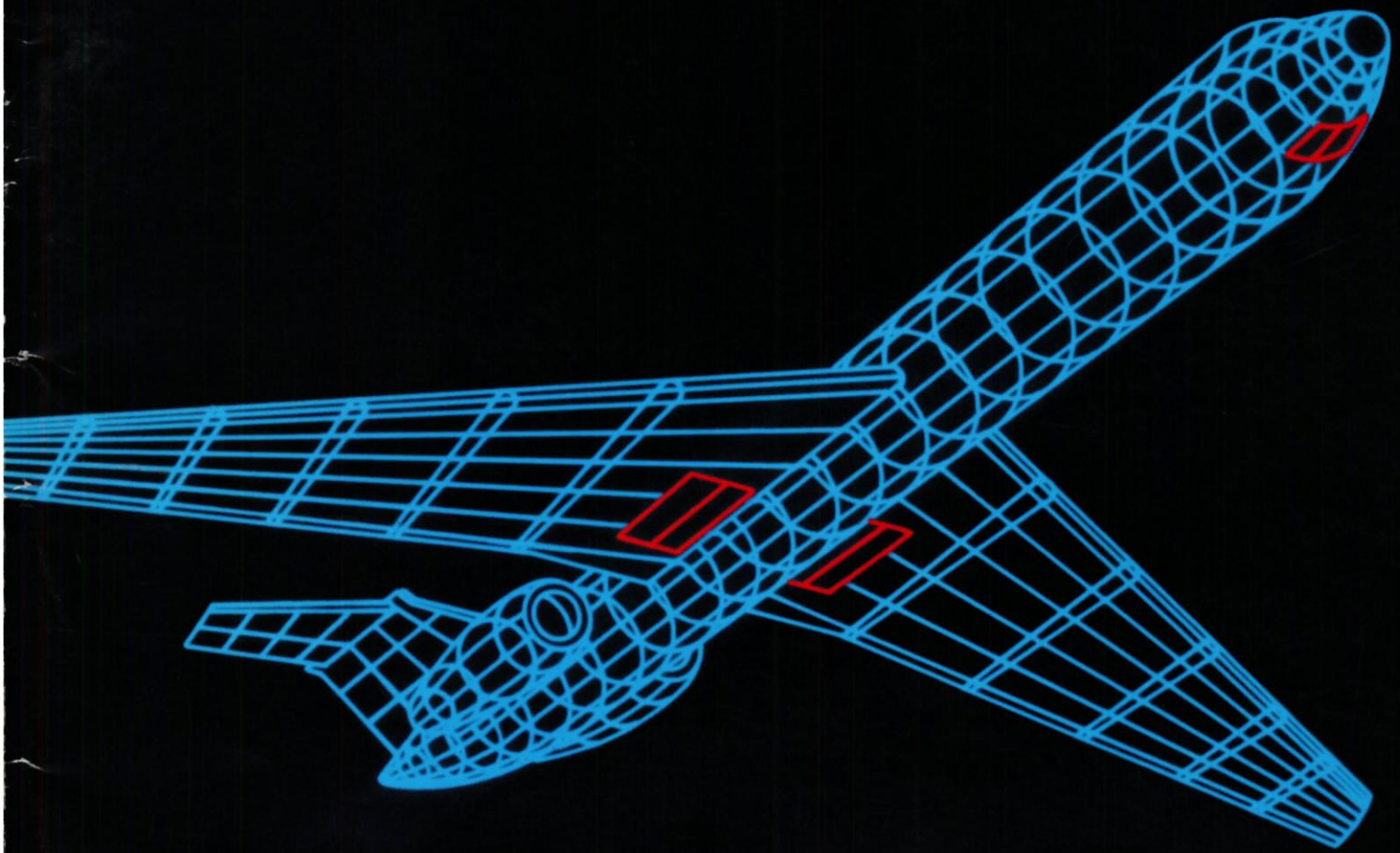

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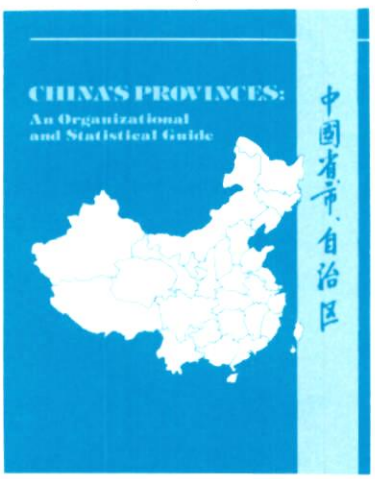

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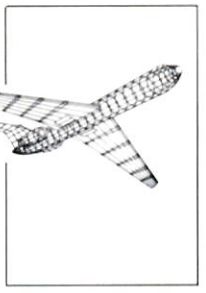
The China Business Review

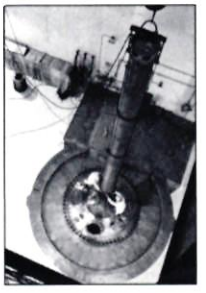
The magazine of the National Council for US–China Trade

September–October 1982 Volume 9, Number 5

Cover: If you want to sell to China, you must buy something back. This oft-repeated message has convinced many firms to begin subcontracting parts. **Page 37.** *Artwork by John Yanson.*



Nuclear power: The conviction that nuclear power is the wave of the future is spurring on two nuclear power projects, one near Shanghai and another north of Hong Kong. **Page 40.**



Lumber: Centuries of over-cutting have left China woefully short of timber resources, which explains why China buys huge shipments of American softwood logs. **Page 48.**

摘要

NO MAJOR POLICY SHIFTS

As expected, the recently concluded 12th Party Congress charted no bold new course for the future. The Congress's main role was to put the final, most authoritative seal on changes that had already taken place. The most important change was the reevaluation of Mao Zedong with the abolition of the Party chairmanship position which had become a symbol of his policies and capricious rule.

In terms of personnel, Deng Xiaoping appears to have made substantial gains lower in the system. But the price he had to pay was to retain his opponents at the top of the leadership.

The composition of the leadership and the tenor of the speeches at the Congress augur no major changes in economic direction. Although foreign "bourgeois corruption" was criticized, the open-door policy was reaffirmed. Particularly noteworthy was the rise of figures associated with the special economic zones and liberal economic policies in Guangdong: Xi Zhongxun, former Party first secretary of Guangdong, was elevated to positions on both major executive bodies: the Politburo and the Party Secretariat; Yang Shangkun, former Guangdong second secretary, to the Politburo; and Guangzhou Mayor Liang Lingguang, to the Central Committee.

But it is obvious that the economic policy disputes of the last few years are far from resolved. Most disappointing was the vagueness of utterances regarding the 1981–1985 five-year plan, which reportedly was to have been discussed in detail at the Congress, and later approved at the National People's Congress in November.

It is now uncertain whether agreement can be reached in time on the contentious issues: How high should investment be? How fast should consumption be allowed to rise? How much money should go into China's ailing heavy industry? Political relations with the US, Chinese leaders indicated, will continue to develop and expand, though perhaps less emphasis will be placed on strategic cooperation. The Congress affirmed China's membership in the Third World.

DENG OPPONENTS REMAIN AT THE TOP

Deng conspicuously failed in his attempt to force the retirement of elderly conservatives on the Politburo. Eighteen of the previous 23 members retained their seats. Among the most senior leaders, only Deng himself joined the new Central Advisory Commission (while retaining his Politburo seat) that was meant to be a way-station for retiring leaders—a clear signal of his failure to get others to follow the lead.

The six-person standing committee of the Politburo—which makes major day-to-day policy decisions—still contains aging marshal Ye Jianying and old-line planner Li Xiannian, both believed to oppose many aspects of Deng's policies. This means that Deng and his allies, Premier Zhao Ziyang and Secretary-General Hu Yaobang (nominally the Party's number-one man), will have to continue to respect their points of view. Chen Yun, the most important swing vote, probably will continue to bridge the gap between Deng–Hu–Zhao and Li–Ye.

Though unable to abolish the Politburo as he had wished, Deng may have done the next best thing by bringing in seven new members believed to be his supporters. This expanded the Politburo to 28, an unwieldy number for making major decisions. The new members, like the old, are almost all over 70. This effectively turned the Politburo into a board for senior statesmen.

Deng's clear hope is to strengthen the role of the Secretariat, a more tightly knit 11-person body charged with "running the Party's day-to-day affairs" under the Politburo Standing Committee. Four new full members and two alternates were added. Several of them, such as Organization Department Director Hu Qili and Textiles Minister Hao Jianxiu, are in their forties or fifties. Most are believed to be tied to Deng and Hu Yaobang, and they replace, as a rule, more senior Deng and Hu cronies who moved on to the Politburo. As before, the Secretariat contains representatives from key bureaucratic power centers: the economic planners, the foreign affairs specialists, the propaganda apparatus, the Party personnel department, and the military.

When the Congress closed on September 11, the biggest winners appeared to be leaders who gained seats on both the Secretariat and Politburo. Three of them—Wan Li, Xi Zhongxun (the man who as first secretary of Guangdong was instrumental in setting up the Special Economic Zones), and Yao Yilin (a Politburo alternate)—are strongly affiliated with Deng and Chen Yun. The fourth, Yu Qiuli (former Planning Commission chairman), attests to the continuing influence of the old-line planners.

Even more significant changes were made on the Central Committee, the body to which the Secretariat and the Politburo are immediately accountable in somewhat the manner of a European cabinet to a parliament, and which more fully represents the major interests of the Chinese Communist Party. Fully 97 of the 210 full members on the committee are new to the body. Most notable is the large number of economic officials on the Central Committee. At least 40 members are ministers, vice-ministers, and commission officials, a much larger percentage than

before; China's technocrats clearly will have a much larger say than they did.

The military's presence on the Central Committee was cut sharply. The old marshals Ye Jianying, Nie Rongzhen, and Xu Xiangqian all retained their positions at the top. But below them, over 50 old military figures were retired from the Central Committee, including many deputy chiefs of staff, deputy political commissars, and several military region commanders. Deng was able to place one of his foremost military allies, General Yang Yong, on the Secretariat, move another ally, Chief of Staff Yang Dezhi, from the Secretariat to the Politburo, and retire old friend-turned-critic General Xu Shiyou from both the Politburo and Central Committee. Defense Minister Geng Biao was similarly retired. Deng remained head of the Military Affairs Commission, the Party's key instrument for controlling the army.

NEW AIR CARRIER

The Civil Aeronautics Board (CAB) is expected at any time to designate the second American air carrier that will service China, beginning as early as January 27, 1983. The big question is: Will it be a passenger or cargo carrier?

In August US and PRC negotiators agreed to a second air route covering Beijing, Shanghai, Guangzhou, Tokyo or another point in Japan, Honolulu or Seattle, Los Angeles, San Francisco, and Chicago. Service will be limited to cargo-only on one 747 aircraft for the first 12 months. Afterward, the carrier may provide a combination of passenger/cargo service to all the designated stops *except* Beijing, at least for now.

The new formula, an amendment to the 1980 US–China civil air accord, attempts to encourage competition among the airlines without jeopardizing the positions of CAAC and Pan Am, the first air carriers to offer direct service between the US and China. Air traffic is down in both directions, and CAAC makes no secret of its concern about adding another US carrier. A negotiator from the CAB admits that the 12-month, all-cargo restriction was a "concession to the Chinese" for agreeing to include Beijing on the route. The US side hopes to negotiate Beijing passenger service at a later date.

The two main contenders for the second route are Northwest Airlines and Flying Tigers, a cargo-only carrier. Most insiders give the nod to Northwest. Considering the concern about passenger traffic, however, the CAB claims to be giving serious thought to Flying Tigers, which would be permitted to service two of the three Chinese cities as cargo-only points.

The complicated frequency formula permits two 747s to make a total of two departures per week in 1984. The limit is increased to three the following year (plus three accumulated, unused frequencies), then dropped altogether in 1986.

The numbers are not the issue, according to the CAB official. "The question is whether there will be enough demand to operate more than the minimum frequencies provided in the agreement."

BALANCED DIET

With luck and hard work, China just might balance its agricultural trade in 1982. Contrary to the impression left by press reports about China's large grain imports, in most years China produces more agricultural goods for export than it imports.

Agricultural exports surpassed imports by a record $1.4 billion in 1976. The country's agricultural trade surplus fell to $650 million in 1978, and to $360 million in 1979. In 1980 imports exceeded exports by $970 million—which marked the first time in 16 years that China became a net importer of agricultural produce. The gap narrowed to $430 million last year, however, and the US Agricultural Department estimates that China could close the gap, or even produce a small surplus in 1982.

China maintains a rough trade balance in agricultural products largely by exporting rice to Southeast Asia, high value canned goods such as seafood delicacies, and live animals to Hong Kong and Macao (live pigs alone earned more than $300 million last year). These and other export items such as vegetables, fruits, and nuts helped China raise the approximately $5 billion needed to pay its imported food bill, of which about 40 percent generally goes for purchases of American wheat, corn, soybeans, and cotton, among other items.

The Soviet Union is another major US grain importer. But in contrast to China, Russia is a net agricultural importer. Its worldwide agricultural imports came to $19 billion last year, while exports were $2.7 billion, or about half China's level of agricultural exports.

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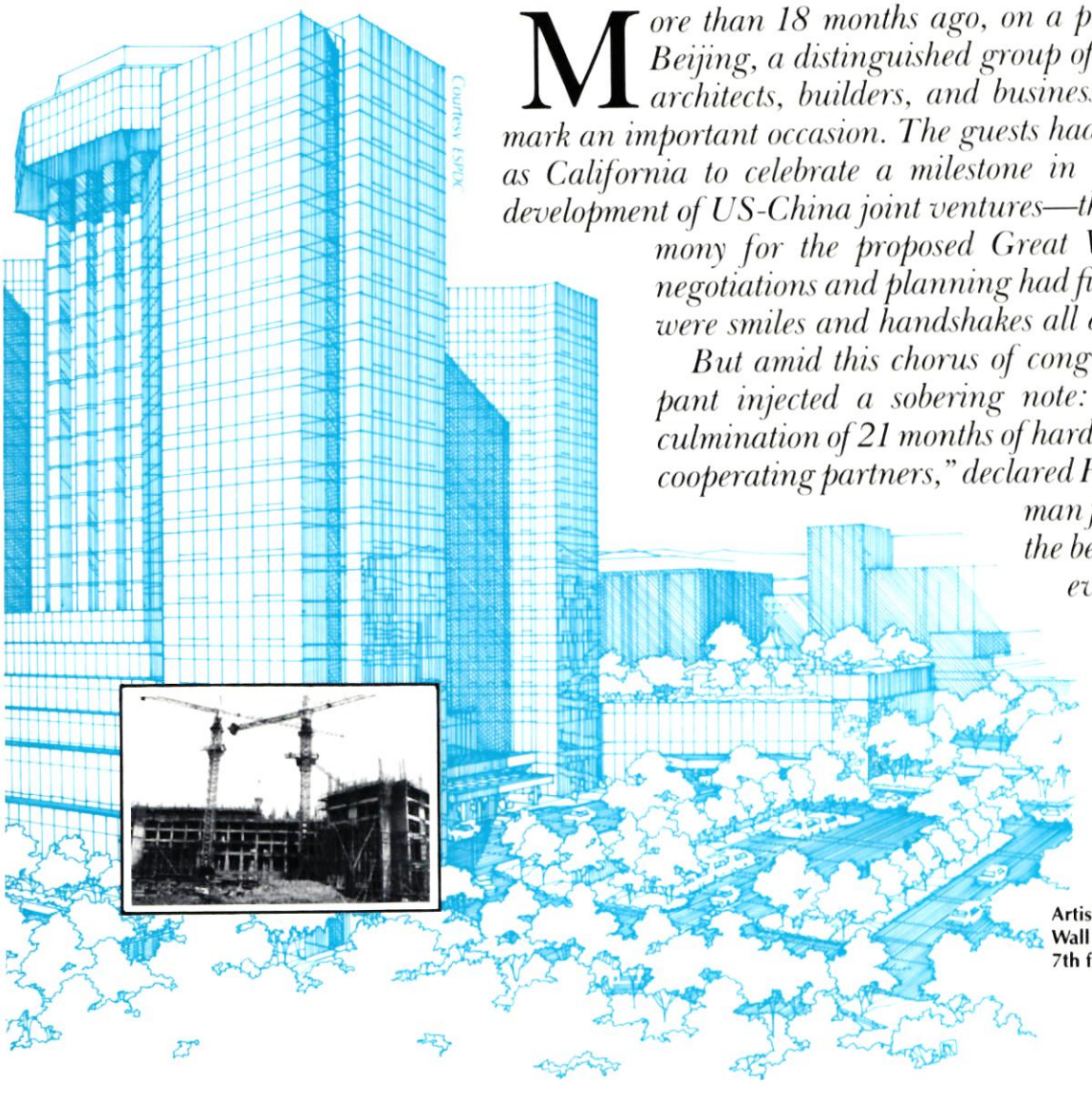
"The logical alternative was to transfer the responsibility to the Chinese."

The Great Wall Story

Robert Boorstin

More than 18 months ago, on a plot of land in northeast Beijing, a distinguished group of American and Chinese architects, builders, and business executives gathered to mark an important occasion. The guests had come from as far away as California to celebrate a milestone in their work, and in the development of US-China joint ventures—the groundbreaking ceremony for the proposed Great Wall Hotel. Months of negotiations and planning had finally paid off, and there were smiles and handshakes all around.

But amid this chorus of congratulations, one participant injected a sobering note: "Today is at once the culmination of 21 months of hard work between equal and cooperating partners," declared Richard Young, a spokesman for the US concern, "and the beginning of 27 months of even harder work which



Artist's rendering of Beijing's 22-floor Great Wall Hotel. Inset: Construction begins on the 7th floor.

will require even more cooperation and understanding between partners."

Much time has passed since that day and, for the participants in the Great Wall project, many things have changed. In northeastern Beijing today, the frame of the 22-story hotel has begun to rise into the sky. Concrete has been poured for the seventh floor and both sides report satisfaction with current progress. The four-acre site has become a hive of activity, with massive cranes and bulldozers and more than 1,000 laborers working three shifts a day, seven days a week.

But the frenzied pace has only recently been resumed. For a time, work at the Great Wall site barely crawled along, and talk of "friendly cooperation" gave way to complaints about "incompatibilities" and "differences" between the partners. Though the Great Wall now has all the marks of a success story, behind it lies a complicated tale of delays and disagreements—one which sheds some light on ways that future investors can avoid the problems endemic to so many Chinese joint ventures.

The Great Wall is easily the largest and most ambitious of all the hotel projects in progress in China. Negotiations between Chinese tourism officials and the E-S Pacific Development and Construction Company (ESPDC) date back to late 1978, when China began to think seriously of developing tourism as a route toward modernization. Hotel rooms were already in short supply, particularly in the popular capital city. Tourism officials, realizing they had neither the ready cash nor the experience to undertake a massive hotel-building program themselves, turned to foreign investors. Negotiations were opened, and in a relatively short time the Chinese announced plans to nearly double their supply of beds by building 31 new hotels. Fully a dozen of those projects would involve foreign cooperation in either financing, design, construction, or management.

From the start, ESPDC—a Bermuda-registered company co-owned by the US firms Becket Investment Corporation and Unison Pacific Corporation—had envisioned the Great Wall as a modern, international-class hotel. In scale and design it is like nothing ever seen in China.

Plans call for construction of a 22-story building featuring three high-rise rectangular guestroom wings radiating from a central service core. The complex will house 1,007 guestrooms (complete with color televisions, air conditioning, and smoke detectors), an indoor pool, six restaurants, a variety of shops, and parking garage. A five-story glass-enclosed atrium will lead to a traditional Chinese tea garden.

Located in the Chaoyang district and facing Dong San Huan Road (which leads to the Beijing airport), the hotel's huge glass facade will give it the appearance of a silver giant gazing down on an alien world. Its $75 million price tag ranks the Great Wall as far and away China's largest joint venture hotel project—and perhaps its largest joint venture.

Much publicity surrounded the signing of the construction agreement in May of 1979. Then as ESPDC and its partner—the China International Travel Services (CITS) Beijing branch—settled down to the hard work of construction in the spring of 1981, little news emerged from either office. But within a few months of the time work was slated to begin, rumors started to fly that the two sides were having troubles. Other hotel developers would have been surprised if problems had not surfaced by then.

A recent US embassy report revealed that several hotel projects in Beijing are encountering difficulties. Plans with a Hong Kong firm to build the 1,500-room Sun Palace Hotel were abruptly cancelled when, according to the American consulting firm supervising the project, managers were unable to obtain sufficient domestic materials for the planned 26-story tower. Last year the New York firm Express United was virtually evicted from the pre-fab hotel it had erected on airport road, when arguments arose over a rather loose exchange agreement whereby hotel reservations would have been traded for travel visas. Several other proposals are still idling in the negotiation stage.

In late June of this year, ESPDC announced that Becket International had formally transferred its responsibility as construction managers to CITS. The official reason: "an incompatibility between Chinese and American construction practices." Becket will stay on as architect and interior designer, and the rest of the project will remain intact.

All the parties describe this development as a positive step. "As it became apparent that the inconsistencies between American and Chinese methods were delaying the project," said Becket International board chairman McDonald Becket, "the logical alternative was to transfer the responsibility to the Chinese." Interviews with Becket, C.B. Sung—the Shanghai-born, Harvard trained chairman of ESPDC—and others reveal some dissimilar "philosophies of construction" that created problems right from the start.

Becket officials had guessed that things would be difficult even before construction began. After they received the go-ahead for the project in the spring of 1980, groundbreaking was delayed when the Chinese asked Becket to produce all the architectural drawings needed for the project. Western architects typically supply sketches for the entire project at an early stage, producing the detailed drawings when required by the construction schedule. After many discussions, however, Becket acceded to the Chinese request and produced more than 3,000 architectural drawings.

The Americans subsequently drew up an American-style construction schedule. ESPDC requested that the Beijing construction managers mobilize a large Chinese work force in order to complete the structure as soon as possible. But despite their agreement that the project was to proceed on a "fast track," the Chinese balked at the idea. According to Sung, "The Chinese are more in the habit of getting full assurance that the equipment will be delivered before assembling a force. They fear if the structure is completed and equipment is not available for installation, the maintenance of a large work

Photo by Boorstin

ESPDC Chairman C.B. Sung in Beijing.

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force with not enough work to do would be too costly."

Differences also led to delays and frustrations in procurement. After the joint venture company had received bids on the hotel's boilers—the lowest one coming from a Japanese firm—a Shanghai factory offered the boilers at about half the proposed Japanese price. The Americans, at their Chinese partners' urging, tentatively agreed to accept the Shanghai bid. But shortly thereafter, they received a second cable from the company: The boilers would in fact cost *more* than the Japanese ones. CITS nonetheless insisted that the Chinese product be used.

The same thing almost happened with elevator procurement. Japan's Hitachi and China–Schindler Elevator (Shanghai), a joint venture with the Swiss manufacturer and its Hong Kong partner, both came in with promising bids. The Americans supported purchasing the Hitachi elevators; CITS is rumored to have favored for the Shanghai models. The debate carried on until Becket gave up its management role. A week after the Chinese took control of construction, they signed the Hitachi contract.

"Here's the real proof," said Sung, "that one should not rely on rumors. When the Chinese take responsibility, they can move just as fast as Westerners."

Where the blame lies for the various communication breakdowns is a subject of some debate. In private conversations—and in occasional arguments at meetings—Becket representatives complain about Chinese indecision and archaic business practices. Many insiders agree, however, that the real problem was Becket itself.

"Becket's people didn't want to know anything about Chinese practices," one source confided. "Even when they were given the right people to help them understand, they looked the other way."

A member of the diplomatic community in Beijing said that Becket's managers lacked patience. "American companies in particular are always in a hurry," he noted. "When they can't get a black-and-white answer in a relatively short time, they throw up their hands in dismay."

One participant in the Great Wall project recalled that the American managers came in with a "little brother attitude" toward their Chinese partners. "The Westerners said, 'Let us make the decisions,'" the source remarked. "The Chinese took the attitude, 'We want to use some of your techniques, but our stuff is functional, too.'"

Add to these misunderstandings another complication: infighting within ESPDC. According to Sung, as problems mounted, the Chinese began appealing to him and his employees to counsel the Becket-hired workers. This put Sung's managers in a delicate position. "Eventually the Becket people and Sung's group had a couple of knock-down, drag-outs," said one source close to the project. "Sung's guys kept telling them to calm down and adapt, and Becket's people thought they were in California."

Whatever the reasons for the troubles—and it is clear that both sides made mistakes—they helped delay the project by several months. Sung feels confident that the Chinese will now meet both time and quality standards set down with ESPDC, despite rumors about quality-control problems. Chinese construction manager Li Wei says that site tests carried out by Chinese and American engineers "have proved that the construction is up to the standard specified in the plan." Sung says he's been "very impressed" by the attitudes of officials at all levels of CITS.

Becket has withdrawn its 14 on-site managers but has left a core of men to check on the work as it progresses. If anything should go wrong, Sung points out, the June transfer agreement provides concrete assurances. "If we can prove we have a problem," he noted, "the Chinese will either repair it or tear down the specific section and rebuild it." The agreement also obliges the Chinese to finish construction by December 10, 1983—and to absorb the ESPDC portion of the financial burden, should costs run beyond the fixed price of $75 million. "It's a very gutsy move on their part," Sung concluded.

Work on the hotel has reached a point where a transition in responsibility can successfully take place without causing further problems or delays, Sung believes. But others in Beijing are less optimistic.

One rival hotelier points out that the Great Wall is a radical departure from the box-like, Soviet-style buildings the Chinese normally erect. "They have never built anything like this before," he remarked. The hotel's massive glass facade and complex interior may, in his view, cause problems.

As the city's Municipal Construction Company No. 6 continues to work around the clock, Beijing's business community looks for the lessons to be learned from the Great Wall. Sung mentions one himself.

"In retrospect," he said, "we did not define responsibilities carefully enough" in the construction portion of the contract. The operations phase, in contrast, contains no ambiguities: ESPDC will take charge of the hotel for the first three years of operation, leaving CITS in control for the contract's last seven years. Full control passes to the Chinese in 1993.

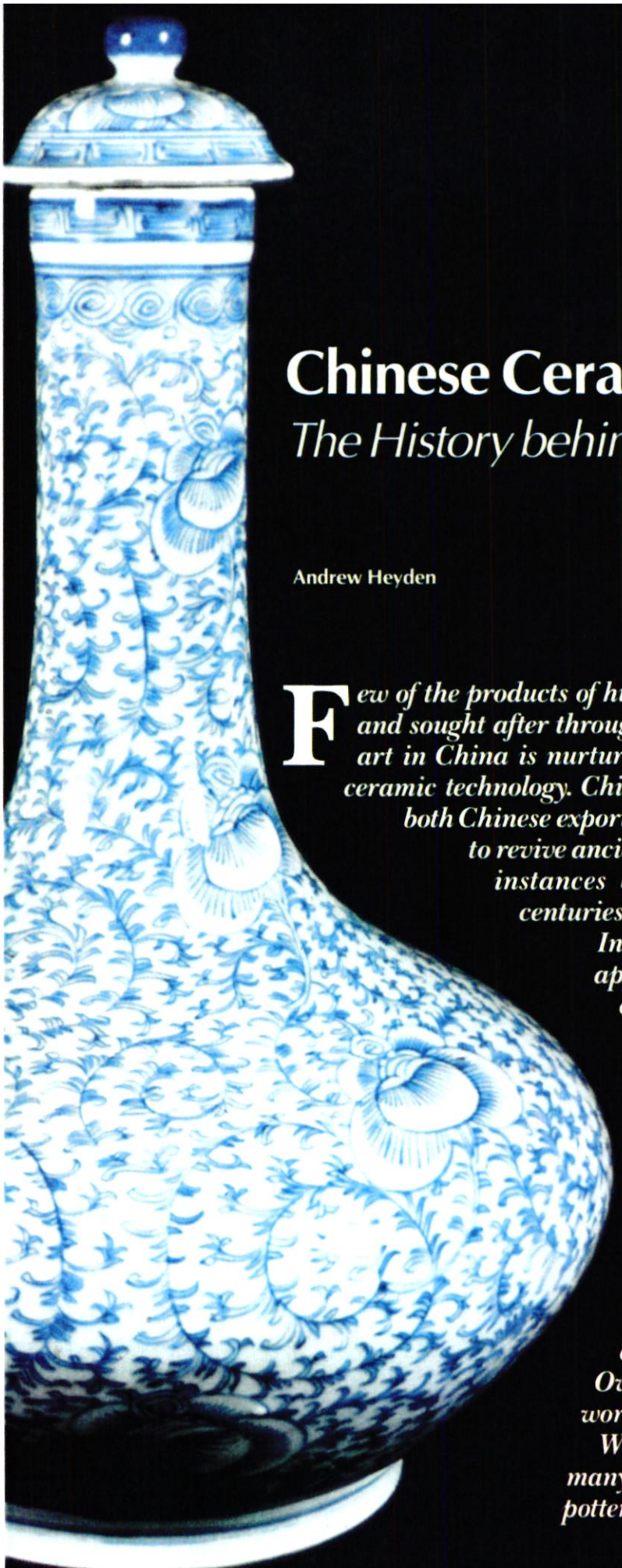
Observers and insiders to the project alike agree that the Great Wall would have benefited if the partners had followed one cardinal rule: Keep it simple. Almost unanimously they point to the example of Clement Chen, the San Francisco businessman who opened Beijing's first Western-style hotel earlier this year. Chen's success with the Jianguo (Build the Nation) hotel can be attributed largely to two factors. First, that he personally controlled every phase of the project. And second, as a resident Beijing businessman notes, that "he built in on a pattern."

The $22 million Jianguo is a near-duplicate of a Chen-owned Holiday Inn in Palo Alto, California. Following an established design freed Chen to concentrate on ensuring that the business and construction ends went smoothly. The Great Wall, people agree, would be considered an ambitious project in almost any country of the world.

The experience of the Great Wall partners once again demonstrates the need in any joint venture for flexibility and patience. "We do not quite understand their experience and they do not completely understand ours," Sung concluded. "You cannot change certain customs and practices overnight."

Despite all of the project's difficulties, construction is moving forward, thereby showing that problems in a joint venture *can* be solved. The Great Wall contract was not written in stone. As with contracts in any country, differences in techniques and operations arise that may, through compromise, lead to a new approach. The fact that the silver towers of the Great Wall Hotel are rising above those problems is a hopeful sign indeed. ☙

Robert Boorstin graduated from Harvard in 1981 and is currently attending Cambridge University on a Keasbey Fellowship. During the past summer Mr. Boorstin worked in China as a free lance writer for The China Business Review *and* Newsweek.



Chinese Ceramics

The History behind the Art

Andrew Heyden

Few of the products of human ingenuity have been so universally admired and sought after through the centuries as Chinese ceramics. The potter's art in China is nurtured by the world's longest continuous tradition of ceramic technology. China's china is today a focus of intense interest for both Chinese exporters and Western buyers. One of their main goals is to revive ancient styles and aesthetic qualities that have in many instances been abandoned or neglected for almost two centuries.

In their tireless efforts to create a substance that approximated the qualities of jade, Chinese potters of the Song period (960-1269) combined fine-grained Kaolin clay, pulverized feldspar, and quartz into a ceramic body that could withstand high temperatures in firing and produced vessels that were hard, white, translucent when potted thinly, and rang like a bell when struck. It was an extraordinary achievement not only in technological terms—it allowed for the production of practical household articles more durable than any known pottery—but also because it could be molded, carved, painted, glazed, and decorated in a remarkable variety of ways. Over the centuries, it was destined to provide the world with some of its greatest works of art.

While the ceramics of the Song are still considered by many connoisseurs to be the highest expression of the potter's art, it was not until the succeeding Mongol, or

Courtesy China Trade Museum, Milton, Massachusetts

Yuan dynasty that porcelain became a factor in China's trade with other countries. Many of the older centers of ceramic production were damaged or destroyed in the original Mongol conquests, but, after the new dynasty had consolidated its control, porcelain manufacturing gradually recovered and evolved in new directions.

New techniques of decoration were developed, notably the famous underglaze painting in cobalt blue. Design influences from Islamic countries also under Mongol domination began to appear in shapes and decorative motifs employed by Chinese ceramic artisans. Experimentation in decorative techniques continued into the Ming period, reaching levels of astounding sophistication and attaining near perfection by the middle of the Qing (Manchu), China's last imperial dynasty.

The earliest ceramics to be exported from China were probably large earthenware jars employed as containers for vegetable oils and preserved foodstuffs. But the durability and strong decorative values of Chinese porcelain rapidly created a demand for the product independent of its practical application in packaging. Persian shahs, Arab sheiks, and Turkish sultans prized porcelain greatly, and when these rarities reached Europe, porcelain's aura as one of the most precious of commodities was firmly established. Porcelain gradually became one of the three products that is most closely associated with China's early trade with the West, along with silk and tea.

Portuguese, Dutch, and English traders were beginning to take advantage of trading privileges in southern China, grudgingly granted by the Ming (and later the Qing) court, by exchanging gold and silver for Chinese tea, silk, and porcelain. The porcelain was heavy and was not damaged by temporary exposure to sea water, so it was packed in straw and loaded in ship hulls to provide ballast as well as a valuable trade commodity.

Before the advent of sea trade between China and Europe, only a trickle of Chinese ceramics managed to survive the long, overland trek across central Asia from China. This insignificant volume was further diminished, and even halted for long periods, by political and religious strife which interrupted trade. Although sea trade increased European familiarity with Chinese porcelain, supply was still severely limited. The Chinese were not producing specifically for export, and much of what was sold to foreigners was damaged or destroyed in shipment. These problems, combined with the adamant refusal of the Chinese to share the secrets of porcelain manufacturing, made Chinese porcelain as sought after and as precious in Europe as jewelry. Despite the great expense, potentates all over the European continent began to amass great collections of Chinese ceramics. Notable among these was Augustus the Strong of Saxony, a passionate collector of Chinese ceramics including the curiously decorated earthenware teapots of Yixing. He set his own artisans to the task of analyzing the shards of broken Chinese porcelain in order to imitate it. The result was the first true porcelain manufactured in Europe at Meissen in what is now East Germany.

A Qing dynasty soup dish with the popular "tobacco leaf" motif, which continues to be reproduced in Japan and Europe.

China's ceramics industry never fully recovered from the ravages of the Taiping Rebellion over a century ago. Today the tradition of fine quality Chinaware formerly associated with Jingdezhen is kept alive in Darby, Limoges, and other ceramic centers in Western countries.

Courtesy of Scott Seligman. Photo by Isaacs

A *blanc-de-chine* Mao bust from the Cultural Revolution illustrating the type of "socialist realist" art mass-produced for over a decade prior to 1976.

Production of porcelain in China reached a peak of sophistication and volume in the prosperous and peaceful period of the first half of the Ming dynasty (1368-1644 AD). But, with the declining fortunes of the ruling house came a parallel decline in quality and quantity of ceramic production. The Ming fell to the nomadic Manchu tribes which established their own dynasty, the Qing, in 1644. The second emperor of the Qing, Kang Xi, reestablished the Ming imperial kilns at Jingdezhen in Jiangxi Province and set the stage for unprecedented growth in porcelain production and, subsequently, in exports. Technological advances were also made, especially in the surface decoration of porcelain with painted enamels. Decorative techniques in molding, carving, painting, glazing, and multiple firing were gradually developed to produce an astounding variety of complex and sophisticated results. Père d'Entrecolles, a French Jesuit who visited Jingdezhen in the seventeenth century, reported well-developed assembly line manufacturing where workers specialized in potting, decoration, firing, etc. (rather than a single artisan taking a piece through all the states of its manufacture as was the case in Europe). This was more than a century before such a division of labor became common in the West.

Even though ceramic manufacturing in Europe attained great sophistication in the eighteenth century, demand for the imported Chinese product remained high, as much for reasons of its exotic character as for its intrinsic quality. The name of the product had even become synonymous with that of the country. Chinaware, or simply china, became an indispensable part of the image of refined and "modern" living for the aristocracy and emerging middle class. It was an integral part of the vogue for Chinese design which has come to be known as "chinoiserie".

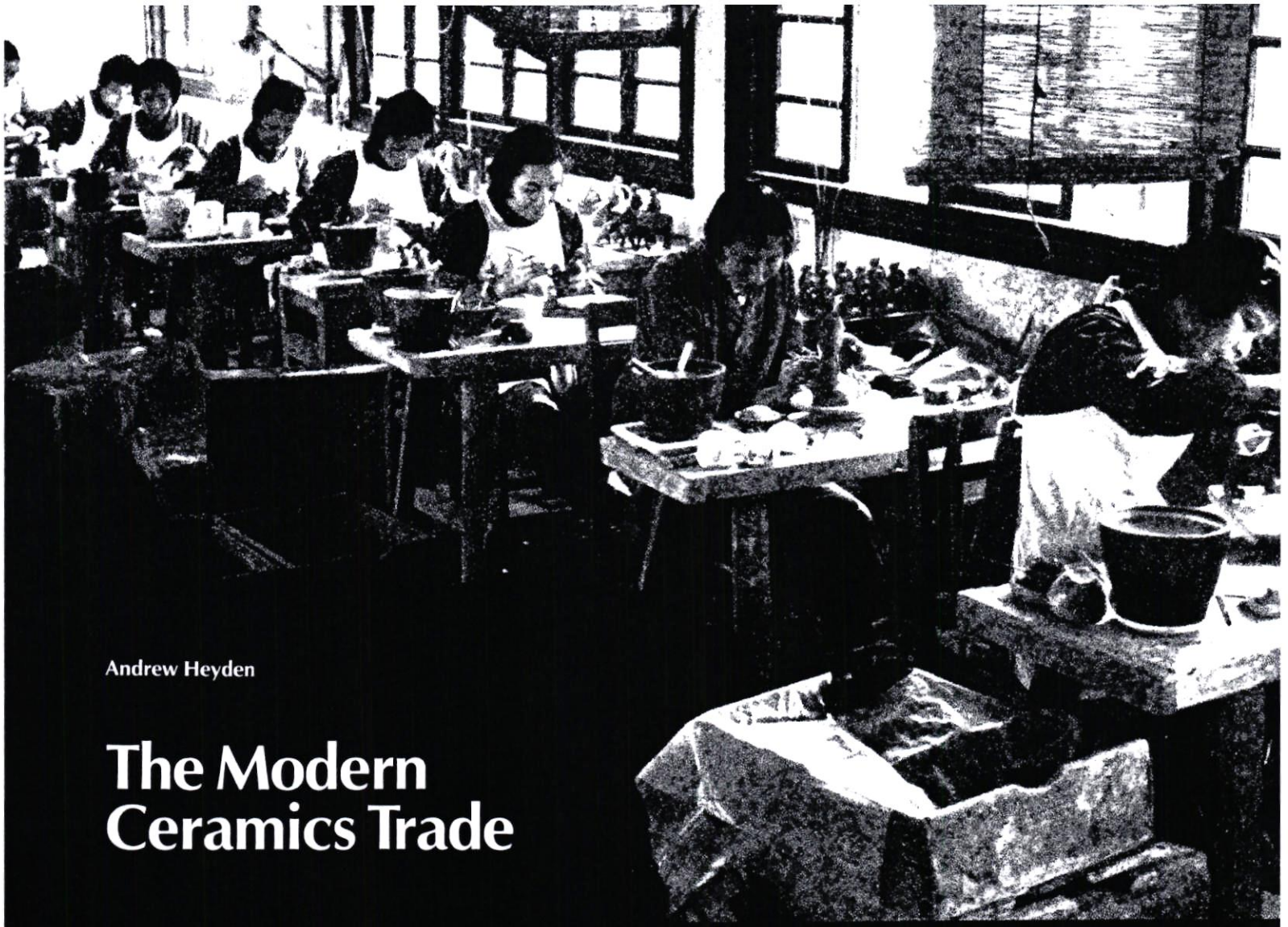
Foreign traders established in the Portuguese colony of Macao gradually were able to increase their contacts with Chinese merchants in Guangzhou, and another remarkable development in the evolution of China trade came about. The Chinese began to accept designs and shapes from their foreign customers and produced porcelain for export that was unlike anything that was being produced for their own domestic market. This was one of the world's first examples of a product made to satisfy an international demand.

From the early 1700s until almost the middle of the nineteenth century, trade in export porcelain flourished, first to Europe, then to America. The flow of ideas in design and technique went in both directions. Sets of china in European shapes were decorated with Chinese motifs and enjoyed in the West while vases decorated with European figures were made for the amusement of the Emperor Qin Long. Another European contribution was "yang cai," or foreign colors, which were new enamels introduced to China by Catholic missionaries that enabled the development of a wider palette of colors for overglaze painted decoration, now referred to as "famille rose".

Porcelain made for foreigners during this period is properly classified as "exportware" since it is unlike the vast majority of porcelain that was produced at that time for the Chinese market, with many nonindigenous shapes and decorative motifs. The trade in customized exportware grew throughout the eighteenth century and was given added impetus by the development of opium as a commodity sought after in China; Western traders could provide it in lieu of precious metals in exchange for their purchases. The trade promoted specialization to an extraordinary degree, with white porcelain blanks being manufactured in Jingdezhen and in Shantou that were then transported to Guangzhou to be decorated in the foreign "factories" before their eventual export to the West.

The production of porcelain in China was dealt a devastating blow during the Taiping Rebellion (1850-1864) when the imperial kilns at Jingdezhen were demolished. Although the kilns were reestablished in 1864, they achieved only a shadow of their former glory. Some purists and collectors may argue that it was a catastrophy from which Chinese ceramics have never fully recovered. The inability of the Chinese to supply their foreign customers gave added impetus to the development of ceramic techniques and manufacturing in the West, which culminated in two major contributions to the field: bone or boneash china, sometimes called hard paste (actually developed in 1768 but not widely employed until the nineteenth century) and decalcomanias (plastic surface decal decorations enabling the simulation of many hand-painted effects), which were invented in our own century.

In the internecine struggles which marred the latter years of the Qing dynasty and the early Republican period, no advances in ceramic production were made in China, while significant developments were taking place in the West. A major technological improvement of this period was the development of oil- and gas-fired kilns that allowed for more exact firing temperatures than old-fashioned wood-burning kilns, thereby reducing warpage and breakage in firing. China's production techniques remained relatively primitive throughout the years of the Republic (1911-1949), and trade in ceramics with foreign countries shrank to a mere fraction of what it had been a century and a half earlier. Other than supplying domestic demand for cheap tableware, most Chinese manufacturers were small-scale and concentrated on producing slick copies of fine pieces from earlier periods, many of which were destined to be peddled overseas as bogus antiques.



Andrew Heyden

The Modern Ceramics Trade

With the advent of the People's Republic in 1949, there began the first protracted period of peace and internal stability that China had known since the early nineteenth century. The new regime considered the potter's art a "people's handicraft" and glorified it as a product of the genius of the Chinese proletariat. On a more practical level, it was recognized that ceramic products of all types, but especially dinnerware, were in short supply domestically and were related to the government's efforts to raise the standard of living. An ambitious program of modernization was embarked upon with the major emphasis placed on increasing the volume of production, but unfortunately, without commensurate concern for the quality or variety of the output. Oil-burning kilns replaced their wood-fired progenitors, and some facilities for producing decalcomanias were acquired abroad in the 1950s to provide cheap decoration for mass-produced dinnerware. The Chinese also began producing limited quantities of bone china, but even today the majority of production remains ordinary porcelain (sometimes referred to as softpaste). The government encouraged the development of ceramic production in all of China's provinces and autonomous regions, not only for dinnerware and decorative objects, but also ceramic products for construction (ceramic tile, sanitary ware) and new products like ceramics for chemistry and electrical insulation.

Exports of Chinese ceramics also began to make a comeback, but since the new government did not emphasize investment in light industry in its first decades, the ceramics industry was largely cut off from beneficial technical and design interchange with the outside world. And, lacking a consistent policy for export promotion, overseas growth in sales of porcelain and other ceramic products was slow.

As an export commodity, the quality of the Chinese product was problematic. The Chinese oil-burning kilns (chosen because they were less expensive than the natural gas type) often caused black spotting of the white porcelain bodies, and lack of concern with the purity and cleanliness of the clay paste made for an inconsistent output. With the overwhelming government emphasis on increased production and on revolutionary themes in art, the number and types of designs being produced in both practical and decorative wares were severely limited. Many of the decorative themes and subtle shapes

and glazes developed under the patronage of the imperial court and the old scholar-elite were judged "reactionary" or "feudal" and were abandoned in favor of "socialist realist" themes (to employ the term borrowed from Soviet Russia). This trend was especially pronounced during the Cultural Revolution (1966-72) when figurines of smiling workers gazing purposefully into the future were produced by the millions. Otherwise traditional paintings of Chinese landscapes on porcelain were dotted with steel suspension bridges, red flags, and power lines as part of the Communist Party's massive effort to revolutionize all aesthetic expression in China.

Photo by John Braunschweig

A Liling potter at work: the county in eastern Hunan Province produces 90 million pieces of underglaze daily-use porcelain each year, and 10 percent of China's total porcelain exports.

Not surprisingly, China's highly politicized atmosphere in the 1960s and early 1970s was not conducive to ceramic exports. Chinese porcelain made little headway except in the largely noncritical markets of Hong Kong and Southeast Asia. Europe and America presented the best potential markets for expansion of Chinese porcelain sales overseas, but numerous factors stood in the way of rapid growth. Besides the previously mentioned problems of inconsistent quality and the unsuitability of many modern Chinese designs to the Western taste, Europe was, and remains, largely closed to Chinese ceramics because of quotas instituted at the end of World War II. These quotas were established to foster the redevelopment of indigenous ceramic manufacturing devastated by the war, but they are still firmly in place.

Developing the US Market

The American market was completely closed to direct commerce with the People's Republic until after the signing of the Shanghai Joint Communique in 1972. Exports of Chinese ceramics to the US began to develop gradually after that, but did not expand rapidly until the lowering of the high 70 percent tariff which occurred with the granting of Most Favored Nation (MFN) status to China by the Congress in early 1980.

Tariffs were not the only obstacle impeding the growth of Chinese porcelain sales to American buyers during the 1970s. Until almost the end of the decade, the Chinese refused to consider producing to foreign-supplied designs or specifications. After the ousting of the Gang of Four in 1976, "socialist realist" themes rapidly disappeared from Chinese ceramics. Unfortunately, no subsequent flowering of new, indigenous designs occurred. Instead, Chinese manufacturers concentrated even more heavily on the few, hackneyed traditional designs already being produced, while examples of "revolutionary" art in ceramics gradually became collector's items, more for their curiosity value than for any aesthetic considerations. Furthermore, the pigments used by the Chinese for overglaze decoration were judged by the USFDA to contain too much lead for items intended for use as food recepticals.

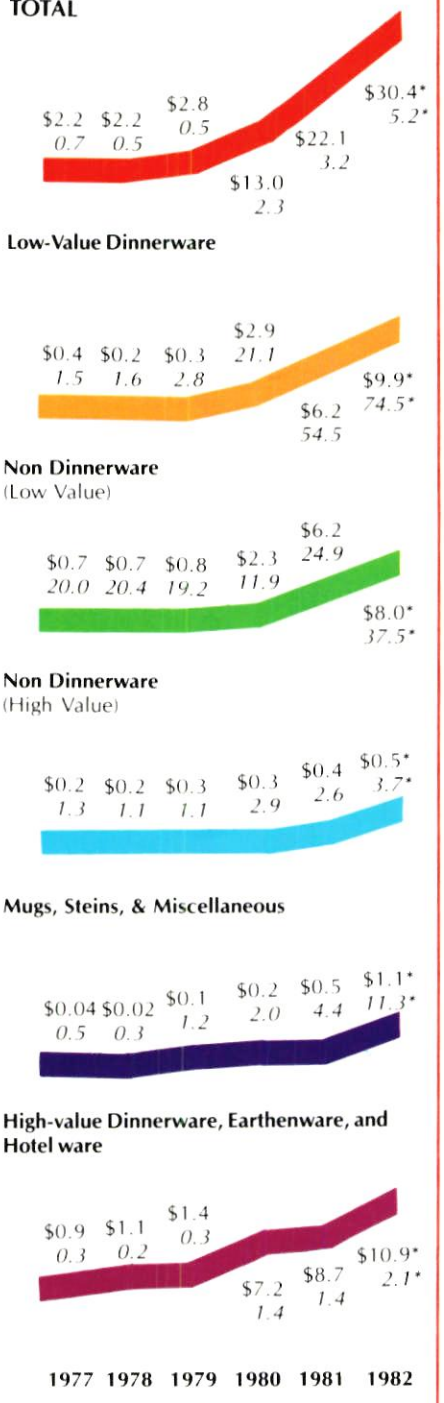
The more pragmatic leadership in Beijing began to make its influence felt in the Chinese ceramic industry in the final two years of the last decade. It was realized that dinnerware and decorative giftware of porcelain and, to a lesser degree of earthenware, were exports that could increase earnings of foreign exchange, simply by minor adjustments in trade and management policy and without substantial investment in plant or equipment.

In 1978 and 1979, in anticipation of the granting of MFN status, the PRC government finally allowed Chinese ceramic manufacturers to produce ac-

US CERAMIC IMPORTS FROM CHINA

Million US dollars

Percent of total US ceramic imports



*Projection based on first quarter results multiplied by four.

**Category also includes stoneware, decorative articles, and bone chinaware, among other items.

SOURCE: International Trade Commission, July, 1982.

Table prepared by J.M. Richards

cording to specifications and designs supplied by their buyers. This abandonment of the former "you buy what we sell" attitude was part of a broad change in policy to try to maximize foreign exchange earnings from traditional exports. This new flexibility was welcomed abroad, especially by importers of chinaware in the United States. It meant for many that they could begin to develop cost-effective alternative sources of supply for the dinnerware and giftware items they had largely been sourcing in Japan, where prices had steadily increased for over 20 years.

The market for porcelain (and for earthenware) may be subdivided into several broad categories. These are dinnerware, giftware, construction materials, and miscellaneous ceramic articles. (The last covers the broad range of products from sanitaryware to electrical insulators.)

Although there has been some import activity in the last two categories since China was granted MFN status, the main growth areas for ceramic imports from China into the US have been in dinnerware and giftware. Each of these is usually subdivided into "high-value" and "low-value" categories, which correspond to price differentials and the type of marketing outlet for the merchandise (high-end department stores and boutiques or low-end budget stores and supermarkets). There is also the category of antique Chinese porcelain and earthenware, but this is an entirely separate area from modern production. And, since the PRC government has strict laws that prohibit the export of any antiquities predating the Dao Guang period of the Qing dynasty (1821-51), few important pieces of antique porcelain have been sold to overseas buyers by the Chinese. In fact, China's exports of antiques of all sorts to the US have declined significantly in the last three years.

Since early 1980, Chinese porcelainware has achieved notable success in the American market, but its experience has not been equal in all sectors of the market. Inexpensive, ordinary porcelain, usually with decaled decorations (in sets of less than $56 in value) and miscellaneous articles, such as porcelain blanks to be decorated in America, have achieved significant market penetration in the two short years since MFN. These two categories alone accounted for almost $13 million of the more than $22 million in US imports of ceramics from the PRC in 1981.

The Chinese share of the US import market for low-value dinnerware has grown from approximately 1.5 percent in 1977 and 1978, to more than 50 percent in 1981, and has reached 74.5 percent in the first quarter of 1982. This remarkable expansion has come almost solely at the expense of Japanese exporters of low-end to moderately priced porcelain who are concentrated in the vicinity of Nagoya.

Japan still holds the largest single share of the overall US chinaware import market, accounting for over 40 percent of purchases in 1981. But, the growth of chinaware exports from the PRC has been so rapid that alarmed domestic manufacturers of earthenware filed a petition with the International Trade Commission (ITC) in the summer of 1982 to request quotas on less expensive dinnerware coming from China. Importers and ARTCHINA, the China National Arts & Crafts Import and Export Corporation, however, were able to show to ITC's satisfaction that the impact of increased Chinese exports had largely fallen on the already established market share of Japan.

The ARTCHINA Exporting Network

Most PRC ceramic exports are handled through the 18 domestic branches and 1 US office of the China National Arts and Crafts Import and Export Corporation.

Head Office:
82 Donganmen Jie, Beijing
TELEX: 22155 CNART CN
CABLE: ARTCHINA BEIJING
TELEPHONE: 558831, 552187
GENERAL MANAGER: Yu Guang

Branches:

Anhui
233 Changjiang Lu, Hefei
CABLE: ARTSCRAFTS HEFEI or 0756 HEFEI
TELEPHONE: 75676

Beijing
1 Xiao Minxiang, Beijing
CABLE: PEKARTCO BEIJING
TELEX: 22334 BJART CN
TELEPHONE: 754189, 754184

Fujian
Foreign Trade Building,
94 Dongfanghong Jie, Fuzhou
CABLE: ARTCRAFTS FUZHOU, 3310 FUZHOU
TELEPHONE: 31632, 32719
DEPUTY MANAGERS: Lin Youqiang, Xu Ying, Yao Rutan, Zhang Pikun

Guangxi Zhuang
Hongxing Lu, Nanning
CABLE: ARTCRAFT NANNING
TELEPHONE: 4909
MANAGER: Yang Xisan

Guangzhou
2 Qiaoguang Lu, Guangdong
CABLE: ARTCANTON GUANGZHOU; CERAMICO GUANGZHOU
TELEX: 44074 KCACK CN; 44079 KCACB CN
TELEPHONE: 34208, 23398, 30496, 31686
MANAGER: Liu Yuxi

Hebei
8 Jichang Lu, Shijiazhuang
CABLE: CRAFTS SHIJIAZHUANG
TELEPHONE: 1638

Heilongjiang
53 Heping Lu, Harbin
CABLE: 6120 HARBIN
TELEPHONE: 52801
MANAGER: Deng Chi
DEPUTIES: Fang Xinzhi, Zhu Zhijian

Henan
6 Wenhua Lu, Zhengzhou
CABLE: POTTERY ZHENGZHOU; 7671 ZHENGZHOU
MANAGER: Wu Xingqi
DEPUTIES: Lu Baifu, Luo Lilian, Wang Jiadian

Hubei
75 Shengli Jie, Wuhan
CABLE: HPCRAFTS HANKOU
TELEPHONE: 25048
MANAGER: Zhang Shude
DEPUTY: Wei Yansi

Hunan
103 Wuyi Lu, Changsha
CABLE: HNARTS CHANGSHA
TELEPHONE: 26215, 26278
DEPUTY: Xu Huishan

Jiangsu
1 Baixia Lu, Nanjing
CABLE: ARTS NANJING
TELEPHONE: 44959
MANAGER: Zang Wen

Jiangxi
Foreign Trade Building, Zhanqian Lu, Nanchang
CABLE: POTTERY NANCHANG; 7177 NANCHANG
TELEPHONE: 62976, 94987
MANAGER: Yu Xiting
BRANCH OFFICE:
CERAMICS
6 Taibaiyuan Qiao Dong Lu, Jingdezhen
CABLE: CERAMICS JINGDEZHEN
TELEPHONE: 287
MANAGER: Yu Xianwen
DEPUTIES: Wang Yinchang, Xing Shiyuan

Jilin
81 Sidalin Dajie, Changchun
CABLE: INDUSTRY CHANG HUN; 7177 CHANGCHUN
TELEPHONE: 36178
DEPUTY MANAGER: Huo Shuntian

(ARTCHINA was founded in 1978 with ceramic giftware and dinnerware as one of its major areas of responsibility.)

During the ITC investigation into the impact of Chinese exports of dinnerware on the US market, domestic producers painted a picture of thousands of Chinese factories poised to flood the US market with ever-increasing quantities of cheap chinaware. This is hardly a likely scenario. When American importers began to seriously investigate Chinese porcelain suppliers in the late 1970s, they discovered that the vast majority of Chinese manufacturers could not meet the more exacting quality standards of foreign markets. So buying activity was concentrated in the traditional exporting areas of Jingdezhen (Jiangxi), Shantou (Guangdong), and Liling (Hunan), with limited amounts of specialty potteries sourced from other areas.

Some decaled dinnerware of an exportable quality has also been developed from suppliers in Tangshan (Hebei), and from a number of smaller factories in Liaoning Province which export through the auspices of ARTCHINA in Shenyang. Most American importers feel that the apparent surge in Chinese porcelain exports to the United States in 1980-81 was due primarily to the granting of MFN, coupled with the production scale and required minimums for Chinese manufacturers to make a profit on export sales.

Importers further report that 1982 and 1983 will see a gradual leveling off of US imports of Chinese ceramics. Future expansion is seen as incremental and occurring only as the Chinese invest to expand and upgrade the quality of their manufacturing facilities. This attitude is prevalent among importers of ceramics, even from those reflecting the relatively modest quality requirements of the low- to moderate-priced dinnerware market. The growth potential for Chinese ceramic exports to the lucrative high-end dinnerware and giftware markets in the United States is even more problematic.

Growth of Chinese exports in the high-value area (including fine bone china and antique reproductions) has been much slower than in the low-value categories. The general experience of American importers with the Chinese in maintaining the confidentiality and exclusivity of the designs they introduce has been relatively good, but some of the high-end design and import companies hang back because of doubts with respect to the protection of their design property should they decide to source their product in the PRC. These doubts and uncertainties will, it is hoped, evaporate as importers gain more experience with China as a reliable supplier, but they may linger until China takes more definite measures to protect intellectual property. The quality problems that beset the Chinese assault on the high-end of the market, are, however, more serious.

Chinese manufacturers are still incapable of producing many of the more sophisticated types of decalcomanias which have made Japanese porcelains so successful in the United States. In the extremely exacting field of antique reproduction, importers report persistent problems with the quality of the Chinese product, resulting primarily from impure raw materials and poor color mixing. Wastage rates from losses in the kiln are also reported to be excessively high in China, running above 50 percent in some factories visited by one US importer. This raises the cost of Chinese-made antique reproductions above the level of comparable pieces made in Europe. Ironically, some blue-and-white porcelainware, originally produced in China in the eighteenth century, is now being reproduced in Portugal because China is not a cost-effective supplier.

Given the overwhelming emphasis on mass-produced, cheap, utilitarian wares in the first decades of the PRC, it is not surprising that China should have some difficulty competing effectively in the extremely fashion- and quality-conscious high-end sector of the chinaware market. Despite the difficulties that it presents, the high-end of the market is a sector that the Chinese can ill afford to ignore in the long-run. Some importers feel that unless more attention is given to manufacturing a higher quality product in fashionable designs, the PRC will be in danger of developing a reputation as a producer of low-end merchandise only. This happened to Japan after World War II, and has taken Japanese ceramic producers three decades to overcome.

China has the oldest continuous tradition of fine ceramics manufacturing in the world, and it still possesses the earth's most extensive reserves of high-quality raw materials for ceramics. These factors, combined with China's nearly inexhaustible labor resources, hold the potential for China to once again achieve preeminence as a producer of fine porcelain and earthenware.

But modernization, investment, and years of concerted effort are required before this may be achieved. Antique Chinese porcelain as an investment over the last decade has performed better than gold, any other type of antique or fine art, and better than most securities. It is doubtful that any of the ceramics produced so far in the People's Republic will achieve this rarified reputation. Yet, with the somewhat more liberal attitude of the current authorities toward design experimentation, and the stimulus of extended contact with ceramics experts outside of China, there is hope that the full splendor of Chinese porcelain as an art form, as well as an export commodity, may yet be revived.

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18 Baoding Lu, Qingdao
CABLE: CRAFT QINGDAO; NAPERY QINGDAO; 2611 QINGDAO
TELEPHONE: 24060
MANAGER: Wang Shimin
DEPUTY: Qu Jingde

Shanghai
16 Zhongshan Dong Yi Lu
CABLE: ARTSCRAFTS SHANGHAI
TELEX: 33053 ARTEX CN
TELEPHONE: 212100
MANAGER: Yang Xiyuan

Tianjin
135 Tangshan Dao, Heping Qu, Tianjin
CABLE: PORCELAIN TIANJIN; 5669 TIANJIN
TELEX: 22507 TJART CN
TELEPHONE: 37155, 31539
MANAGER: Xu Jingchi

Zhejiang
190 Baochu Lu
CABLE: ZJARTS HANGZHOU
TELEPHONE: 253969

China Arts & Crafts USA, Inc. (Subsidiary of ARTCHINA)
212 Fifth Avenue, 14th Floor
New York, N.Y. 10010
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China's Porcelain-Producing Areas

Quality was allowed to deteriorate sharply in the 1960s, but improvements since then have restored the world-renowned status of a few centers in Jiangxi, Hunan, and Fujian.

Almost all provinces in China produce ceramics and porcelainware for use in the domestic market. The following areas, however, specialize in higher-quality products more oriented to the export market.

Virtually all ceramicware factories in China are looking for foreign investment and compensation trade partners, and are willing to produce to buyer's specifications.

ANHUI. The Qimen County Porcelain Factory produces blue-and-white and famille rose porcelain. Art porcelain is made by the Huainan Porcelain Factory.

FUJIAN. Jianyang County has revived "Jianware" porcelain, a golden black glaze with streaks of "hare fur," a technique originating in the Song dynasty. Other export centers are located at Dehua, Xiamen, and Minqing. Dehua's factories specialize in ivory-white porcelain (blanc-de-chine), figurines, and tea sets, continuing a tradition begun in the Tang dynasty.

GUANGDONG. In the cities of Foshan and Shiwan, 14 ceramics factories employing 20,000 workers produce mainly earthenware decorative items (figurines, vases, ceramic tiles for roofing, and wall decor). Sixty percent of production is reportedly exported.

Other producing areas in Guangdong include Fengxi, Shantou (Swatow), and Lianjiang. The Lianjiang (Hongxing) Porcelainware Plant was cited in a national competition as one of the five most advanced porcelainware manufacturing plants in China.

GUANGXI. Factories produce "Xinhua" daily-use porcelain, stoneware, and ironstone. The port city of Qinzhou is famous for "nixing" (reddish) earthenware and artistic pottery.

HEBEI. Handan County is the home of two renowned kilns at Dingzhou and Cizhou. The area is known for its bold, black-on-white, and leaf-and-floral designs dating from the Song dynasty. 12,000 employees in ten factories produced 100 million pieces in 1980, of which more than ¥13 million was exported.

The No. 1 Porcelain Factory is Handan's largest, with 2,200 workers in 11 workshops. The factory specializes in ivory and white porcelain. Seventy-five percent of its annual production of 30 million pieces is exported. The No. 7 Porcelain Factory, with 40 workers, specializes in tableware and antique reproductions. One-third of its annual output of 1.5 million pieces is exported.

Tangshan, another well-established porcelain center, is known for gold bone ash porcelain decorated with red and blue, and with "Yulan" and "white jade" glazes. A major earthquake in 1976 severely disrupted the area, but production has reportedly returned to normal.

The 15 porcelain factories in Tangshan employ 11,500 workers. The No. 1 Porcelain Factory, manufacturing 300,000 pieces annually of "Red Rose" brand bone ash porcelain, plans to open a new production line in 1983, which is expected to increase output to 1 million pieces per year.

A third area for porcelain production in Hebei is the Xuanhua Porcelain Factory in Zhangjiakou. This factory produces 17 million pieces of porcelainware per year, of which approximately 10 million is exported every year. Xuanhua porcelain is distinctive for its purplish red glaze.

HUNAN. The export value of Hunan ceramics totalled $24 million in 1981. The province has 82 ceramics plants run by counties or higher-level administrative units, including 14 major factories specializing in exports. Total production of porcelain was 130 million pieces in 1981.

Liling County porcelain, known for its white color and thin potting, is produced at five large and medium-sized factories employing 20,000 workers engaged in export production, and one factory engaged in domestic production. The county provides 10 percent of China's export production. Its total annual output is in the vicinity of 90 million pieces of underglaze daily-use porcelain.

Other factories in Hunan include the Guoguang Porcelain Factory, which has an exclusive arrangement with Mikasa, the Xingbo Porcelain Factory, which employs 1,800 workers producing 17 million pieces per year, and the Qunli Porcelain Factory.

Tongguan County is known for its stoneware, which is heavy and opaque, and characterized by brown or reddish brown glazes.

JIANGSU. Yixing County porcelain, well-known in Europe since the 16th century for its carved and decorated teapots, utilizes a unique local clay, which retains purple, brown, green, and other colors after firing. The area also produces glazed pottery and is renowned for carved and decorated teapots. 3,000 workers produce 60 million pieces annually. Dingshuzhen, a town in Jiangsu, exported 5 million items of pottery in 1978.

JIANGXI. China's largest porcelain-producing province, Jiangxi has 80,000 ceramics workers in over 50 factories. The largest producing center is at Jingdezhen, which carries on a centuries-old tradition of manufacturing high-quality porcelainware. The Jingdezhen kilns specialize in dinnerware and display porcelain in underglaze blue, rice pattern, famille rose, underglaze red, polychrome, and eggshell porcelain. Twelve large factories and tens of small factories and cooperatives are engaged in porcelain production. The area employs 30,000 ceramics workers and 1,000 artists. Jingdezhen's annual production is 250 million pieces, of which about half is export.

The Jingdezhen factories have signed contracts with Mikasa, Weil Trading Co., and Peking Imports, among others, and have supplied importers in the United States, Europe, and Hong Kong. Export items are transported by barge on the Nan River to the Yangzi River, and on to the port of Shanghai or other Yangzi River ports.

LIAONING. Five factories in Gangyaoling, Haicheng County, make utility ware using neopolychrome, transfer painting, spraying, etch-guilding, and underglaze.

SICHUAN. "Rongcang" earthenware is the province's best-known ceramic product.

SHANDONG. The Zibo area in central Shandong is known for "Ziboware," characterized by bold blue-black glazes, metallic glazes, engraved porcelain, and translucent "raindrop" glazes. 13 factories and 30 enterprises in this area make tea, coffee, and dinner sets. Annual output is 60 million pieces.

The Zibo Ceramic Industry Factory has recently begun production of "Lubo" brand porcelain, china tableware with a smooth, yellowish glaze finish developed by the Silicate Research Institute of Zibo. 1981 output was 560,000 pieces; projected output for 1982 is 1 million pieces.

ZHEJIANG. Celadon glaze porcelain from the city of Longquan has a characteristic light green glaze. Both decorative items and tableware are produced. Productive activity here is a revival of porcelain manufacture dating from the Song dynasty.

—J.M. Richards

Hebei Preserved and Dried Fruits

Hebei preserved and dried fruits include: Dried Pear, Dried Apple, Dried Apricot, Preserved Pear, Preserved Apple, Preserved Peach, Preserved Apricot, Preserved Dates, Preserved Cherry-Apple and Haw Flakes. All are prepared from the fruits produced in Hebei Province.

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Direct Investment in China

The idea was to speed up the country's development, but in some respects the policy is having the opposite effect.

James B. Stepanek

In these recessionary times it is perhaps surprising that a strong vote of confidence in the strength of the capitalist system should come from China. But a fund-raising drive is now in full swing to convince foreign companies to invest about $5.3 billion of their "surplus capital" in over one thousand Chinese enterprises.

The campaign actually began in July of 1979, when China took the historic step of welcoming foreign joint ventures. In September of the same year the first of four Special Economic Zones was established in Guangdong and Fujian to attract foreign investment. Commercial legislation soon followed to encourage, guide, and of course tax, China's fledging foreign enterprises.

Accelerating these developments, ironically, was the downturn in China's economic growth rate beginning in 1979, which led to across-the-board cuts in machinery and equipment imports. As more projects were terminated, China's increasingly autonomous provinces began to investigate ways to take advantage of the country's liberalized investment policies in order to induce foreigners to fund what Beijing no longer was willing to pay for.

Quite simply, Chinese enterprises were squeezed by the government's stringent policy of "readjustment" and import cutbacks in high technology areas. The shift in policy set in motion a sharp, conservative swing with dramatic consequances. In January of 1981 a number of Japanese, German, and English manufacturers were notified that $2.6 billion in equipment orders for the Baoshan steel mill and four giant petrochemical complexes had been unilaterally postponed. As the year wore on, contractors around the world could only wait and hope that their deals would not be affected. Little did they realize that their counterparts in Chinese factories were probably even more apprehensive. By the end of that year, the investment schemes kept alive tended to be those that were urgent national priorities, or projects financed from abroad.

Enterprises fortunate enough to be in Guangdong, Fujian, or one of China's major cities, which enjoyed greater foreign trade autonomy than the rest of the country in investment matters, had already begun to acquire foreign machinery and technology through novel arrangements like "coproduction" and "compensation trade." The direct investment fever spread to the coastal provinces, and then to the interior. By 1981 the central government relented, and extended to all provinces some of the autonomy enjoyed by Guangdong and Fujian.

Soon foreign executives traveling in Shandong, Liaoning, and even out-of-the-way Anhui, became the objects of fervent sales talks about "flexible trade" opportunities. As competition for the attention of the recession-weary executive intensified, a few provinces adopted more sophisticated entrepeneurial strategems. Those that had not already done so tried to lure investors by setting up "International Trust and Investment Corporations," modeled after the China International Trust and Investment Corporation established in 1979.

Other provinces began to issue press releases (usually through friendly Hong Kong magazines) publicizing their most promising investment projects. Their literature tended to get right to the point: "Bicycle factory ready to accept overseas investment to transform production . . ." "No. 5 Plastic Plant wishes to import know-how to raise the quality of its wallpaper and imitation leather." "Fishing corporation wants to import 170,000 fish hooks and 850 floating signal lamps to increase globe fish exports." In early 1982 dozens of such announcements began to appear each week.

Most are modest undertakings calling for a few pieces of imported equipment to modernize an enterprise, or just one part of an enterprise. One ambitious exception to this rule appeared this July. The announcement stated simply: "Province wants to invest independently or jointly with foreign firms in the development of timber resources in overseas countries to ensure sufficient timber imports for her domestic industry and agriculture." A separate shipping joint venture will get the lumber to China, and of course, investors willing to contribute ocean-going freighters are welcome, it said.

When tallied up, the number of proposed ventures on these lists comes to an astonishing 1,001 projects, not including another 121 projects on a select list currently being sponsored by 23

provinces, municipalities, and autonomous regions with the assistance of the Ministry of Foreign Economic Relations and Trade and the United Nations Industrial Development Organization.

The response of foreigners to China's increasingly solicitous "open door" investment policies has been somewhat cautious. The bulk of the $2,897 million so far committed to nearly 13,000 Chinese enterprises in direct foreign investment for the most part consists of simpler arrangements.

Joint Ventures

Joint equity ventures, the first choice of Beijing officials who want to maximize the importation of high technology and Western management know-how, have proved unpopular. Of the 40 joint ventures approved through June 1982 worth $189.2 million (of which $87.5 million was contributed by foreign parties), 20 were approved in 1980 and 20 in 1981. The foreign contribution to last year's 20 ventures was only $20 million. Hence, not only have they decreased in size over time (the average contribution fell to just $1 million in 1981 from about $3 million the year before), but few ventures are currently in the process of formation. That is quite a decrease from a year ago when China announced that over 300 joint equity ventures were in advanced stages of negotiation. Later, the number of joint ventures could increase. China has indicated that foreign service companies wanting to participate in the PRC's offshore oil development should set up joint equity ventures in China.

Coproduction

The strong desire on both sides to tailor contracts to individual deals is indicated by the growth of coproduction, or "cooperative production" deals, involving tourist hotels, apartment houses (usually for the relatives of Overseas Chinese), electronics, bottling, fishing, and animal husbandry projects.

Fully 91 percent—$1,435 million—of the total foreign investment received by China in 1981 took the form of coproduction. Paradoxically, these are also known to the Chinese as "contractual joint ventures," an unfortunate choice of terms that only makes matters worse when shortened to "joint ventures". In November 1981 an official in the Shenzhen Special Economic Zone boasted that not a single one of the 350 or so coproduction "joint ventures" in the zone were of the equity variety. All were approved outside the channels set forth in China's July 1979 Joint Venture Law, he noted.

The shift in interest from joint equity ventures to the more adaptable coproduction format, particularly for building international-class resorts in Shenzhen, has led to an increase in the average size of coproduction arrangements from about $2 million in 1980 to over $8 million in 1981.

The beauty of coproduction to the Chinese is that virtually everything is negotiable—an ambiguous and unsettling prospect to some Western negotiators. "Both sides cooperate in operations and management in line with the contract," explained a Chinese official last April, "but without forming a unified organ of authority." That means the foreigner can be merely an advisor, or play a forceful management role, depending on the terms of the agreement. The latter case would describe the half dozen "sole proprietorships" now operating in China that are 100 percent foreign-owned enterprises, mainly in printing, dyeing, and other manufacturing pursuits. These are considered coproduction arrangements because the Chinese side provides the land and labor, but no equity. Moreover, profits are not split according to each side's equity contribution, but according to a ratio—any ratio—that both parties happen to agree upon. And the foreigner's equipment and other capital assets normally become Chinese property when the contracted period of cooperation terminates.

"Unlike joint equity ventures," the official continued, "the Chinese participants [engaged in coproduction] only provide such necessary operational conditions as land and buildings . . . while the foreign participants invest all the funds and take the risks." Adding to the foreigner's risk is the government's policy of including joint equity ventures in the state plan, but seldom coproduction deals. This subtle distinction means that coproduction enterprises can escape the detailed surveillance by state planning bodies that are responsible for supervising enterprises under the state plan. But it means, too, that a coproduction factory outside the state plan might not get the supplies it needs since it must depend on provincial and local supply networks that have access only to low-priority commodities. A common complaint of foreign investors engaged in coproduction is that high-grade raw materials have to be imported long after the cut-off date stipulated in their agreements, because they and their Chinese partners lack the political clout to requisition superior quality Chinese goods.

Compensation Trade

Official statistics gathered from scattered local sources show that investment in compensation trade dropped dramatically in 1981, to about $79 million. Between 1979 and 1980, $381 million went into compensation trade projects.

Direct Investment in China's Four Special Economic Zones

In a one day tour of Shenzhen a foreign visitor can see about 80 percent of all investment taking place in China's Special Economic Zones and about half of all direct foreign investment in the nation.

Zone	Investment (million $)	No. Projects	Percent of total direct investment in China as of December, 1981
Guangdong Province			
Shenzhen	1,375.0	989	47.5
Shekou port	88.5	21	3.1
Zhuhai	84.0	9	2.9
Shantou	106.2	NA	3.7
Fujian Province			
Xiamen (Huli)	74.3	5	2.6
Total	**$1,727.5**	**1,024**	**59.8%**

SOURCES: National Council, and *China Economic News*, May 24, 1982

Under most compensation trade agreements, the foreigner is expected to give equipment to the Chinese free of charge for later payment in the form of goods. These goods may be produced by the same machines, or at least by the same enterprise, or in very rare instances, by a totally different enterprise (usually under the same bureau) that produces goods more in keeping with the foreign party's marketing abilities. The machinery becomes the property of the Chinese side whenever the contract so stipulates; upon arrival, over a period of time as the foreigner is payed back in goods, or when the contract expires.

From the most complicated to the simplest deal, the characteristic common to all such arrangements is that the foreigner supplies a major portion of the necessary capital and raw materials, and receives payment if and when the enterprise produces goods or services that can be marketed abroad by the foreign party.

The stipulation that output must be exported was never strictly enforced, and was modified further when Vice-Minister Wei Yuming in the Ministry of Foreign Economic Relations and Trade announced in June that foreign enterprises can market their output in China after they export enough to pay all bills denominated in foreign currency. "In other words, the balance of foreign exchange in the enterprise must be maintained," he said.

A parallel requirement for both coproduction and compensation trade is that financing is the foreigner's worry. Getting a foreign exchange loan is such an ordeal for most Chinese enterprises that the whole *raison d'etre* of China's "flexible" trade arrangements seems to be a device to avoid having to go to a Chinese bank. That, most foreign investors have discovered, is not easier outside China, since the Bank of China—China's sole foreign exchange bank—and other Chinese entities are loathe to provide the repayment and performance guarantees normally needed to get a loan from a Western bank.

Processing

Arrangements involving "processing and assembling with supplied materials" have earned China $328 million in processing fees since 1979, of which $41 million reportedly consisted of investments in quality testing instruments and other equipment. The total excludes an estimated $2 million invested in around 1,000 pioneering deals

Principal Laws Governing Foreign Investment in China

Marianna Graham

Though the following 31 laws are the main pieces of legislation governing foreign enterprises in China, investors should be aware that they are by no means the only ones. Because so many Chinese laws are kept secret and out of the hands of foreigners, it is very important that investors understand that their enterprises in China may come under laws they do not know about and are not allowed to see. Companies experiencing difficulties learning about such laws and regulations are urged to contact the National Council or an experienced lawyer. Some lawyers specializing in the China trade reportedly have been permitted to study internal ("neibu") Chinese documents to allay their client's apprehensions.

The Law of the People's Republic of China on Joint Ventures Using Chinese and Foreign Investment

Adopted on July 1, 1979 at the Second Session of the Fifth National People's Congress and promulgated on July 28, 1979. Took effect on date of promulgation.

Regulations of the People's Republic of China on the Registration of Joint Ventures Using Chinese and Foreign Investment

Promulgated by the State Council on July 26, 1980. Took effect on date of promulgation.

Regulations of the People's Republic of China on Labor Management in Joint Ventures Using Chinese and Foreign Investment

Promulgated by the State Council on July 26, 1980. Took effect on date of promulgation.

Regulations of the People's Republic of China on Special Economic Zones in Guangdong Province

Approved at the Second Session of the Fifth National People's Congress on August 26, 1980 and came into force after adoption by Guangdong Provincial People's Congress and after submission and approval of the Standing Committee of the National People's Congress of the People's Republic of China.

The Income Tax Law of the People's Republic of China Concerning Joint Ventures with Chinese and Foreign Investment

Adopted at the Third Session of the Fifth National People's Congress (held in Beijing from August 30 to September 10, 1980) and promulgated on September 10, 1980. Took effect on date of promulgation.

Individual Income Tax Law of the People's Republic of China

Adopted at the Third Session of the Fifth National People's Congress and promulgated on September 10, 1980. Took effect on date of promulgation.

Detailed Rules and Regulations for the Implementation of the Income Tax Law of the People's Republic of China Concerning Joint Ventures with Chinese and Foreign Investment

Approved by the State Council on December 10, 1980 and promulgated by Ministry of Finance on December 14, 1980. Took effect retroactively on September 10, 1980, the date of promulgation of the Income Tax Law of the People's Republic of China Concerning Joint Ventures with Chinese and Foreign Investment.

Detailed Rules and Regulations for the Implementation of the Income Tax Law of the People's Republic of China Concerning Joint Ventures with Chinese and Foreign Investment

Approved by the State Council on December 10, 1980 and promulgated by Ministry of Finance on December 14, 1980. Took effect retroactively on September 10, 1980, the date of promulgation of the Income Tax Law of the People's Republic of China Concerning Joint Ventures with Chinese and Foreign Investment.

Interim Regulations of the People's Republic of China Concerning the

Control of Resident Offices of Foreign Enterprises.

Promulgated by the State Council on October 30, 1980. Took effect on date of promulgation.

Provisional Regulations for Exchange Control of the People's Republic of China

Adopted at the Regular Session of the State Council on December 5, 1980 and promulgated by the State Council on December 18, 1980. Took effect on March 1, 1981.

Provisional Regulations for Providing Loans to Joint Ventures of Chinese and Foreign Ownership by the Bank of China

Took effect on March 13, 1981.

Additional Regulations Concerning the Registration of Resident Offices of Foreign Enterprises

Circular issued by the General Administration of Industry and Commerce in accordance with the Interim Regulations concerning the Resident Offices in China of Foreign Enterprises, promulgated by the State Council; announced in the Hong Kong press on June 1, 1981, with note that the regulations are being implemented.

Rules Governing the Carrying of Foreign Exchange, Precious Metals, and Payment Instruments in Convertible Currency Into or Out of China.

Promulgated by the State General Administration of Exchange Control and published on August 10, 1981.

Rules for the Implementation of Foreign Exchange Control Relating to Foreign Representations in China and Their Personnel

Promulgated by the State General Administration of Exchange Control and published on August 10, 1981.

Detailed Rules for Approval of Applications by Individuals for Possession of Exchange

Approved by the State Council and promulgated by the State General Administration of Exchange Control. Took effect on January 1, 1982.

Detailed Rules Concerning Exchange Control Relating to Individuals

Promulgated by the State General Administration of Exchange Control. Took effect on January 1, 1982.

Provisional Regulations on Registration of Enterprises in Special Economic Zones of Guangdong Province

Adopted at the 13th Session of the Standing Committee of the Fifth Guangdong Provincial People's Congress on November 17, 1981. Took effect on January 1, 1982.

Provisional Provisions on Land Control in Shenzhen Special Economic Zone

Adopted at the 13th Session of the Standing Committee of the Fifth Guangdong Provincial People's Congress on November 17, 1981. Took effect on January 1, 1982.

Provisional Entry/Exit Rules for the Special Economic Zones in Guangdong Province

Adopted at the 13th Session of the Fifth Guangdong Provincial People's Congress on November 17, 1981. Took effect on January 1, 1982.

Provisional Provisions on Wages in the Enterprises in Special Economic Zones in Guangdong Province

Adopted at the 13th Session of the Standing Committee of the Fifth Guangdong Provincial People's Congress on November 17, 1981. Took effect on January 1, 1982.

Income Tax Law of the People's Republic of China Concerning Foreign Enterprises

Adopted at the Fourth Session of the Fifth National People's Congress on December 13, 1981 and promulgated the same day. Took effect on January 1, 1982.

Detailed Rules and Regulations for the Implementation of the Income Tax Law of the PRC Concerning Foreign Enterprises

Approved by the State Council on February 17, 1982 and promulgated by the Ministry of Finance on February 21, 1982. Took effect on January 1, 1982, the same date as the publication and enforcement of the Income Tax Law of the PRC Concerning Foreign Enterprises.

Provisional Regulations on Lawyers

Adopted by the Standing Committee of the Fifth National People's Congress on August 26, 1980. Took effect on January 1, 1982.

Regulations of the People's Republic of China on the Exploitation of Offshore Petroleum Resources in Cooperation with Foreign Enterprises

Promulgated by the State Council on January 30, 1981. Took effect on date of promulgation.

Provisional Regulations of the General Administration of Industry and Commerce of the People's Republic of China on the Payment of Registration Fees by Joint Ventures Using Chinese and Foreign Investment

Approved by the State Council and released by the General Administration of Industry and Commerce in March, 1982. It took effect on the date of issuance.

Rules Concerning the Levy and Exemption of Customs Duties and Consolidated Industrial and Commercial Tax on Imports and Exports for the Chinese–Foreign Cooperative Exploitation of Offshore Petroleum

Approved on February 28, 1982 by the State Council and promulgated on April 1, 1982 by the General Administration of Customs and the Ministry of Finance.

Temporary Provisions on Tax Registration for Foreign Enterprises That Begin Operation or Close Down

Promulgated on April 15, 1982 by the General Tax Bureau under the Ministry of Finance. Took effect on the date of promulgation.

Provisional Articles on Control of Advertising

Promulgated on February 17, 1982. Took effect on May 1, 1982.

Economic Contracts Law

Adopted at the Fourth Session of the Fifth National People's Congress on December 13, 1981. Took effect on July 1, 1982.

Civil Procedure Law of the People's Republic of China

Approved by the 22nd Session of the Standing Committee of the Fifth National People's Congress on March 8, 1982, and promulgated for trial implementation beginning on October 1, 1982.

The Trademark Law of the People's Republic of China

Announced on August 25, 1982. Will come into force on March 1, 1983.

Photo by Markscheid

Sony TV assembly line in Xiamen (Amoy), Fujian Province.

struck in 1978 and early 1979, for which little information is available. Equipment supplied by the foreign side in processing arrangements eventually becomes Chinese property, although in a few cases it is returned to the country of origin when the processing contract expires.

Though the total foreign investment in China comes to an impressive $2.9 billion, only part of this sum has actually found its way to China's shores. Investment figures cited by official spokesmen generally refer to the value of equipment and technology *pledged* and not imported. Depending on the authority one listens to, China's gains from direct investment in the form of installed equipment and cash in the bank could range anywhere from $600 million as of early 1982, to a high of $1,400 million as of June of this year.

The lower estimate is based on an April 1982 speech by Guangdong First Party Secretary Ren Zhongyi who revealed that only 21.2 percent of the total foreign investment committed to Guangdong—the recipient of nearly two-thirds of the nation's total—was imported as of that date. This tallies with another official statement that only 15.4 percent of the capital promised by foreign investors in Shenzhen was imported by the end of 1981. Observes one Hong Kong banker: "China's preference for cheap deals has led to an influx of shady Hong Kong businessmen who promise a lot but deliver little."

The more optimistic estimate that "about half" of China's investment projects are underway came from Ji Chongwei, a senior official in the Ministry of Foreign Economic Relations and Trade, who also told participants at the June China Investment Promotion Conference in Guangzhou that two-thirds of China's 40 joint ventures are now operational.

The ambiguity over numbers is more than just an accounting problem. Most executives seem to hold the opinion that before China attempts to raise more billions it should stop, look, and listen. "One problem with the projects is that their people don't know what they want," a participant at the June Guangzhou forum told *The CBR*. "At one meeting they said: "You have the experience. You have to sell that stuff, so *you* tell us what equipment to buy."

Other potential investors have difficulty with the compensation trade concept. "Counter trade or compensation trade just doesn't work," said a New York manufacturer. "They wanted technology and equipment for injection molds. We would buy back their molds in exchange. But our molds are custom made for customers around the world, and we can't trust quality to an unknown company." The size of investments the Chinese are looking for puzzles some. "I found the project value for equipment to be extremely low," a Rochester businessman said. "They are making no allowance for the know-how involved."

But these are small matters compared with the number one cause of investor dissatisfaction: China's reluctance to assist its investment projects with loans or other forms of credit. The reasons given for the policy is that the country is too poor and interest rates too high for China to fuel its development effort with high-priced foreign loans. "Due to the current high interest rates of commercial bank loans," Minister Chen Muhua said on June 9, "our country will not make use of commercial loans for the time being."

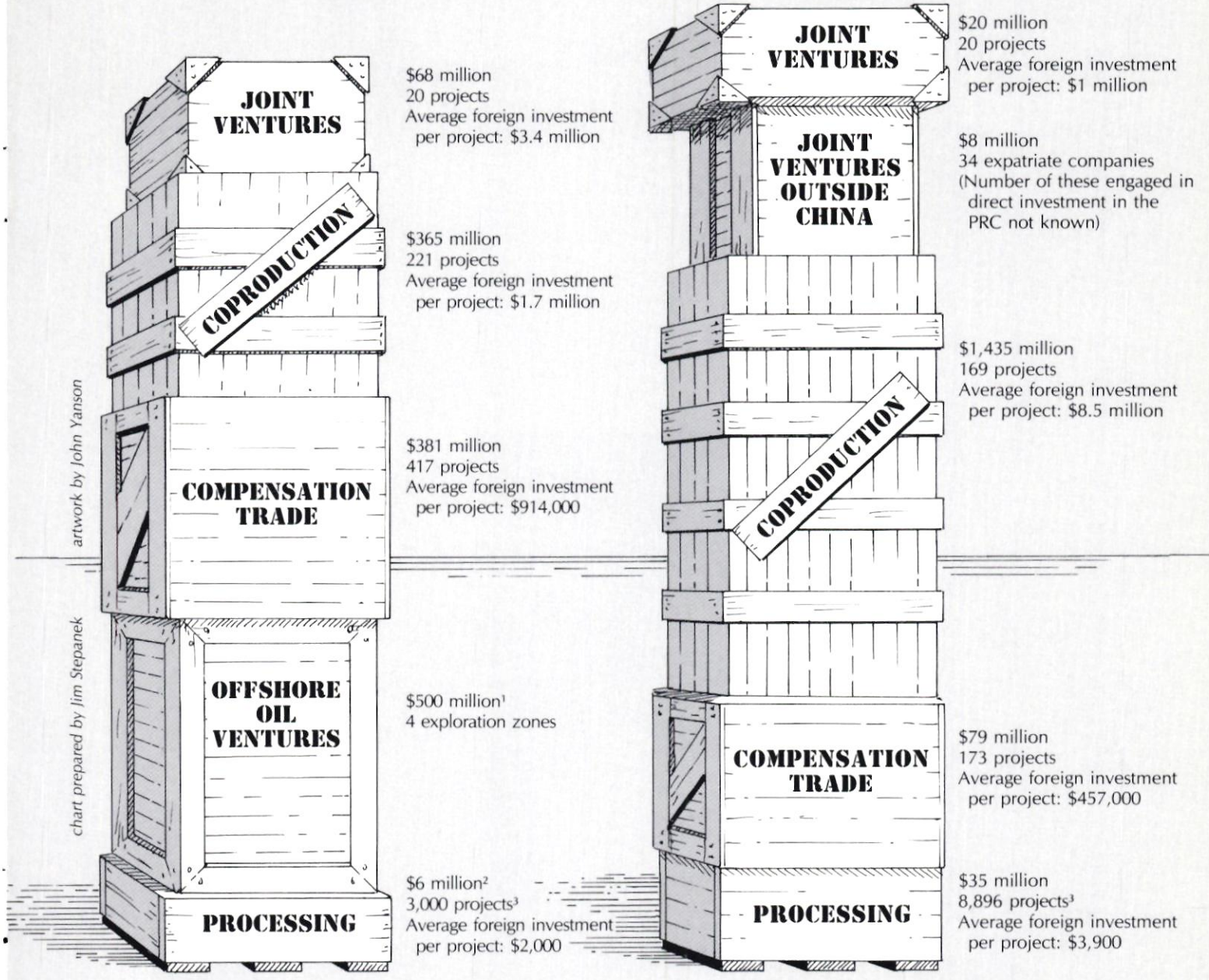
The interesting fact, however, is that China could increase its loans to Chinese enterprises without borrowing a cent. As a net lender to the rest of the world (an unusual position for a developing country) it could shift funds from investment undertakings abroad to projects back home. In August, 1981, the Bank of China comanaged two syndicated loans to a Spanish highway corporation for $45 million; in September it comanaged and managed syndicated loans totaling $140 million to two Brazilian corporations. In the same month it participated in a $93 million syndication to a Venezuelan real estate corporation, and a few months later it participated in a $160 million syndication (at a margin of 0.4375 over LIBOR) to help Venezuelan small businessmen get subsidized credit. As recently as June it participated in a $175 million syndication to Denmark's privately funded Eximbank. These loans do not include the bank's $4.5 billion in outstanding loans to the eurocurrency market—double the bank's investment portfolio of a year and a half ago. "The

Most executives seem to hold the opinion that before China attempts to raise more billions it should stop, look, and listen.

FOREIGN DIRECT INVESTMENT IN CHINA

July, 1979–December, 1981*

Only between a fifth and a half of the $2,897 million total has been received by China, since direct investment figures refer to pledges for future deliveries and not actual imports.



artwork by John Yanson

chart prepared by Jim Stepanek

1980 (Including 2nd half of 1979)

$1,320 million
3,662 projects
Average foreign investment per project: $360,500

1981

$1,577 million
9,292 projects
Average foreign investment per project: $169,700

*Official figures for all categories of direct investment generally go back only to July, 1979, when China's joint venture law was promulgated. The value of direct investment prior to that date was negligible. [1]Figure represents proposed investments in four zones in the Bohai Bay and Gulf of Tonkin by the Japan National Oil Corp., Elf Aquitaine, and TOTAL. The JNOC indicated when it signed its contract in May, 1980, that it would spend $210 million over five years. [2]Excludes roughly 1,000 processing arrangements involving $2 million in direct investment concluded prior to July, 1979. [3]It is not known how many of these may involve direct investment, though reports indicate even small processing arrangements often involve a contribution by the foreign party of instruments and testing equipment.

SOURCES: Speech by Wei Yuming, vice-minister of Ministry of Foreign Economic Relations and Trade, to China Investment Promotion Conference in Guangzhou, June 9, 1982; speech by Guangdong First Party Secretary Ren Zhongyi, April 3, 1982; speeches by Wei Yuming and Ji Chongwei to EEC–China Business Conference in Brussels, March, 1981; *Economic Reporter*, April, 1982; and *China Economic News*, May 24, 1982.

Bank of China has learned it is very profitable to lend to creditworthy customers at good margins," observed one international banker who has helped the Bank of China with its syndications.

Getting a foreign exchange loan is such an ordeal for most Chinese enterprises that the whole raison d'etre *for "flexible" trade arrangements seems to be to avoid using a Chinese bank.*

The predicament facing the Bank of China is that it cannot lend as much as it might like to Chinese customers, though it is awash with funds. The reason: "Interest rates on commercial loans are usually higher than we can afford. For instance, many of our enterprises cannot afford an interest rate of 17 or 18 percent," according to Chen Muhua, who took the opportunity while in Guangzhou in June to announce that China has borrowed only $2 billion over the last three years from both public and private sources. "Our country did not utilize commercial loans very much in the first place," she added. Such statements confirm the belief held by many Western economists that the level of China's foreign debt is exceedingly low relative to the country's exports and other sources of foreign exchange earnings.

The notion that Chinese enterprises are not willing and able to pay market rates is questionable at best, observers feel. Not only is the black market rate for foreign exchange in China reportedly much higher than anything seen in Western capital markets, but some Chinese enterprises are apparently quite profitable. The Anqing Cannery in Anhui Province, for example, has told prospective investors that it can turn $700,000 worth of imported machinery into $19 millon in increased output. Studies by the Bank of China of 123 exporting enterprises in Tianjin, and another 347 in Nanjing, show that in recent years these enterprises realized an annual average rate of return on foreign exchange loans of 150 and 70 percent, respectively. With rates of return like that, an enterprise's profitability and its contribution to the nation's export earnings would hardly be diminished by having to pay interest rates in Chen Muhua's forbidden heights of 17 or 18 percent.

The policy of ignoring the real cost of money and capital is of course self-defeating since investors will just disguise their cost of funds in higher equipment valuations, as is done in certain Middle Eastern countries where interest is not explicitly charged owing to religious taboos.

Due to these domestic financial policies, Chinese enterprises that are willing to pay the going rate for capital are being denied the chance of boosting China's exports because they cannot obtain the necessary foreign exchange.

Photo by Stepanek

The Tianjin Light Bulb Factory is seeking a joint venture partner to manufacture fluorescent bulbs and Christmas tree lights.

Meanwhile, China's machinery and equipment imports continue to decline. They fell during 1981, and dropped by 43 percent in the first six months of 1982 compared with the same period last year, according to the Ministry of Economic Relations and Trade. US exports to China of machinery and equipment fell by 59 percent in 1981, and could decline sharply again this year. Trade statistics from Japan, France, West Germany, and the UK tell the same story. Indeed, the value of the machinery and equipment that is not being imported by China could exceed the value of its foreign investments.

Ultimately, the problem comes down to domestic politics. As long as China's heavy industrial sector remains in a slump, it will be hard to overcome protectionist pressures from machinery building ministries to allow increased machinery imports. "The introduction of equipment which can be produced domestically must be strictly forbidden," an article in the *People's Daily* has urged. And as long as China refuses to use large-scale commercial bonds, loans, and other financial instruments to import machinery, apparently the only solution (in the view of some Chinese leaders) is to wait and hope for a surge in direct foreign investment.

Such optimism, or perhaps it is a form of fatalism, today characterizes China's thinking about direct investment. The State Planning Commission is now clearing the decks for what it believes will be a huge infusion of direct foreign investment in the next few years. It hopes to use these funds to supplement the 105 billion yuan allocated under China's Sixth Five Year Plan (1981-85) to modernize China's 400,000 state enterprises. So bright are the prospects, Vice-Minister Wei Yuming told 500 foreign participants at Guangzhou's investment forum in June, that "for the present and in the near future," absorbing direct investment should be "the most important" means by which China utilizes foreign assistance.

It appears that some people have taken literally what must have been a wry comment by Ji Chongwei to the effect that China's investment policies are really an example of the capitalist and socialist systems working together in harmony and to mutual benefit, with China giving Western capitalists the opportunity to invest their "surplus capital" in China in return for security. Whatever its real meaning, the comment does describe the complacency and lack of realism evinced by some Chinese officials toward prospective investors. "They forget our outlook is the same as theirs," observed an international consultant just back from Guangzhou, "We are looking for investments with minimum risk and short payback periods. We look at things just like they do."

Planned Investment Projects

China is seeking over $4 billion in direct investment for 1,001 local and 121 national projects.

	Provincial projects		National projects	
	Number	Value[1]	Number	Value
Location		(million $)		(million $)
Anhui	44[4]	158.0	5	10.7
Beijing	NA	NA	10	63.0
Fujian	116[2]	765.0[5]	2	44.8
Gansu	NA	NA	1	5.5
Guangdong	98[6]	1,000.0	10	246.0
Guangxi	100[7]	820.0	2	2.8
Hebei	5[4]	NA	4	27.6
Heilong-jiang	85[2]	1,100.0	6	29.7
Henan	100[2]	NA	4	7.4
Hubei	NA	NA	7	23.2
Hunan	6	NA	6	8.6
Inner Mongolia	NA	NA	3	16.8
Jiangsu[4]	233	410.0	7	23.5
Jiangxi	NA	NA	2	11.7
Jilin	NA	NA	2	11.3
Liaoning	68[3]	NA	9	57.7
Shaanxi	22	NA		1.0
Shandong	57	128.0	10	16.7
Shanghai	NA	NA	11	133.5
Sichuan	10	NA	5	20.4
Tianjin	57	70.5	4	37.5
Yunnan	NA	NA	1	7.0
Zhejiang	NA	NA	9	38.6
	1,001	**$4,451.5**	**121**	**$845.0**

[1] Figures probably represent a small percentage of the foreign investment required, since most provinces and cities have announced the cost of only a few of the local projects open to direct investment.

[2] Projects will be included in provincial 1982-85 development plan if foreign investors can be found.

[3] 10 to be joint ventures, four coproduction deals, and fifty-four compensation trade agreements.

[4] Provincial list may include one or more national projects.

[5] Sum excludes proposed Xiamen refinery joint venture costing ¥845 million ($460 million).

[6] Projects on Hainan Island only.

[7] Includes Datengxia dam project, but excludes nine other dams which are part of $6.7 billion, 10-dam Hongshui River development plan that Guangxi has opened up to private foreign investors.

SOURCE: National Council investment files.

Table prepared by Jim Stepanek.

Protectionism and the ITC

China's non-market economy, low wages, and lack of cost accounting make it particularly vulnerable to charges of unfair trade practices.

J. M. Richards

Last May, the American Dinnerware Emergency Committee submitted a petition to the International Trade Commission requesting relief from increased imports of Chinese ceramic tableware. The American manufacturers claimed that imports from China had injured the domestic industry by flooding the market with low-priced chinaware. The next month, the American Mushroom Institute submitted a petition to the ITC claiming that imports of canned mushrooms had injured the domestic mushroom industry. In July, the American Textile Manufacturers Institute requested an anti-dumping investigation against imports of textile piecegoods from China, charging that the Chinese were selling at unfair prices. American manufacturers of ammonium paratungstate, manhole covers, steel nails, jewelry, and footwear have begun to murmur about taking similar action.

For anyone involved in trade with the PRC, and especially for importers of low-cost items from China, the issue of protectionism is always hovering in the background. China's non-market economy, its low wage rate, and its lack of cost accounting make it particularly vulnerable to charges of unfair trade practices. Especially in areas where the US domestic industry is faltering, more and more manufacturers are likely to turn to the International Trade Commission for relief.

The ITC's Mandate

The International Trade Commission is an independent agency with quasi-judicial powers. It is authorized by law to investigate all aspects of international trade involving the United States, and particularly the effect of such trade on domestic production, employment, and consumption. The ITC's authority derives from various legislative acts, including, most recently the Trade Act of 1974 and the Trade Agreements Act of 1979. The main purpose of the ITC is to investigate and propose solutions to inequities in international trade where domestic industries are involved. The commission reports its conclusions and recommendations to the president, who is free either to adopt the proposed remedy or, within limits, to impose his own remedy.

Six commissioners and an investigating staff comprise the ITC apparatus. The commissioners hold hearings on cases, study the petitions and briefs submitted by both sides, authorize the ITC staff to conduct supplementary investigations when appropriate, and finally judge the cases on the basis of all available information. The post of Commissioner is often a political appointment. It requires no specialized training in law or economics, though most of the commissioners have a background in one or both areas.

The ITC handles several different types of cases: anti-dumping cases, in which petitioners argue that imports are priced at less than fair value; countervailing duty cases, in which petitioners argue that subsidies from the foreign government distort the price of the good; "escape clause" cases, when a trade practice on the part of a foreign entity may have caused injury to a domestic industry and either violates a multilateral trade agreement or is "unjustifiable, discriminatory or unreasonable" (Section 301 of the Trade Act of 1974); cases alleging unfair methods of competition, especially in the misuse of patents (Section 337); cases in which the domestic industry may have been injured by fairly priced imports coming from market economies (Section 201); and cases in which the domestic industry may have been injured by fairly priced imports coming from non-market economies (Section 406).

Of these six types of cases handled by the International Trade Commission, two categories have recently been utilized by US producers to seek relief from Chinese imports: anti-dumping and so-called "406" cases.

Section 406(e) of the Trade Act of 1974 states that "market disruption" within a domestic industry occurs whenever imports from a Communist country "like or directly competitive with" products made by US firms "are increasing rapidly either absolutely or relatively, so as to be a significant cause of material injury, or threat thereof to such domestic industry." The following elements must be present for market disruption to exist:

- Presence of a "like or directly competitive article" produced by the domestic petitioners;
- Absolute or relative increase in imports; and
- Determination that these imports are a "significant" cause of injury.

The ambiguous term "significant" has made it somewhat easier for domestic manufacturers to win 406 cases than

201 cases. In the latter, involving the alleged disruption caused by imports from market economies, "substantial" cause of injury must be proven.

Filing Procedure

The 406 case begins with a petition, usually brought by the domestic industry, that is submitted to the ITC. The commission requests prehearing briefs from the petitioners as well as groups opposing the petition. Public hearings are held, posthearing briefs are submitted, and then the commission decides if injury exists. Two weeks after this determination, it submits a report to the president evaluating the case and proposing a remedy. The president then has 30 days to approve the ITC's proposed remedy, or suggest his own solution.

The timetable followed by the ceramic tableware investigation is typical:

May 14, 1982:	Petition submitted by the American Dinnerware Emergency Committee.
May 24:	Investigation instituted by ITC.
July 13:	Prehearing conference.
July 14:	Prehearing briefs due.
July 19:	Public Hearing.
August 3:	ITC announced decision that no injury had occurred.
August 23:	ITC reported "no injury" to the president.

The China Case

The ceramic dinnerware investigation provides a useful case study in ITC procedure, as well as in the methods of combatting a relief petition.

The original petition called for "relief from market disruption" caused by imports of "certain household table and kitchen articles from the People's Republic of China." It was filed on May 14, 1982 by the law firm of Williams & Ince on behalf of the American Dinnerware Emergency Committee, which represents seven US earthenware manufacturers. The petitioners tried to prove, in briefs submitted to the commission and in the public hearings, that imports of Chinese porcelain dinnerware had injured the domestic earthenware industry. They argued the following points:

1. That porcelain dinnerware from China was interchangeable with American-made earthenware, and should be considered a "directly competitive" product.

2. That imports of porcelain dinnerware from China had increased at an alarming rate between 1979 and 1982.

3. That these imports had severely hurt the domestic earthenware industry.

The domestic producers explained that earthenware and porcelainware use the same manufacturing process, but porcelainware requires more time in the kiln and is therefore more expensive. American consumers, they claimed, when faced with a choice between porcelainware and earthenware at the same price, will prefer to buy porcelainware.

The Emergency Committee proposed that an import quota be levied against low-priced Chinese porcelainware. Quota relief is one of several remedies available to the ITC if it finds injury. Others include tariffs, tariff quotas (which impose a tariff on imports over a given amount), and orderly marketing agreements (under which foreign governments, in order to avoid the possibility of more severe restrictions, agree to self-imposed quantitative restrictions on their exports to the US).

In response to the actions of the American earthenware manufacturers, importers of Chinese porcelainware formed their own emergency committee and contacted the New York representative office of the China National Arts and Crafts Import and Export Corporation (ARTCHINA). The American importers and Chinese exporters then hired two Washington law firms (Arter, Hadden, & Hemmendinger, and Weil, Gotshal, & Manges) to represent them in the case. The lawyers in turn hired a consulting firm, ICF Incorporated, to prepare and analyze the relevant trade statistics, and conduct a survey of dinnerware retailers. Thus armed, the importers presented the ITC with their side of the argument:

1. Earthenware and porcelainware are perceived by consumers as different commodities. Therefore, they are not "like or directly competitive" articles. The importers noted that imports of Chinese earthenware account for only about one percent of earthenware sales in the US.

2. Porcelainware imports from China have not significantly affected overall US imports of dinnerware; the Chinese have merely taken the low end of the Japanese share of the US dinnerware market.

3. The domestic earthenware industry has not been injured by Chinese porcelainware. Domestic consumption of earthenware remained steady over the period of increased Chinese porcelainware imports, while earthenware imports from non-Chinese sources increased sharply during this period.

The weakness of the domestic earthenware industry is primarily due to the failure of producers to design and market attractive dinnerware patterns, they claimed. Moreover, Corelle dinnerware, an opaque, tempered glass product made by Corning, has cut heavily into the market share formerly held by US earthenware manufacturers.

The importers recommended that quantitative relief—quotas—against imports of porcelainware from China not be imposed since the two products are not competitive and the earthenware industry has brought its problems itself. The ITC, after reviewing the case, decided in favor of the importers.

Formulating a Strategy

The ceramics case can be viewed as a good example of how to formulate a winning strategy. The involvement of the Chinese in the case, including their willingness to assume part of the legal cost, is a good sign that the Chinese are taking these investigations seriously. The importers also moved quickly to bring in the Chinese, hire lawyers, and prepare a strong, convincing argument.

A key decision was to counter the assertion that Chinese porcelain was "like or directly competitive" with US products. If the Commission gives a narrow definition of industry, it is easier for importers to present a winning argument. This is because the more narrowly defined are the categories of "directly competitive" goods, the less likely it is that the categories overlap. Hence, one can argue that changes in one market do not affect goods in another market.

The importers also recognized that the petitioners were likely to ask for a quota and not a tariff. China's exports are often priced so low that they discourage tariffs, since they remain competitive even after tariffs have been imposed. For important exports, the Chinese may even lower their price enough to negate the effect of a tariff. Because of this, US manufacturers facing competition from China usually request imposition of a quota as relief from injury, to limit imports quantitatively.

"If the PRC is to continue buying large quantities of American products, there is a clear need for Chinese products to have fair access to the US market. . ."

Testimony Before the ITC by Council President Christopher H. Phillips

Apart from providing trade facilitation, business, and information services to our members, the National Council for US–China Trade maintains close ties with the US and PRC governments, though we are independent of both. As the voice of American business in China, we articulate the concerns of our members to both governments. In this capacity we have made known to the Chinese the sensitive nature of certain products in the US market, and the need for the PRC to adopt a more sophisticated export strategy.

While we have had the opportunity to testify at various times before congressional committees and before your commission during the GSP hearing last year, we are for the first time appearing in a Section 406 proceeding. We are establishing this precedent because of the great importance the National Council attaches to this case involving mushroom imports from the People's Republic of China.

The National Council has played a significant role in assisting both American importers and the Chinese in the expansion of the US market for Chinese foodstuffs. Since 1974, a great deal of confusion has existed between our Food and Drug Administration and China concerning the registration procedures for Chinese canned food facilities, including mushroom canning factories. Both the FDA and the PRC have been in need of assistance to facilitate the complicated registration process. We have hosted several canned food export groups from China over the years and helped to organize an FDA delegation to China in 1981 to improve relations and to brief the Chinese on the registration process.

Having facilitated the expansion of China's mushroom exports into the mainstream of the US market, we are hopeful that this small but growing trade will not be halted by an unnecessary proceeding against China's canned mushrooms. Relief measures for the domestic industry have already been instituted under Section 201 of the Trade Act of 1974, affecting imports from the PRC, Hong Kong, Taiwan and South Korea. In 1980, the president placed duties on canned mushrooms that amounted to an *ad valorem* equivalent tariff of 34 percent in 1981, 28 percent in 1982, and 23 percent in 1983. Until this extraordinary tariff protection already afforded the US mushroom industry expires at the end of 1983, this entire proceeding would appear to be premature. For the ITC to recommend additional quantitative relief when this high tariff protection is already costing US consumers dearly, would, in our view, be a most unfortunate precedent.

Our view is that there is a single mushroom market consisting of two major segments, the fresh mushroom segment and the canned mushroom segment. The demand for US-grown fresh mushrooms is increasing rapidly, and the industry as a whole, if the fresh segment is included, is healthy. Unfortunately, the commission found in 1980 that relief was appropriate for the canned mushroom industry. Such a narrow segmentation of Section 406 would lead to biased, protectionist results, which we hope the commission will avoid.

In our opinion, the US mushroom industry as a whole has not suffered market disruption as a result of imports of Chinese mushrooms. Whatever distress the domestic canners may be suffering can be explained entirely, in our view, by the recession, rising consumer preference for fresh mushrooms over canned, higher raw material costs in the United States, the impact of prior duty protection itself, and the very poor quality of US canned mushrooms compared with those from the People's Republic of China.

We must look at this investigation in the broader context of our bilateral trade relationship with the People's Republic of China. The US has maintained a considerable surplus in bilateral trade with the Chinese since trade resumed in 1971. In fact, even with the extension of lower, Most Favored Nation tariffs to Chinese imports, our exports to China exceed our imports from China by two to one. Last year alone, we enjoyed a trade surplus of $1.7 billion with China.

The bulk of that surplus, $1.178 billion, can be attributed to our agricultural exports to China. China National Cereals, Oils, and Foodstuffs Import and Export Corporation not only sells mushrooms and other food products to the US market, but is also our largest overseas customer for wheat, buying from the US 60 percent of China's total requirement. In 1981, China was our fifth largest overall agricultural market, purchasing $1.942 billion in wheat, corn, soybeans, and oilseed from the United States. If the PRC is to continue buying large quantities of American products, there is a clear need for Chinese products to have fair access to the US market to earn the foreign exchange necessary to finance imports.

Finally, when arguing an ITC case, accurate statistical information and perceptive analysis lend weight and authority to any position. In the porcelainware case, the domestic manufacturers submitted one chart, but without any detailed analysis, and the statistician accompanying the domestic industry representative at the hearing seemed confused and unsure of his own information. The consulting firm representing the importers, by contrast, sounded authoritative and thoroughly well-prepared.

Relief from Mushrooms

The mushroom case currently before the ITC differs from the dinnerware investigation in several respects. First of all, the issue has already come before the commission, in a slightly different form. At that time, the commission recommended quota relief, which the president changed to a tariff. The previous case covered Taiwan and South Korea as well as the PRC, and the quota recommendations were intended to cover all imports of mushrooms. Now, Korea and Taiwan have cut back on their exports of mushrooms to the US, but exports from China have increased. The new petition, therefore, requests a 406 investigation and quotas against Chinese exports of mushrooms to the US. The domestic industry's case is strongly supported by Senator John Heinz of Pennsylvania. Moreover, petitioners can point to serious reverses in the domestic industry, and it has the ITC precedent to support its position. US mushroom importers have joined with the representative office of the China National Cereals and Oils Import and Export Corporation (CEROILS) in hiring the law firms of Baker & McKenzie and Patton, Boggs, & Blow to handle the case.

The Textile Controversy

The pending anti-dumping petition brought by the American Textile Manufacturers Institute against PRC cotton and polyester printcloth, is an anti-dumping case, handled jointly by the ITC and the Department of Commerce. The 1979 Trade Agreement Act, which modifies the Tariff Act of 1930 to provide that "antidumping duties will be imposed when the Department of Commerce determines that a class or kind of foreign merchandise is being, or is likely to be, sold in the United States at less than fair value and the US International Trade Commission determines that an industry in the United States is materially injured or threatened with material injury."

This rather tangled formulation means that a successful anti-dumping petition requires both a positive determination of dumping *and* a positive determination of injury. The first investigation is handled by the Commerce Department, the second is handled concurrently by the ITC.

In the menthol case it was argued that Chinese natural menthol was significantly lower in price than menthol imported from other countries, notably Brazil. A US company, which produced synthetic menthol, charged that China was selling its menthol below the cost of production. Since meaningful cost figures are not available for a non-market economy, the Department of Commerce in its investigation compared Chinese prices against prices of menthol from Paraguay, a "representative" third country. The ITC meanwhile made a preliminary determination of injury, but when it finally looked at the work done by Commerce in evaluating the dumping charge, the Commission found the methodology inadequate and the findings unsound, so it threw the case out of court.

The problem of finding a "representative" third country occurs every time an anti-dumping petition is brought against goods from the PRC. Another problem with this type of case is that the only remedy available to the ITC when dumping is involved is the imposition of antidumping duties. Whether such duties would inhibit Chinese sales to the US is open to question.

Protectionism Here to Stay

The recent actions against ceramic tableware, mushrooms, and piecegoods, together with rumors of actions against ammonium paratungstate, manhole covers, steel nails, jewelry, and footwear, suggest that protectionist measures may be an important issue in US-China trade for some time to come. This new emphasis on protectionism is part of a larger trend. On the one hand, domestic industries have been calling for more protectionism across the board, especially with regard to alleged European abuses. On the other hand, domestic producers are alarmed by China's sudden entry into the US market after Most Favored Nation status was granted in 1980. The result has been an increasing number of actions against China.

The policies pursued by European countries contribute to the protectionist sentiment. The EEC generally has more restrictive trade barriers than the US. Its textile quotas, established through bilateral agreements, are more severe than American textile quotas. The Europeans have unilateral quotas on many products—for example, porcelainware from China and automobiles from Japan, which have relatively free entry to the US. American producers often complain, with some justification, that many products end up in the US because they are restricted from entering the markets of other countries.

At the heart of the issue is a more plaintive worry, that in many product areas the US simply cannot compete with foreign imports. Imports of castings and forgings from Eastern Europe and China, for example, are increasing even as US foundries operate at 70 percent capacity. In areas that have been severely hurt by recession, the thought of more plant shutdowns due to imports from China is alarming even to those not directly concerned.

The Chinese are slowly becoming aware of the need to respect the US market structure, to avoid sudden changes in their market share of particular products, and to set prices competitively but not in a cutthroat fashion. The actions of the New York offices of ARTCHINA and CEROILS in the recent ITC investigations indicate that the Chinese have begun to treat these matters seriously. In most cases, however, the Chinese sell as much as they can for as low a price as they can tolerate. In the process, China's non-market economy makes it particularly vulnerable to charges that its prices reflect unfairly low wages and government subsidies.

US companies buying from China should be aware of the protectionism issue, importers warn. They should try to monitor the prices and quantities of Chinese imports, and compare them with prices in the US. One lesson to be drawn from the recent ITC actions is that importers and Chinese should work together, so that US buyers are not forced to wage battle against US manufacturers, a situation all parties would prefer to avoid.

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Pharmaceuticals

American and Chinese manufacturers are trying to establish themselves in each other's market. But regulations are stiff, and the process slow.

Chris Brown

Chinese trade practices in pharmaceuticals hit the front page of American newspapers in recent months when US officials expressed concern over Chinese exports of the narcotic drug methaqualone that were ending up in illegal world channels. Although this may be the most dramatic issue in US–China pharmaceuticals trade, it is by no means the only point of controversy. Imports of commodity pharmaceuticals from the PRC, now a major presence in the market, are a continuing concern to the US industry. As bulk drugs such as antibiotics begin to appear in the US, the issues multiply.

China's greatest impact on the market continues to be in relatively simple bulk compounds such as caffeine and vitamins. China has become second only to West Germany as a foreign supplier of caffeine to the US, for instance, and is second only to Japan as a supplier of vitamin B1. Even those Chinese exports that hold smaller shares of the US market have caused alarm because of their low prices.

The competitive advantage of Chinese products is primarily due to low-cost, labor-intensive manufacturing processes. But some business executives claim that an ability to set prices independent of actual production costs and favorable duties also contribute to the price advantage. Others complain that Chinese trade practices encourage transshipments that cause market distortion.

Dealers have been particularly vociferous concerning the impact of Chinese imports on the US caffeine market. Traders have said that world supply of the product is some 50 percent above normal. Yet worldwide demand is down by 10 to 15 percent. In the hard-hit US market, Chinese imports jumped 66 percent from 1980 to 1981 (capturing 13.5 percent of the import market). Meanwhile, imports as a whole dropped nearly 40 percent. Some industry observers say that the Chinese product is priced 10 to 15 percent below the US market price. Domestic suppliers have leveled complaints at Japanese brokers for unloading large quantities of caffeine bought on the Chinese spot market. A few have even suggested pressing Congress to take protectionist actions to offset favorable duties allowed imports from China because of its Most Favored Nation status.

As a supplier of vitamin B1, China is making serious gains on Japan. China captured a 31 percent share of booming US imports in 1981 and supplied 26 percent of imports in the first six months of this year. Again, there are some complaints that large traders flood the market with the cheap Chinese product, and sometimes resort to dumping. One major Japanese trader, for instance, was accused of buying a large quantity of B1 on China's spot market last year for $33 per kilo and then to clear its warehouse inventory after the market had gone soft, selling the vitamins at $26 per kilo.

Chinese vitamin C constitutes less than 10 percent of US imports. Nonetheless, the dramatic rise of China's market position, its low prices, and market disruption brought on by transshipment of the product cause concern among chief US manufacturers. Imports of Chinese vitamin C held only 1.5 percent of total US imports in 1980, climbing to 4 percent in 1981, and reaching 9 percent in the first six months of this year. In 1981, imported vitamin C from all sources accounted for 50 percent of the product consumed in the US. The large US manufacturers (Hoffman-LaRoche and Pfizer) are operating at well under capacity because it is difficult to meet the low costs of imports, particularly from China. In order to keep a share of the market, they are taking a beating in head-to-head competition with Chinese imports.

The Transshipment Problem

As one prominent trader commented, "Right now, the single greatest problem with Chinese imports is China's marketing strategy. They are selling in a way to allow massive transshipments through Hamburg." The core of the problem is that China markets certain pharmaceuticals in more than one currency. China sells to brokers in Hong Kong dollars, deutsche marks, and US dollars. Every other major supplier sells in one currency, unless it is selling to an enduser.

Sources say that the adverse effects of this practice have become evident since the last Guangzhou fair. At that time, Chinese vitamins and other pharmaceuticals were sold to the US in dollars and to European buyers in deutsche marks. Subsequently, the value of the dollar declined against the mark, and German brokers such as Helm, Siemsgluess, and Arnold Suhr were able to transship the Chinese products to the US and sell them at

lower rates than goods imported directly from China. One industry observer reports that in March of 1982 thousands of kilos of vitamin C were transshipped from Hamburg and delivered principally to New York. The average cost of the product was $8.83—8 percent cheaper than the $9.62 per kilo vitamin C that was arriving in Los Angeles directly from China.

Another complaint of unfair competition concerns the importation of pseudoephedrine. In this case, domestic suppliers complain that illegal shipments of the drug are being allowed into the US from China. Pseudoephedrine is an active ingredient in antihistamines and cold medicines. The raw material from which it is made—ephedrine—can be made at a very low cost in China from plants that are gathered from the mountainsides. Two US companies import the Chinese ephedrine as an intermediate under long-term contracts. At least one of these companies, Ganes Chemicals Inc., complains that the price of its finished pseudoephedrine is undercut by pseudoephedrine being illegally imported from China. Ganes' director of marketing, Peter Werth, says the problem is that the US Food and Drug Administration (FDA) is neglecting to enforce its own regulations.

According to FDA officials, the problem is that pseudoephedrine can either be used in over-the-counter drugs or in prescription drugs, depending on the dosage. FDA's general practice is to require inspection and approval of manufacturing facilities according to Good Manufacturing Practices (GMP) standards for finished drugs to be used in prescription dosages.

OTC drugs may also be subject to FDA approval, but this is generally required only in cases where there is reason for concern. In the case of pseudoephedrine, the responsibility falls on the manufacturer of the dosage drugs to submit a new drug application if it is using an active ingredient coming from a new source. Often, in the case of pseudoephedrine, the drug is imported by a broker and bought by a manufacturer who does not know its source. An FDA official acknowledged that this may be a problem, and said that, although it has not been a high priority to the FDA, the administration is beginning to investigate the matter.

Chinese Antibiotics and the FDA

China now is setting its sights on the US market for bulk drugs such as antibiotics. Chinese factories, again because of low-cost manufacturing, are able to be extremely competitive. The difficulties of conforming to FDA regulations, however, are certain to keep US purchases to a minimum for some time to come.

Imports of antibiotics from China began last year when the Tianjin Pharmaceutical Company was approved by the FDA for exports of Tetracycline HCl. (The preliminary plant inspection was sponsored by ICC Corp.) This year, three more factories were inspected and approved by the FDA for a number of antibiotics and one new drug. The Shanghai No. 4 Factory (which failed a 1981 inspection) was approved for manufacturing gentamicin, kanamycin, dihydrostreptomycin, and diphenhydramine. The Long March Pharmaceuticals Factory in Leshan, Sichuan, was approved for gentamicin in an inspection sponsored by Flavine, and the Nantong Pharmaceuticals Company of Nantong, Jiangsu, was approved for erythromycin in an inspection sponsored by ICC.

During a visit to China in April of this year, however, an FDA inspector was refused entry to two factories. The incident resulted from a mutual misunderstanding and illustrates the difficulties of synchronizing US and PRC bureaucratic practices. The FDA Bureau of International Investigations received new drug applications from US agents to approve imports from two Chinese factories. Having received a letter from SINOCHEM stating that the Chinese organization welcomed inspection of its factories, an investigator set off for China without an explicit invitation by a factory.

The first problem was geographical. FDA authorities apparently confused the Nantong Pharmaceuticals Factory in Nantong (for which an application had been made) with the Nantong Pharmaceuticals Factory in Nanjing. Upon arrival in Nanjing, the investigator discovered that local authorities were not aware that any inspection was to take place, and had no clear idea what the FDA was. The investigator met similar obstacles in attempting to inspect the Beijing Chemical and Pharmaceutical Works.

Since that aborted inspection tour, the FDA has made it a policy to inspect only factories from which explicit invitations are received. SINOCHEM, for its part, has reportedly become more scrupulous about communicating with factory management concerning FDA plans. A more difficult problem to solve may be the wariness of inspection on the part of plant managers and local authorities.

This wariness, apparently, was behind the problems FDA encountered in attempting to arrange two more inspections in September. According to one FDA official, the Chinese factories had earlier stated that they welcomed inspection. But when a schedule was proposed, management from both factories said that problems had arisen and requested that the inspections be postponed until next year. The FDA has since been trying to convince officials in Chinese industry to think of failure in an inspection as guidance rather than disgrace. Until such efforts succeed, it is

Photo by Li Changyuan, New China Pictures Co.

Workers at the Tianjin Heping Pharmaceutical Plant filling bottles with an amino acid injection compound.

unlikely that the 30 to 40 factories SINOCHEM reportedly has chosen to prepare for inspection will be supplying the US market.

American importers that have successfully obtained FDA approval for Chinese suppliers have worked in close cooperation with the factories. Both ICC and Flavine report that they acted as consultants to Chinese manufacturers, explaining FDA standards and practices and helping them prepare for inspection. In return for their efforts and expense, they received favorable prices on imports. (ICC was promised exclusivity in purchasing from the Tianjin plant.)

Beginning in October, US companies will incur less trouble and expense in sponsoring inspection of antibiotic plants. An FDA policy will go into effect that brings the certification process for antibiotics in line with that of other new drugs. Specifically, inspection tour expenses will be paid by the US government, rather than by the sponsoring company, and antibiotics will no longer have to be sample tested for each batch of imported product. It will only be necessary that they be certified to have been produced by an FDA-approved factory.

Traditional Chinese Medicines

According to reports in the Chinese press, exports of traditional Chinese medicines in 1981 were 12.5 times those of 1970. The reports say that China now exports 1,000 varieties of traditional medicines, 100 medicinal spirits and wines, and 100 nutrients made with Chinese medicines to 70 countries and regions. Few of these exports find their way into the US for the same reason that few antibiotics gain entry: problems complying with FDA regulations.

The chief problem with imports of these PRC products, officials say, is labeling. According to FDA regulations, a label may not make unsubstantiated efficacy claims. Chinese patent medicines often bear long and unlikely lists of curative powers that rival the wonder elixirs of old American medicine shows. For example, the literature that accompanies Tzepao Sanpien Pills, a product manufactured by the Yantai Pharmaceutical Works, recommends the medicine for the following afflictions: general weakness, untimely senility, neurasthenia, sores in the waist and back, overburdens of the brain, anemia, dizziness, poor memory, involuntary perspiration, insomnia, pale faces, and poor appetite.

A second problem for the FDA is that traditional medicines sometimes contain powerful drugs not listed on the label. One particularly dramatic case last year involved *Chuifong Toukuwan*, an herbal remedy associated with the death of a 70-year-old woman in New York City. Although the label listed only herbal contents, FDA tests of the medicine found that it contained indomethacin, a prescription antiinflammatory agent with serious side effects. Other prescription drugs found in the herbal remedy include hydrochlorothiazide, a potent diuretic and chlordiazepoxide, a tranquilizer. The label suggests *Chuifong Toukuwan* for arthritis, rheumatism, headache, the fear of high winds, and paralysis, among other ills.

According to FDA officials, most imports of *Chuifong Toukuwan* originated in Taiwan or Hong Kong, with a few coming from the PRC. But the case raises doubts about Chinese traditional remedies in general. FDA officials are not only suspicious of prescription drug additives in herbal remedies, but also of natural ingredients with which they are unfamiliar.

China National Native Produce and Animal By-products Import and Export Corporation (CHINATUHSU), the corporation that markets traditional medicines abroad, is trying to overcome these obstacles by cooperating with foreign companies to prepare the products in compliance with other country's standards. Under an agreement between the Otsuka Pharmaceutical Company of Japan and the State Pharmaceutical Administrative Bureau, researchers from the two countries will jointly analyze some 5,000 plants used in Chinese medicines, isolate their active ingredients, and determine what illnesses they can effectively treat.

In the US, CHINATUHSU has teamed up with a law firm to break into the market. The Washington, DC firm of Hamel Park, McCabe, & Saunders has been acting as liaison between the Chinese organization and the FDA, consulting with the Chinese on labeling, chemical testing, and product modification to win certification. The firm, in cooperation with the FMALI Herb Company (a major American importer of ginseng and other Chinese medicinal herbs) and the Beijing Institute of Traditional Chinese Medicine, had its first success last spring when it won FDA approval of Renshen Fengwangjiang as a "health drink." Made for the US market, the product contains ginseng and royal jelly. Contents that may have been included in the Chinese domestic version of the drink were omitted from the formula and no efficacy claims appear on the label.

The legal strategy for getting Chinese medicinal herbs into the American market, said a representative of the law firm, is to have them approved as dietary supplements. The firm, on behalf of FMALI, recently filed suit against the FDA in an effort to change the regulations pertaining to these imports.

In a September 1 hearing before a Federal District Court in San Francisco, attorneys representing FMALI argued that food substances that have been used safely for many years in another country should be approved for importation into the US without chemical analysis. According to a 1958 food additive law, a food substance is considered an additive unless scientific procedures have shown it to be safe. If the substance was in use before the law was adopted in 1958, however, it may be considered safe based on the experience of its common use in foods.

The suit takes issue with the FDA's definition of "common use in foods" as "a substantial history of consumption of a substance by a significant number of consumers *in the United States*." FMALI and its attorneys would like the definition to extend to common use in other

China is now setting its sights on the US market for sophisticated bulk drugs, such as antibiotics. But the difficulty of conforming to FDA regulations will keep US purchases to a minimum for some time to come.

countries as well. This would greatly reduce the cost and time required to get approval for a number of Chinese products.

Exports to China

Although nearly every major US pharmaceutical company has approached the China market, the results have been meager. China is easily able to satisfy most of its domestic needs and seeks to develop its own capacity to produce new treatments.

Marketing pharmaceuticals in China is an arduous undertaking that requires selling both to medical practitioners and to officials that hold the purse strings for foreign exchange spending. The task has become even more difficult with decentralization. One method of entering the market employed by such companies as Squibb (with *Captopril*, an antihypertension drug) and Smithkline (with *Tagamet*, an ulcer drug) is to supply new drugs for clinical trials in China. But a set of Chinese regulations issued at the end of last year has all but blocked that avenue. Previously, it was possible for US companies to arrange clinical trials directly with hospitals without approval by the Ministry of Health. The new regulations make it explicit that the Ministry must approve all such arrangements, and that few will be approved. The first provision of the document states:

Applications for the carrying out of clinical trials in China must be handled very strictly. In general, such trials will not be approved. Some medicines which would greatly increase China's medical care capability may be accepted for clinical trials; they must undergo serious review by provincial, municipal, or autonomous region public health bureaus, after which they must be submitted for approval to the Minsitry of Public Health.

The regulations also call for the foreign supplier to pay for the relevant bureau's testing and retesting of the drug at fees three to five times the domestic testing fees, before clinical trials can begin. The foreign company must supply the drugs for the trials free of charge, and would be charged 500 to 1500 RMB for each medical application of the drug. All financial responsibility for any serious consequences, loss, or damage resulting from the research must be borne by the foreign company. Taken together, US executives say that these stipulations make clinical trials in China more expensive than in the US.

For those companies that do manage to enter the market, there are usually pressures for countertrade. Companies active in China report that countertrade demands often amount to 80 to 90 percent of the value of the US sale, and that Chinese suppliers press for barter arrangements in which goods are exchanged under a single contract with no hard currency changing hands. This allows the Chinese organization to conduct the deal without getting approval for foreign exchange spending. But such arrangements are often unattractive to US executives because the US company must choose from among goods produced only by the ministry to which it sells, and only within the province in which it sells. Under these conditions, companies report that it is very difficult to find suitable goods of suitable quality for trade.

US PHARMACEUTICAL IMPORTS

(million US dollars)

At least half of our pharmaceutical imports from China are bulk vitamins and alkaloids.

		1980	1981	1982 (Through July)	Percent change Jan.-July, 1982/ Jan.-July, 1981
Vitamin B1	PRC	1.60	3.75	.90	−68.4
	World	7.34	11.56	3.38	−56.0
Drugs (not specified)	PRC	3.69	4.74	2.93	9.1
	World	47.44	50.63	34.32	17.5
Vitamin C	PRC	.73	2.90	2.18	56.1
	World	45.07	63.05	26.88	−32.3
Drugs and related products such as mineral oil and medicinal salts	PRC	.57	1.31	1.26	98.3
	World	64.22	50.93	17.83	−49.5
Alkaloids and compounds	PRC	2.81	1.47	1.26	27.4
	World	32.47	31.08	16.55	−22.6
Vitamins (not specified)	PRC	.29	1.66	.70	−27.0
	World	61.80	63.61	29.18	−27.1
Caffeine	PRC	.67	1.91	.33	−80.4
	World	27.08	14.44	7.04	−24.4
Synthetic hormones	PRC	0	.54	.33	−33.0
	World	43.81	54.66	34.88	17.1
Medicated bandages	PRC	0	.19	.11	—
	World	5.99	8.89	7.64	41.7
Antibiotics	PRC	0	.06	.09	—
	World	78.82	121.00	75.29	10.5
Drug compounds of vegetable origin	PRC	0	0	.07	—
	World	13.14	22.32	10.85	−25.1
Natural hormones (not specified)	PRC	0	0	.02	—
	World	10.84	8.50	6.55	37.5
TOTAL* (based on unrounded figures)	PRC	10.35	18.53	10.16	−12.9
	World	438.02	500.66	270.39	−11.4

*Excludes minor miscellaneous categories.

Note: US exports to China of medicine and pharmaceutical products were only $630,000 in 1981, and less than $1 million during the first seven months of 1982.

SOURCE: Schedule A tabulated by the Bureau of the Census, US Commerce Department.

Table prepared by Chris Brown.

Photo by Li Changyuan, New China Pictures Co.

Worker checking the quality of a new anti-cancer drug.

Cooperation in Manufacturing

Last year, the State Pharmaceutical Administration (recently absorbed into the State Economic Commission) formed a new subsidiary company, China National Corporation of Pharmaceutical Economic and Technical Cooperation. Although the corporation was formed to discuss joint ventures, countertrade, processing, and manufacturing to specification with foreign firms, it seems to have done little to bring about deals in these areas.

So far, only one US company has signed a contract for a joint pharmaceuticals venture in China. E. R. Squibb & Sons is awaiting final approval from China's Ministry of Foreign Economic Relations and Trade on a contract with the Shanghai Pharmaceutical Industry Corporation. The agreement calls for Squibb and the Chinese corporation to jointly formulate and package a wide range of pharmaceutical products, including antibiotics, steroids, and vitamins. Under the terms for the agreement, the joint venture company would build a new factory according to Squibb designs.

Other attempts at reaching cooperative agreements have failed. Schering Plough reports that it nearly came to an agreement to coproduce rosamicin with a Chinese factory, but that the US company pulled out of the deal for reasons having nothing to do with the Chinese. Outside observers say that the issue in that deal was FDA findings concerning the toxicity of the drug. Smithkline officials say their discussions continue. Many other companies that have tested the waters for cooperation agreements have chosen to stay out.

The scarcity of cooperative manufacturing with foreign companies in China is due to a number of factors—some are problems common to all sectors, some particular to the pharmaceuticals business. As in any industry, pharmaceuticals joint ventures in China must go through several approval stages at the local and national levels. There is also the common problem of China's tendency to overvalue land and existing facilities that it contributes as equity to joint ventures.

But the most serious obstacle to pharmaceuticals joint ventures in China is the lack of patent protection. China is not a party to international patent conventions, and it is no secret that drugs still under US patent are being manufactured in China.

When the long-awaited Chinese patent law is finally enacted, it is expected to extend patent protection only to pharmaceutical manufacturing processes—not to pharmaceutical products. This would mean that Chinese factories could continue to produce drugs under US patent, as long as their production techniques were not identical to those of the patent holder. Even this protection would only apply to pharmaceutical processes patented after the law goes into effect.

As US–China trade in pharmaceuticals evolves beyond simple import and export deals, the complex problems of establishing a framework to protect property and market rights in China will be an issue of increasing importance.

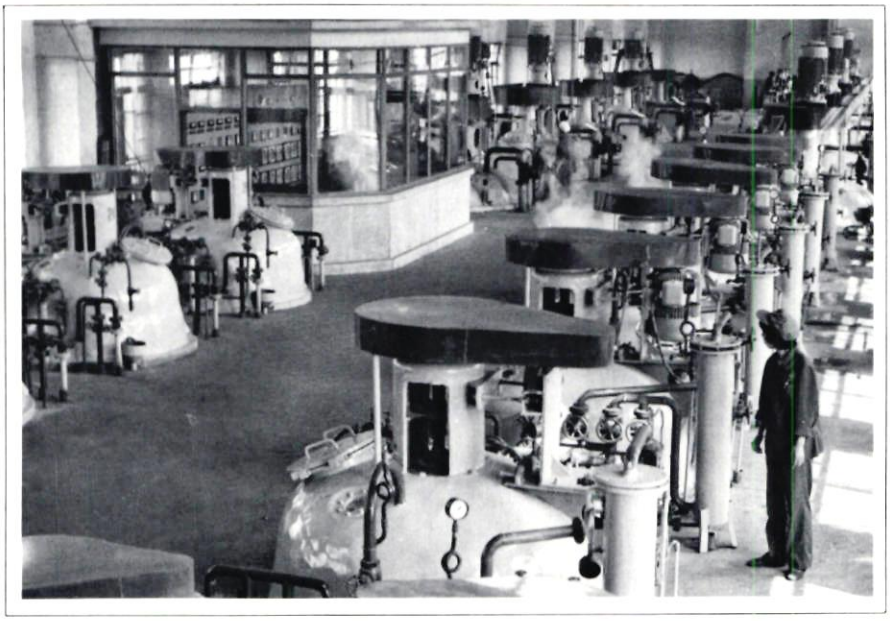


Photo by Li Changyuan, New China Pictures Co.

The riboflavin ferment workshop of the Tianjin Hebei Pharmaceutical Plant.

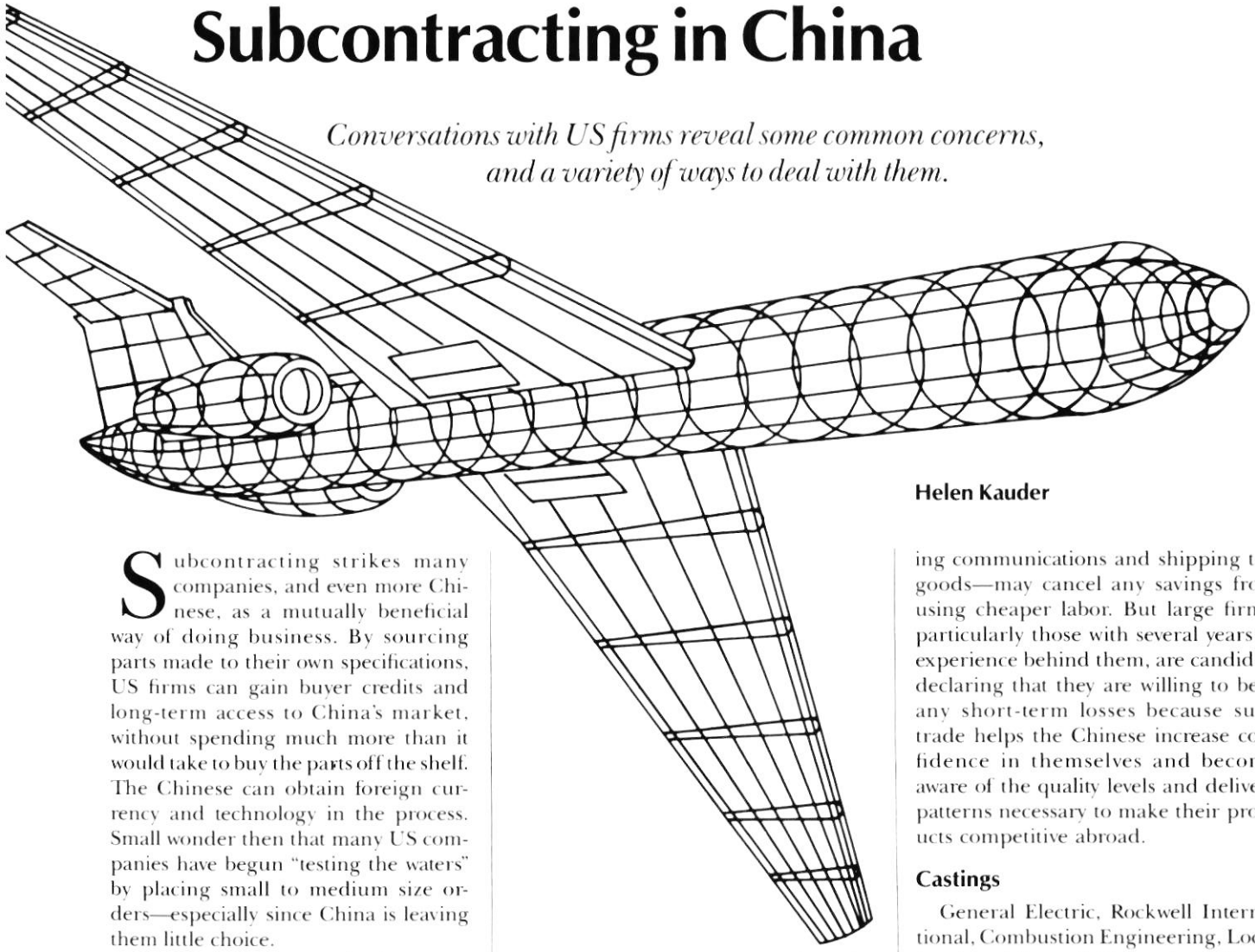
CORRECTIONS TO JULY–AUGUST CBR

Annex I of the Hydropower Protocol was signed on March 15, 1980, and not 1981, as indicated on page 24. On page 25 the correct amount of TDP funding is $400,000, not $500,000.

The phone number on page 40 under the caption "First China Manufacturing, Processing, and New Technology Exhibition" should read (212) 759–6970.

Subcontracting in China

Conversations with US firms reveal some common concerns, and a variety of ways to deal with them.



Helen Kauder

Subcontracting strikes many companies, and even more Chinese, as a mutually beneficial way of doing business. By sourcing parts made to their own specifications, US firms can gain buyer credits and long-term access to China's market, without spending much more than it would take to buy the parts off the shelf. The Chinese can obtain foreign currency and technology in the process. Small wonder then that many US companies have begun "testing the waters" by placing small to medium size orders—especially since China is leaving them little choice.

Here is a typical scenario that represents the experiences of the companies surveyed for this article:

"When we realized that the Chinese didn't have the technological understanding to manufacture our company's product, our plans to buy the finished product from them had to be scaled down. The Chinese insisted that we buy something, anything, from them, since they had come to rely on us for support. We decided that the safest things they could offer were castings. We looked into processing electronics as well, but frankly, we felt that for any items that required more than the simplest specs and assembly, the learning curve was not sufficiently steep to make the investment worthwhile. With castings, we can at least maintain control over processing and correct the inevitable flaws when the pieces are back in the US.

"We are subcontracting in order to develop and maintain a good relationship with a number of Chinese ministries, so we can eventually sell to the them. Right now, therefore, cost is not a primary consideration."

McDonnell Douglas has been fabricating Super 80 landing gear doors at the Shanghai Aircraft Factory since late 1980.

The economics of subcontracting is a sensitive subject, one which evokes tremendous disagreement among the firms willing to discuss it. At one extreme is the company that has just done further machining on a shipment of castings that arrived three months late, complete with problems in the metallurgy. That company's negative opinion naturally runs counter to the feelings of a firm that recently signed its first contract with China and received its shipment of goods intact.

In practice, buying even simple parts requires the same patience and persistence that foreigners must demonstrate when dealing with joint ventures and turnkey plants. Sometimes the extraneous costs of a deal—such as the nonrecurring costs of second tooling, or the more general costs of coordinating communications and shipping the goods—may cancel any savings from using cheaper labor. But large firms, particularly those with several years of experience behind them, are candid in declaring that they are willing to bear any short-term losses because such trade helps the Chinese increase confidence in themselves and become aware of the quality levels and delivery patterns necessary to make their products competitive abroad.

Castings

General Electric, Rockwell International, Combustion Engineering, Lockheed, and Deere & Co. are just a few of the companies sourcing castings in China, either as part of a countertrade agreement or through straightforward purchasing. Their purchases explain how imports of metal products from China skyrocketed to $38.7 million in 1981, up 104 percent from the previous year.

The subcontracting of these labor-intensive parts has become more attractive as manufacturing costs in the US have soared, partly due to more stringent OSHA standards. Many US foundries that were operating under capacity or at a loss because of the recession found it more profitable to close down and join the ranks of importers. Fortunately for them, since castings require further machining back in the US, the labor unions and steel industry do not view these imports as so much of a threat.

Importers agree that China has developed its expertise in castings production; its low-carbon and high-alloy steels are suitable for low-technology, low-risk

uses. China's iron ore, particularly from the Benxi deposits, is also good.

The export of castings, forgings, and other metal products comes under the jurisdiction of several foreign trade corporations, including EQUIMPEX (machinery), CATIC (aerotechnology), and CMIEC (metallurgy). The parts are produced by a number of factories throughout the country. Yet ever since the production of agricultural machinery and mining equipment took a back seat to light industry, Chinese foundries have experienced idle capacity. Castings production suddenly was seen as an appropriate means of generating foreign exchange. Jay Naghib, former manager of Far East projects at GE, says that castings are often the predominant item on display in Chinese factories. The foundries are so anxious for foreign business, claims George Koo, managing director of Bear Stearns China Trade Advisors, that they make the purchase of these castings a prerequisite for any US sale.

Decentralization has caused factories to step up competition for US blueprints. The desire to generate hard currency through subcontracting is reflected in an increased willingness to compete on prices. Earlier this year, a major US corporation signed a contract to buy automotive castings as part of a countertrade deal. According to a company official, the price per casting was less than the corporation's target price of $65 and less than half the price of similar castings sourced in Europe. Siemens, a diversified West German conglomerate, obtained competitive prices by presenting the Chinese with a range of products and parts being subcontracted in other parts of the world, and asking them which prices they could beat.

Importing castings poses two problems for the foreigners, however. The cost of freight is high by international standards—sometimes 60 percent higher than the cost of shipping from Taiwan. Some companies feel that Yugoslavia remains a more competitive source for castings.

Furthermore, the metallurgy is not appropriate for every use. An aircraft industry analyst pointed out that Chinese castings are among the most difficult products to be qualified for airworthiness in the US.

Everything from pumps to ball bearings

Popular items for subcontracting include tool parts, shock absorbers, springs, fasteners, pumps, boiler parts, and ball bearings. "Hand tools are one of the best small items China has to offer," according to Henry J. Groen, president of Chinawest, Inc. A distributor on the West Coast thinks China's cutting tools are the most competitive in the world.

The Allen Group has a long-term agreement with the First Ministry of Machine Building to purchase annually about $10 million worth of hand tools and hydraulic jacks. This is the largest single purchasing deal reported between the US and China. Despite some minor cosmetic problems with the jacks' paint job, the arrangement is proceeding well.

Quality, in many other cases however, is not comparable with US quality. For this reason, many ball bearing distributors sourcing in China are anxious to keep the country of origin a secret from the end user. According to one importer, only China's best factories can achieve the minimum standards of the US market.

Still other importers complain that the Chinese normally do not give discounts to large-volume purchasers. Consequently, it may be cheaper to buy the items in Hong Kong. Distributors with so-called exclusive contracts sometimes have found themselves competing with Hong Kong trading companies who have managed to purchase the same products from China at a lower price.

Finally, subcontractors complain about many of the standard aggravations in the China trade: the unanswered telexes, the orders placed but never received, the shipments reported to be lost at sea that later arrived at the wrong port, and the delays—both out of the factory and off the boat on the West Coast. Factory delays often result when a factory that is not a hard currency generator, or part of a high-priority industry, is not allocated sufficient raw materials or fuel.

The subcontracting of labor-intensive parts in China has become more attractive as manufacturing costs in the US have soared. One problem is that parts made in China often require corrective machining when they reach the US.

Strategies for Success

Despite the common problems, every subcontracting deal is different, and every company has its own ways of making the China relationship work.

Bear Stearns puts a great deal of effort in the initial choice of factory and product, believing that this will determine whether the deal will be a happy one. George Koo says he tries to identify and approach those factories that are the most aggressive, rather than to rely on foreign trade corporations or ministries. He cautions that ministries sometimes decide who will work with US customers on the basis of which factories are most backward and in need of modernization.

McDonnell Douglas follows a policy of incentives: the closer the Chinese are to schedule, the more business the company gives them. McDonnell Douglas, after postponing its much publicized and overly ambitious plan to manufacture entire planes in China, signed a more modest deal with the Shanghai Aircraft Factory and CATIC for the purchase of 100 ship sets of DC-9 Super 80 landing gear doors. According to Gareth Chang, vice-president of McDonnell Douglas China Inc., the company has also arranged to have alternate sources of supply outside China, adding that the pressure this competition puts on the Chinese has helped prevent delays. The doors have been arriving on schedule at a steady two ship sets a month. Because of a sudden rise in demand for spare doors, the company recently requested an increase to four ship sets a month. This has proceeded smoothly.

The experiences of at least two other US companies teach this important lesson: Even if one proposal doesn't work out, keep looking for a workable arrangement. Two divisions of General Electric were considering different subcontracting proposals in China—with vastly different results. One concluded that "the economic equation wasn't at-

tractive" for subcontracting electronic components. Labor costs were 80 percent of the Hong Kong rate, but productivity was much lower. It made more sense to process in other parts of Asia, and the idea was dropped.

Meanwhile, in a totally unrelated program, a division in Pennsylvania was successfully sourcing locomotive castings made to GE specs through the Ministry of Railways. According to Graham Hamilton, general manager of International Locomotive Programs at GE, the deal might be described as serendipitous. On one trip to China he found that the Chinese had a much greater capability in this area than he had imagined. GE was coincidentally looking for a new source of these castings and the contract was signed in under six months. Shipment began in late 1981 and the company has received approximately $1 million worth of castings to date.

Boeing went through a similar process when the Chinese offered to sell them castings and forgings. For reasons of quality, Boeing declined the offer. Instead it opted to buy 4,400 machine parts for the Boeing 737 and 747. The contract, which was signed in November 1981 with CATIC and the Xian Aircraft factory, is valued at more than $5 million. This includes the cost of 15 Chinese engineers working with Boeing at US salaries and additional items other than hardware. According to Thomas Bacher, director of international business at Boeing, it took the FAA no longer to certify the Chinese parts than it had taken for first-time certification of Japanese parts 10 to 12 years ago.

Delivery delays comprise one of the biggest and most aggravating problem areas for foreign firms. Virginia Kamsky, president of Kamsky and Associates, suggests using expediters or having company representatives from the Hong Kong or Beijing office remind the plant manager of the order. In fact, this custom is standard procedure among the Chinese themselves. At any one time many of the Shanghai hotels are filled with officials from provincial factories, in town just to entertain the manager of the factory processing their order.

A number of firms advocate diversifying sources in China, so that several factories in different provinces are competing against each other. This tends to reduce delays and costs.

Factory delivery times can be hastened sometimes if the foreign firms supply the inputs and raw materials. One trading concern learned the hard way. The company had purchased some welder's leatherwear in China; by the time the shipment arrived, the snaps on the processed pieces had corroded. The factory could not secure new brass buttons, since it was not in a position to place an order at that time. The trading company considered sending the shipment back with its own buckles, but the delay at that point would have been too great.

A Chinese factory that has never purchased raw materials for subcontracting may be reluctant to try. Virginia Kamsky tells of one case in which a factory took six months to agree to put up a letter of credit to buy the material. "We told them that if they didn't agree to it," she said, "we'd process in Taiwan or Korea." After that ultimatum, the process went well.

The Chinese themselves have asked some firms to send in the raw materials, so they can avoid the lengthy and bureaucratic process of applying through the ministries. The foreign raw materials may even be offered at a better price, since the Chinese factories get no discounts for large-size purchases from their own factories. The Allen Group, on the recommendation of the Chinese, is considering supplying steel tubing on consignment to cut costs in the manufacturing of its jacks and hand tools.

An alternative is having the Chinese buy the inputs. The notion here is that the Chinese would speed up the order in their hurry to be reimbursed.

The Future

Poor quality and quality control is regarded by most American firms as the principal impediment to subcontracting in China. Perhaps reassuringly, the Chinese also view it as their greatest obstacle to development. "There is a great desire to learn about anything that would improve quality," remarked a Westinghouse official, who requests that all workers involved in production be present when he visits the factory for inspection. "Sometimes quality is all that workers have to show for their efforts," he added.

On the Chinese side, there have been some much heralded, though not particularly ground-breaking, initiatives. A Chinese society for quality control was established that recently organized a "quality month". To popularize the concept, plaques were given to deserving factories. There is now a bureau of quality control in the State Economic Commission.

More significantly, there have been joint efforts with the US. Underwriters Laboratory entered into a cooperative agreement to work with the Chinese Import-Export Commodities Inspection Corporation, the government's quality-control unit. The scope of the services provided by the Chinese inspectors is limited to low-technology items such as Pillsbury canned mushrooms. Their fee is a reasonable .05 percent of the value of the shipment.

Efforts are also being made to teach the Chinese after-sales services. Cummins Engine Company, Combustion Engineering, and Boeing have organized training programs for Chinese here in the US. Select Machine Tools on the West Coast and the Havleck Corporation in Toronto have arranged through EQUIMPEX to train Chinese technicians at their facilities.

The lack of servicing and spare parts is one of the main reasons that firms currently are wary of buying more than just parts in China. Indeed, companies that have considered processing entire pieces of machinery and equipment have discovered that spare parts are not made in China until needed, at which point the factory undertakes their manufacture.

Select Machine Tools has a staff of four Chinese technicians, who are considered company employees. The Havleck deal is actually a joint venture with EQUIMPEX to service lathes, milling machines, and gear holdings.

Both arrangements are important developments in that they increase the possibility of future improvements, and make it easier for companies to justify the current costs and risks of trade.

Subcontracting also fits that purpose nicely. By working with the Chinese on a small scale, firms are essentially buying the time necessary to introduce China to our way of doing business. The hope is that subcontracting small parts today will mean bigger profits tomorrow.

Helen Kauder is a senior at MIT majoring in economics. She spent a year in Taiwan studying Chinese before joining The CBR *staff as a summer intern.*

The First Nuclear Power Projects

In a epic test of self-reliance, Zhejiang "728" will be designed and built with very little technical assistance from abroad and even less imported equipment.

Martin Weil

China's off-again on-again plan for a 1,800 megawatt nuclear power plant in Guangdong to be developed with foreign technology and Hong Kong equity participation has attracted international attention for several years. Recently, the request to a number of US engineering firms for cost estimates for the plant, and an informal comment by the governor of Guangdong to the governor of Hong Kong that the project has at long last received definitive central government approval, have stirred up excitement.

But in fact, bureaucratic and commercial hurdles still make the project's realization uncertain. Central approval, by contrast, has already been granted to an experimental 300 mw plant near Shanghai being developed for the most part by the Chinese themselves. Although foreign observers believe this project will prove more difficult technically than the Chinese anticipate, it nonetheless stands the best chance of becoming China's first nuclear power facility.

Foreign companies, therefore, cannot count on China to fill the void created by the recent decisions of many countries to suspend or cancel new nuclear power plants. US companies face the most difficult situation of all, due to the seeming impasse in negotiations between the US and PRC governments over a nuclear cooperation agreement, without which they are not permitted to sell nuclear technology.

Nuclear Power Policy

The Chinese leadership has obviously not reached a firm consensus on the role of nuclear power, which means that its contribution to the country's total energy picture will remain insignificant for the foreseeable future. Communist Party Secretary-General Hu Yaobang's recent statement to Agence France-Presse that China would construct more than 10,000 mw in 10–20 years, as well as periodic press reports that six plants would be constructed in Guangdong, Shanghai, and Liaoning represent only the wishful thinking of China's nuclear lobby.

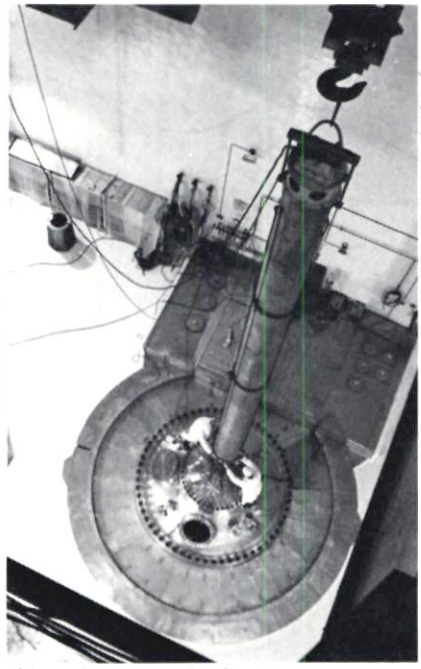


Photo by Li Jilu, New China Pictures Co.

China's first pressurized water reactor, completed in Chengdu, Sichuan Province, in 1980. Success on this 125-megawatt test reactor encouraged the Chinese to go ahead with a 300-megawatt nuclear power plant near Shanghai.

Hu's authoritative position indicates that the Chinese leadership may have issued a vague, general approval for such a plan. But several issues are causing the Chinese to hesitate before embarking on a major nuclear development program:

▶ The tremendous construction expenses involved, in an era when retrenchment is still the norm (see *The CBR*, January–February 1981, p.32).

▶ Other options exist. China is endowed with enough fossil fuels and water resources to theoretically meet its energy needs without resorting to nuclear power. The argument has been that certain major-energy-consuming areas are located far from coal and hydro resources, and can be more economically supplied by nuclear energy. But it seems doubtful that all alternatives—such as minemouth coal plants and/or large hydro developments in conjunction with high-voltage transmission lines—have been studied in sufficient depth to give a final answer. Meanwhile, coal and hydro advocates are challenging the need for nuclear power. The State Council does not seem to have chosen between the grandiose schemes of the various interests.

▶ A concern for safety. Although very little has been said pubicly about the matter, numerous sources report that the Three Mile Island accident in the US raised a number of doubts for the Chinese. Fishing interests are known to have raised questions about China's two proposed coastal plants.

In short, there is no vocal anti-nuclear lobby in China. But a diverse group of interests has raised questions

behind the scenes that are contributing to Beijing's caution in proceeding with nuclear development plans. Secretary General Hu himself indicated as much in his AFP interview.

Pronuclear Pressures

The pronuclear lobby, by contrast, is quite vocal. This group is strong enough to have won a commitment from the government to develop a 300 MW nuclear power plant near Shanghai.

Regional interests form a part of this lobby. Nuclear power is seen as a way to reduce local dependence on potentially hostile outside bureaucracies, such as the ministries of railroads, communications, and coal. The amount of uranium fuel required is small, and in the cases of Guangdong and Liaoning, can be produced within the provinces. The appeal also rests on a powerful economic argument: China's over-burdened transportation system probably could not supply every corner of the country with enough coal.

Besides the regional lobby, there is China's nuclear industry, represented in the Ministry of Nuclear Industry (formerly the Second Ministry of Machine-Building) and the Science and Technology Commission. The priority given to China's nuclear weapons development since the mid-1950s has made this group the country's premier scientific and technological elite.

When China experienced its first painful readjustment after the Great Leap Forward in 1960–1962, resources still poured into weapons development. Nuclear scientists also were spared from the ravages of the Cultural Revolution. The elders of China's nuclear power establishment such as Professor Wang Ganchang, are China's Tellers and Oppenheimers. The momentum behind the nuclear industry was such that by 1970, former Premier Zhou Enlai reportedly gave the State Council and Communist Party's go-ahead to begin nuclear power development.

Spurring on the Chinese was the conviction that nuclear power was the wave of the future in developed countries. As late as 1981, an article by one of China's foremost nuclear advocates stated, "In light of international experience, it is correct to say that the overall functions of nuclear power stations are evidently superior to . . . coal or oil-fueled stations."

Now, just as China is about to enter the age of nuclear power, many countries, including the US, seem to be taking a step backward from nuclear power for reasons such as cost, government regulations, reduced power demand, and safety. Whether the new skepticism about nuclear power will influence China is difficult to predict. But enough impetus is there to result in at least one nuclear power plant in China.

A Boost for Self-Reliance

The State Council's approval for the Zhejiang 300 mw plant represents a major triumph for believers in self-reliance. The Chinese intend to design and build most of its machinery themselves, importing only a few key components—reactor coolant circulating pumps, several lesser pumps, and the neutron flux-mapping system, as well as a few complex castings and forgings. Despite an earlier request to foreign companies for turbine-generator bids, the Chinese have apparently decided to build the generator themselves.

Even the name of the project strikes the self-reliance theme. "728," which is also the name of the Shanghai institute in charge of the design, reportedly stands for 1970 (7), February (2), and Eight (8), the date that Premier Zhou authorized commencement of domestic R & D.

The project has had its ups and downs. The political turbulence of the Gang of Four era slowed work. And in 1978, a tentative decision was made to acquire nuclear technology and equipment from outside. China was on the verge of signing contracts with Framatome of France in early 1979 for two 900 mw plants near Shanghai.

But fortunately for those involved with 728, readjustment struck first, and along with it, a swing back toward self-reliance. As early as March 1980, Chinese nuclear officials were confident enough to tell foreigners that 728 would go ahead, and by early 1982, the Ministry of Nuclear Industry was soliciting company bids for the foreign components. The ministry told at least one company that the State Council had allocated $100 million in foreign exchange for the project.

The self-reliance current, it should be emphasized, runs strongly in the nuclear industry. The accelerated development of nuclear weapons after the cutoff of Soviet assistance is unquestionably the greatest technical triumph chalked up in the name of self-reliance, and has done much to feed the Chinese belief that self-reliance can accomplish major feats. Personnel transferred from the weapons program run 728.

This does not mean that there are no influential advocates calling for the importation of nuclear technology. There are such people within the Nuclear Ministry itself, including Wang Ganchang (who studied for years in the Soviet Union). These people generally line up behind the Guangdong project, which is the opposite of 728 in that it will rely heavily on foreign technology and funding.

Some elements in the ministry are trying to accommodate both points of view at once. They recommend greater use of imports and the simultaneous development of 728 indigenously in the hope that the two will complement each other (notwithstanding the fact that the sponsors of the two projects, according to some company accounts, are not on the friendliest of terms). But as things stand, 728 will definitely proceed, whereas the Guangdong project is still only a "maybe."

The 728 Project

To the surprise of many foreign observers, who felt that China could only build a nuclear power plant using the heavy water technology developed during its weapons program, the 728 plan incorporates the pressurized water reactor (PWR) technology pioneered by Westinghouse. The latter is by far the most commonly used throughout the world. It is considered more advanced, largely because there is no direct contact between the steam from the nuclear reactor and the steam powering the turbine generator. This allows for the construction of separate nuclear and turbine generator "islands."

An important milestone was reached in 1980 with the completion of a 125 mw (thermal) PWR test reactor in Sichuan, which the Chinese claim proves their ability to go ahead with the 728 plant.

Design institutes under the nuclear ministry are still toying with the idea of a heavy water commercial reactor, and, according to the *JETRO China Report* of November-December 1981, there are plans to construct a 125 mw heavy water plant in Hunan Province. The 728 plant, however, clearly has higher funding priority.

The 300 mw size of 728 is far smaller than would be considered economical in the West, but the Chinese feel it is more manageable for a first try. This underscores the fact that the economics of power planning is not the primary consideration behind 728.

The site will be located in Haiyan County, Zhejiang, along the coast about

50 kilometers from the Shanghai border, *The CBR* has learned. All contemplated sites involved seawater cooling. Originally, Shanghai municipality and Jiangsu Province were under consideration, but the high water tables and soft ground eventually eliminated them. Unlike the Baoshan Steel Mill, a nuclear power plant cannot be built on piles.

Most companies believe the Chinese are still in the conceptual engineering phase. But the New China News Agency announced that "the preliminary stage of construction is fully underway," meaning that some equipment is already being manufactured, together with "related materials," which presumably means fuel. China is believed to be developing uranium fuel rod fabrication facilities on its own. It already possesses enrichment capabilities. The report claimed that 324 of the 423 equipment design projects involved in the project have been completed.

Hitachi, Westinghouse, General Electric, Borg Warner, and Kraftwerke Union (West Germany) are all preparing bids for the foreign components. US firms, however, will only be able to make turbine-generator sales if and when the US and China reach a nuclear agreement. With the aid of the foreign components, the Chinese hope to complete the project by mid-1988.

The 728 Design Institute in Shanghai is in charge of overall design, though the administration of the project is quite complicated. A 728 construction preparation team is supervising overall construction, but may overlap with a project preparation team under the Ministry of Nuclear Industry which will apparently run the nuclear island.

The Southwest Research Institute outside Chengdu, Sichuan Province, will build the actual reactor. While other manufacturing facilities under the Nuclear Ministry will build some other components, factories under the Ministry of Machine-Building, including the Shanghai Boiler Works, will be needed for some of the tubing and pressurizers for the steam generator. The East China Electric Power Design Institute will provide transformers and switchyards, while the Zhejiang Power Administration probably will run the actual generating station.

Safety

The Chinese attach great importance to safety, but are still feeling their way as to how to proceed at 728. They have shown interest in basing their own safety codes on those of other countries, including the US. But officials of the US Nuclear Regulatory Commission have pointed out that it would be difficult for China to simply adopt the US code, since it lacks a computer capable of processing the code and because US standards are closely tied to US manufacturing practices that undoubtedly differ greatly from those in China.

Draft standards for site selection have been proposed by the Ministry of Electric Power, but not without some controversy. The October 1981 issue of *Dianli Jishu* (Electric Power Technology) carried discussions and debates on ▶ whether to base the accident standard in the design on the melting of the core, as in the US, or on the melting of the fuel rod shells, ▶ how to calculate earthquake probabilities, and ▶ how to calculate the "maximum flood level," above which all stations must be located.

Emergency cooling and reactor containment are integral parts of the design. The Chinese are apparently talking about a 47,000 cubic meter shell that could resist 2½ atmospheres, and a "three train" (triply safeguarded) cooling system—one more train than customarily used in the US.

The biggest concern about waste disposal appears to be avoiding contaminating fisheries. At both 728 and the Guangdong project, pressure from fishermen has apparently led to plans to dump low-level wastes some miles out to sea. So-called thermal pollution does not seem to be a major concern, as there is no discussion of cooling towers for either 728 or Guangdong. Indeed, company observers believe that the Chinese might actually welcome the effect warmer water would have on fish-life.

Can It Be Done?

Outside observers agree almost unanimously that 728 is an overambitious project. The Chinese do not adequately appreciate, in the view of many foreign experts, the complexity of the engineering task they face and the potential for problems. Upscaling from a 125 mw test reactor to a 300 mw power reactor, for example, is immensely complicated. One company already detects signs that operating the test reactor at high pressures is proving difficult.

The Chinese lack of experience is reflected in the requests to companies for components bids. Instead of the two-inches-thick specifications the companies expect from their regular customers, the Chinese have only submitted five pages. Developing the specifications will require much more time.

The Chinese are allowing no time for slip-ups, however. One executive notes that the Chinese schedule, calling for completion of construction by 1988, would be considered "fast track" in any country. Since much of the component testing remains to be done, the fast track is virtually impossible, he feels. In addition, many companies question whether China's metallurgical technology is up to par for some of the more difficult components.

But the Chinese, emboldened by their military nuclear successes, are pressing on. While recognizing the usefulness of foreign assistance, they seem determined to limit this assistance to technical seminars (provided free by foreign companies) or perhaps studies of individual design problems. In other words, companies probably will only review Chinese plans, or troubleshoot. Given the differences in the construction engineering systems used in China and the West, it is unlikely foreign firms could take on a larger role, such as construction management, even if they were invited to do so. In China, unlike in the US, time is not necessarily money.

The 728 project then, will be one of self-reliance's epic tests. As one company representative confessed, "I am both optimistic and pessimistic at the same time. The Chinese often do not know things we would expect anyone to know. But then they surprise us by knowing things we would never expect them to know."

The Guangdong Project

The Guangdong nuclear power project is one of the most intricate, expensive, and politically dicey deals China has discussed with foreigners. It is perhaps for these reasons that it has proven, and will continue to prove, difficult to consummate.

The 1,800 mw project (using two 900 mw reactors) was conceived in 1980 as a 60-40 joint venture between Guangdong Province and the China Light and Power utility in Hong Kong. The concept was for China to finance the project by exporting part of the power to Hong Kong. This would give Hong Kong the increased power it needs without having to build a larger facility than it can use.

The project would also tie China and Hong Kong together in a dramatic way, easing concern about the territory's future after the 1997 expiration of the

New Territories lease. The British government encouraged it strongly on these grounds, and also because it represents a business opportunity for British machinery exporters. The French are aggressively pursuing the project, but there is reportedly an understanding with Hong Kong to try to use Westinghouse's British licensee as the contractor in conjunction with Westinghouse. The parent company would supply parts of the nuclear generator that its British licensee could not make.

Also driving the project was the eagerness of both sides to gain access to nuclear technology. Guangdong plucked nuclear expert Wen Rui from the Ministry of Nuclear Industry to head the project. Guangdong and Hong Kong, with some assistance from Quadrex Inc. of California, then rapidly executed a feasibility study which "proved" that a nuclear plant was economical, and that a joint venture was commercially viable. In early 1981 this study was forwarded to Beijing for approval.

Trapped in the Bureaucracy

Since the proposal was submitted, work has not completely stopped. A site on Dapeng Bay has been selected, about 70 kilometers northeast of Hong Kong. Although the site is located over a faulted area, the rock is hard granite, and both the Chinese and Hong Kong sides are satisfied that seismic activity does not present any safety problems. The PLA Navy reportedly vetoed the first and most attractive site under consideration during the feasibility study.

For the most part, however, the project has become bogged down in one of the PRC's most publicized interagency reviews. The central government reportedly approved the project "in principle" months ago, but Beijing is not about to allow an independent-minded province to build a nuclear power plant without supervision. Numerous organs under the State Council must pass on various aspects of the plan or participate in its implementation—including the ministries of Power, Nuclear Industry, Foreign Economic Relations and Trade, and possibly Machine Building, as well as the State Planning Commission and perhaps the Bank of China.

Not all of these agencies see eye-to-eye on the issue. The Ministry of Water Resources and Electric Power, for example, seems more enthusiastic about foreign participation than the Ministry of Nuclear Industry, which is more inclined to take a self-reliance position. Commercial sources say that a truce may have been reached between the two sides, perhaps based on a commitment to involve the Nuclear Ministry heavily in the construction phase.

In a classic move to avoid an immediate decision on the matter, a couple of months ago the State Council reportedly asked for more detailed study on several issues, including safety and finance. It called for a series of committees to be established at the ministerial and provincial levels to conduct studies.

The late July requests for cost estimates made to US engineering firms—Brown and Root, Gilbert Commonwealth, Bechtel, and Gibbs and Hill—seem an attempt during this review process to eliminate confusion caused by conflicting earlier estimates. Companies note that the request included such items as workers' housing costs and did not show a particularly high level of sophistication about the nuts and bolts of nuclear power plant construction. The fact that the companies

were only given three weeks to respond suggests a need to meet some internal deadline in the review. Observers speculate that the timing was linked to an August meeting between the Chinese and Hong Kong sides, and perhaps meetings with watchdog agencies in Beijing.

Predictions differ as to what the Chinese bureaucracy will do next. Many companies believe, on the basis of what Chinese officials tell them, that the project is moving slowly but inexorably towards approval, that it has already been passed by several ministries and commissions, and that within a year or so, firms will be invited to bid. The governor of Guangdong Province apparently indicated as much to the governor of Hong Kong in late August.

China's past performance on major projects, however, suggests that when the bureaucracy gives contradictory signals, as has been and remains the case for months in this instance, delays can be expected until all decision-makers are in line.

The feasibility study purported to demonstrate that a nuclear station is more economical than a coal-fired one, but it is interesting that in late 1981 the State Council ordered accelerated construction of the 1,200 mw Shajiao coal-fired station in Dongguan County, just outside Guangzhou. Clearly, central planners consider coal a viable short-term alternative to nuclear energy. China Light and Power is also building large coal-burning facilities at a rapid clip. Observers point out, though, that China could combine short-term coal use with long-term nuclear planning without relying exclusively on either.

Presuming that the State Council eventually swings more firmly behind the project, it is unlikely there will be one final "approval." Beijing will be reviewing a project of this magnitude every step of the way, which means that opponents will have more than one chance to fight.

In fact, the State Council is setting conditions already, insisting that Guangdong obtain "favorable" rates on financing (the feasibility study assumed 7 percent interest), funds the project entirely through electricity exports to Hong Kong, and that no agreement be signed that would allow foreign inspection of the facility to ensure the nonproliferation of nuclear weapons technology. Secretary Hu reiterated the financing condition in his August interview.

One informed company reports that the State Council has set another condition, namely no central government responsibility for loan guarantees to foreign banks. As no company is likely to participate under such conditions, approval with this proviso would probably doom the project without direct State Council rejection.

Certainly, a purchase promise cannot be considered as firm a commitment as equity participation and any number of factors could change Hong Kong's attitude in the next 10 years. If the Hong Kong connection falls apart, it is hard to see how the project could continue.

The US government's failure to conclude a nuclear cooperation agreement with China also complicates the commercial negotiations. This means that Westinghouse and its British licensee are blocked from selling the nuclear island. Under the proposed arrangement, the British licensee would provide about 70 percent of the hardware, and Westinghouse the remainder. Guangdong gives every signal that it would like to deal with Westinghouse directly, rather than through its French licensee Framatome, the only other practical alternative. The British government pressured Washington to try to resolve the issue so that Prime Minister Thatcher could discuss the Guangdong project during her September visit to China, but apparently to no avail.

The rapid development of nuclear weapons after the cut-off of Soviet assistance in 1960 is unquestionably the greatest triumph chalked up in the name of self-reliance. It did much to feed China's belief that self-reliance can accomplish practically anything.

Commercial Tensions

The loan-guarantee issue highlights the fact that more than internal Chinese approval is required to build the project. The Chinese must also reach agreement with the foreign interests involved, which may not be easy.

The Hong Kong and Guangdong joint venture partners already disagree over how the project should be run. The Hong Kong utility, unsure that China can assimilate the technology without help, wants to take charge of guiding the contractor and operating the plant for a period of up to 10 years, gradually turning over management authority to the Chinese. The Chinese, predictably enough, not only want control over the project, but are demanding "total" technology transfer from the suppliers, a stipulation as difficult to enact as it is vague.

Partly as a result of the disputes, the Hong Kong utility is reliably reported to have dropped its proposed equity share to 10 percent in recent months. This in itself would not necessarily kill the project. It would effectively solve the problem of control in favor of the Chinese.

The key question, however, is whether Hong Kong would maintain its purchase commitment for 40 percent of the power at the beginning stages of operation. Although no negative signal has emerged from Hong Kong yet, some business executives think that lower projected demand and the crash development of four 600 mw coal-fired units at the utility's Castle Peak plant—due to be completed in the late 1980s—mean that Hong Kong no longer needs Guangdong nuclear power so urgently.

If the Chinese central government were to insist on 7 percent financing (as it shows signs of doing) this would also work against the US and Britain—as neither the British or the American Exim banks could meet the terms. The French, though, are notorious for financing nuclear power plant exports at concessionary rates. Former President Giscard offered China an annual rate of 7.5 percent two years ago. If the French were offered the contract, however, it might well reduce Hong Kong's enthusiasm.

The Hong Kong–Guangdong nuclear joint venture, so attractive in theory, must therefore overcome many complex hurdles before it becomes a reality. This seems likely to happen only if the Chinese central government moderates some of its conditions, and supports the project more firmly than it has so far.

The Elusive US–China Agreement

Negotiations appear stalled over the issues of on-site inspection, and China's refusal to sign the UN Nuclear Nonproliferation Treaty.

Martin Weil

Negotiations between China and the US for a bilateral nuclear agreement are at an impasse. Without such an agreement, US firms will continue to be forbidden by law from doing nuclear-related business with the PRC.

Former Deputy Secretary of State Walter Stoessel, speaking at the National Council's June annual meeting said, "We have been conducting discussions with the Chinese on the possibility of an agreement for peaceful nuclear cooperation." But it appears that in recent months the government agencies concerned have been unable to present even a position or options paper to President Reagan, let alone move toward an agreement with the Chinese. There have been no high-level talks between the two countries since Assistant Secretary of State for Oceans and Environment James Malone visited Beijing in September 1981.

One of the major sticking points has been the Chinese reluctance to comply with the demand the US ordinarily makes of its nuclear cooperation partners to open their nuclear facilities to outside inspection. This is supposed to ensure that no materials are being diverted to nuclear weapons development, and the issue is of particular concern to many on Capitol Hill. But the inspection question has been overshadowed in recent months by executive branch suspicions that China is supplying nuclear materials and possibly technology to countries believed to be developing nuclear weapons. It is this latter possibility that seems to be the main cause of the current impasse.

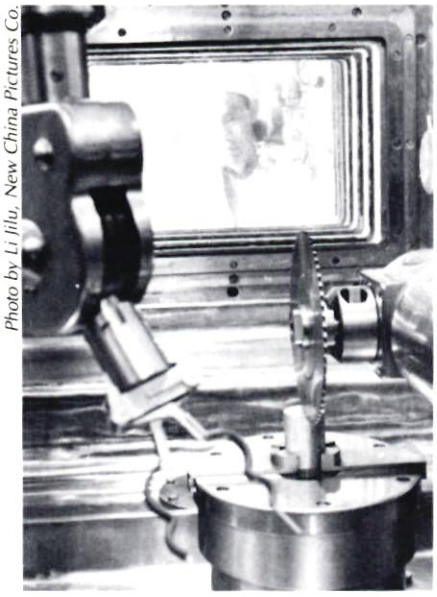


Photo by Li Jilu, New China Pictures Co.

Chinese scientist manipulating samples in reactor hot cell.

To the extent that China is exporting nuclear materials without receiving safeguards against diversion for military use, it is certainly undermining America's nonproliferation policy. Restrictions on exports of nuclear raw materials and fuel processing technology are the main weapons being used by countries committed to nonproliferation. The Reagan administration is trying to eliminate what it views as unnecessary restrictions on US nuclear exports, but it cannot consider cooperation with a country that is selling nuclear materials to weapons-developing states. The problem is that the Chinese may well be the victims of false accusations in some of the controversial cases.

Chinese Nuclear Exports

The source of the controversy is China's decision in the last two years to export for hard currency part of the excess uranium and heavy water stockpiled for its own military program. One informed source estimates that several million pounds of U_3O_8 are available in various forms, including "yellowcake" (unenriched ore) and enriched uranium (UF_6), which is the immediate raw material for nuclear power plant fuel.

Following a pattern that has come to characterize China's more decentralized economy, several different organizations appear to be involved in the marketing effort, including the China Nuclear Energy Industry Corporation, a subsidiary of the Ministry of Nuclear Industry which controls all of China's uranium mines and processing plants, and MINMETALS, the specialized minerals and metals trading arm of the Ministry of Foreign Economic Relations and Trade. The CNEIC has floated the idea of supplying Europe with uranium in exchange for technical assistance to China's uranium processing industry. Even the Ministry of Metallurgical Industry has talked with companies about exporting by-product uranium from gold mines.

China's exports have not been large compared with other supplying countries. Small amounts of heavy water and uranium have gone to Japan and to Swiss middlemen. The Federal Republic of Germany is also rumored to have made some purchases, although this cannot be confirmed. One factor limiting sales has been the typical Chinese insistence on high prices, at a time

when the falloff of nuclear power plant construction throughout the world has made the market fairly soft for many kinds of nuclear materials.

It is the manner in which the Chinese have been exporting, rather than the volume exported that has disturbed the US government. New to the nuclear export scene, the Chinese, at least at first, did not seem to act firmly to prevent middlemen from reshipping Chinese materials to suspected weapons-developing states. The US government, for instance, has discovered a trail of Chinese heavy water that led through Swiss intermediaries to Argentina. The *Mainichi Daily News* reported on February 28, 1982 that MINMETALS approached Japanese companies to sell heavy water and enriched uranium that would have ended up in India and Pakistan. The paper added that the Japanese turned down the Chinese offer in at least one instance due to US pressures. The US also made a vigorous after-the-fact protest to China about the suspected Argentine shipment.

The South African Charge

The report attracting the most attention—apparently originating in the US government—concerned China's purported sale of enriched uranium through Switzerland to South Africa. *The Washington Post* printed the allegation on November 19, 1981.

The South Africa charge brought forth vehement denials from Beijing, obviously worried about its political standing in the Third World. The New China News Agency, while admitting that China exports "a limited quantity of nuclear materials," noted that the PRC "has required and obtained commitments from all buyers that they will never transfer the nuclear materials to a third country, particularly South Africa and Israel, or use the same for nonpeaceful purposes." The broker involved in South Africa's uranium purchases for its Koeberg nuclear power plants, Edlow International of Washington, DC, also emphatically denies that the material originated in China. Although some US officials may still believe that some Chinese uranium landed in South Africa, it seems quite possible that the charge was, as the Chinese termed it, "totally unfounded," the result of a misreading of ambiguous intelligence data.

The embarassing publicity, however, appears to have had the effect of spurring the Chinese to a more serious effort to accomplish what they claimed to have done all along; namely, controlling reexports of their nuclear materials. Sources indicate that in recent negotiations with Swiss purchasers, the Chinese have for the first time demanded government-to-government assurances for peaceful use and nontransfer. This development pleases the US greatly, although some government officials would like to see the Chinese go even further and demand "non-explosive" rather than merely "peaceful" use of nuclear materials (to cope with contingencies such as India's 1974 explosion of a "peaceful nuclear device").

But as China tightens policy, new allegations arise about the transfer of Chinese uranium enrichment technology to Pakistan. The Pakistani issue, even more than the South African case, raises questions about the reliability of US intelligence analysis, and of factional dispute within the US government.

There have been rumors for years that China has been assisting Pakistan, its longstanding ally, in weapons development, but none has ever been proven. Some of the rumors originated with the Soviet Union, which can hardly be considered a reliable source on the matter. Sources say that the US received the most recent information from the intelligence agency of a friendly government. That government, according to the sources, does not attach nearly as much significance to the information as the US does.

Information on such a sensitive topic as covert uranium shipments or technology transfers may never be completely clear. The more uncertain the data, the more likely it is that prejudices or the bureaucratic interests of the analyst will color the results. Observers believe this may be happening in the Pakistani case, which all acknowledge to be harder to prove than the Argentine heavy water shipment. Sources say that certain quarters in the State Department attach credence to the idea of China as a "wild card" nuclear supplier, and are thus naturally inclined to take the Pakistan information more seriously.

It seems likely that the US government is seeking clarifications from China to prove or disprove the matter, even as various US agencies debate the issue behind the scenes. The government probably is trying to get the Chinese to adhere to a general export code that is compatible with US nonproliferation policy.

Behind the dispute over the veracity of intelligence reports lies a more fundamental issue: Can the US government trust Chinese assurances that China will not divert US-supplied nuclear technology to third parties? Those in the US government with the most experience with China argue yes, but there is still no consensus within the government on how to proceed with negotiations, or whether to submit a position paper on the matter to President Reagan.

Inspection and Safeguards

Setting aside the problem caused by China's uranium exports, is it realistic to expect China and the US to ever reach a nuclear cooperation agreement? At first, the answer might be negative, given the historical differences between the two countries over the nonproliferation issue. Nonproliferation has been a paramount concern of US foreign policy since the 1950s, and US law binds the government to the stiffest restrictions in the world on nuclear exports. China, however, has championed Third World opposition to the perceived attempt by developed countries

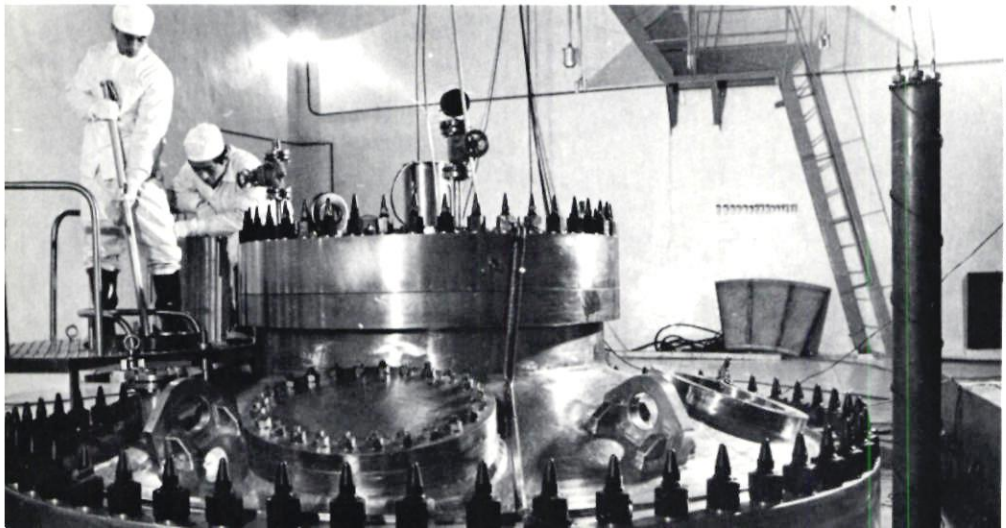


Photo by Li Hiu, New China Pictures Co.

Preparing research reactor for radioactive isotope production.

to preserve their nuclear monopoly. In 1964, China became the first Third World country to develop nuclear weapons. In fact, the Soviet Union's efforts to place restrictions on its nuclear assistance to China was probably the most important cause of the Sino–Soviet split.

Though the political orientations of China and the US differ, there may still be some areas of common ground. The New China News Agency statement on the alleged South African uranium sale that contained the language "or use the same for non-peaceful purposes," strongly suggests that it is Chinese policy to limit the spread of nuclear weapons, even though China has failed to subscribe to the UN nonproliferation treaty on grounds that it legitimizes the superpowers' nuclear superiority.

The Reagan administration, at the same time, is clearly interested in adopting a less restrictive policy toward China than it might toward other countries. The underlying logic is that the US nonproliferation law is designed to prevent nations from obtaining nuclear arms capability resulting from commercial nuclear power development, whereas China already has a nuclear weapons capability.

The language of the US nuclear nonproliferation act calls for "safeguards as required by Article 3 Section 2 of the UN Nuclear Nonproliferation Treaty." As Article 3 Section 2 does not stipulate safeguards for weapons states, the State Department interprets the law to mean that none of the strict safeguards need apply to China. In other words, the Chinese might not be required to open all their nuclear facilities to periodic inspection by the International Atomic Energy Agency (IAEA) to ensure that materials are not diverted to a weapons development program.

The executive agencies involved in setting nuclear export policy—mainly the State Department, the Arms Control and Disarmament Agency, and the Energy Department—see the need for safeguards against the diversion of materials from Chinese reactors built with US cooperation. But the prevailing sentiment within the administration is that these safeguards can be administered on a bilateral basis, rather than through the IAEA. In fact, the safeguards might not involve formal inspection visits, in the view of many government officials. Working levels in the US bureaucracy have been considering alternative means of inspection, such as "study visits" to each country's facilities arranged under a government-to-government nuclear cooperation program or US companies' reports to the government about what they see in Chinese plants.

These schemes are all devised to accommodate China's flat refusal to accept formal inspection of their facilities by either the IAEA or the US government on the grounds that either would violate Chinese sovereignty. China has so far refused to even join the IAEA, charging that it is super-power dominated.

What the Chinese reportedly are willing to offer is a promise to devote any reactor involving US assistance to peaceful use only. To buttress the credibility of this promise, the Chinese point out that it is more economical to obtain weapons-grade materials from existing Chinese military reactors than from nuclear power plants.

During Assistant Secretary of State Malone's trip to China in September 1981, these familiar positions were reiterated. The Chinese listened to US ideas about alternatives to on-site inspection. Most of the US agencies involved are eager for another round of talks to explore the possibility of compromise in greater detail, and feel that the Chinese might well be receptive.

Since Congress must approve any nuclear agreement, however, feelings on Capitol Hill have given the administration pause. Formidable opposition is apparent on two fronts: those demanding strict safeguards and on-site inspection, and conservatives who look skeptically on nuclear technological cooperation with "Communist China". The first group (mainly but not exclusively liberal Democrats) maintains that the appearance of an exception for China undermines America's nonproliferation policy in other countries. The US requires IAEA inspection in its nuclear power cooperation with Britain and France, both members of the nuclear club; therefore, treating China more leniently would set an unfortunate precedent, opponents argue. Many on Capitol Hill want some assurance that the PRC considers itself part of the international nonproliferation community, either through a commitment to join the IAEA, or by signing the UN nonproliferation treaty.

The administration's problems with Capitol Hill are probably more difficult now than they would have been a year ago. The nonproliferation advocates have been aroused by what they regard as a series of "soft" administration actions toward other countries, and the conservatives are upset with the administration's decision on Taiwan arms sales.

Prospects for Agreement

A prerequisite for any US–China nuclear agreement is Chinese adherence to guidelines restricting its nuclear exports to consumers who will use them peacefully. Even assuming the sensitive negotiations on this issue bear fruit, however, the prospects for US–China nuclear agreement are uncertain.

On one hand, there is pressure from business, and to some extent from the British government, which is eager to see British firms (in cooperation with Westinghouse) win a nuclear power contract in Guangdong Province. But on the other hand, Congressional leaders could force the administration to demand compliance with America's traditional nonproliferation policies.

One of the major unknowns in the equation is how much flexibility the Chinese will show when earnest negotiations for an agreement begin. All the Chinese have presented so far is their initial hard-line position, many observers feel. Given what is thought to be a Chinese preference for acquiring Westinghouse pressurized water reactor technology directly from the American company, it is possible that there will be more pressure in China for a compromise if and when the Chinese give a final go-ahead to the Guangdong project. A clear go-ahead signal from the Chinese would also increase the pressure on the US, and particularly on Capitol Hill. If the Chinese are not serious about the Guangdong project, as some US government officials believe, the likelihood of a US–China nuclear agreement is considerably smaller.

In the end, the possibility cannot be ruled out that a sale to Guangdong will go to the French, rather than to the US. President Carter gave his approval, through COCOM, to what seemed like an imminent French sale in 1978. In practice, it would be extremely difficult for President Reagan to block the sale. The French seem content with the peaceful-use assurances that the Chinese have offered, and face none of the legal barriers that confront the US administration. China, perhaps more than any other case, highlights the difficult choices the government faces between remaining true to nonproliferation ideals and promoting US business.

Lumber Sales from the Pacific Northwest

The depressed US log industry has captured a significant share of the China market. Experts wonder if demand will continue to rise when the price does.

Henry J. Groen

China has become a very significant export market for US softwood saw logs in the last two years, and an upward trend appears to be establishing itself. Although still well behind Japan in volume, China is now the second largest foreign purchaser of US timber. Favorable US prices and stagnant growth in China's domestic timber production are the probable reasons behind the steep rise in imports.

The new buyer is welcomed by many in the depressed Pacific Northwest, where 90 percent of US exported logs are harvested. China's recent entry is particularly timely, since Japan has reduced its log buying due to its slumping economy.

US log and lumber imports have made dramatic gains in China since 1977. Sales of softwood logs, for example, went from practically zero in 1979 to 203 million board feet (bd. ft.) last year. Japan, while still the United States' biggest customer, decreased its purchases during the same period: 3.1 billion bd. ft. in 1979, down to 1.8 billion bd. ft. in 1981. Based on industry sources, China's purchases of US softwood logs in 1982 will approach 500 million bd. ft., or 2.5 million cubic meters.

The projected quantity of US softwood logs that China will buy this year represents only about 5 percent of China's domestic timber production.

American exports are 65 percent Douglas Fir, 25 percent Western Hemlock, and 10 percent Spruce and miscellaneous other categories. Almost all are US Grade Number 2 Sawmill and better. The logs feed into China's eastern, northern, and northeastern sawmills, many of which are part of integrated woodworking complexes. The largest is the Beijing Woodworking and Furniture Factory, a 200-acre complex composed of a sawmill, plywood plant, particleboard and hardboard plants, panel finishing plant, and numerous wood-working and furniture-making facilities.

A big consumer of this wood right now is the Japanese-financed port project at Shijiusuo, Shandong Province, and the railroad project that eventually will connect Shijiusuo with Yanzhou. The 300 kilometer double-tracked railway, which will carry unit trains of coal eastward, is being built with wooden cross ties. Bridge trestles and numerous buildings on the railroad and in the port will require huge quantities of wood before their completion, perhaps by 1985.

Only a handful of US log companies have a real stake in the China business. Weyerhaeuser dominates the field, providing over half the logs that China buys. Weyerhaeuser's size, coupled with its huge holdings of private timber land, ensure its future dominance in this market. ITT Rainier ranks second as a log seller to China. Caffall Brothers Forest Products of Portland, highly experienced in Japan, ranks third and is gaining quickly in importance. In general, the major American log exporting firms deal directly with China, though

Photo by Li Kaiyuan, New China Pictures Co.

Centuries of overcutting have left China short of timber. Above: a narrow gauge train pulling timber in Nanping, Fujian Province.

some of the trade is conducted by smaller log companies through intermediaries in Hong Kong and Japan.

Few firms can manage the full financial risk of cutting, storing, and transporting the logs to foreign ports, given the tight profit margin in today's buyer's market. Ships that are contracted from international carriers must be tightly scheduled to ensure availability and avoid cost overruns. The high cost of holding inventory under current interest rates makes timing even more important.

Until now, problems with China such as incorrect or late letters of credit, or contract misunderstandings, have caused only minor delays and cost increases. (The Japanese presented the same types of problems when they began buying logs.) However, the Chinese have introduced one business condition that is posing serious difficulties for some US exporters. They are insisting on inspecting the cargo after it is assembled and ready to load. And they are making this a negotiating term of their letters of credit.

Standard operating procedure in the Pacific Northwest is for both the buyer and seller to rely on independent log-scaling companies to rate the quality and board feet volume of each log that is sold. All scaling companies conform to a uniform grading standard.

As logs are trucked into the holding yards, they are graded, measured, and then permanently tagged. Once a cargo is sorted and made up according to contract specifications, it is ready to be loaded on the ship. To have a cargo inspected—let alone rejected—at this point, even though it meets the designated scaling bureau's grading rules, means a significant cost to the exporter. Workers must break open the loads manually to release the logs for inspection. The exporter in the meantime must either hold the ship at port if there is an extended delay, or try to trade it to another exporter. Keeping the ship beyond the contract schedules usually costs the exporter about $6,000 a day in demurrage costs.

China already has rejected whole cargos in this manner, largely because of disagreements with the grading system. The Chinese and the Americans have been operating under different ideas of what is required in a No. 2 Sawmill log. At present CHINATUHSU, the China National Native Produce and Animal By-Products Import-Export Corporation, is educating US log suppliers about China's requirements in a No. 2. The new standard log will be called the C-Sort, once everyone reaches agreement, just as logs purchased by Japan are called the J-Sort.

Once the criteria are established, American companies will want the Chinese to agree to an independent scaling of the C-Sort. This would ensure against unexpected changes in criteria, that can result in either the expensive process of resorting at the terminal, or in outright rejection of cargos.

Port congestion in China is another fact of doing business that creates problems for foreign firms. Each branch of CHINATUHSU must get its own port clearances for the lumber it has purchased abroad. If the port later cancels that particular opening, even though the shipment is on the way, the exporter can do little but live with the situation.

One US log company enroute to China recently learned that there would be a one-month delay at his port of destination. Knowing that the delay would cost an impossible amount, and hearing of some market interest in another TUHSU branch, the exporter set sail for Tianjin. There, the savvy Chinese were able to purchase the logs from the distressed exporter at bargain-basement prices—at a cost to the firm of roughly $100,000.

Photo by Wu Zuzhen, New China Pictures Co.

China's timber land encompasses 242 million acres, or only 32 percent of the US total. Above: logs floating down the Dadu River in Sichuan Province.

Since 1977, timber production in China has stagnated. 1981's production of 49.42 million cubic meters is below the level achieved 5 years ago. At the same time, a change in direction in the economy favoring the consumer sector has increased the demand for wood products. There is a boom in urban and rural housing, and today people have more money to fill those houses with furniture.

An estimated one half of China's lumber goes into the construction industry, although relatively little is used as structural lumber. The percentage would be much higher were it not for the extensive use of brick and concrete. The extraction industry uses an estimated 20 percent of the lumber supply. This figure may be declining because mine activity has remained level for several years. Furniture and boxwood account for about ten percent.

Millenia of population pressure on the land leading to over-cutting of forests has left modern China with an inadequate forest resource base. Overcutting is not just a problem of the past; it is continuing. Afforestation programs since liberation have had limited success. The main element working against the Chinese is time. It takes over a century to grow the types of logs imported from Oregon and Washington. Whereas modern China's early afforestation schemes have suffered greatly from periodic neglect, and relatively young stands are still vulnerable to indiscriminate cutting by peasants, forest management programs are allowing the American Northwest to replace

timber at a rate ten percent faster than it is being cut.

Articles in the Chinese press decrying the unauthorized felling of trees are common. A particularly alarming article describes conditions in Fujian Province, the foremost forest region in South China:

During the 5-year period between 1973 and 1978, the forest area throughout the province declined by 19.39 million mu or 21 percent. During the 21-year period from 1957 to 1978, mature timber forest reserves declined by nearly 100 million cubic meters in a greater than 52 percent decline. During 1979, cutting of forests exceeded the amount grown by 21 percent. . . .Unless depletion is stopped at once, it is estimated that after 1985 usable forest resources [in Fujian] will be almost entirely cut down.[1]

Forest areas previously considered inaccessible are being opened up through modern logging operations; thus, production levels have been sustained. However, the gap between near- and medium-term demand for timber, and its domestic availability will widen. Replacement is falling further behind, and transport to industrial areas from the far-removed major forest resources, notably in Heilongjiang Province, will become increasingly problematic.

What the Chinese may not realize is that the American lumber market will become problematic as well. Suppliers are willing to undersell themselves as long as the market is down. But the depressed market situation will not last forever. When Japan begins buying heavily again, and the C-Sort is unavailable at the current low price, will China try to compete for the logs? Will Americans still want that market?

Because of its long-term lumber demand, it is in China's interest to cultivate log suppliers by complying with accepted trade practices. It would also be prudent for China to purchase more lumber, or partially manufactured wood products. Under future tight supply conditions this pattern of buying might curry favor with lumber suppliers, not to mention with the laborers and legislators who see every sale of whole logs as costing more American jobs.

Whether China will sustain the present buying pattern is not totally predictable. A command economy has more control over rising expectations, such as in the demand for housing. On the other hand, a command economy has the most control over scarce foreign exchange and can direct it toward imports, if the need is severe. Economic trends by themselves indicate China will continue to buy softwood logs from the US, and in large quantity.

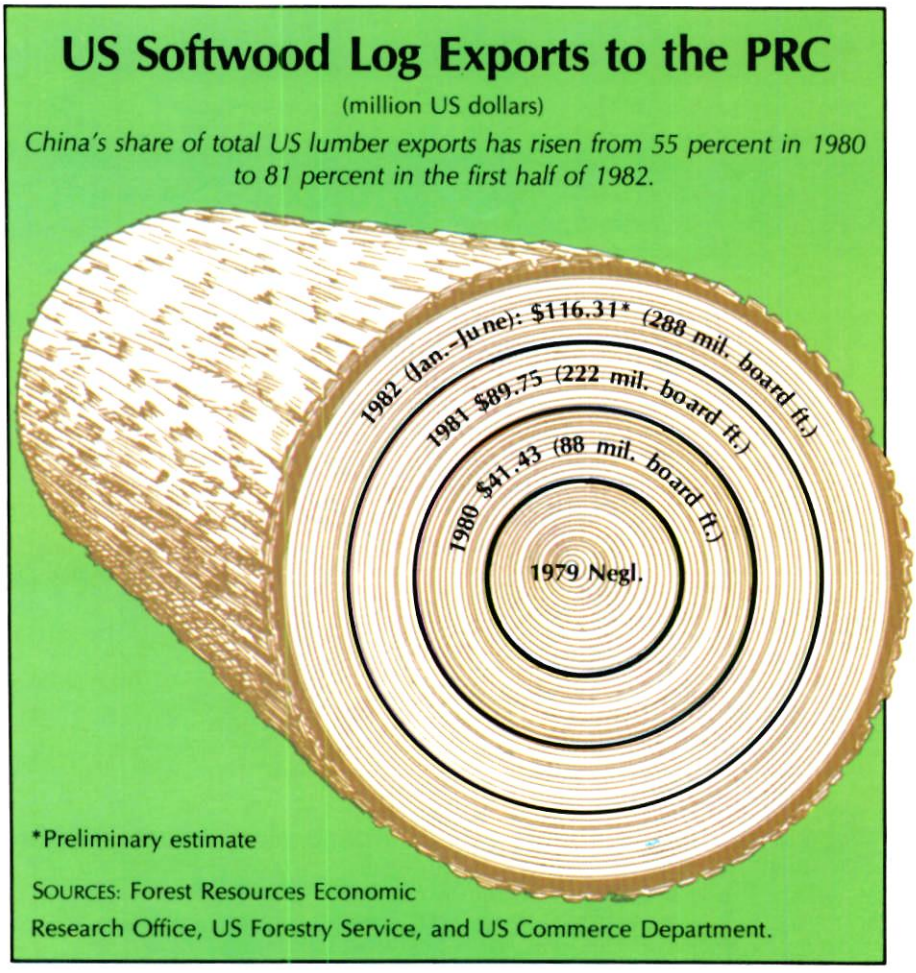


chart prepared by Henry J. Groen artwork by John Yanson

Courtesy Port of Tacoma

Loading logs for China on the Blair Waterway at the Port of Tacoma

Henry J. Groen is president of China West, Inc., a consulting firm that represents a number of forestry and energy concerns doing business with the PRC. Groen has been in the China field for 19 years.

[1]*Guangming Daily*, Beijing, Nov. 5, 1980, p.2

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China's Pulp and Paper Market

As in so many other areas, the US and Japan are competing for shares of a potentially lucrative market.

Julia Sensenbrenner

The China market for US exports of pulp, paper, and paperboard has been an unsteady one. The Chinese "buying spree" that took place in 1980 and the first half of 1981 has been curtailed. Relatively little purchasing was done this year. But now, some US business executives believe the situation could change again. Several companies are involved in negotiations. Several others, while not divulging products or specific amounts, have confirmed that the Chinese have placed orders.

One executive from a major paper and pulp firm said, "The market has definitely picked up for the people who have been heavily involved in the China market and have established the right contacts." At last, the Chinese seem interested in developing long-term relationships, preferring to deal with companies that have the size and technology to support long-term demands.

Many of those firms are Japanese and Canadian. Japan maintains an efficient, well-established paper and paperboard industry that has captured a large part of the China market. In 1981 and again this year, Canada maintained its position as the main pulp exporter to the PRC—a position previously held by the US. American firms, too, have made some important inroads. And as China increases its import demands, greater sale opportunities in paperboard, pulp, and several related areas could arise.

Chinese purchases from the US have chiefly consisted of wood pulp and kraft linerboard. Wood pulp exports accounted for 33.9 percent of the total value of US pulp, paper, and paperboard exports to China in 1980, and 57.8 percent in 1981. Kraft linerboard made up 48.3 percent of the total value in 1980, and 38.3 percent in 1981.

Demand for the latter has increased significantly since the Chinese initiated their new modernization program and accelerated their export drive. Kraft linerboard is important for international shipping and packaging; its strength makes it an ideal material for high-grade packaging in cartons and for the outer surfaces of corrugated cardboard boxes. Unfortunately for China, domestic machinery is unable to produce sufficient packaging material that meets high international standards. The US, as the most efficient paperboard producer, would seem to be the logical place for the Chinese to buy. But it has tough competition from the second largest producer, Japan.

Through 1979, China purchased up to 85 percent of its linerboard from Japan, at a maximum value that year of $30.6 million. The PRC also bought from Japan $75.7 million worth of paper and paperboard—about half of its total imports. Those proportions changed temporarily in 1980, as the strengthened value of the dollar, low US prices, and increased Chinese demand for linerboard allowed the US to capture $93.3 million worth of business, or 61 percent of the market. Japan's total sales were then running at about $45.1 million.

The buying surge—and the dreams of US paper executives—lasted only as long as the contracts. Since the contracts' expiration in June of 1981, paper trade between the US and China has been at a very low level. For the first five months of this year, US exports of paperbase stocks were $6.5 million as compared to $54.2 million in January to May 1981; paper and paperboard exports totalled $6.1 million versus $53.8 million in 1981.

Several reasons account for the decrease, including less favorable prices, shortages of foreign exchange, high stock levels that resulted from overbuying in 1980, and renewed competition from Japan. At present the yen is enjoying a favorable rate of exchange in China. This, combined with lower shipping costs, tends to make the Chinese more receptive to offers from their "old friends." It is also presently rumored that Japan's paper industry, suffering from increasing energy and raw materials costs, is selling below its real costs in order to generate additional business.

Despite such stiff competition, predictions for US sales are favorable. According to Thomas M. Clephane, a Morgan Stanley principal who closely follows the linerboard market, 1983 could bring Chinese linerboard purchases from the US to around 200,000 tons, up 15 percent from the 1981 total of 173,879. The US could reasonably expect this greater share as trade grows and the Japanese paper industry faces the reorganizations necessary to make it more efficient, Clephane says.

If Chinese import requirements grow about 10 percent yearly, as some experts predict, China should require 250,000-300,000 tons a year from the US by the second half of the decade. According to one paperboard company executive, the US is in a good position because it "has the quality, capacity, and know-how to meet this growing demand."

Chinese paper factories import about 200,000 tons of pulp annually to supplement the limited domestic sup-

plies. The factories using this pulp produce writing and printing papers, newsprint, tissue, and other low-quality products for domestic consumption. The long fiber of imported pulp adds strength to the various types of papers which comprise up to 70 percent of short crop fibers such as bagasse, straw, and bamboo.

Canada has been the major exporter of pulp to China, shipping $32.6 million worth in 1979. In 1980, however, it had to share the market with US producers. Yet Chinese purchases increased so dramatically that, although the Canadian market share declined from 55.5 percent to 33.7 percent, overall sales increased 92 percent, to $62.6 million. This statistic demonstrates the magnitude of the Chinese buying spree.

True to form, pulp sales in the first quarter of this year declined 88 percent. US industry executives nonetheless remain confident about future increases in sales to China. The country's dependence upon imported pulp for domestic paper products should continue for some years.

Dr. Irene W. Meister, vice-president, international, at the American Paper Institute, believes it will take 50 years for China to fully develop a forestry base. In the meantime, a full-scale modernization of the paper industry would require huge inputs of capital for machinery, energy, transportation infrastructure, and pollution equipment—capital that the Chinese cannot currently spare.

One very small area of the paper trade is writing and printing paper. Japan last year exported 23,338 metric tons to China—a relatively low amount that still satisfied most of China's demand. US writing and printing paper sales to China are about one-fifth that amount. Chinese imports of paper should remain relatively low, as the country prefers to import raw materials which can be processed in labor-intensive factories. Also, natural fibers can be combined with imported pulp to produce a lower-quality, low-cost, final product for domestic consumption.

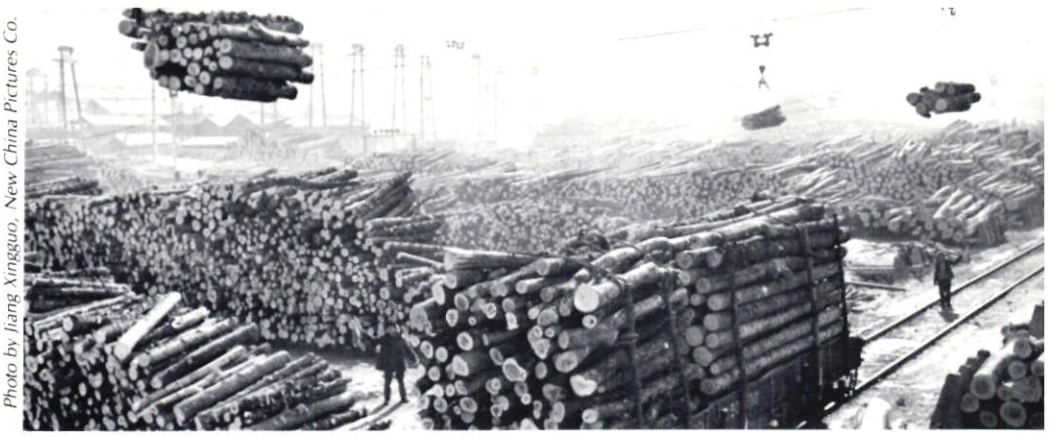

Photo by Jiang Xingguo, New China Pictures Co.

Only about 10 percent of China's lumber output is used in paper making, due to the increased use of rice stalks, bamboo, and other substitutes. Above: a lumber yard in Daxinggou, Jilin Province.

China has made a couple of purchases of wastepaper recently, which can be used for either low-quality Chinese paperboard or be converted to the corrugating medium used in boxes. These purchases signal a new stage of increasing output, since China in the past had been self-sufficient in terms of wastepaper utilization.

An area which seems to have long-term potential but limited short-term sales is paper and pulp machinery. Under the new decentralization programs, mills have been given the authority to recommend purchases of foreign equipment in order to fill production quotas. In theory, provincial organizations can then issue the orders for new equipment and deal with the foreign organizations. In practice, final approval is necessary from state officials. For instance, when negotiators from the Washington Iron Works met with both provincial and national officials last year, they found that both sets of officials had to be satisfied with the terms before a deal could be made.

So far the Washington Iron Works' sale of an $11.5 million fiberboard plant in late 1980 is the only sale made by the US. Germany has sold particle board equipment for a plant which is already operating, and the company has recently completed a new deal. Sales much beyond these may have to wait until China's foreign exchange situation improves.

Though the last year has been a slow one for US exports of pulp and paperboard to China, there are positive signs that the Chinese are giving the US greater consideration as a supplier. The Chinese have expressed to several large companies their desire to have long-term relations with US firms. The PRC has already established a permanent trading office in New York—originally called the Sino Development Corp. and now called Amacel (American Cellulose)—which has permitted easier communication between Chinese buyers and US suppliers.

The long-run predictions for total US paper and pulp exports to China are favorable. This could continue for at least the next 10 years, because of the slow rate of development of the Chinese pulp and paper industries and China's reliance upon such imports, especially for packaging grades. In this industry, as in most, according to Dr. Meister, "The potential of the China market is dependent on how the Chinese structure the growth of their economy and on the subsequent amount of foreign exchange earned through exports."

Major Chinese Purchases
(million US$)

	1978	1979	1980	1981	Jan.–Mar. 1982
Paper & Paperboard					
US	.439	2.975	130.232	49.542	5.78
Japan	35.433	75.708	108.973	56.543	11.938
Canada	10.320	22.615	25.635	38.228	1.063
Pulp					
US	4.051	3.883	66.858	67.876	1.580
Canada	15.082	32.584	62.573	68.804	16.639
Japan	1.245	2.194	–	–	–

SOURCES: US Department of Commerce; "Exports by Commodity: Statistics Canada;" "Japanese Export Statistics Monthly Report."

Julia Sensenbrenner worked on the staff of The China Business Review *as a 1982 summer intern before returning to Princeton University to complete her undergraduate degree in East Asian Studies.*

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Research Assistant

The following tables contain recent press reports of business arrangements exclusive of those listed in previous issues. Joint ventures, licensing arrangements, and other forms of business arrangements are included if classified as such in Chinese and foreign media reports. For the most part, the accuracy of these reports is not independently confirmed by the *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.

NVG = No Value Given

EXPORTS TO CHINA: 1982 SALES AND NEGOTIATIONS THROUGH AUGUST 15, 1982

Foreign Party/ Chinese Party	Product/Value/ Date Reported
Agricultural Commodities	
(Singapore)	Timber products. $5.1 million (S$10.7 million). 5/13/82.
(Indonesia)	Plans to sell 20,000 tons of rubber. 6/9/82.
Brewster, Leeds & Co. (US)	Feed supplement for poultry and swine. 6/21/82.
Ampac Trading Co. (US)	Is shipping 2.5 million board feet of western Oregon unfinished logs. 6/25/82.
MacMillan Bloedel Ltd. (Canada)	100,000 cubic meters of unprocessed Douglas fir logs. 7/6/82.
(Canada)	500,000 tons of red spring wheat. 7/8/82.
European Economic Community	1 million tons of mainly French wheat. $130/ton FOB. 7/10.82.
(NA)	1 million tons of sugar. 7/27/82.
Fiji Sugar Corp./China National Oils, Cereals, and Foodstuffs Import and Export Corp.	120,000 tons of raw sugar. 8/2/82.
Agricultural Technology	
(Hungary)	Fodder processing equipment for four plants, each with an annual capacity of 30,000 tons. 5/31/82.
China-New Zealand Agricultural Consultants (New Zealand)	Technology and machinery for grassland construction, management, and scientific livestock breeding in Guangxi. 5/31/82.
McPherson (US)	Automatic pine-seed processing equipment. 7/12/82.
Harry Sharp & Son Co. and IBG (US)	Two sapling greenhouses. 7/19/82.
Ministry of Agriculture, Forestry & Fisheries (Japan)/Yunnan Academy of Agricultural Science	Will undertake a genetic rice plant improvement research project. 6/29/82.
Namoi Cotton Cooperative Ltd. (Australia) and Rawcott International Ltd. (Hong Kong)/ Shihezi Agriculture-Industry-Commerce Complex	*Compensation Trade:* The Xinjiang complex will provide the foreign parties with cotton cloth and other products in exchange for fertilizer, pesticides, farm tools, and spare parts. $1 million. 6/28/82.
Farmland Eaton World Trade Co. (US)/Heilongjiang Administration of Farms	*Joint Venture:* Have agreed in principle to establish a soybean processing factory. 6/28/82.
Chemicals	
Japan Urea & Ammonium Sulphate Industry Association	140,000 tons of urea fertilizer to be delivered between 6/82 and 9/82. $26.6 million. 7/28/82.
Chemical Plants and Equipment	
Olin Corp. (US)	Is negotiating construction of an industrial chemical plant to be built in Liaoning. 7/9/82.
BASF Chemicals (W. Germany)/NA	*Licensing:* BASF is discussing the transfer of know-how and assistance in constructing manufacturing facilities. 6/15/82.
Mariletta Chemicals Co. (US)/Dalian Dyes Factory	*Joint Venture:* Have reached a preliminary agreement to establish a factory with an annual production of 10,000 tons of liquid sulphur dyes. $3 million. 6/21/82.
Montedison (Italy)/ Shanghai Investment and Trust Corp.	*Joint Venture:* Have signed an agreement for joint industrial and commercial projects. 8/5/82.
Coal	
Feoso Oil Ltd. and Tsinlien Trading Co. (Hong Kong)/Tianjin International Trust and Investment Corp.	Have formed the Tianfang Gas Development Co. which will run a Tianjin gasification plant and will handle its exports of coke, ammonium sulphate, benzene, pitch, and sulphur. 7/5/82.
Lotus Corp. Ltd. (US)/ Jiangsu Xuzhou Mining Administration and China National Metals & Minerals Import & Export Corp., Jiangsu Branch	*Compensation Trade:* US firm has a contract to provide a loan to transform and expand the Zhangji Coal Mine in exchange for coal. $35.6 million. 7/5/82.
Construction Materials and Projects	
Posford, Pavry and Partners (UK)	Have been appointed by the World Bank to provide consultancy services for three new container terminals being built at Tianjin, Shanghai, and Huangpu. 6/82.

Mendes Junior International (Brazil)/China Civil Engineering Construction Corp.	Have joined to offer manpower, technology, design, and financial resources to compete for worldwide engineering and construction projects. 5/31/82.
Peca Private Ltd. (Singapore)/China National Building Stone Carving Corp.	*Compensation Trade:* Economic and technical cooperation in quarried stone and carving stone products. 6/21/82.
Gladhover Ltd. (Hong Kong)/Zhuhai Special Economic Zone Development Co.	*Joint venture:* Will construct a housing estate and two industrial towns. $1.03 billion. 7/14/82.
United Oceans Co. Ltd. and Mr. James S.P. Chang (Hong Kong)/China Construction Engineering Co. and Jiangxi Provincial Machinery and Electrical Products Import and Export Corp.	*Joint Venture:* Have formed the China Hongkong Construction Synthetic [*sic*] Corp. Ltd. to undertake projects in Hong Kong and Macao. 7/26/82.

Consumer Goods

NA(US)/Nanjing	*Joint Venture:* Are negotiating a cosmetics venture. 7/5/82.
Baode Co. (Hong Kong)	*Processing:* Toy production. Loan of $650,000 (HK$4 million). 7/25/82.
London Export Corp. (US)/China National Arts and Crafts Import and Export Corp.	*Joint Venture:* Will market Chinese porcelain in the US. 6/4/82.

Electronics and Electrical Equipment

Réalisations et Etudes Electroniques (France)	Is negotiating the sale of the "Micral" microcomputer. 5/25/82.
Automated Systems (Hong Kong)/Nanchang Telegram Office, Jiangxi	2 Digital Equipment PDP-11/34 minicomputers. 5/28/82.
Sanyo Electric Co. (Japan)/Dongfeng Television Factory, Beijing	Components for 200,000 television tuners, in addition to technical cooperation. 6/1/82.
Western Geophysical Co. (US)/Ministry of Petroleum	An IBM System 3033. 7/82.
Hitachi Ltd. (Japan)	An M-180 computer to handle rail and university data. 7/82.
Sanwa Electric Ltd. (Japan)/Liaoning No. 3 Radio Factory	Are negotiating to upgrade the factory's technical capability to produce recording machines and to continue cooperation between the two companies. 7/5/82.
Dainichi Kiko Co. (Japan)/Shanghai University	A microcomputerized robot. 7/20/82.
Wah Chang International (Singapore)	Production equipment and technology for a TV plant in Guangdong. $1.4 million. 7/28/82.
Elite Engineering (UK)	Work station for assembling circuits. 7/28/82.
D.O. Industries Inc. (US)/Tianjin Optical Instrument Corp.	Have signed coproduction memoranda to produce slide projectors, photocopiers, and cameras. 7/26/82.
Fujitsu Ltd. (Japan)/Tianjin Science Technology Committee	Have jointly developed a Chinese language computer system. 5/19/82.
Sun Hung Kai (China) Ltd. (Hong Kong) and Olympia Werke AG (W. Germany)/China National Technical Import Corp. and China National Instrumentation Corp.	*Joint Venture:* Have set up Sinotype Systems Ltd. to sell a Chinese character microprocessing system in Hong Kong. 5/31/82.
Chiu Hwa Electronic Enterprises Ltd. and Tsinlin Trading Co. Ltd. (Hong Kong)/Tianjin Corp. of Electronic Parts and Components	*Joint Venture:* Have set up the China Triplet [*sic*] Joint Venture Electronics Co. Ltd. to produce and sell cassette tapes and to process, assemble, and cooperatively manufacture electronic products. Registered capital of $147,000 (HK$900,000). 6/14/82.
Chartered On-Line Ltd. and Chai Luk International Trading Co. (Hong Kong)/Beijing Computer Industry Corp. and China Electronics Import & Export Corp.	*Joint Venture:* Have formed Sino On-Line Ltd. to provide China with design and technology assistance and to act as sales agent for its computer products. Initial paid up capital of $170,000. 7/16/82.

Food Processing and Processed Foods

Nitchu Bussan Kaisha Ltd. and Chikuma Co. (Japan)	Refrigeration facilities with a capacity of 10,000 tons to be installed in Qinhuangdao, Hebei. $1.73 million (¥410 million). 5/25/82.
Danish Turnkey Dairies (Denmark)/Dongzhimen Dairy Plant, Beijing	Milk processing equipment and instruments. $1.9 million (Dkr15 million). 6/28/82.
Irish Dairy Board/China National Cereals, Oils, and Foodstuffs Import and Export Corp.	1,000 tons of full-cream milk powder. $1.56 million. 7/14/82.
Miyamoto Sangyo Co. Ltd. (Japan)/Baotou Sugar Refinery, Nei Monggol	*Compensation Trade:* Sugar beet granulators and squeezers in exchange for dried granulated sugar. $720,000. (¥170 million). 7/26/82.
Marine Resources Co. (US)/China National Cereals, Oils, and Foodstuffs Import and Export Corp., Liaoning Branch	*Processing:* US will supply 1,000 tons of codfish, freezing equipment and technical advice and China will process and package the fish. 7/14/82.
NA (US)/Suzhou	*Joint Venture:* Are negotiating a beer production deal. 7/5/82.

Machinery

Institut Dr. Forster (W. Germany)	Drill pipe test system. 5/82.
Ishikawa Gasket Co. (Japan)	Technological know-how for the design and production of gaskets for cylinder heads at the Yantai City gasket factory, Shandong. 6/29/82.
Karlstads Mekanisia Werkstad AB (Sweden)/Beijing General Paper Mill	Turnkey plant for paper production. $4.4 million (Sek27 million). 7/82.
Bison Corp. (W. Germany)/Linjiang Forestry Bureau	Shaving board equipment. 7/19/82.
NA (India)/China Agricultural Machinery Import and Export Corp.	Indian firm will manufacture Chinese-designed rice plant transplanters. 7/27/82.
Schindler Lifts Ltd. (Hong Kong)	Will supply the China International Trust & Investment Corp. complex with 9 high-speed elevators. The China Schindler Elevator Corp. will provide after sales servicing. 7/28/82.
Oxy/Metal, DEK Printing Materials (UK), Engelhard (US), and Jidenco	Coating machinery. 7/28/82.
Nordic Leasing International BV and Nordic Leasing Ltd. (UK)/China Leasing Co.	Have agreed to promote leasing of capital machinery between China and the UK, Denmark, Finland, Norway, and Sweden. 6/82.
Fujitec Co. (Japan)/Shenyang Lift Factory	Have agreed to jointly install and repair Fujitec elevators and escalators. 6/21/82.

Jebsen & Jessen Co. Ltd. (W. Germany)/China National Native Produce and Animal By-Products Import and Export Corp., Anhui Branch and Wuhu Feathers and Down Plant	*Compensation Trade:* Feather processing equipment in exchange for down pillows. $600,000. 8/2/82.
Ferranti Engineers (UK)	*Licensing:* Construction of FD 40 cranes for lifting containers. 7/28/82.
Otis Elevator Co. (US)/ Tianjin Lift Co.	*Joint Venture:* Have signed an agreement to establish the China Tianjin Otis Elevator Co., Ltd. which will sell, install, and repair elevators, escalators, and moving walkways. 7/5/82.

Metals and Minerals

(Japan)	2,200 tons of electrolytic zinc and perhaps 2,300 tons later. 7/2/82.
(Japan)	4,000 tons of electrolytic copper. 7/8/82.
NA	Between 100,000 and 200,000 metric tons of copper. 8/3/82.
General Refractories Co. (Austria)/Ministry of Metallurgical Industry	*Compensation Trade:* Are negotiating construction of magnesia workshop in Haicheng, Liaoning, with an annual processing capacity of 50,000 tons. 5/31/82.

Petroleum and Natural Gas Products and Equipment

Baker Marine (US)/China Corp. of Shipbuilding Industry	Contract to construct a BMC 1600 semi-submersible rig at the Jiangnan yard, Shanghai. They are also negotiating to construct two more. Rigs will be jointly owned. 6/82.
Hongkong Polytechnic and South China Sea Institute of Oceanology (Hong Kong) and London Centre for Marine Technology (UK)	Will help with design research for structures used in offshore oil exploration. 7/82.
Blohm and Voss (W. Germany)	Is negotiating a rig repairing agreement. 7/23/82.
Meishek Co. Ltd. (Hong Kong)/China National Offshore Oil Corp., South China Service Branch	Catering services for Total Chine in Zhanjiang. 7/23/82.
C.H. Grant (US)/China North Industries Corp.	*Joint Venture:* Have formed the China American Trading Co. to market oilfield equipment, explosives, and chemicals in the US. 5/17/82.
(Pakistan)/NA	*Joint Venture:* Are discussing possibility of joint oil exploration in Pakistan. 6/82.
First National Bank of Chicago (US) and Industrial Bank of Japan/Bank of China and China Resources	*Joint Venture:* Have established CCIC Finance Ltd. which will act as financial consultant to the China National Offshore Oil Corp. 7/1/82.

Pharmaceuticals

SmithKline Beckman Corp. (US)/Tianjin Pharmaceutical Co.	*Joint Venture:* Are negotiating the construction of a pharmaceutical factory. 6/8/82.

Power

Board of District Heating (Denmark)	Have signed a preliminary agreement with Tianjin to supply know-how and equipment for a geothermal-based district heating system. 6/82.
United States Trade Development Planning Agency/Ministry of Water Conservancy and Power	The agency will provide a US company $400,000 to carry out a feasibility study for a hydroelectric project in Guangxi. 7/82.
Framatome and Alsthom-Atlantique (France); Rheinisch-Westfalische Electrizitatswerk (W. Germany); Westinghouse Electric Corp. (US); and General Electric Co. (UK)	Are bidding for the construction of a nuclear power station. 8/5/82.
China Light and Power (Hong Kong)/ Guangdong Electricity Co.	*Joint Venture:* Will build a 900-mw nuclear reactor in Guangdong. 6/82.

Scientific Instruments

Hitachi Koki Co. Ltd., Nissei Sangyo Co. Ltd., Wako Koeki Co. Ltd. (Japan)/China National Instrument Import and Export Corp.	Have agreed to set up the Hitachi Koki Centrifuge Service Station in Beijing. 5/31/82.
University of Tokyo (Japan)/China University of Science and Technology	Have signed a scientific cooperation agreement in fields of precision machinery, materials, physics, information science, and management. 6/25/82.
Hong Kong Polytechnic (Hong Kong)	A wave tank. $123,000 (HK$750,000). 7/82.
Finnigan Corp. (US)/ China National Instruments Import and Export Corp.	Will open a Finnigan products service center in Beijing. 7/26/82.
Gould Inc. (US)/Tianjin Automation Instrument Plant	Will establish a service center for programmable automatic control devices. 8/2/82.
ESI	Lasers for trimming circuits. 7/28/82.
Ringway (UK)	Climatic chambers for testing. 7/28/82.
D.O. Industries Inc. (US)/Tianjin Optical Instrument Corp.	*Coproduction*: Of infrared photometers. 7/26/82.

Shipping

Hayashikane Shipbuilding and Engineering (Japan)/China Ocean Shipping Co.	A 15,000 dwt. product carrier. 7/28/82.

Steel and Steel Products

Sumitomo Metals Industries Ltd.; Nippon Kokan K.K.; Nippon Steel Corp.; and Kawasaki Steel Corp. (Japan)	100,000 tons of seamless steel pipes. 5/25/82.
(Japan)	Agreement to sell 853,600 metric tons of steel products in last half of 1982. 7/20/82.
Daido Steel Co. (Japan)	1,000 tons of alloy tool steel, heat-resistant steel, and stainless steel. 7/20/82.

Steel Plants and Equiment

Officine Meccaniche Danieli (Italy)	Services for renovation of small rolling mill, Wuyang Steel Works, Guangzhou. $2-3 million.

Telecommunications

Datron Systems (US)	A Tiros-N tracking station. 6/82.
Zimmer (W. Germany)	Contact with TECHIMPORT for 4,700-ton per year, fast-spinning, polyester filament plant in Nantong, Jiangsu. Startup 1984. $3.6 million (dm 9 million). 8/9/82.

Textile Plants and Equipment

Textures International, Inc. (US)/Jiangsu Nantong No. 2 Cotton Textile Mill and China National Textiles Import and Export Corp., Jiangsu Branch	*Compensation Trade:* US will export spindles and looms in exchange for plant's cotton textiles. $13 million. 7/5/82.
Coats Patons and Seatex (UK)	*Compensation Trade:* Will provide equipment to the No. 2 Wool Mill in Nei Monggol in return for fabric. $5 million. 7/28/82.
Kanebo Ltd. (Japan)	Is negotiating to sell its acrylic fiber plant. 8/10/82.

Textile Products

Asahi Chemical Industry Co., Kuraray Co., and Unitika Rayon Ltd. (Japan)	7,120 tons of rayon staple fibers. $29.6 million (¥7 billion). 6/15/82.
Dia Fibers Co. and Japan Synthetic Fibers Co. (Japan)	5,000 tons of acrylic staple fibers. 6/29/82.
Toray Industries, Inc., Teijin Ltd., and others (Japan)	2,500 tons of polyester filament. $6 million. 8/3/82.
NA (US)/Nanjing	*Compensation Trade:* Is negotiating the production of artificial leather. $3 million. 7/5/82.

Tourism

Aga Khan Foundation	Is interested in building hotels in Guizhou, Xian, and Beijing. 6/28/82.
Mitsubishi Co. (Japan) and Transport Engineering Co. (Hong Kong)/Zhongshan	*Joint Venture:* Will construct a hotel-recreational complex in Zhongshan, Guangdong. Japanese and Hong Kong investors to provide $5.2 million for the first stage. 7/7/82.

Transportation

Nissan Diesel Motors Co. (Japan)	49 truck-crane carriers. $2.13 million (¥500 million). Reported 5/19/82.
Plasser Und Teuerer (Austria)/Ministry of Railways	Are discussing the feasibility of technical cooperation regarding railway construction equipment. 5/31/82.
Automobiles Peugeot France and La Télémécanique Electrique (France)/Nanjing Truck Factory and No. 213 Electrical Apparatus Factory	Modernization of automobile parts production equipment. 6/10/82.
Michelin (W. Germany)	Car tire production line for the Zhengtai rubber plant, Shanghai, beginning production. 6/21/82.
Hino Motors Ltd., Isuzu Motors Ltd., and Mitsubishi Motors Corp. (Japan) and Mercedes-Benz AG (W. Germany)/China National Machinery Import and Export Corp.	Will collaborate to construct and operate a large truck and bus parts service center outside Beijing. 7/20/82.
NA (India)/NA	*Joint Venture:* Are negotiating a moped and scooter production venture. 6/18/82.
Graham Hunt (Australia)/NA	*Joint Venture:* Are negotiating to research, design, and develop jet-powered airships. 8/2/82.

Miscellaneous

Adsale People (Hong Kong)	Has been appointed the sole Hong Kong agent for foreign advertisements in *International Trade News*. 4/82.
Granada (UK)	Has sold a film and television series, and will film two segments of another series in Xinjiang and Yunnan. 5/26/82.
Bank of America (US)/Jiangsu Provincial International Trust and Investment Corp.	Have agreed to mutual provision of business proposals, introduction of prospective firms for economic and technical cooperation, and exchange of information. 7/5/82.
World Health Organization	57 American purebred white rats. 7/8/82.
Zucker Products Corp. (US)/Tianjin Foreign Trade Corp.	Have established a sales office and showroom in New York City. 7/28/82.
Rediffusion Television (Hong Kong)/China Advertising Co.	*Joint Venture:* Have joined to form Media East which will be the exclusive agent for foreign commercials broadcast on China's national radio stations. 4/82.
Talch Co. (US)/Changzhou	*Joint Venture:* Is negotiating the production of nylon zippers. $3 million. 7/5/82.

中外贸易

CHINA'S EXPORTS: 1982 SALES AND NEGOTIATIONS THROUGH AUGUST 15, 1982

Foreign Party/ Chinese Party	Product/Value/ Date Reported
Construction	
(Hong Kong)/ Guangdong Water Conservancy and Hydro-Power Engineering Development Co.	Will lay the pipes for a 20.6 km pipeline in Hong Kong. 5/82.
(Algeria)/China Civil Engineering and Construction Corp.	Will build a railway in Algeria and provide technical assistance on another line. 6/3/82.
NA (Japan)/China National Building Stone Carving Corp.	Granite floor slates. 6/21/82.
International Slate and Tile Co. (Australia)/ China National Building Stone Carving Corp.	Granite for a parliamentary building in Australia. 6/21/82.
NA (US)	83,665 lbs. of manhole frames and covers. 7/82.
Electronics and Electrical Equipment	
NA (W. Germany)/Beijing Computing Technology Institute	1,000 BCM-II microcomputers. 8/3/82.
Foreign Aid	
Palestine Liberation Organization	Emergency aid. $1 million. 6/28/82.
United Nations Relief and Works Agency	Aid for Palestinian refugees. $20,000. 8/3/82.
Machine Tools	
Master Machine Tools Sales Inc. (US)	Will import machine tools. 4/82.
Machinery	
Honda Motor Co. (Japan)/Jialing Machine Factory	Tool sets provided as standard equipment for motorcycles. 6/2/82.

Nikko Co. (Japan) China Civil Engineering Construction Corp.	Will export a compact-sized concrete plant to Iraq. 6/9/82.
Taiz Yemen Metals Mfg. & Trading Co. (Yemen)	Machinery for the manufacture of aluminum products. $60,000+. 6/14/82.
National Thermal Co. Ltd. (India)/Beijing Central Engineering and Research Institute for Non-Ferrous Metallurgical Industries	The Chinese institute has won a bid to dispose of the cinders from the Indian heat and power station. 6/21/82.
(Cuba)	200 diesel engines and 49 diesel electricity generating units. 7/5/82.
NA (US)/Wu Lin Machinery Factory, Hangzhou	29,000 "Flying Pigeon" pulleys. 7/16/82.

Metals and Minerals

(Singapore)/Beijing Central Engineering and Research Institute for Non-Ferrous Metallurgical Industries	Metallurgical technological services and the design and equipment for a factory for retrieving gold. 6/21/82.

Pharmaceuticals

(Thailand)	Patent herbal drugs. $34,313 (HK$210,000). 6/7/82.
Food and Drug Administration (US)/Shanghai No. 4 Pharmaceutical Plant	Has approved three Chinese injectable antibiotics for sale in the US. 6/3/82.

Petroleum Products and Equipment

Cities Service Co. (US)	Almost 500,000 barrels of crude oil. 8/9/82.

Power

(India)	Aluminum conductors for a transmission line. $32.3 million (Rs300 million). 5/15/82.
NA (Philippines)/Beijing Central Engineering and Research Institute for Non-Ferrous Metallurgical Industries	Equipment for a heat and power station and the design of a power plant. 6/21/82.

Shipping

Worldwide Shipping Group (Hong Kong)/ Jiangnan Shipyard	A 27,000 ton freighter. 5/31/82.
Plymouth Shipping and Nelson Shipping (US)/ Guangzhou Shipyard	Each have purchased an 11,000 ton container ship. 7/14/82.
China Interface Corp. (US)/Shanghai Shipbuilding Corp.	Five pleasure boats. 7/19/82.

Telecommunications

Voice of Zanzibar	A radio transmitter. 5/21/82.

Trade Agreements

(Niger), (Norway), (Finland), (Benin), (Italy), and (Sudan)	Have signed trade agreements with China during June and July 1982.

Transportation

(Sudan)	200 trucks and jeeps. 7/14/82.

Miscellaneous

Grand People's Study House of Korea (N. Korea)	150,000 Chinese books. 7/23/82.
Sumitomo Bank (Japan)	Will train 7 employees from the People's Bank of China. 7/7/82.

Guide to Investment in China, English edition, edited by China International Economic Consultants, Inc. and Economic Information & Consultancy Co. Hong Kong: Economic Information and Agency, 1982. Distributed by Export Division of China National Publications Import and Export Corporation, P.O. Box 88, Beijing. 363 pages including advertising. Airmail, $57; surface, $45.

Sponsored by the Ministry of Foreign Economic Relations and Trade, this much-needed manual on investment is both authoritative and up-to-date. The introductory chapters include an excellent general survey of China, brief descriptions of the investment environment and investment priorities, and good definitions of forms of investment. A section on each province and municipality gives brief geographic and demographic data, resources, products, infrastructure and areas for cooperation with foreign companies, and lists provincial investment organizations. The investment situation in the Special Economic Zones is outlined, as are China's taxes and tariffs. The organizations controlling foreign investment are described, and procedures for foreign investment are outlined. The complete texts of all major laws on foreign investments through February 1982 are included.

China's Provinces: An Organizational and Statistical Guide, by Christopher M. Clarke. Washington, DC: The National Council for US–China Trade, July 1982. 462 pages. $285 ($235 for academic institutions; $185 for National Council members), plus $5 postage and handling.

As the autonomy of China's provinces has grown, so has the need for information on provincial economic structure. This major compendium provides the economic data and organizational information necessary for doing business with China's provinces. Each of the 29 chapters contains a general introduction to the province or municipality; territorial administrations down to the county level; details of the political, administrative, economic, research, educational, corporate, and factory structure, with names of key leaders, where available, and contact information; and all available provincial statistics for 1978 through 1980.

China Business Manual 1982 Supplement, compiled by Christopher M. Clarke. Washington, DC: National Council for US–China Trade, 1982. 46 pages. With ***China Business Manual 1981***, $48 ($40 for National Council members); separately $18 ($10 for members), plus $1 postage and handling.

This manual is designed to be used with the *China Business Manual 1981*. It updates entries affected by China's recent government reorganization and provides information on newly created organizations. The 1982 manual is arranged by sectors, corresponding to those in the earlier edition. Pages affected in that edition are indicated. The original manual and its 1982 supplement provide a wealth of information on China's national economic and trade organizations.

China's Economic Development: Growth and Structural Change, by Chu-yuan Cheng. Boulder, CO: Westview Press, 1982. 535 pages. Hardcover $35; paper $15.95.

Designed as an upper division undergraduate or graduate textbook on the Chinese economy, the book analyzes Chinese economic development since 1949, focusing on the transformation of China's traditional institutions into a socialist centrally planned system. The book contains an extensive bibliography and an index.

China's International Banking and Financial System, by Paul D. Reynolds. New York: Praeger, 1982. 221 pages. $23.95.

A good survey of China's financial system and international banking rela-

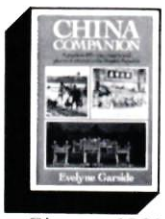
tions, the book emphasizes systems, institutions, and policy in mid-1981, with an afterword providing updates through year-end 1981. Topics covered include an overview of the economic, monetary, and banking system; the Bank of China and its role; the role of foreign banks; financing policies, practices, and requirements; and sources of funds. Appendices, a glossary, and an index are included. A curious flaw in the book is the consistent misspelling of Chinese officials' names.

Mass Communication in China, by John Howkins. New York: Longman, Inc., 1982, 160 pages. $24.95.

Based on the author's 1979 visits to China, the book surveys the communications media, emphasizing the roles of television and radio broadcasting, film, publishing and printing, telecommunications, and advertising. A useful review of each sector is provided, though some information has been outdated by China's recent reorganization and by further developments, especially in the telecommunications sector. Appendices and an index are included. The book is a revision of the author's report *Media in China*, published by Nord Media, Ltd, in 1980.

Coming Alive: China After Mao, by Roger Garside. New York: McGraw-Hill, 1981. 458 pages. $12.95.

Roger Garside, a career British diplomat who served in Beijing from 1968–70 and from 1976–79, has written a very readable and sympathetic portrait of a people attempting to pick up the pieces after ten years of chaos. Unlike many popular accounts of modern China, Garside's unravels many of the complexities of factional politics. The mixture of first-hand experience and reliance on both Chinese official information and the most reliable of Hong Kong's "rumor mills" gives a comprehensive and comprehensible picture of struggles over economic, social, and cultural policy from the death of Mao to 1981.—**CC**



China Companion: A Guide to 100 Cities, Resorts, and Places of Interest in the People's Republic of China, by Evelyne Garside. New York: Farrar, Strauss, Giroux, 1981. 276 pages $14.95.

An excellent new addition to the travel guides to China, *China Companion* covers 100 cities and places of interest, arranged by geographic region. The detailed descriptions and maps of many tourist sites will be most useful and interesting to China travelers; and the author's candid comments on restaurants and hotels will be appreciated.

The Pinyin Chinese-English Dictionary. Editor-in-Chief Professor Wu Jingrong, Beijing Foreign Languages Institute. Beijing: The Commercial Press; New York: John Wiley and Sons, 1979. 976 pages. $15.

This excellent dictionary, compiled by the Beijing Foreign Languages Institute, has been copublished in a paperback edition by the Commerical Press, Beijing, and the US publisher John Wiley.

Three new China maps have been published by the Central Intelligence Agency. The maps may be ordered from the National Technical Information Service, Springfield, VA 22161. NTIS orders must be prepaid and the NTIS number should be used when ordering.

Beijing, NTIS #PB82-928204, $9.50. 45″ x 34½″ Index on reverse side.

Shanghai, NTIS #PB82-928207, $7.50. 33″ x 39″ Index on reverse side.

China's Railroads, NTIS #PB82-928203, $7.50. 21 ¾″ x 17 ¾″

The following books are not directly China-related, but their subject matter may be of interest to our readers.

Beyond Industrialization: Ascendancy of the Global Service Economy, by Ronald Kent Shelp. New York: Praeger, 1981. 242 pages. $29.95.

An analysis of the role of services in the international economy, this study examines services in industrialized, developing, and socialist economies; reviews regulation of services; and suggests ways in which to liberalize the international flow of services.

The Expatriate Dilemma: How to Relocate and Compensate US Employees Assigned Overseas, by Stan Frith. Chicago: Nelson-Hall, 1981. 177 pages. $18.95. The book addresses all aspects of expatriate administration, but focuses on a model compensation package.

Books and business guides submitted for possible review in The China Business Review, *should be sent to the National Council's book editor, Marianna Graham.*

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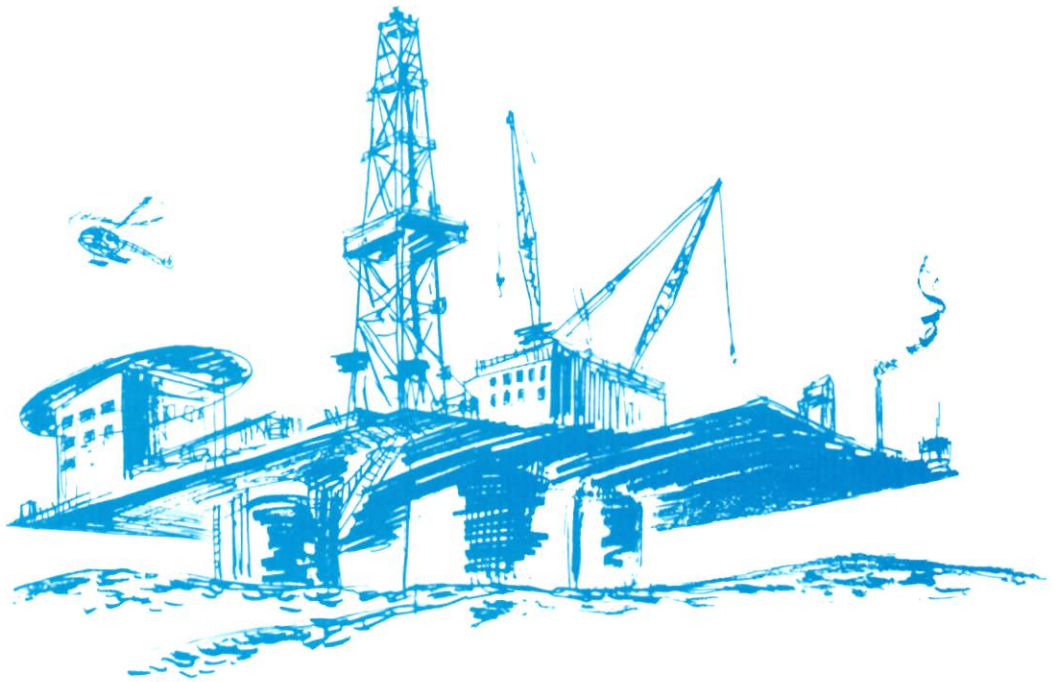

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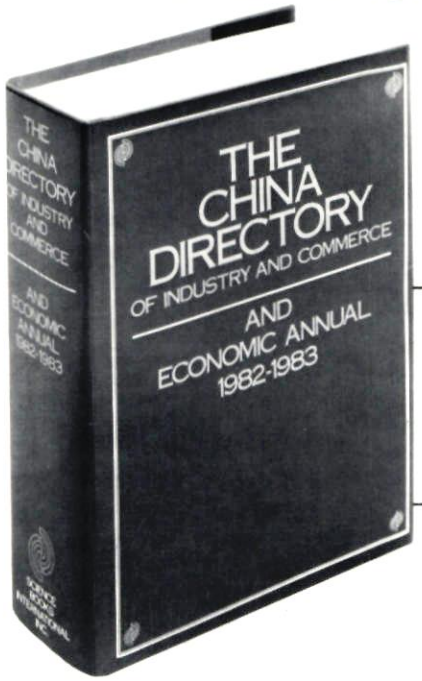

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