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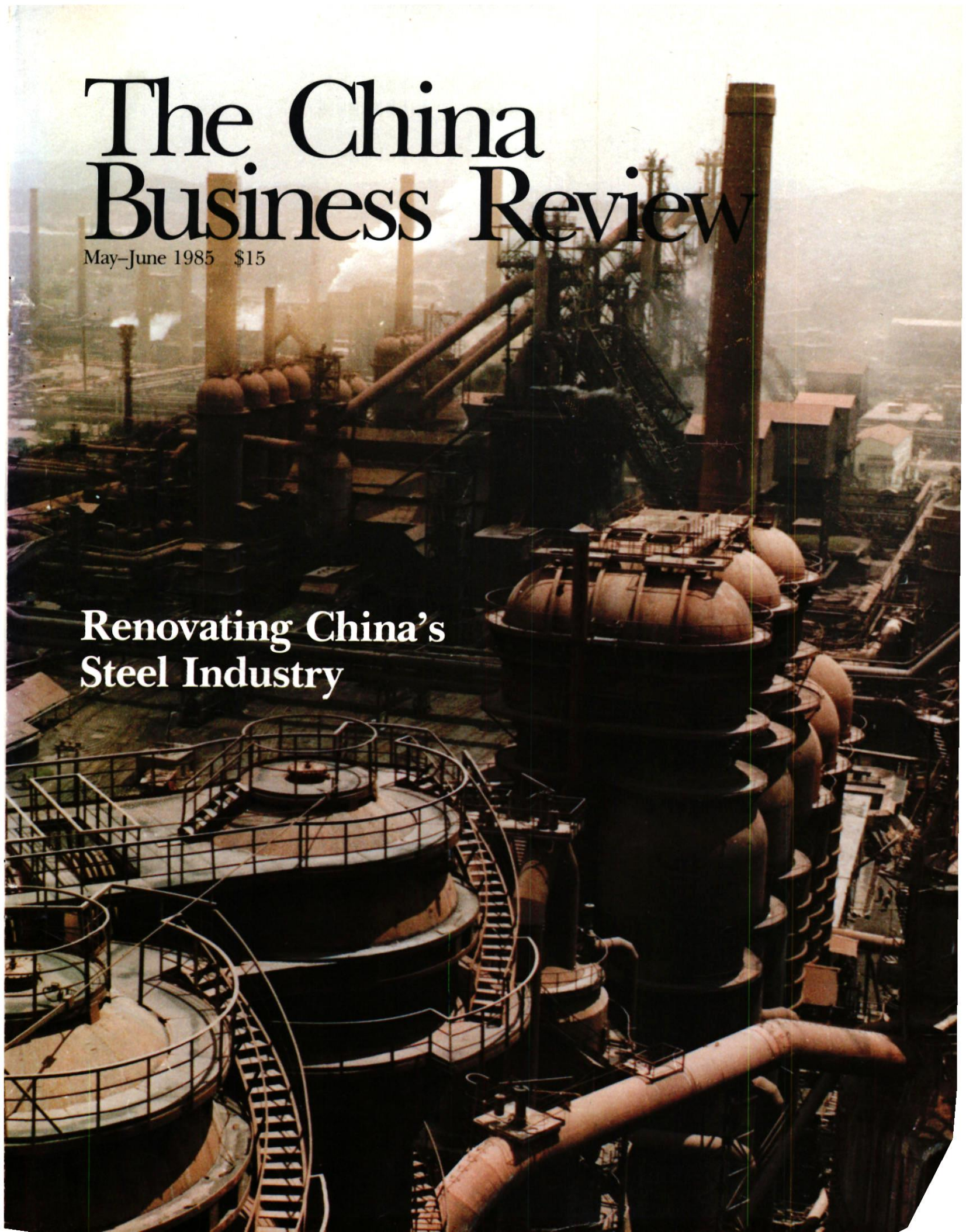

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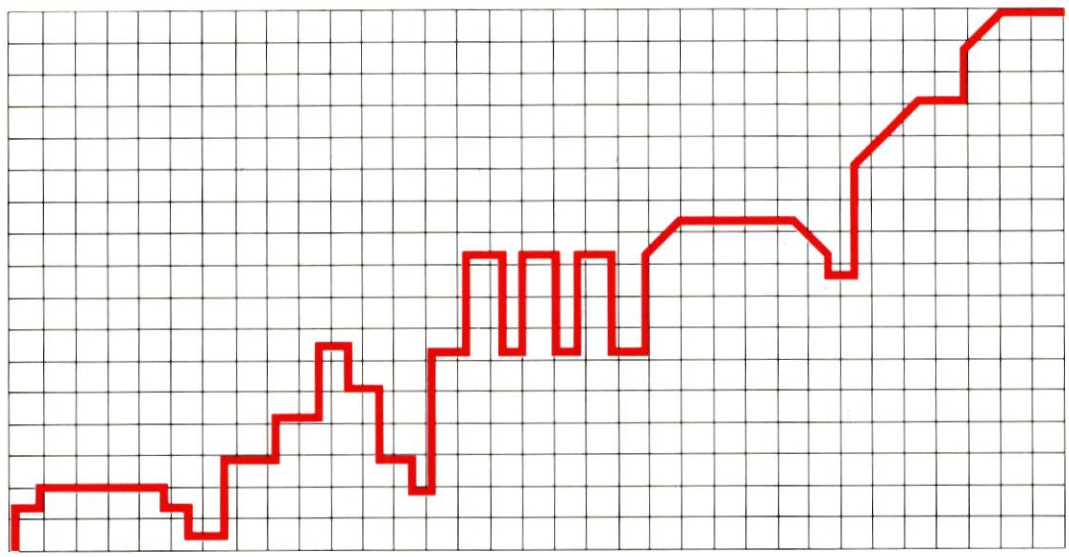


The China Business Review

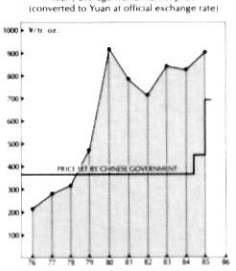
The magazine of the National Council for US–China Trade

May–June 1985 Volume 12, Number 3

Cover: China's steel industry is expanding and diversifying output in an effort to reduce steel imports, now at record levels. *Photo of Anshan Steel Mill. Photo courtesy of New China Pictures.*

Price of Gold: China and the World

Yearly average world market price (converted to Yuan at official exchange rate)



Gold: The government has recently raised the price it pays to domestic producers as part of its plan to encourage gold mining and production. **Page 8.**

Management: China's managers are learning new techniques in a variety of programs sponsored by Western governments, schools, and corporations. **Page 36.**

Departments

摘要

WEALTH OR POWER

When the State runs a nation's economy, ministers and their minions are the closest thing the country has to businessmen. When reformers tamper with the system and encourage private citizens to take up business, they face the problem of what to do with the bureaucrats thereby rendered redundant. China, the inventor of bureaucracy, is currently facing just this issue.

In traditional society, China's mandarins enjoyed both wealth and power. When the Communists took over, the new officials—Party cadres—retained power, but, imbued with proletarian puritanism, generally maintained a spartan lifestyle. China's current reformist leaders, however, have scoffed at Mao's idea that socialism entails the glory of poverty, and have urged a new class of private entrepreneurs to enrich themselves. From the looks of things, many Party and government officials figured the call applied to them too. But their superiors see it differently.

For several months now, China's top leaders have warned that a wave of "unhealthy tendencies" is sweeping the country. This term covers a wide range of untoward activities including the indiscriminate granting of bonuses and wage increases to factory personnel, unauthorized price increases, enterprises' use of lotteries and raffles to promote their products, spending State funds on lavish gifts and banquets in the name of business promotion, smuggling, and illegal foreign exchange dealings.

The unhealthiest tendency of all, however, is said to be officials' engaging in business. Surprisingly enough, given their reputation as lacking in initative, many of China's bureaucrats turn out to be pretty savvy entrepreneurs. A vice-mayor in Hunan Province allegedly diverted a cargo of silk from a government factory to partners who sold it for a tidy profit. The Navy Political Department in Beijing apparently also ran a business on the side. It cut costs by failing to deliver a number of trucks, refrigerators, and color televisions for which it had received payment. Forestry officials in Fujian Province allegedly accepted bribes as inducement to buy a load of decayed pine seeds.

Chinese leaders claim on the one hand that this "evil wind" is an inevitable side effect of the economic reforms they're trying to institute. On the other hand, it threatens those reforms by strengthening the hand of others who oppose private enterprise on purely ideological grounds.

The fact that China's leading reformers have been the most vociferous critics of "unhealthy tendencies" suggests they recognize the potential threat such improprieties pose, but remain in control. Deng Xiaoping, Premier Zhao Ziyang, and Party leader Hu Yaobang have all been outspoken in their condemnation of the seamy side of economic reform. But it's unlikely that they have changed their minds on the overall policy direction China should follow. Indeed, even as cadres are being told not to engage in business, the leadership is continuing to press forward with other reforms in such areas as rural policy, banking, law, foreign trade, and science and technology policy. There are also continuing indications that important steps toward pricing reform will be taken this year.

Party and government cadres, having first seen peasants grow richer through private farming and now industrial workers through more liberal bonus schemes, reckon they're being left out of the opportunities for personal enrichment the reforms promised. But according to *People's Daily*, it is now "glorious . . . that the masses should become well-off before cadres." More to the point, leaders have issued a nationwide directive barring officials from operating businesses. China's reformers know that letting officials practice business invites abuse of privilege. A return to the hated days when bureaucrats enjoyed both excessive wealth and power would not be good for Chinese society or the political survival of the current leadership.

MORE BEER ON TAP

Chinese officials expected and even encouraged the increased demand for consumer goods such as televisions, radios, and washing machines brought on by rising incomes of peasants and workers. But the increased demand for beer seems to have caught officials, and China's production capacity, off guard.

Many Chinese apparently are forsaking tea and traditional stronger liquors. Annual per capita consumption of beer is still less than a liter, minuscule compared to Hong Kong's 33.9 or Japan's 48.3 liters. But as with many other statistics applied to China, per capita figures on beer demand do not tell the whole story.

Beijing's three breweries produce less than half of what market surveys estimate they could sell. In a dispatch during Beijing's especially hot summer of 1984, one parched Western reporter cited the beer shortage right after a tragic spate of drownings among problems facing the municipality. The 60 million residents of Guangdong Province could potentially consume 300 million liters of beer per year, according to another Chinese market study. But the province's two breweries produce only 42 million liters per year, and a third being built will just double that.

The government cannot be accused of neglecting the problem. Beer output of 2.3 billion liters in 1984 was more than five times the 1978 level. Officials say they've allocated ¥2.4 billion to build 18 new breweries and modernize 59 others in an effort to boost output to 5 billion liters by 1990. In Shanghai, local officials hope building two new breweries and expanding three old ones will increase supplies 300 percent by 1990.

Chinese breweries have attracted

foreign investment in the form of several joint ventures, and are taking advice from Europe's best beer makers. Some of the plants up for renovation may do so with used equipment imported from old breweries in the United States, where the problem is too little demand. A plant liquidator in Tampa, Florida, is reportedly close to agreement on selling the former Carling brewery in Cleveland, and may also sell equipment from the old Schlitz brewery in Milwaukee. (Great Wall brand, the beer that made Urumqi famous . . . ?)

One frequently cited bottleneck is just that: a chronic shortage of bottles to hold the stuff. But containers seem to be found for the large and growing amount of Chinese beer that is exported or sold in local tourist hotels. China's most famous international brand of beer is Tsingtao (Qingdao)—largely because 70 percent of that brewed is exported, despite the domestic shortage. From the thirsty Chinese consumer's standpoint, foreigners may therefore be as much a part of the problem as a part of the solution. —TE

CHINA'S MULTIPURPOSE OVERSEAS INVESTMENT

As detailed in this issue, China's steel industry is once again receiving significant capital investment. But not all of it is going into China itself: this year the PRC will invest some $55 million in an iron ore mine in western Australia to supply raw material for China's steel mills.

This iron mining joint venture, in which China and Australia will be 40–60 partners, is but the latest in a growing stream of Chinese investments abroad that began around 1979. By the end of 1984, China had committed approximately $150 million to 113 overseas joint ventures. When wholly owned companies and Hong Kong real estate are included, the value of China's overseas investment probably exceeds $1 billion. China now has 40 cooperative or wholly owned enterprises in the United States alone, most of them engaged in trade.

Like the iron project in Australia, much of the investment is designed to tap needed resources such as metals and minerals, forestry and aquatic products. China has put almost $40 million into the fishing industries of such countries as Sri Lanka, Sierra Leone, Senegal, New Zealand, and the United States.

But increasingly the PRC looks for more than just natural resources abroad. The country's quest for advanced technology and managerial expertise has recently led it into several high-technology ventures overseas. Perhaps the high-tech investment China is proudest of is the late 1984 purchase of Auto Numerics Inc. in Hauppage, New York. The Beijing No. 1 Machine Tool Plant (China's largest machine tool producer) and a Hong Kong company that will handle the venture's marketing split the $1.9 million investment. According to a recent China Features report, the PRC views this joint venture as a window through which it can keep abreast of developments in the worldwide machinery market and numerical control technology in particular. Acquisition of the company will help China develop numerical control machine tools for both the domestic market and export.

By increasing exports, the machine tool project will meet another criterion for China's foreign investment: earning hard currency. In fact, this is the number-one priority of overseas investment according to Zhou Yihou, a top official in the Ministry of Foreign Economic Relations and Trade. The money earned can then be used to buy advanced foreign equipment and technology in support of modernization. While joint ventures whose main purpose is to earn foreign exchange remain fewer and generally smaller than investment designed to secure access to raw materials, they may grow in importance.

China's best foreign exchange-generating investments to date are the PRC-owned restaurants that have proved particularly successful in Japan and West Germany. The hotel industry also has potential, and China—intent on building its own hotels—has only just begun to explore the idea of investing in hotels abroad. In April the governments of Shenzhen and Zhuhai joined with Japanese investors to build a $67 million hotel in Hong Kong, scheduled to open in April 1987.

Foreign business people who deal with China are hoping all this activity will have another positive effect: namely that it will sensitize PRC officials to the concerns and problems faced by foreign investors in the PRC. —MCR

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Sino–Soviet Relations—Thaw or Rapprochement?

The recently improved atmospherics between China and the Soviet Union have focused more than the usual attention on Sino–Soviet "normalization talks," which resumed in Moscow in April. An unusually warm exchange between the two countries in March, as Mikhail S. Gorbachev took over the post of Soviet Communist Party leader, fueled speculation that their 25-year-long hostile standoff could end. Gorbachev expressed hope for a "major improvement" in relations with China. The PRC responded with a message from Party General Secretary Hu Yaobang, personally conveyed by Vice-Premier Li Peng, saying that China was "willing to work" toward further improvement of relations.

Certainly something is going on here, but it is difficult to sort out reality from mere cosmetic changes in rhetoric. There are some very sophisticated diplomatic games being played: hints of progress in Sino–Soviet relations are useful to the Soviet Union as it resumes arms talks with the United States. The appearance of improving relations between Moscow and Beijing serves China's interests in convincing Washington it should not take China for granted. It also puts pressure on Vietnam, which cannot help but fear that the Soviet Union might make a deal with China behind Hanoi's back.

But gamesmanship and cosmetics aside, hostility between China and the Soviet Union has indeed declined as Beijing and presumably Moscow as well have concluded that efforts to improve relations may benefit both countries in terms of increased trade, greater leverage in the triangular relationship with the United States, and reduced danger of conflict. The Soviet Union surely understands that the United States is the major beneficiary of a Soviet policy of unremitting hostility toward China. The Soviet Union must also be concerned that its nightmare of military cooperation between China and the United States once again appears closer than seemed possible two or three years ago.

A desire for improvement in relations, however, is a far cry from rapprochement. It is a commonplace of international relations that adversary nations periodically seek a thaw or lessening of tension. Only rarely do such efforts produce rapprochement—defined in the Sino–Soviet case as a fundamental change of kind and magnitude sufficient to damage US–China relations or US security interests in the region. Given the unchanged and probably unchangeable reasons behind China's fear and mistrust of the Soviet Union, there is little likelihood that talks between Beijing and Moscow will go beyond limited tension reduction to anything approaching true rapprochement.

Most observers agree that the Soviet Union is unlikely to accede to China's "three conditions" for any significant improvement in relations: reduction of Soviet forces on the China border to the 1962 level (which means removing Soviet military units from Mongolia), an end to Soviet support for Vietnam's occupation of Kampuchea, and withdrawal of Soviet forces from Afghanistan. Gorbachev would probably be unwilling to consider any of these fundamental changes in policy and deployment of forces, even in the unlikely event that the Soviet military would go along with such a decision.

Those optimistic about the prospects for improved Sino–Soviet relations, therefore, tend to look at the other side of the equation, and argue that China will relax its conditions and accept a token Soviet move on one of the conditions as satisfying all three. At first glance, history would seem to provide a precedent. After all, didn't China relax its three conditions on the Taiwan issue enough to make US–China normalization possible in the 1970s? Doesn't the American experience suggest that China is adept at getting around its own "principled stance" whenever national policy requires it?

Certainly China was flexible in negotiations with the United States, but there is no precedent here that could give comfort to the Soviet Union. First of all, the United States changed its policy in Asia to the point where it was no longer seen as a threat to China. Also, America did in fact accede to China's three conditions. It withdrew forces from Taiwan, broke diplomatic relations with Taipei, and terminated its mutual security treaty with Taiwan. More important, America was able to dispel the underlying Chinese concern that engendered those three conditions: i.e., the concern that the United States sought as a matter of policy to split Taiwan off from China. That Chinese fear arose again in 1980-81 and had to be put to rest a second time in the Taiwan arms communiqué of August 1982. For 10 years after the 1972 Shanghai Communiqué the Chinese held to the letter of their "principled stand"; only after their underlying concern was satisfied did they show any flexibility on issues such as arms sales to Taiwan.

Sino–Soviet relations are not

Roger W. Sullivan is executive vice-president of The National Council for US-China Trade. From 1978 to 1981 he served as deputy assistant Secretary of State and senior staff member of the National Security Council with responsibilities for East Asia. He helped prepare negotiating positions for President Nixon's 1972 trip to China and for the talks resulting in the establishment of US–China diplomatic relations in 1979.

developing along the lines of the US–China model. Soviet policy has not changed and is unlikely to change either objectively or in China's perception of it. Gorbachev has already warned he might seek the overthrow of the Zia government in Pakistan, China's close friend and linchpin of its South Asia policy. This threat makes clear that Gorbachev is not seeking peace with China at any price. Beijing's three conditions are not mere legalisms that the Soviet Union can satisfy with token gestures. They reflect, as did the conditions China posed to the United States, serious concerns about national intentions. Russian troops in Mongolia threaten, and are intended by the Soviet Union to threaten, a punitive strike against Beijing. The Soviet occupation of Afghanistan is not an isolated event but part of a Soviet policy aimed at Pakistan and the Indian Ocean beyond. The Soviet presence in Vietnam and support of Vietnamese aggression are, in reality as well as in China's perception, part of a Soviet policy that seeks to "surround and isolate" China.

In the absence of real change in this basic Soviet policy, there can be no decrease in the level of China's underlying concern, and therefore no willingness to display flexibility. China's interest in improving relations with Moscow should not cause Americans anxiety. On the contrary, given its self-limiting nature, the United States also benefits. Any reduced tension on the Sino–Soviet border would allow China to devote more attention and resources to economic modernization, the success of which is key to peace and stability in the region. To the extent that improvement in Sino–Soviet relations inhibits Soviet action in South and Southeast Asia, America and most countries of those regions benefit. And, as the Chinese are fond of noting with a smile, wouldn't it be marvelous if Beijing were successful in persuading the Russians to withdraw from Afghanistan? Yes indeed, but no one in Washington or Beijing believes we will see such a conversion in Moscow. Therefore, the steady progress in US–China political, economic, and, more recently, defense cooperation will continue to speak louder and with greater significance than on-again, off-again Sino–Soviet atmospherics.

—Roger W. Sullivan

Gold Mining and Production

The focus of China's six-year-old gold rush may be shifting to larger operations

Michael H. Conway

Gold has a long and important history in China. For centuries, goldsmiths have decorated temples and religious objects with copious amounts of the precious metal. Gold jewelry fashioned by Chinese artisans has been popular with those who could afford it since the Shang Dynasty of 1525–1066 B.C. But Communists with a more ascetic bent than those currently in power banned the processing and sale of gold jewelry in 1961, and for the next two decades it was condemned as evidence of a bourgeois way of life. When the present leadership lifted the ban three years ago, a surge in consumer demand showed that the ancient desire for gold had never died.

To meet this demand and contribute to the more serious business of financing the country's modernization, the government is promoting a large expansion of gold mining and production capacity. The expansion runs the gamut from peasant prospectors panning in remote gullies to large-scale government-financed operations using advanced imported equipment and technical services.

The 1978 decision to lift the restriction on individual and small-scale prospecting has fueled a mini-gold rush in the past six years. But Beijing's ambitious gold output targets for the rest of the century will be difficult to attain without greater emphasis on large-scale projects and efforts to remove remaining technical and managerial obstacles.

Photo of gold coins issued by the Bank of China by James K. Hodgkins

Deriving a complete picture

China has not yet become an important player in the world gold market, but rapid development of the country's gold mining and processing industry could make it the world's fourth largest producer by the turn of the century. Gold production is reported in almost all provinces and autonomous regions. The most important areas are Shandong, Heilongjiang, Jilin, Shaanxi, Liaoning, Henan, and Hunan (*see* map). Shandong Province, by far the country's largest producer, yielded an estimated 466,000 troy ounces (tr oz) in 1984. Shandong's reserves are concentrated in coastal Yantai Prefecture, hence the region's designation as "China's gold coast."

While total national gold production is a State secret in China, the government-controlled press is far from silent about the country's achievements. One learns, for example, that China's gold producers met their 1984 output target two months early, that Shandong Province produced a quarter of the nation's gold, and that 1984 production was up 10.7 percent on 1983 output—almost everything except a tidy absolute production figure.

While Western estimates thus vary widely, most industry observers reckon China produced close to 1.9 million tr oz (about 60 metric tonnes) in 1984, or 4 percent of total world production of 45.9 million tr oz. Given that half of the world's gold is mined by South Africa alone, China's contribution is not insignificant. At prevailing world prices, China's estimated gold production would have earned the country approximately $775 million per year over the past five years. Officially reported gold reserves have remained static at close to 12.7 million tr oz since first announced in 1982.

China says its gold production increased at an average rate of 9.7 percent each year since 1976, although Western estimates are closer to half that rate. China thus may have trouble realizing the government's plan to double 1980 gold output of 1.64 million tr oz by 1990 and to quadruple 1980 output by 2000.

There are several reasons behind China's desire to expand its presence in the world gold market. Probably most important is the country's growing import bill, officially calculated at $27.4 billion in 1984. Gold provides a readily convertible commodity with which to pay these and other offshore debts. There is also a substantial internal financial advantage for the central government to increasing gold production. The difference between the world market price ($320 per tr oz as of early May) and the ¥697 ($249) per tr oz that the People's Bank of China currently pays producers is profit credited to the

central government.

Peasant prospectors seek fortune

The 1978 decision to grant permission for relatively unrestrained individual and collective prospecting inevitably led to a sudden surge in output from small-scale operators. The Chinese say half their gold is now mined by peasants-turned-prospectors, up from an estimated 30 percent of a smaller total in 1979. According to a recent press report, some 100,000 former farmers have joined the "nationwide gold rush" since 1978, more than half of them lone panners and the rest laborers in small mines run by local governments or rural collectives. In addition to boosting gold output, this small-scale rural prospecting also helps absorb excess labor in the countryside.

The government has made prospecting attractive by raising the purchase price of gold at least twice since 1978, the latest time to ¥697 per tr oz on February 1 (*see* chart). Under another incentive program begun in 1982, the government began delivering cash to people who report potential deposits of gold or other precious metals. The bonuses range from ¥10 to ¥5,000, depending on the size of the deposit. One report from Yingkou Prefecture, Liaoning Province, said that the members of 76 families each earned ¥3,000 by producing some 2,186 tr oz of gold in 1983. This income is about 10 times what the average farmer could expect to earn in a year in that region. Still, the gap between the government's buying price and the world market price is sufficient to induce some miners to smuggle their gold out of China, especially to Hong Kong. Customs officials last year reportedly confiscated more than 550 tr oz from smugglers trying to remove it to more lucrative markets.

Inefficiencies may shift emphasis away from small operators

Despite respectable progress in recent years, many observers feel China cannot maintain current rates of production increase for long. Although small-scale (25–50 tonnes of ore per day), decentralized mining operations have helped to compensate for the widely scattered nature of gold deposits and the inefficiencies of State-run industry, these small mines have inefficiencies of their own. Unable to afford more sophisticated recovery techniques, small operators often use only a sluice box. Poor pit walls result in bad drainage and flooding. These problems mean small mines often enjoy a productive life of only two to three years while miners recover only half as much gold as they should.

China has found it difficult, both economically and mechanically, to adapt new Western mining techniques, which focus on large-scale production, to its smaller operations. Limitations on choice of explosives, equipment, and skilled labor can easily frustrate plans for development of small gold mines.

Beijing's ambitious gold output targets for the rest of the century will be difficult to attain without greater emphasis on large-scale projects and efforts to remove remaining technical and managerial obstacles.

China's large-scale gold mining enterprises use techniques that enable recovery of 70–90 percent of the gold present, and have productive lives of about 20 years. But they, too, face technical problems in exploration, mining, and plant operations.

The country's vast size requires modern geologic exploration techniques, such as remote sensing, to rapidly determine likely areas for development. Exploration in the western autonomous regions is nearly impossible because of the lack of roads, fuel, food, and other necessities. Recently one American geologist assisted in an exploration training program for placer gold in the foothills of the Himalayas in Tibet. The only way to reach the exploration area was on horseback with an escort from the People's Liberation Army to protect against bandits. Deposits reported in remote areas of Xinjiang Autonomous Region have yet to be confirmed. Sustained increases in gold production will thus require a considerable revamping of exploration procedures in order to locate and develop new deposits on a timely basis.

The majority of China's gold mines are placer deposits, or are found in association with sulfide minerals. Both types of deposits are relatively easy to put into production. But achieving high recovery rates economically is difficult. Until recently the government set aside very little money for gold development. Difficult carbonaceous or refractory gold deposits either went undeveloped or were developed with less than maximum economic recovery.

Organizational status underlines gold's importance

Despite the lack of funds devoted to it, gold has enjoyed a somewhat privileged place among China's various metal resources. Although the tonnage of gold ore mined is minuscule compared to other minerals, gold's financial implications are important enough for it to be treated as a separate item in the national five-year plans and provincial government plans. The People's Bank of China controls trade in gold, buying all gold not smuggled out of the country at the government's set price.

As with other minerals, State-sponsored exploration for gold is carried out by the Ministry of Geology and Mineral Resources. Primary gold mining activities are controlled by a central Gold Bureau under the Ministry of Metallurgical Industry (MMI) (*see* chart p. 26). While most other nonferrous metals were split off to become the purview of the China National Nonferrous Metals Industry Corporation in 1983, gold has remained under the powerful MMI.

In keeping with the current policy of separating administration from business, the Gold Bureau has formed a related company called the China National Gold Corporation to handle day-to-day commercial affairs. The Gold Corporation's projects department is charged with dealing with foreign companies. The bureau and the corporation appear

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to be composed of largely the same people.

Major gold mines themselves are operated by provincial councils (also sometimes called corporations). A mine manager reports to his provincial corporation, which in turn reports to the Gold Bureau/Corporation.

Unfortunately, the macroeconomic advantages conferred by gold's special status have all too often been negated at the mine or plant level. The basic problem is that mines have operated without economic accountability, leading to gross overmanning and inefficient management. The director of a gold mine has traditionally had to shoulder many responsibilities in addition to overseeing the mine's operations: he acted more like a mayor responsible for the mining town, the food production collective, the local school, and other aspects of community life. This situation is changing, however, partly in response to the introduction of significant rewards for gold recovery and production. This creates incentives for local mine management to concentrate more on the mine operations per se, and leave the business of running the town to others.

The Gold Bureau is now also receiving more funds to finance gold mining operations. Financing methods vary widely depending upon size of the operation. The government said it would extend loans totaling ¥40 million ($17.2 million) to individuals and collectives to assist in gold mine development in 1984, and funds for gold development are expected to increase further in the Seventh Five-Year Plan, 1986–1990. In addition to programs funded by the central government, some individual provinces are establishing their own gold development programs.

The expanding scope of foreign involvement

Equipment and technical services provided by foreign companies are already contributing to China's gold production increases. The current emphasis on the industry, and particularly China's hope to increase the efficiency of its large-scale mining sector, bode well for foreign equipment suppliers and investors.

Mines have already begun to use their additional funds to acquire new technology. One of China's largest gold mines, Zhaoyuan in Shandong Province, recently increased recovery by 5 to 10 percent after installing ion-exchange technology developed by a domestic research institute under the Ministry of Nuclear Industry. Many other mines are looking to foreign firms for a variety of equipment and services.

Acquisition of foreign gold mining equipment began to pick up speed in 1980. China imported three 300-liter bucket dredges from Mining and Transportation Engineering, BV, in the Netherlands, for two mines in Huma County, Heilongjiang Province. That same year Wagner Mining Equipment Company of Portland, Oregon, sold the Chinese 12 load-haul-dump vehicles for gold mining operations.

In 1980 China also began to solicit other types of services from foreign firms. The San Francisco office of Davy McKee Corporation (UK) signed a contract to perform a feasibility study for the expansion of the Jiaojia and Xincheng mines in Ye County, Shandong Province. The primary goal of these two mining expansion projects was to maximize recovery with the most economic technology. The Chinese signed another contract in 1980 with Wright Engineers Co. Ltd. of Vancouver, Canada, to prepare a feasibility study on expanding the Sanshandao mine, also in Shandong Province along the Bohai Sea. Wright landed a follow-on design and procurement contract in 1982 for the mine and plant. Construction of the 1,500 tonne-per-day mine, which averages 6 to 13 grams of gold per tonne, is underway and expected to be complete in 1987.

In addition to these expansion projects, Shandong Province intends to develop and finance more projects on its own with foreign assistance. Last year, a Shandong delegation toured several US gold mines and equipment manufacturers in search of technology for China's richest gold mining region.

Although establishing joint mining ventures with foreigners may be the quickest way to raise mining efficiency, it poses difficulties for China in that it appears to give foreigners some control over the country's wealth. But a search for foreign partners by Heilongjiang Province suggests that even this taboo may be changing. Heilongjiang is actively seeking joint venture partners willing to invest $114 million to help it expand *and operate* three gold mines. According to provincial Governor Chen Lei, the investment project will include importation of equipment and ore-dressing technology. To attract foreign investors, Heilongjiang is offering various incentives, including a priority supply of basic items such as energy resources, water, transportation, port facilities, telecommunications, construction sites,

Photo courtesy of New China Pictures

Peasant prospectors use a sluice box to extract gold from ore dug near Handaqi township in Heilongjiang Province.

Price of Gold: China and the World

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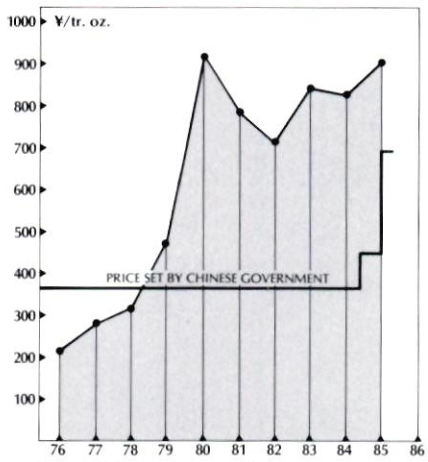
(converted to Yuan at official exchange rate)



Sources: U.S. Bureau of Mines, People's Bank of China

and operating labor. The province will also waive construction site utilization fees for foreign investors for three years and reduce the site development fee by 70 to 90 percent.

So far no companies have taken the province up on the offer, the first of its kind in gold mining. But foreign firms will increasingly take advantage of opportunities in three other less controversial areas of China's gold industry: engineering design, equipment sales, and production joint ventures. Foreign engineering firms will continue to offer limited engineering services in development of gold mines, especially when the technology required to increase economic recovery is not in use in China. In addition, the engineering of plants requiring processing of very refractory ores by such methods as pressure oxidation may be performed with the assistance of foreign engineers. But the role of foreign engineering firms in plant design will probably be limited by China's desire to be self-reliant. There is also potential for contracting of computerized and advanced remote sensing techniques for exploration.

Perhaps the prime opportunity for foreign investment is in joint venture manufacturing facilities related to gold refining. The Chinese want to establish manufacturing plants for equipment not currently available in China. They have expressed particular interest in making such equipment as high-capacity thickeners, hydrofoil agitators, slurry pumps, and chlorine vaporizers.

One company's experience

The first lode gold mines to be placed in production using foreign assistance are at Tongguan in Tongguan County, Shaanxi Province, and at Zhangjiakou, Xuanhua County, Hebei Province. Davy McKee Corporation's San Francisco office signed a contract in early 1984 for basic engineering, procurement assistance, and management services for these two projects. The design and engineering of the Tongguan and Zhangjiakou mines illustrate China's new emphasis on upgrading existing facilities through cooperation with foreign firms.

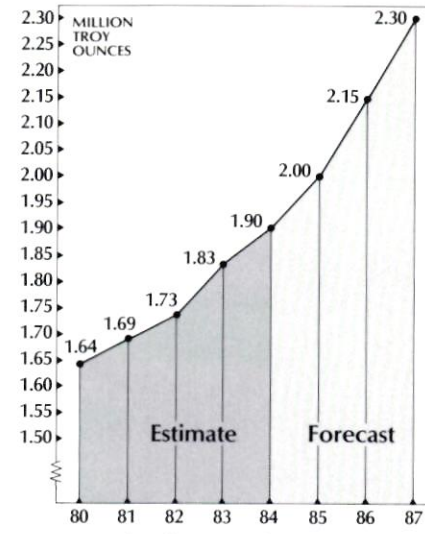
The design and engineering task force was made up of technical experts from both sides. It included Davy McKee personnel, engineers from the Changchun Gold Engineering Institute (responsible for Tongguan), the Beijing Central Engineering and Research Institute for Nonferrous Metallurgical Industries (responsible for Zhangjiakou), and the China Metallurgical Import–Export Corporation (CMIEC) under the Ministry of Metallurgical Industry, which took responsibility for contract management and procurement of foreign equipment.

First, Davy McKee Corporation (DMC) sent a fact-finding mission to China in late May 1984. DMC representatives met in Beijing with representatives of CMIEC, the Gold Bureau, and the two institutes, and then traveled with project representatives to Tongguan to gather on-site information about existing operations.

Once back in San Francisco, Davy McKee executives set up the home office engineering task force. Shortly thereafter engineers from the two Chinese institutes came to the United States for the five-month design period. The design teams functioned on an integrated discipline basis rather than through a formal hierarchy. Among the 18 Chinese engineers and the 35 DMC staffers that made up the team, enough bilingual people were available to ensure that technical communications proceeded smoothly.

In addition to maximizing the percentage of gold recovered per tonne of ore mined, the team was also concerned with achieving parallel process design for both mines, maximum

Chinese Gold Production 1980-87



Sources: The Gold Institute, author's estimates

use of equipment and reagents manufactured in China, and commonality of size and spare parts of foreign-procured equipment. The designers chose the recently developed carbon-in-leach technology for both plants. This process uses sodium cyanide to form a soluble gold complex adsorbed by the activated carbon in the slurry. The much larger carbon particles are then easily screened from the finely ground ore and treated to recover the gold as relatively pure metal.

Basic engineering was completed in December 1984. Procurement activities were completed in February 1985 and both projects are currently under construction. Representatives from DMC visited China in April to review and comment on the engineering. Later this year, 18 operators from the two mines will visit the United States for four weeks of classroom and hands-on training at an operating mine. During the fourth quarter of the year, representatives from DMC will return to China to provide assistance in starting up the new Tongguan plant operations. Zhangjiakou is also scheduled to begin operation this year.

The successful completion of projects such as these will increase both output and confidence in new recovery techniques. As China seeks to build up the capacity and efficiency of its larger gold mining and production centers, opportunities for foreign firms should grow apace. 完

Major Gold and Diamond Mines

Artwork by John Yanson

Diamond Mines

HUNAN
Changde mine, Changde County. Produces mainly industrial diamonds; recovery rate: 0.25 carat/tonne of ore.

LIAONING
Binhai mine, Fu County. Discovered 1971; China's newest diamond mine and best source of relatively large gem diamonds.

SHANDONG
Chengjiafu mine, Tancheng County. Mined since the late 1940s with additional finds in the late 1970s. Exploration efforts recently renewed to determine if another primary site exists in the vicinity.

Mengyin mine, Mengyin County. The province's second major diamond mining area.

Gold Mines and Deposits

(Production figures are estimates)

BEIJING
Pinggu County. Reported to be fifth largest producing county in China with 150 mining centers.

FUJIAN
Zhangzhou deposit, Longxi County. Major deposits southwest of Quanzhou.

GANSU
Lanzhou mine, Jinchang City. Operating mine connected with Jinchuan nonferrous metals complex.

GUANGDONG
Province-wide: Mines in more than 50 counties.

Jingu mine, Zhaoqing County. 1982: 5,000 tr oz.

Hainan Island. Several deposits.

HEBEI
Zhangjiakou mine, Xuanhua County. Has engineering and management contract with Davy McKee for carbon-in-leach circuit for gold recovery.

Sanjia mine, Xinglong County. 1980: 9,650 tr oz.

HEILONGJIANG
Province-wide: 114,000 tr oz in 1983; 41 mechanized mining vessels in use as of 6/83; placer deposits along rivers.

Xinglong mine. Under Huma gold mining administration. Three Chinese-made mining vessels installed 9/84.

Tuanjiegou mine near Huma. Est'd annual capacity: 48,000 tr oz

Muling mine. 1982: 4,800 tr oz.

Handaqi mine. 1982: 19,000 tr oz.

Qiqihar mine.

HENAN
Province-wide: Reportedly China's third largest producing province.

Xiaqinling deposit, Lingbao County. 965,000 tr oz of reserves, 540 veins, and 7 ore bodies; new plant with 100,000 tr oz/yr capacity reported in 1979.

HUBEI
Huangshi deposit. Extent of deposits unknown.

HUNAN
Changsha County. 1980: 68,000 tr oz. Gold produced as by-product at Zhuzhou metals complex.

Western Hunan: deposits, small-scale mining.

JIANGXI
Dexing copper mine, Dexing County. 10,000 tpd open-pit copper, gold, and molybdenum mine and concentrator. Planning expansion to 135,000 tpd.

Guixi deposit. New silver, lead, and zinc deposit with 1.6 million tr oz associated gold.

JILIN
Province-wide: about 100,000 tr oz in 1982.

Huadian County. 44,000 tr oz mined 1979–83.

Hunchan mine. 1982: 15,000 tr oz.

LIAONING
Province-wide: 46,000 tr oz in 1982, almost half from Beipiao County.

Hua copper mine, Shenyang. Abandoned copper mine produced 11,600 tr oz gold, 1983.

Bozhangzi deposit, Lingyuan County. "Large" deposit discovered 1983.

NEI MONGOL
Province-wide: 163 mining establishments reported in 1982; all counties except one reportedly have gold.

QINGHAI
Province-wide: 30,000 miners looking for gold in 1984.

SHAANXI
Jialing River deposits, Lueyang County. Deposits found in upper course of river.

Tongguan mine, Tongguan County. 1982: 6,500 tr oz. Has engineering and management contract with Davy McKee for carbon-in-leach circuit for gold recovery.

Huashan deposit, Tongguan County. Deposits reported.

Yuehe Valley deposit. Large placer deposit found in tributary of Hanjiang River.

Yangpingguan deposit. Broad seam of high-grade ore found 1983.

Ankang mine, Ankang County. Capacity: 19,000 tr oz/yr.

SHANDONG
Province-wide: 466,000 tr oz in 1984. Reportedly one fourth of China's total; five State-owned mines.

Zhaoyuan mine, Zhaoyuan County. State-owned; annual capacity: 80,000 tr oz; receiving new investment.

Linglong mine, Yantai Prefecture.

Yinan mine. State-owned; receiving new investment.

Rushan mine. State-owned; receiving new investment.

Jiaojia mine, Ye County. State-owned; 1981: 94,800 tr oz; Davy McKee completed expansion study in 1980.

Sanshandao mine, Ye County. 1981: 64,300 tr oz; expansion to 1,500 tpd designed by Wright (Canada) to be completed 1987.

Xincheng mine, Ye County. State-owned; expansion study by Davy McKee completed 1980.

SHANXI
Fanshi County. Deposit with est'd ore reserve of 10 tonnes.

SICHUAN
Province-wide: numerous large placer deposits reported.

XINJIANG
Province-wide: 56 out of 80 counties report gold deposits.

YUNNAN
Zhaoye mine, 500 tpd at three main ore dressing facilities using flotation.

Dukou deposit, on border between Yunnan and Sichuan.

Dongchuan mine, Dongchuan. Reported operating in 1982.

ZHEJIANG
Suichang mine. Scattered placer deposits reported; modifying operations for improved recovery.

SOURCES: Davy McKee Corporation and National Council files.

China's Gem Diamonds

Mystery shrouds the industry, but it may have a sparkling future

Karen Green

For many years diamond gems were regarded as trappings superfluous to life in China. The widespread perception of jewelry as a negative political commodity after 1949—or at least a domestically irrelevant item—discouraged centralized development efforts. Many disparate organizations, however, have involved themselves in gem-quality diamond mining, and production. As a result, comprehensive industry information is hard to come by.

Foreign firms find it particularly difficult to penetrate the mystery in China surrounding nature's hardest stones. Even in the case of industrial diamonds, used extensively in metal working and civil engineering, foreign cooperation such as that which has spurred development of coal mines has been conspicuously absent. This is due in part to China's secrecy about the location and output of any precious or strategic materials. The tightly controlled environment of international diamond marketing exacerbates the situation.

In the diamond gem sector, however, reforms have begun to cast old actors in new roles and introduce new ones to the stage. The political stigma attached to ornamenation has relaxed markedly. Meanwhile, increased foreign interest in potentially lucrative processing ventures has lifted the veil slightly and is contributing to a new dynamism in China's gem diamond industry.

Production estimates

The amount of diamonds produced in China is largely a matter of speculation since no official figures have ever been published. Many diamonds are mined by peasants, using large screens to work the placer gravel and sand. A report by the South African Department of Mineral and Energy Affairs in July 1982 estimated 1980 production at between 1.8 and 2.8 million carats, with 20 percent consisting of gem-quality stones. The US Bureau of Mines put 1982 and 1983 output at 400,000 gem-quality carats and 1.6 million industrial carats per year.

Chinese sources from various organizations involved in diamond exploration, mining, and marketing all agree that these estimates are considerably overstated. Jean W. Pressler, gemstone analyst at the US Bureau of Mines, concurs. The bureau reduced its output estimate to roughly 1 million carats for 1984, 200,000 of which were gem quality. But even this revised estimate will probably remain higher than the Chinese figures. Niu Decheng of the China Nonmetallic Minerals Industry Corporation guesses that China's total yearly production is in the 300,000–500,000 carat range with 15–17 percent of the stones gem quality.

Mining centers on three provinces: Liaoning, Hunan, and Shandong. Liaoning's Binhai Mine in Fu County is widely acknowledged as the best source of relatively large high-quality gem diamonds. This original site deposit, discovered in 1971, is the newest of China's diamond mines.

Shandong has two major mines: the Chengjiafu Diamond Placer Mine in Tancheng County, and the Mengyin Diamond Mine in a neighboring county. At Chengjiafu, stones of 96.04, 124.27, and 158.86 carats have been found since 1979. Although the area has been mined since before 1949, these recent finds led to additional exploration last year on the likely premise that another primary site exists. A number of smaller placer mines also operate in the locale.

The Changde Mine in Changde County, Hunan, is the fourth major mine, though it is not thought to be a primary deposit. The mine began operations in the early 1970s, producing mainly industrial stone.

Kimberlite deposits in Guangxi and Guizhou remain relatively unexplored, although they are often found in conjunction with diamonds. Small diamonds have also been found in Tibet. Chinese industry experts, however, have deemed these finds unworthy of note.

The Ministry of Geology and Mineral Resources (MOGMR) is responsible for exploration for new mines, generally undertaken on a provincial survey basis. Occasionally an exploration team will concentrate on a certain mineral or gem, but if the area proves not to have the commodity in question, the team will generally switch focus to another commodity rather than leave the province.

Several other organizations are well placed to conduct diamond exploration, but have not taken the initiative to do so in any rigorous fashion. For instance, the State Bureau of Oceanography conducted a coastal resource survey in 1984. But the work did not include a detailed mineral survey even though plentiful, high-quality diamond deposits are often found in such marine terraces.

More actors enter the mining picture

A more entreprenurial spirit is evident in the diamond mining sector,

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controlled until recently by the China Nonmetallic Minerals Industry Corporation (NMMC) under the Ministry of Urban and Rural Construction and Environmental Protection (MURCEP). MURCEP received responsibility for diamond production in the 1950s because its industrial and civil engineering tasks required diamonds.

Other organizations, however, have begun to get some of the action. The Ministry of Geology gained a foothold in mining in Liaoning Province several years ago when it took the unusual step of developing a small-scale find instead of turning it over to NMMC. So far the two agencies seem to have worked out an understanding: according to NMMC engineer Yu Yuntang, "the NMMC is perfectly content to let the Ministry of Geology operate the mine, or any other organization that can run it well. In fact, the Ministry of Geology asked us to invest in the project, but we decided against it. In any case, diamonds are our bailiwick and the Ministry of Geology must report plans and statistics to us."

The China National Nonferrous Metals Industry Corporation (CNNC), formed in 1983, is another potential diamond miner. CNNC finds gemstones as by-products of its nonferrous mining operations, although so far the corporation has not deliberately set out to find diamonds.

Local collectives control most processing

Diamond processing and marketing do not follow the general guidelines for jewelry. Ordinarily, China's jewelry is fabricated by the Ministry of Light Industry (MLI). Finished pieces are then sold domestically through the Ministry of Commerce and abroad through the China National Arts and Crafts Import–Export Corporation (ARTCHINA), a foreign trade corporation under the Ministry of Foreign Economic Relations and Trade.

In the case of diamonds, MLI plays a much less important role. According to ARTCHINA's diamond and pearl surveyor, Ho Naihua, there is only one polishing facility run by MLI: the Shanghai Diamond Factory. Collectives and joint ventures control the rest of production.

A number of possible factors account for the collectivization of the diamond industry and its relative independence from MLI. Diamond processing in China began over 50 years ago in Shanghai. In all likelihood, the skills originated with Eastern European or Russian immigrants instructing local cutters. A handful of artisans worked on a private basis transferring knowledge from master to student until the collectivization movement of 1958. Thus the industry never became reliant on central authorities for technical know-how.

The exact number and location of China's diamond cutting and polishing plants remains somewhat of a mystery. In many cases, diamond processing centers are affiliated with jade carving or other jewelry export operations. There are definitely facilities in the cities of Shanghai, Beijing, Guangzhou, Fuzhou, Wuxi, Yangzhou, Yantai, and sites in Liaoning Province. By far the largest is the State-operated Shanghai Diamond Factory, employing 200 workers. The collectively owned Beijing Diamond Factory is another large processing center, with approximately 100 workers, 30 of them cutters. According to Xu Liejun of China Arts & Crafts (USA) in New York, the Beijing factory's annual production is 1,000 carats per year of 2- to 15-point diamonds (100 points=1 carat).

With the exception of these few large cities, collective polishing centers are concentrated near diamond deposits. Gem-quality rough stones mined in China are distributed to processing centers through a tight but informal network. Mine officials contact processing center buyers directly to notify them of impending sales, often held at or near the mine itself. Thus Ho maintains that he knows little about the quality, availability, and price of domestic rough —despite his involvement in the industry.

Collectivization has benefited localities by enabling provincial authorities to keep precious diamond resources for local use and profit. In the case of most jewelry production, MLI serves as the middleman between producers and ARTCHINA. But diamond production collectives sell directly to ARTCHINA, eliminating the middleman and keeping greater profits for themselves.

Several national players are eager to get more involved in processing diamonds for export. MOGMR may hold a competitive edge in processing since it has gained some control over the rough diamonds mined in Liaoning. But CNNC also hopes to be a contender. In June 1984, CNNC formed a gem raw materials subsidiary to take responsibility for the sale of gem-quality rough diamonds occasionally located by CNNC exploration teams. ARTCHINA's Ho says he has yet to buy any gem-quality rough diamonds from CNNC, although he is the country's largest buyer. In time, though, if the gem raw materials company can amass sufficient foreign exchange, it may invest in a joint processing venture. This would enable CNNC to sell finished rather than rough stones for a greater profit margin, perhaps providing the stimulus CNNC needs to get more involved in this area.

China and the world diamond trade

Production from domestic diamond mines supplies only 10 percent of the gem-quality rough stones needed by China's cutting and polishing plants. Although some rough is supplied by foreign companies under materials processing deals, ARTCHINA must still import between 150,000–200,000 carats of gem-quality rough per year to reach full processing capacity, entailing a large outlay of foreign exchange. Given China's relatively low labor costs, processing these rough gem-quality stones has the potential to be a big money-earner, especially as the Chinese gain skills and efficiency.

Ho Naihua from ARTCHINA currently journeys to Antwerp once or twice a year to import the domestic shortfall. He maintains that no rough is bought from South Africa's De Beers or the Soviet Union, markets the Chinese avoid for political reasons. However, since Antwerp's diamonds come from all over the world and their source is usually difficult to trace, his assertions may be of greater political than practical importance.

Demand for industrial diamonds also exceeds supply, so these stones consistently appear in China's list of major import commodities. In the first three quarters of 1984, China brought in 344,113 industrial carats. In 1983 the country imported a total of 358,123 carats at a cost of ¥14.5 million ($7.3 million).

In the past, owing to the preeminent need for industrial stones, all diamond imports were handled by

MOFERT's China National Machinery Import–Export Corporation (MACHIMPEX). ARTCHINA simply picked out the better quality stones for use in jewelry. ARTCHINA, however, has now gained sole responsibility for importing gem-quality rough stones, although MACHIMPEX retains control over diamonds imported for industrial use.

Even with more liberal attitudes toward dress and ornamentation, the Chinese wage scale continues to ensure that diamond jewelry remains strictly an export item. As such it too is handled by the foreign trade corporation ARTCHINA. The 1984 export value for diamonds processed in Shanghai and Beijing alone reached $14 million, according to Ho Naihua, with the Beijing plant accounting for only a small portion of that sum.

Foreign cooperation focuses on materials processing

Foreign involvement in China's diamond industry has been limited, but now appears to be growing despite the lack of information foreigners have on the subject. While cooperation in diamond exploration remains negligible, China is realizing that it can learn much from foreign processors. For their part, the diamond processors are learning that there's money to be made in materials processing arrangements with China.

Cooperation with overseas organizations on exploration has been limited largely to official scientific exchanges. Technical seminars have been held with Sri Lanka, Australia, Pakistan, Japan, and the Gemological Institute of America.

Australia has been among the most active countries, with some private sector involvement. In 1984 representatives from Argyle Diamond Mines, a subsidiary of CRA Ltd., visited China. But according to Yuan Jianwei, a jewel specialist with MOGMR, the visit was simply a "technical interview," part of a larger government-to-government exchange between China and Australia. Although the Argyle team reportedly examined diamonds mined in Fu County, Liaoning Province, they did not enter the mine.

As yet there are no commercial exploration agreements between China and other countries, and commercial cooperation with Argyle is not anticipated. Preliminary negotiations are taking place with a British firm, but the outcome is far from certain.

Foreign involvement in China's diamond cutting and polishing operations has been more extensive. In a typical deal the foreign partner supplies the rough stones for processing in China. This suits China well, for it furnishes factories with a much needed resource, but does not require the foreign partner to gain access to information on the factory's domestic supply channels.

The first such deal was a compensation trade agreement between V. K. Narasimhan, an Indian with West German backing, and the Beijing municipal industry bureau. Narasimhan provided the rough stones, subsidiary materials, equipment, and training. The Chinese supplied 3,000 square meters of floor space and gave Narasimhan half the income from the processed goods as compensation for his investment. But the venture folded in 1983 because Narasimhan claimed he could not supply enough rough. Ho Naihua noted that Narasimhan was not tapped into the De Beers network, suggesting once again that the Chinese take a practical approach to sourcing rough diamonds: while they will not source material directly from South Africa, they appear willing to turn a blind eye to a foreign partner so doing.

ARTCHINA is, however, very satisfied with the materials processing arrangement between the Harry Winston Company of New York and the Shandong Diamond Factory in Yantai. The venture began in 1982, with Winston bringing in machinery, parts, and of course, rough diamonds. Winston also sent a master cutter to Yantai for five two-month periods to train workers. Seventy have been trained to date. In return, Winston had rough processed at $15 per carat, renegotiated at $20 per carat in 1984. Fuzhou and Guangzhou jewelry factories also have materials processing agreements with Hong Kong firms.

Another joint venture is currently in the works between the New York firm of Erwin Komarow Inc. and the Nanjing Municipal Arts & Crafts Corporation. The contract will resemble Winston's but on a grander scale. Four American master cutters will train a core group of 93 people selected on the basis of a dexterity exam. After a three-to-four month training period, trainees will be assigned to one of the six phases of the diamond cutting operation. After training is complete, the senior master cutter will return to the Nanjing factory on a regular basis to monitor security and quality control.

According to the Komarows, China manufactures primarily round, full, and single-cut stones with weights ranging from 1 to 15 points. "Diamond cutting in China is just taking its first little steps," according to Erwin Komarow. "I'm impressed with what they've learned on their own."

As China's artisans gain skills in processing rough stones, more foreign firms are likely to view China as a lucrative processing market. If well-planned, such diamond processing arrangements could be ideal for both sides. They do not require large investment, and the complicating factor of access to the domestic market does not exist. Despite the mysteries surrounding the industry, it stands to benefit greatly from China's open door policy and greater economic flexibility. 完

Selling Used Mining Equipment

Abandoning conventional practices can help US firms serve a growing market

Thomas N. Thompson

China is quickly becoming one of the world's most important markets for used and rebuilt equipment for the mining industry. The PRC is probably already the largest buyer of used American mining equipment, having spent an estimated $60 million in 1983. Subsequent years will show steady, and possibly dramatic, increases.

This wasn't always the case. Only a few years ago, the Chinese refused to seriously consider overseas purchases of used and rebuilt mining equipment. But a bold modernization plan and good mining economics have recently replaced false pride, making used and rebuilt equipment acceptable commerce.

This change in attitude is the result of China's desire to combine careful capital goods investment with big production increases throughout the entire mining industry, including coal, iron, and nonferrous metals and minerals. The latter goal means that over the next decade China will import a wide range of new and used mining equipment easily worth billions of dollars.

The coal industry's shopping list includes tunneling, drilling, and boring equipment, as well as off-highway trucks, continous miners, and large shovels. The logic of this demand is straightforward: continued high rates of industrial growth are essential to China's modernization, and will depend on high output of coal-based energy.

In the iron and steel industry, current attempts to increase the variety and quality of ferrous products require development of purification and beneficiation facilities to enhance the quality of raw materials. China's nonferrous mining sector is also dependent on outdated technology, and needs new refining capacity to boost output. Demand for aluminum and copper is rising with the expansion of power generation and transmission facilities. China is expected to buy large gyratory crushers, cone crushers, and autogenous milling equipment from US companies this year.

How much of China's purchases will be new, or used and rebuilt, is impossible to specify. But Chinese mining engineers have come to realize that simple, rugged, secondhand equipment is often a good alternative to relatively expensive new equipment. The Chinese know that used high-capacity equipment is often for sale in the United States—not because the machinery is in poor condition, but because it has become uneconomical to mine relatively low-grade ores with expensive American labor.

Although China thus represents a potentially lucrative market for US mining companies seeking to cut capacity, it is still not one that can be realized without effort. The Chinese may be newcomers to the used mining equipment market, but they are still hard bargainers. Moreover, their business practices often differ from those with which American mine managers and machinery dealers are familiar. Therefore, advance knowledge of the following situations may help avoid potential problems:

Photo courtesy of New China Pictures

Miners working at the Linglong Gold Mine in Shandong Province subject their equipment to harsh treatment.

▶*Quotations*

A Chinese buyer typically initiates his interest in used equipment by "shotgunning" requests for quotations from any number of trading companies, equipment dealers, or brokers. These initial requests include the requirement that manuals, drawings, and complete historical records for each machine be included with the initial quotation. Compilation of this information can be difficult and time-consuming. Unfortunately, the "shotgunning" approach often confuses and frustrates US suppliers, who only reluctantly make a quotation, and see little incentive to provide the best one possible. Where several brokers are involved, commission add-ons to the base price of a machine make the initial offer artificially high. The prospective buyer has done little to qualify himself with a potential seller, and may find his time and effort wasted.

Most dealers of heavy machinery in the United States, unfamiliar with overseas sales, refuse to quote FAS vessel or CIF Chinese port, arguing that freight and insurance are the buyer's problem. But the Chinese buyer, like any other, needs to know all additional costs: export preparation, US inland transportation, and various other expenses.

▶*Letters of credit*

When a sale is negotiated, the Chinese buyer not surprisingly expects to pay for the machinery with an irrevocable letter of credit calling for clean on-board ocean bills of lading. The owner of a US-based used-machinery company, however, will have sold almost exclusively on a cash basis in the US market, and may resist any change in business practices that have been successful up to the present. The same attitude is common among mine managers as well. The frequent resistance of US sellers to L/C terms can lead to substantial misunderstanding between buyer and seller.

If the seller does agree to L/C terms, he will often insist that the L/C be confirmed by an acceptable US financial institution. A fundamental characteristic of a Bank of China L/C, however, is that under no circumstances may it be confirmed. As China's sole foreign exchange bank with worldwide assets exceeding $45 billion, the Bank of China believes its

obligations to be beyond question.

▶*Guarantees*

Prospective sellers may find resistance in China to the common US practice of selling equipment on an "as is, where is" basis, with no guarantee of the condition of the equipment. Chinese buyers have managed to negotiate purchase agreements that include "guarantees" that the equipment is "complete and totally operational for its age and previous use." But this is not a guarantee of the equipment's condition so much as a guarantee that the condition will be a matter of dispute later. Where equipment is rebuilt by a manufacturer to original specifications, there are happily fewer disagreements once a sale has been finalized.

▶*Using a middleman*

China has bought most of its used or rebuilt mining equipment through a variety of trading companies and US-based machinery dealers. Such middlemen provide important services. They help the prospective Chinese buyer find the particular used machine he seeks in a marketplace that includes all of North America. At times, this may include introducing the Chinese to the world of heavy machinery auctions. Trading firms advise the Chinese buyer on the purchase of the machine, helping him cope with the inherent risks and difficulties of the "as is, where is" sales conditions employed by dealers. Many used mining equipment traders may also organize on-site inspections and shipment of the machinery.

However, the overall quality of trading companies in the used mining equipment field is uneven. Some deserve the good reputation they have earned. But in general Chinese buyers complain that traders drive up the cost of equipment too far. In addition, while China is increasingly interested in acquiring used machinery with various forms of financing, most trading firms are unwilling to organize this aspect of a sale.

▶*Joint venture possibilities*

Over the longer term, an ideal method for Chinese purchases of used and rebuilt equipment may be a joint venture with an established overseas dealer. A joint venture would offer the Chinese buyer or, more likely, an association of buyers, the opportunity to step into a market where the US partner is already established. Machinery could be purchased by the joint venture at prices far below those normally negotiated by the Chinese on an individual basis, thus justifying the initial investment.

Such a venture would also provide the Chinese and American partners with market information useful to pursuing a whole range of trading possibilities in mining-related areas. The PRC has already exported a variety of light-duty sand and gravel machinery to the United States, and could explore other machinery markets in North America.

China's mining engineers know that used high capacity equipment is often for sale in the United States—not because the machinery is in poor condition, but because it has become uneconomical to mine relatively low-grade ores with expensive American labor.

A Chinese joint venture in the United States might also acquire used mining machinery in various states of disrepair to be rebuilt in China. Such machinery can be purchased at a fraction of the cost of either new or late-model equipment. Initial savings on a machine rebuilt in China would have to be weighed against future maintenance costs, but there is little doubt that much of this machinery could be economically rebuilt in China.

The Ministry of Coal is already working with Morgan Equipment Company in San Francisco to develop maintenance and rebuild shops for 170-ton trucks and 12-15 cubic yard mechanical shovels. Chinese engineers have put in many months preparing the project site in California. When completed, the maintenance and rebuild facility will be one of the largest of its kind in the world. Facilities of this type will eventually provide the increased numbers of trained technicians that China badly needs to maintain its equipment. Since Chinese mining enterprises have a reputation of being unduly harsh on their equipment, the importance of this latter benefit cannot be underestimated.

Another type of joint venture China is now pursuing involves leasing equipment for the nonferrous mining sector. Such arrangements permit the lessee to gain use of expensive equipment at low annual cost. Another advantage is the frequent availability of better maintenance terms under a lease finance contract—an especially important factor when trained mechanics and technicians are in short supply.

A recent example of a leasing enterprise in the mining equipment field is the formation of China International Nonferrous Metals Leasing Co., Ltd., a joint venture of First Interstate Bank in association with Banque Nationale de Paris, China National Nonferrous Metals Industry Corporation, and two Chinese banks. By joining this venture, China can expect immediate access to a wide array of equipment, both new and used or rebuilt, through the worldwide links this joint venture provides. The American and French partners gain the benefit of a favored selling technique that should give a marketing edge to American and French suppliers. The Chinese partners can be expected to aggressively promote the leasing service to Chinese enterprises in nonferrous mining.

Whatever method or combination of methods Chinese buyers use to purchase used and rebuilt equipment for the mining industry, it is certain that the value of those purchases will increase and the financing of their purchases will become increasingly complex. American equipment suppliers willing to work hard and creatively maintain a competitive position in the important Chinese market can expect to enjoy the rewards of their efforts. 完

Thomas N. Thompson is president of Overseas Trade Corporation, a Seattle-based trade and trade finance consulting company that specializes in mining projects in developing countries. He is also vice-president of Atlas Mine and Mill Supply Inc., which specializes in used and rebuilt mining equipment.

事历

METALLURGY TRADE MISSION The US Department of Commerce will lead a metallurgy trade mission to the PRC June 6–19, 1985. Participants will discuss future plans for the renovation and modernization of steel mills in Anshan, Shoudu, Shanghai, Chengdu, and Baotou with Chinese officials of the Ministry of Metallurgical Industry. Visits will be made to several sites. The trip will be conducted under the US–China Work Program for Industrial and Technological Cooperation in the metallurgical industry. The mission will be led by James R. Phillips, deputy assistant secretary for Capital Goods and International Construction. *Contact:* Cecil Crider, Department of Commerce, Tel: (202) 377-2373.

CHINA INTERNATIONAL ENERGY CONSERVATION EXHIBITION & CONFERENCE June 10–15, 1985. Shanghai. Equipment technology and conservation measures for energy consumption and processing; includes metallurgical component. *Contact:* International Trade & Exhibitions Ltd., 553/579 Harrow Road, London W10 UK. Telex: 296023.

IFRE/INTL FAIR FOR RARE EARTHS & THEIR APPLICATION PRODUCTS September 1985. Beijing. Scope of exhibits and technical presentations to include rare earth research, production, and application technologies for exchange or transfer; rare earth products; rare earth application products; and reagent chemicals, instruments, and equipment for use in research, production, and applications. *Contact:* Tang Kefeng, IFRE, 2 Xinjiekou Wai Dajie, Beijing, PRC. Telex: 22604 MIEC CN.

MINECOM '85/COMPUTER APPLICATIONS IN MINING September 14–21, 1985. Beijing. Exhibits will include state-of-the-art microprocessor technology utilized in mine planning and design, exploration, and various mining applications. *Contact:* Amy Lewis at National Council member company Roman Associates, 3572 Terrace Way #1, P.O. Box 1607, Lafayette, CA 94549. Tel: (415) 284-9180.

CHONGQING '85/INTERNATIONAL EXHIBITION OF FOREIGN TECHNOLOGY AND EQUIPMENT September 23–28, 1985. Chongqing, Sichuan Province. This multiproduct show will include equipment and technology for the renovation of the metallurgical industry. *Contact:* Stanley Chu, Adsale Exhibition Services, 21/F, Tung Wai Community Building, 109-111 Gloucester Road, Hong Kong. Telex: 63109 ADSAP HX.

CHINA HEATEX 85/2ND INTL EXHIBITION OF HEAT TREATMENT, FOUNDRY, AND WELDING EQUIPMENT AND TECHNOLOGY October 10–16, 1985. Shenyang, Liaoning Province. Includes equipment and technology for upgrading all facets of China's metalworking industry. *Contact:* Jessica Daniels at National Council member company SHK International Services, Ltd., One Liberty Plaza, 4th Floor, New York, NY 10080. Tel: (212) 766-6192/3.

SECOND MIF CHINA 85/INTL METAL INDUSTRIES FAIR AND SEMINARS CHINA 85 December 4–9, 1985. Tianjin. Exhibits will include equipment for metal finishing, processing, and related machinery and materials. *Contact:* Kris Sam, Canal Promotion Centre, GPO Box 1524, Hong Kong. Telex: 74269 CANAL HX.

CHINA COAL MINING '85/INTERNATIONAL EXHIBITION OF COAL MINING MACHINERY & PROCESSING EQUIPMENT December 4–9, 1985. Taiyuan, Shanxi Province. Exhibits will include power coal mining equipment, explosive materials, tunneling machines, underground transportation vehicles, quarrying equipment, environmental control and monitoring equipment, and ventilation systems. *Contact:* Alan Kwok at Business & Industrial Trade Fairs Ltd., Blk. B, Units 1–4, 12/F., Wing Kut Ind. Bldg., 608 Castle Peak Rd., Kowloon, Hong Kong. Telex: 32334 BIPC HX.

CHINA MINING/EXHIBITION & CONFERENCE April 12–22, 1986. Jinan, Shandong Province. Scope of exhibit to include longwall continuous thin-seam and open pit mining technology; equipment for coal preparation and transportation; mine planning and development; and general coal mining equipment. *Contact:* Amy Lewis at National Council member company Roman Associates, 3572 Terrace Way #1, P. O. Box 1607, Lafayette, CA 94549. Tel: (415) 284-9180.

CHINA MINING '86/INTERNATIONAL MINING EQUIPMENT EXHIBITION September 11–17, 1986. Beijing. Exhibit profile includes equipment for both surface and underground mining, coal and mineral processing technology, extractive metallurgy, mine and plant maintenance, computer hardware and software for mining/processing, and communication and transport. *Contact:* Stanley Chu, Adsale Exhibition Services, 21/F, Tung Wai Community Building, 109–111 Gloucester Road, Hong Kong. Telex: 63109 ADSAP HX.

Calendar prepared by Susan Baugh. Companies sponsoring exhibitions or symposiums in China may send background materials to Susan Baugh at The National Council for US–China Trade, 1050 17th Street, NW, Suite 350, Washington, DC 20036 for possible inclusion in The China Business Review.

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A plan for technical transformation with foreign assistance

China's Steel Industry

Richard E. Gillespie and Martin Weil

China has regained the dubious honor it held in the late 1970s of importing more steel than any other country in the world except the United States. Imports jumped from 3.4 million tonnes in 1982 to 11.8 million tonnes in 1984 (*see* page 24), and cost the country more than any other single product bought overseas.

Domestic production is rising, but not nearly fast enough to satisfy demand. Crude steel production rose from 37.2 million tonnes in 1982 to 43.4 million tonnes last year, and production of finished steel products —a more accurate indicator of what the Chinese actually consume—from 29.0 to 33.7 million tonnes. Although China is now the world's fourth largest steel producer, behind the Soviet Union, Japan, and the United States, imports are still required to meet one-quarter of demand. China would dearly like to reduce this figure, but there's little relief in sight. In fact, if the industrial economy continues to grow at the booming pace of the past two years, steel demand will rise accordingly.

Chinese planners are reluctant to invest the huge amounts of capital that the steel industry would require to substitute domestic production for imports. Their caution is not unwise given that failure to concentrate investment on higher priority energy and transport bottlenecks would leave any large-scale addition to steel capacity badly underutilized. Moreover, memories linger of the days when steel was the politically favored "key link"—consuming a vastly disproportionate share of resources while showing a disappointing return on investment. The Baoshan Steel Mill in Shanghai, which after more than six years of construction and ¥12 billion in investment has still not produced a single tonne of steel, is a constant reminder of all the things that brought on a political backlash in 1979–1981 against heavy industry. How then does China plan to reach its current and relatively sober-minded goal of producing 80 million tonnes of steel in the year 2000, an implied annual growth rate of about 4 percent?

China's steel mills are fertile ground for the policy of renovation and rationalization, and signs of success are appearing already.

The compromise resulting from these conflicting pressures is a policy called "renovation of existing enterprises." The Chinese hope that rehabilitating old enterprises will enable them to modestly increase production, while at the same time dramatically improve quality and increase variety at a fraction of the cost required to build new capacity from the ground up. Premier Zhao Ziyang forcefully articulated the rationale of this policy last July: "By spending a little money to carry out technical transformation at the old enterprises, we were able to achieve quick results and recoup the money invested within a short time. . . . We cannot just increase the output of old enterprises, but must also continuously raise their technical level."

Compromise policy meets with mixed success

Renovation covers a wide variety of activities. It can range from merely adding computer controls to existing equipment to virtually rebuilding production lines. In some cases, such as the addition of degassing units to a steel making shop, the purpose is purely quality improvement. In others, the aim is to conserve energy and increase yield, which can entail the addition of extensive new facilities such as continous casters to replace soaking pits and preliminary rolling mills. The installation of pollution control equipment also qualifies as renovation.

Sometimes the line between renovation and new construction blurs, as when new facilities are added to remove internal imbalances or expand production within an existing complex. For instance, a number of Chinese complexes are adding new finishing mills that increase their real capacity, such as the Ma'anshan Steel Mill's new 500,000 metric tonne per year (tpy) wire rod mill purchased over a year ago from West Germany.

Especially when investments of the latter type are included, it becomes obvious that China is embarking on an investment program of considerable magnitude, whatever the misgivings of central planners. Indeed, as

Richard E. Gillespie, assistant director of Business Advisory Services, and Martin Weil, assistant director of Research, follow developments in China's steel industry. Both were involved in the visit of China's Minister of Metallurgical Industry to the United States in the fall of 1984.

the West's steel industry experiences painful retrenchment, China is undertaking one of the most extensive investment programs of any steel industry in the world.

There is fertile ground for renovation and rationalization, and signs of success are appearing already. China's mills have generally antiquated technology and display a plethora of internal imbalances and irrationalities resulting from a history of poorly planned, haphazard expansion. But overall steel industry energy consumption reportedly declined from 73.8 million tonnes of standard coal in 1978 to 69.1 million tonnes in 1983, even as production rose 26 percent. This success was partly based on amalgamating or shutting down some of the most inefficient of the small and medium-sized local steel producers that account for 35 percent of China's total production. Such improvements probably only scratch the surface of what could be done, since China's energy consumption per tonne of steel produced remains well above advanced world levels.

For all its success and potential, however, the steel mill renovation program has hardly been easy. It is often difficult to pinpoint technical bottlenecks in an existing production line, or decide how many machines must be replaced. Installing new machinery that meshes smoothly with existing facilities and infrastructure poses a particular challenge, and requires careful planning. Some lessons are only learned the hard way, as American companies with extensive experience in this type of renovation can attest.

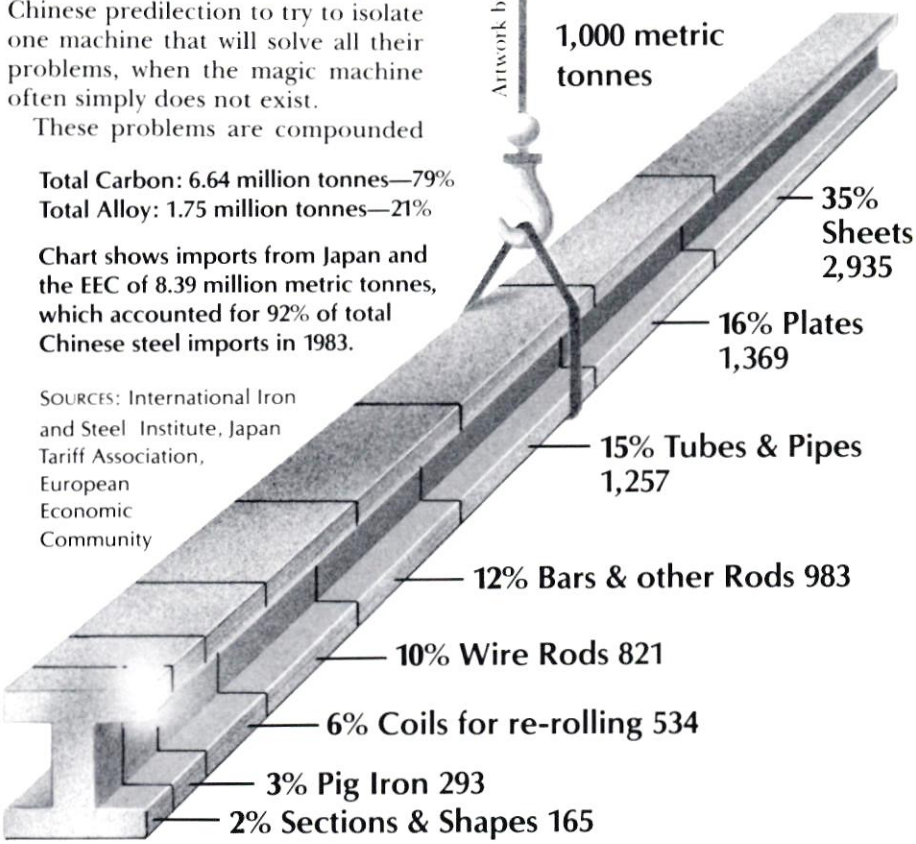
The most notorious example of this problem is the Wuhan continuous caster and sheet mill complex, purchased from West Germany and Japan in the mid-1970s. Owing to a combination of power shortages, insufficient steel production, and raw material supply problems, the mill still operates at only about 40–50 percent of its 3 million tpy capacity.

Such difficulties have been exacerbated by the general Chinese tendency to place faith in the omnipotence of hardware, ignoring the technical and human complexities involved in using hardware effectively. One Chinese steel official describes a case in which the Wuhan Steel Mill adamantly insisted it could not raise the productivity of its steel shop. However, when a management team from the better-operated Shoudu Mill in Beijing came down, they left Wuhan managers dumbfounded by raising output 200,000 tonnes within months without installing any new hardware. Executives from one foreign company after another report a Chinese predilection to try to isolate one machine that will solve all their problems, when the magic machine often simply does not exist.

These problems are compounded by China's politicized resource allocation system, which spreads small sums of money among many projects instead of concentrating funds on a few key ones. In a number of cases the Chinese have added new equipment piecemeal to existing mills, only to find it useless because they failed to do careful systems planning. One US company sold a big Chinese mill over $1.5 million worth of sophisticated inspection equipment that has not been installed for two years.

China's 1983 Steel Imports by Product

Artwork by John Yanson



Total Carbon: 6.64 million tonnes—79%
Total Alloy: 1.75 million tonnes—21%

Chart shows imports from Japan and the EEC of 8.39 million metric tonnes, which accounted for 92% of total Chinese steel imports in 1983.

SOURCES: International Iron and Steel Institute, Japan Tariff Association, European Economic Community

The search for foreign know-how and used equipment

Chinese planners are gradually showing more sensitivity to some of these problems, especially at the ministerial level. One positive sign is that they are beginning to solicit foreign assistance for precisely the kind of systems planning lacking in the past. Meanwhile, steel industry officials have indicated that they will be more willing to consider commercial export financing of foreign equipment purchases in the future.

The first results are early 1985 contracts worth about $15 million a piece with consortia led by Mannesmann-Demag (West Germany) for full-scale renovation of 1.5 million tpy hot strip mills in the Anshan and Benxi complexes. The Benxi mill has been a particular headache, as it was designed and built in the 1970s on the basis of published materials from the West that did not discuss certain critical types of equipment and know-how necessary to make the mill run.

For Benxi, the Chinese have solicited know-how from steel operating companies, as well as from engineering and electrical hardware specialists—a combination geared to help solve practical operating as well as design problems. American firms had expertise the Chinese were clearly interested in for both Anshan and Benxi, as well as rich experience in plant renovation. The rapid appre-

ciation of the dollar, however, made it impossible for the Americans to compete because the Chinese, as they so often do, made price the deciding factor. For both projects, a substantial proportion of the hardware will be made in China to foreigners' specifications, which will undoubtedly be a pattern for all future contracts of this kind.

Price consciousness has also generated interest in the concept of buying idled steel mills from the West. Chinese steel planners figure they can get the systems planning that comes with a complete plant at a fraction of the cost of building a new one, and that the current painful rationalization of the American and European steel industries provides excellent opportunities for bargains. In the last year and a half numerous delegations, including several led by the Minister of Metallurgical Industy Li Dongye, have scoured Europe and the United States to examine what is available.

Finalization of secondhand mill deals has lagged well behind the pace of inquiries and visits. Many cheap plants on the market are even more ancient than those the Chinese are trying to replace. Some of the more attractive plants of 1970s technology, while cheaper than new ones, still cost tens of millions of dollars. The costs of dismantling, shipping, re-engineering, and reconstruction are significant, even if the facility's "ex-factory" selling price is cheap.

The most significant US contract, worth more than $15 million, is for a 1950s vintage wire-rod mill from the old Jones and Laughlin (now LTV Steel) Aliquippa, PA Works. It will be converted to a modern, high-speed 500,000 tpy facility in the Shanghai No. 2 Steel Mill. Morgan Construction, the original designer of the rod mill, will lead the consortium undertaking the Shanghai job. Isaacson, a Seattle-based structural steel company, already completed a more modest contract to ship a used structural steel mill to another plant in Shanghai (*see* page 30).

By far the most spectacular deal to date involves the Belgian giant Cockerill, which made what in retrospect appears as a monumentally foolish investment in a new wire-rod mill for its Wallfield complex just before the world steel industry went into deep recession in the late 1970s. As part of a complicated restructur-

China's Recent Foreign Steel

Date	Company (country)	Equipment/Technology	Details/Value
7/83	Lancers (Sweden)	4 sets of blowing equipment for steel smelting to be installed at Dalian, Fushun, Anshan, and Xinfu Steel plants.	Compensation trade with Liaoning Province branch of CMIEC. Lancers will receive steel screws.
7/83	Mannesmann-Demag (W. Germany)	33 bridge cranes for Baoshan.	Contract to co-produce with Dalian hoist plant.
9/83	Nippon Steel (Japan)	Provide managerial and technical training for Baoshan.	Contract with TECHIMPORT.
10/83	BN and ACEC (Belgium)	Build a factory in Xingtan, Hunan to produce light rail stocks for urban use.	
12/83	Isaacson Steel Co. (US)	Sold entire used structural steel mill in Seattle, WA to Shanghai; will produce 30,000 tpy.	
12/83	Trinity Development (HK)	Set up factory to produce thin-walled welded steel and zinc-plated pipes in Tianjin; foreign partners will install equipment and train workers.	12-year contract with Tianjin No. 2 Steel Transformation Factory and Tianjin Economic Development Co. Registered capital: $2.2 mil
2/84	Schloemann Siemag AG (W. Germany)	High-speed wire rod rolling mill with output 500,000 tpy of 5.5–13mm wire rods for Ma'anshan. Will begin operation in 1987.	Commissioned by Ma'anshan Iron & Steel Co. and TECHIMPORT. $30 mil
2/84	Italimpianti (Italy)	Design and construct a walking beam furnace with capacity of 130 t/hr for Ma'anshan Iron & Steel Co.	Subcontract of Schloemann Siemag deal. $4 mil
3/84	Nihon Spindle Mfg. (Japan)	Dust collector for steel.	Contract with Anshan Industrial Co.
3/84	Raymond Int'l (US)	Structural steel fabrication yard to produce steel oil-production platforms and other structures.	Joint venture with Wachang Int'l Corp. Pte. Ltd. (Singapore), Guangzhou Shipbuilding Corp., and Shenzhen Nautical Corp.
3/84	Continuous-Posperzi (Italy)	Cold rolling steel mill for Tianjin No. 1 Wire Rope Works.	On order.
4/84	Ashlow Ltd. (UK)	Design and supply a rolling mill in Handan.	Contract signed. $2.75 mil
5/84	AEG Telefunken (W. Germany)	Electrical equipment for 2 rolling mills at Ma'anshan and Beijing.	Subcontract of Schloemann Siemag deal. $5.8 mil
6/84	F. H. Lloyd Holdings (UK)	Used mini steelworks incl. 70,000 tpy three-strand Danieli billet and slab caster, 35 t Tagliaferri UHP furnace.	$6 mil
8/84	Drever Co. (US)	Continuous-strip bright annealing line.	Contract with Shanghai Iron and Steel Research Institute. $1.5 mil
9/84	Morgan Construction (US)	Complete used steel rod mill from old Jones & Laughlin, Aquippa, PA works to be set up at Shanghai No. 2 Iron & Steel Works. Capacity: 500,000 tpy.	Signed contract with Shanghai Investment and Trust Corp. and TECHIMPORT. $18.8 mil
10/84	Danieli (Italy)	4-strand continuous billet caster for Qingdao Steel Works; 500,000 tpy bar mill for Shougang Steel Works, Beijing; 250,000 tpy bar mill for Anyang Steel Works.	Contracts signed.
11/84	RCA Ltd. (UK)	Advanced instrumentation to control thickness of continuously cast steel at Wuhan.	Contract signed.
11/84	Voest-Alpine AG (Austria)	Combined slab/bloom caster with 8 meter bow radius for producing stainless steel. Est'd capacity: 1.0m tpy.	Contract with Shanghai Steel Plant No. 3 and Shanghai Investment and Trust Corp.

Equipment and Technology Purchases

Date	Company (country)	Equipment/Technology	Details/Value
12/84	N/A (Italy)	Production line for making steel cables with 3,500 tpy capacity and steel wire with 1,700 tpy capacity at Dalian Steel Cable Plant.	Installation scheduled for May 1985. $3 mil
12/84	Foseco Int'l (UK)	Provide technology for foundries in Shanghai and Shenyang.	2 licensing contracts signed.
12/84	Schloemann Siemag AG	Hot rolling mill with annual output of 4.2m tpy of rolled boards and sheets to be built at Baoshan. Mill to start production by 1989.	Contract with TECHIMPORT; involves cooperation in design and manufacture of equipment and training of personnel. $450 mil
12/84	Voest-Alpine AG	Computer process control system for use with basic oxygen furnace at Anshan No. 3 Mill.	Contract signed.
1/85	Sumitomo Metal (Japan)	Provide design and engineering services for top and bottom blowing process for removing impurities from pig iron. Japanese equipment and instrumentation for process to be used at Anshan and Shanghai No. 5 Steel Factories.	2-year contract with China Int'l Trust and Investment Corp.
1/85	Davy McKee Equipment Corp. (US)	Walking beam reheat furnace for Shanghai No. 2 Rod Mill.	Subcontract from 1984 deal with Morgan Construction.
early 1985	Consortia led by Mannesmann Demag	Full-scale renovation of 1.5m tpy hot strip mills in Anshan and Benxi complexes.	Contracts signed. $15 mil each.
2/85	AEG Telefunken	Electrotechnical equipment for hot wide strip mill at Baoshan.	Contract signed. $120 mil
2/85	Cockerill (Belgium)	Used wire rod mill with 1.2 tpy capacity for Shoudu. Steel making plant with 2.5 tpy capacity.	Contracts signed. $17 mil $11 mil
2/85	Bundy Tubing Co. Pty. Ltd. (Australia)	Will produce small-diameter steel tubing at a factory to be built in Qinhuangdao.	50–50 joint venture contract with Hua Yan Steel Tube Technology Development Corp. Total investment: $3.7 mil
4/85	Hitachi Zosen Corp. (Japan)	2 continuous casting plants each with capacity of 2m tpy of steel plates to be installed at Baoshan 1989.	Contract signed with TECHIMPORT. $240 mil

Purchases Under Negotiation

British Steel Corp. (UK)	Possible sale of 2 used steel works: Round Oak and London Works plant at Tividale.	Under negotiation. Est. Value: $25.6 mil
Kaiser Steel Corp. (US)	Possible sale of equipment from closed steel mill in Fontana, CA.	Under negotiation.
Darlington & Simpson Rolling Mills (UK)	Supply technology to produce special shaped material for steel window frames.	Letter of intent with Shoudu Iron & Steel Co. in Beijing.
CRA Corp. (Australia)	New steel technology.	Discussions with MMI on extending cooperation in steel technology.
Nisshin Steel (Japan)	Set up a cold-rolled stainless steel plant in Tianjin.	Under negotiation.
Finsider Group, (Italy), Mannesmann-Demag, and U.S. Steel	Construction of a pipe factory in Tianjin with capacity of 500,000 tpy.	Under discussion; China hopes to entice one of the firms into a joint venture. Est. value: $250 mil
Bronx Engineering (UK)	Color coating line (part of steel modernization program).	Under negotiation. Est. value: $5 mil
CF & I Corp. (US)	Complete used wire mill.	Under negotiation.

SOURCE: National Council files and company officials

ing and rationalization program brought on by the recession, the company shut down this mill. After several months of negotiation, Cockerill recently signed a contract to rebuild the wire-rod mill along with 2.5 million tpy of upstream steel making capacity at the Shoudu Mill in Beijing. China obtained these facilities for an almost unbelievable $28 million—or about one-seventh of the costs Cockerill incurred building these plants, according to one estimate. Even though dismantling and rebuilding costs are probably not included in these numbers, they still indicate a very favorable deal for China. In comparison, the new rod mill from Schloemann Siemag for Ma'anshan has approximately half the capacity and cost $30 million, even though some of the hardware will be supplied in China.

The push for joint ventures

If the Chinese continue to search aggressively, they may find some other memorials to poor planning and industrial recession that they can import on favorable terms. But in their view, the most economical way to obtain foreign know-how is the joint venture. In recent months, China's steel officials have been urging joint ventures on foreign companies with increasingly greater persistence. Minister Li made this a prominent theme of his autumn 1984 visit to the United States, as well as of earlier trips to Europe and Australia. At least one preliminary agreement for a small joint venture has been reached between Kanthal (Sweden) and the Shoudu Iron and Steel Company to produce 1,000 tpy of electrothermal wire.

Financing is perhaps the main problem facing joint ventures. China must allow repatriation of foreign exchange to make any large steel investment even remotely attractive to foreign parties. Since foreign companies would be attracted mainly in order to penetrate the Chinese domestic steel market, this raises the practical matter of finding consumers in China willing to pay foreign exchange for a joint venture's products. The only large joint venture under discussion with good prospects for success is a proposed 500,000 tpy seamless tube plant in Tianjin. This venture would sell its products to the Ministry of Petroleum, one of China's largest foreign

exchange spenders (a significant amount going for imported seamless pipe), or to foreign companies participating in offshore oil development. US Steel and Italian and West German companies are all now discussing this investment project with China. The Chinese investment share would be spread among the Petroleum and Metallurgical ministries and the city of Tianjin.

Aside from the issue of exchange repatriation, there are other reasons why joint steel making ventures are likely to develop only gradually. Many companies doubt the ability of Chinese enterprises to adapt quickly to foreign management methods and operate cost-effectively. Only the successful experience of pioneer joint ventures, or the conviction that there is no other marketing alternative to a joint venture will significantly change company attitudes. As long as steel imports continue to climb sharply, the foreign providers of these imports will be reluctant to discuss joint ventures.

Central planning vs. local initiative

Whether foreign firms decide to pursue joint ventures or just continue selling plant and equipment, they can expect a high degree of confusion in China's steel mill renovation program. Many will discover a great deal of internal jockeying and competition among the various complexes for steel projects, and a tendency for all the mills blindly to develop whatever product is both profitable and in short supply at a given moment. MMI is doing its best to regulate the competition and set the priorities, but the process takes time, and localities often make false starts before MMI steps in.

The situation is complicated by the fact that MMI does not control anywhere near the whole budget for steel mill renovation. Indeed, MMI's conscious policy is directly to fund only projects of immediate national priority (such as the renovation of the Ma'anshan complex's railroad wheel facility, which is deemed critical to overall railroad development), or projects that generate little or no profit (such as iron ore mines). For more profitable projects, MMI demands that the localities or the mills fund themselves, as they are the major beneficiaries of the increased profits the projects will generate.

Sometimes, if the locality has the money, it will initiate a project completely on its own. The used Jones and Laughlin rod mill bought by a Shanghai factory is a good example of this. Sources involved report friction in this case between Shanghai, which wanted to move fast, and the central government, which wanted to maintain control over the situation, and had final approval powers over the deal.

The Jones and Laughlin project is symptomatic of China's struggle to find a happy medium that allows the central goverment to plan orderly development while at the same time giving rein to the enthusiasm of grass-roots units. The steel mill renovation program cannot help but be affected by the twists and turns of this struggle. In recent months, the pendulum has swung toward more autonomy for the grass-roots, symbolized by the power granted to China's four largest mills (Anshan, Wuhan, Shoudu, and Ma'anshan) to sign contracts directly with foreign firms. But the exact limits of local autonomy remain to be defined.

Despite tensions between center and locality and the inevitable fits and starts, China's steel mill renovation program represents a serious and cost-effective attempt to solve some of the industry's underlying problems. Although steel is unlikely to regain its position as the "key link," the current renovation program will redirect attention to the steel industry commensurate with its importance to the national economy. As the growing evidence indicates, foreign companies will have a substantial role to play in this steel modernization process. 完

China's Imports of Steel Products 1975-84

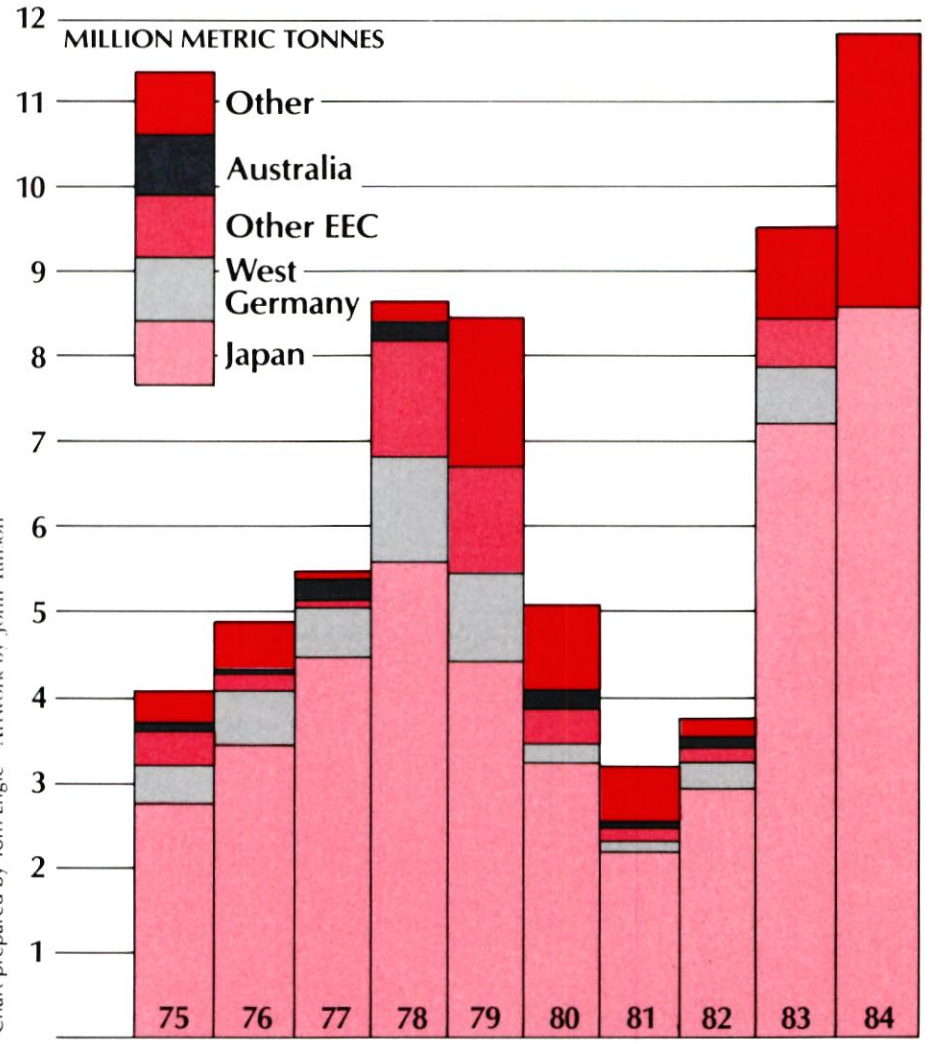


Chart prepared by Tom Engle Artwork by John Yanson

SOURCES: Japan Tariff Association, European Economic Community, International Iron and Steel Institute, Australian Bureau of Statistics

Rationalizing Steel Output

Martin Weil

China's rising imports of steel products graphically highlight weaknesses in the country's steel finishing sector. Although the ratio of finished steel products to crude steel production rose from 70 percent in 1978 to 77 percent last year, supply and quality of certain key products remain far short of demand. As a result, improving the ability to manufacture finished steel products has become a top priority. Other important elements in the steel plant renovation program, moving back through the production process, include wider use of continuous casting technology, better furnaces for steel making, and improved raw materials preparation.

Improving product mix

China's current product mix is slanted very heavily toward simpler products such as structural shapes, bars, rods, and rails. Steel industries in the West produce much larger proportions of sheets and pipe, precisely the products for which China's shortfall is most severe and its efforts most intense.

Sheets. The demand for thin-rolled sheet has skyrocketed as China's output of vehicles and consumer durables such as washing machines and refrigerators takes off. China imported an estimated 4 million metric tonnes of steel sheet in 1984, in addition to an estimated 2 million tonnes of thicker plates. This compares to domestic production of 4–5 million tonnes of sheet and strip, and 7–8 million tonnes of plate.

Sheet capacity has received top priority since the mid-1970s, when China bought 3 million tonnes of hot-rolled sheet, 1 million tonnes of cold-rolled sheet, 300,000 tonnes of tinning, 100,000 tonnes of galvanizing, and 70,000 tonnes of silicon sheet capacity from Japan and West Germany for the Wuhan complex. But these facilities still operate at only about 50 percent of capacity—largely due to technical problems (*see* page 21) but also because potential end users prefer imported steel to Wuhan's often poor-quality products.

The new Baoshan Steel Mill will help by adding 4 million tonnes to hot-rolling and 3 million tonnes to cold-rolling capacity. But the endemic delays in this project mean that this capacity is unlikely to come onstream before 1988–1989.

In the meantime, China is renovating its other two major hot-sheet mills. At Anshan, the main aim is to improve quality rather than increase output, which already stands at over 1.5 million metric tonnes per year (tpy). At Benxi, the goal is twofold: to improve quality and bring the mill up to its rated capacity of 1.7 million tpy from current production levels of about 400,000–500,000 tpy (*see* page 29).

By fully utilizing capacity and completing all new projects, China could add almost 7 million tonnes to its thin-rolled sheet output by the end of the decade. But given the explosive growth of demand, even this substantial increase is unlikely to eliminate the need for imports. Thus, China may launch still other steel sheet projects, such as renovation of the smaller mills in Shanghai and Tianjin, or construction of new capacity in a larger mill. The Panzhihua Steel Mill in Dukou, Sichuan Province, is reportedly looking for used hot- and

cold-sheet mills.

The shortfall is likely to remain particularly marked for cold-rolled sheet, which takes hot-rolled sheet as its raw material and involves considerably more sophisticated and expensive technology. The small difference between Chinese prices for hot- and cold-rolled sheet creates a disincentive to produce cold-rolled. The central government may well decide to raise the price of cold-rolled sheet to redress this imbalance.

Tubes and pipes. After sheets, tubes are the products in shortest supply. Total 1984 production reached 2–3 million tonnes, of which approximately 1 million tonnes were seamless tubes. China had to import an estimated 1.75 million tonnes of tubes last year, almost all of them seamless. Rapid increase in petroleum drilling is the main factor behind current high growth rates in Chinese pipe consumption.

The Chinese are relying mainly on the construction of new facilities to ease the pipe shortage. A 400,000 tpy seamless pipe facility from Mannesmann-Demag—a major seller of pipe to China at present—should come onstream at the Baoshan complex by 1986–1987. Another 500,000 tpy seamless pipe plant is under negotiation for a new complex in Tianjin that will be fed by new electric furnaces.

China's four main existing seamless pipe mills are located in Anshan, Chengdu, Baotou (supplied by Mannesmann-Demag in the 1960s), and the Shanghai No. 1 Steelworks. None produces more than about 200,000 tpy. The Chinese have shied away from any full-scale renovation so far, and instead are adding equipment in a piecemeal fashion.

Bars, rods, and other shapes. China produced 13–15 million tonnes of shapes in 1984. Over 80 percent of this was bars, making bars the single largest Chinese steel product category. Although much closer to self-sufficiency in bars than in either tubes or sheets, China still imported an estimated 1.8 million tonnes of rods and bars (about half of it wire-rod) in 1984.

The primary use for bars and rods is as a reinforcement material in concrete and cement. For reasons of both price and availability, Chinese builders use reinforced concrete in many applications for which structural steel would be used in the West.

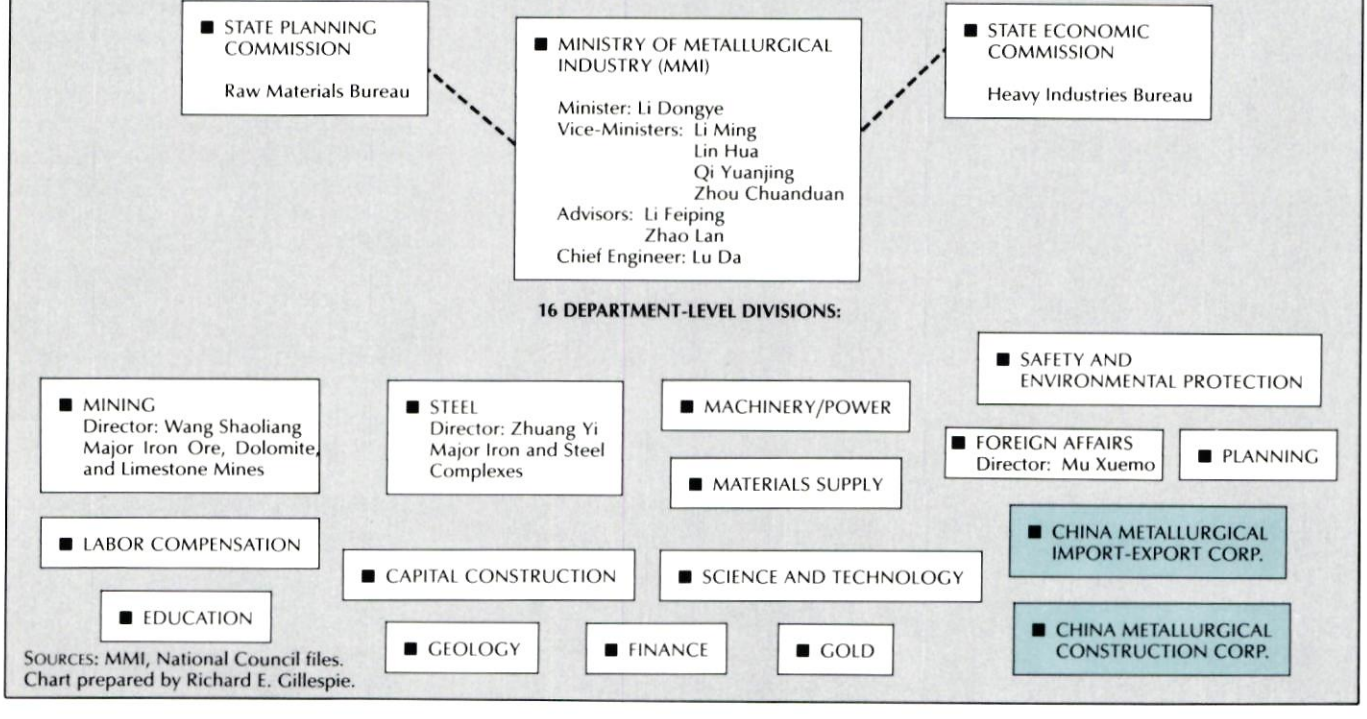
Most new Chinese plant purchases involve wire-rods. A 500,000 tpy mill was imported from West Germany's Schloemann-Siemag in early 1984 to go onstream at Ma'anshan in about 1987. Since then, the Shanghai No. 2 Mill has agreed to purchase and renovate a facility from the United States to make 500,000 tpy, and Shoudu has bought a Belgian plant to make 1.2 million tpy. Thus, in the late 1980s, over 2 million tpy of new wire-rod capacity will come onstream. The Anshan and Tangshan plants want to add still more wire-rod capacity through used plant purchases.

Rails and railroad wheels. China now produces a total of about 1 million tpy of heavy rails in the Anshan, Wuhan, Baotou, and Panzhihua mills, making the country self-sufficient in this area except for products imported under World Bank loans. Currently, most high rails made are 50 kg/meter. The major challenge is not expanding output, but rather putting 60 and 75 kg/meter rails of high durability into serial production. No significant foreign assistance in rail upgrading has been solicited to date.

MINISTRY OF METALLURGICAL INDUSTRY

The Ministry of Metallurgical Industry (MMI) is better prepared to manage the expansion and modernization of the steel industry since the reorganization of China's metals sector in 1983. At that time, MMI consolidated its control over ferrous operations, while transferring its nonferrous industry responsibilities to the newly established China National Nonferrous Metals Industry Corporation. MMI now oversees only the steel industry (2,000 plants and 3,000,000 workers), associated ferrous mines, and gold mining.

In a related organizational change, MMI's trading subsidiary, the China Metallurgical Import–Export Corporation (CMIEC), took over full responsibility for the sale and purchase of iron ore, pig iron, steel, and ferro-alloys from the Ministry of Foreign Economic Relations and Trade's China National Metals and Minerals Corporation (MINMETALS) in 1983.



SOURCES: MMI, National Council files.
Chart prepared by Richard E. Gillespie.

China's only railroad wheel plant is located in the Ma'anshan complex and produces about 150,000 tpy. The Ministry of Railroads is pressuring MMI to improve wheel quality from the plant, and thus enable trains to carry heavier loads and run at faster speeds. The result has been a request to the US government's Trade and Development Program (TDP) to finance a feasibility study for the total renovation of the mill. TDP has accepted, and selected Signal-Rust to carry out the study. The actual renovation work is unlikely to be completed before 1987.

Structurals. Production of other structural shapes and sections reached an estimated 3–5 million tonnes last year. MMI places high priority on adding significant new capacity for wide-flanged H-beams, and has tentatively selected the Panzhihua mill as the site.

A greater emphasis on continuous casting

An oft-cited key to the competitiveness of the Japanese steel industry is the alacrity with which it has adopted continuous casting. This process conserves energy and increases steel product yield by casting semi-finished steel products directly out of a steel making furnace, without intermediate cooling and reheating steps. MMI reported in 1981 that only 7.6 percent of Chinese steel was continuously cast; by now the ratio is probably between 10 and 15 percent. China's largest caster, imported from West Germany for Wuhan, operates at only about 50 percent capacity because of electricity and steel making bottlenecks.

All China's steel mills have exhibited great interest in rapidly expanding their ratio of continuously cast steel. It is not always clear, however, whether they have learned the lessons of Wuhan. A number of medium-sized steelworks ordered 200,000–300,000 tpy billet casters from Mannesmann-Demag, which manufactured seven machines in cooperation with Dalian Heavy Machinery Factory in the early 1980s. The Dalian factory continues to make these machines on its own as MMI has tried, with mixed success, to copy them.

Several plants will also add larger, more sophisticated slab casters. The Baoshan project recently ordered two from Hitachi with capacity of 2 million tpy each to come onstream in about 1988–1989, and the Shanghai No. 3 Mill ordered an approximately 1 million tpy machine in November from Voest Alpine of Austria. Other slab casters are likely to be built in the near future at Anshan, at the Shoudu mill in Beijing, and possibly at the Taiyuan complex.

Improved furnaces for steel making

China's steel making sector is less of a bottleneck than steel finishing, both in terms of output quantity and technical level. As in other sectors, the Chinese have not made expansion of steel making capacity a top priority. Aside from Baoshan and smaller construction projects at Jiuquan Mill in Gansu and Shuicheng Mill in Guizhou, production increases will result mainly from renovation or more efficient utilization of existing facilities.

In 1980, 42 percent of China's steel was made in basic oxygen furnaces, compared to 31 percent in technically obsolete open-hearth furnaces, 20 percent in electric furnaces (used primarily for specialty steels), and 8 percent in side-blown converters using turn-of-the-century technology. By now, the percentage of steel from basic oxygen furnaces is probably higher still, and that from open-hearth and side-blown converters correspondingly lower.

The Chinese have invested in some of the latest refinements to basic oxygen furnace (BOF) technology, particularly at the Anshan No. 3 steel making shop. This mill, together with Shanghai's No. 5 Mill, recently purchased from Sumitomo Metal (Japan) the know-how to install China's first BOF bottom argon-injection system, which decreases heat time and increases yield. Even the Baoshan steel making shop, purchased from Japan in 1978, does not have this technology. Anshan No. 3 also signed a contract in December 1984 with Voest Alpine, originator of the BOF technology, for a modern computer process control system.

A number of plants such as Wuhan

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Zhang Ying
Responsibilities: Import and export of metallurgical products, cooperation on metallurgy projects with foreign companies in China

DEPARTMENTS:

- GENERAL OFFICE
- ECONOMIC RELATIONS WITH FOREIGN COMPANIES
- TRANSPORTATION
- LIAISON
- EXPERTS AND TRAINEES ADMINISTRATION
- PLANNING AND FINANCIAL
- COMMERCIAL RESEARCH AND CONTRACTS
- FIRST EXPORT DEPARTMENT
  Responsibilities: steel, iron, ferro alloys
- SECOND EXPORT DEPARTMENT
  Responsibilities: mineral products, refractory products, graphite electrodes, minerals and metals equipment, spare parts, instruments, computers
- IMPORT DEPARTMENT
  Responsibilities: metallurgical and mining equipment, spare parts, instruments and metals, steel, pig iron and ferrous ores, patents and know-how used in metallurgy

BRANCH OFFICES:

CMIEC has established branches in all of China's provinces and provincial-level municipalities except Shandong, Tibet, and Xinjiang. Some of China's largest steel mills have begun to set up separate import-export companies, but most remain under the jurisdiction of the local CMIEC branch offices.

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General Manager: Lin Hua
Deputy Manager: Zhou Zheng
Responsibilities: Represents MMI Construction Bureau in foreign countries, undertaking international metallurgy engineering projects and manpower export. Maintains close ties with MMI's Foreign Affairs Department. Also supervised by China Engineering Construction Corp.

SOURCES: MMI, CMIEC, National Council files.
Chart prepared by Richard E. Gillespie.

and Chongqing will continue efforts to overhaul their open-hearth furnaces. Some will add oxygen lances to decrease heat-time, while some others may try a variant of the BOF in which oxygen is blown in the bottom rather than the top of the furnace. Such technology makes it possible to use existing open-hearth buildings, cranes, etc., without wholesale renovation.

Electric furnace technology will likely become a very important focus of technical transformation, since it is particularly crucial to China's drive to produce more and better alloy steel. Currently, only about 3 million tonnes, or less than 10 percent of China's annual steel production, is alloy steel, with another 5 million tonnes of low-alloy steel. But users demand more, so the country had to import about 2.5 million tonnes of alloy steel products in 1984.

Auxiliary equipment and operating know-how are as important as the furnace itself. The Chinese will probably be making special efforts to improve both of these aspects of production at the Taiyuan mill, one of the country's most important producers of stainless and other alloy steels. Taiyuan has designed its own argon-oxygen decarburization (AOD) furnace to purify steel that emerges from the electric furnace, and has held long negotiations with Japan's Nisshin Steel on upgrading the operation of both the steel making shop and the finishing mills.

Other important specialty steel centers include the Daye, Fushun, and Dalian mills, each at around 500,000 tpy. Daye is likely to install large electric furnaces and AOD units, and Fushun has already installed two new large AOD furnaces from Heraeus (West Germany).

Iron making and raw materials preparation

Blast furnace operations constitute one of the strongest areas of Chinese iron and steel making technology. Most upgrading projects will involve construction of large modernized blast furnaces to replace old, small ones (such as at Ma'anshan), addition of automatic charging systems, and the gradual replacement of furnaces without bell-less tops with those that have bell-less tops.

The Chinese have followed with interest the development of direct reduction technology in the West during the 1970s and 1980s. This technique offers the first real alternative to the traditional blast furnace method of iron making. Since the need for coking coal is eliminated with direct reduction, several projects have been proposed in areas short of coking coal, including Shanghai, the northeast, and south China. But the Chinese have hesitated to actually build a commercial-scale plant yet, mainly because they believe the direct reduction technology is still immature.

Raw materials preparation is one of the major problem areas of China's iron and steel industry. Experts estimate that China could improve the yield of its blast furnaces by 20–30 percent if it substituted pelletizing technology for sintering technology to agglomerate its own low-grade ores, and/or began to substitute imported high-grade ore for domestic ore.

In addition to China's 13 largest steel mills, which account for an estimated 65 percent of total production, there are some 800 smaller units scattered throughout the country. A number of the most inefficient ones have been closed or merged with larger facilities over the last seven years, and this trend is likely to accelerate as a result of China's new emphasis on enterprise profitability.

Slowly, the Chinese are remedying the situation. Premier Zhao, in an important revision of policy, said last summer that China should abandon the notion of "self-sufficiency" at all costs and import more ore. The announcement that MMI will soon invest in a new Australian iron mine translates Zhao's statement into action. After much controversy, Chinese leaders have also decided that Baoshan will use primarily imported ore for the foreseeable future.

The Chinese are also moving to upgrade their own iron mining capabilities, primarily by expanding existing mines. Used earth-moving equipment was recently purchased from US brokers for mines at Anshan and Benxi.

Plans are also underway to increase the amount of pelletized Chinese ore from the current estimated level of 10 percent. The Anshan mill, where a locally designed plant has experienced operational difficulties, is reportedly in the market for a used pellet plant from the West.

Emphasis on larger and more efficient production units

According to MMI, China has 13 mills capable of producing at least 1 million tpy. These plants account for an estimated 65 percent of total production. Anshan, the oldest plant, was started by the Japanese immediately after World War I, and remains far and away the largest, producing 7 million tpy. Wuhan, the second largest, was built in the 1950s with Russian assistance. Only the Panzhihua mill on the Yunnan–Sichuan border was constructed after 1960 and designed and equipped primarily by the Chinese themselves.

Scattered throughout China are a reported 800 smaller steel mills, ranging from 500,000 tpy specialty mills at Daye, Dalian, and Fushun, to very small ones administered by local governments, or in some cases ministries other than MMI (including the Ministry of Railroads). Most of the smaller mills are legacies of the period when steel was the "key link," and all the bureaucracies rushed out to set up their own capacity. Unlike "mini-mills" in the United States that have created serious competition for some of the large American mills, most of the smaller Chinese mills are very inefficient. A number of the most inefficient ones have been closed or merged with larger facilities over the last seven years, and this trend is likely to accelerate as a result of China's new emphasis on enterprise profitability. This emphasis will also ensure that the main focus of the current steel renovation program remains on China's larger, more efficient mills. 完

Major Steel Mills and Expansion/Renovation Plans

(Includes China's 13 largest mills and Baoshan)

Factory/ Location	Main Products	Gross Output	Known expansion/renovation plans
Anshan Iron & Steel Co. Anshan, Liaoning	hot strip (1.5m T), seamless tubes (175,000 T) of which: oil field pipes (20,000 T), rails, bars, structurals	1984: 7.0m T steel, 6.4m T pig iron, 4.4m T rolled steel 1985: 7.2m T steel (forecast)	Revamp hot strip mill to run at higher speeds. Eliminate open-hearth furnaces from No. 3 steel shop. Add one basic oxygen furnace (BOF) and increase capacity of all three BOFs to 180 tonnes. Install modern computer process controls. Add a continuous slab-caster. Increase low-alloy steel production and reduce pollution. May add wire-rod capacity through used plant purchases.
Baoshan Iron & Steel Works Shanghai	not yet in production	1985: 0.3m T steel 1988: 3.0m T steel (forecasts)	Phase 1 completion expected in Sept. 1985. Phase 2 plans: build a sintering plant, a blast furnace, a coking plant, a continuous ingot casting unit, a continuous strip steel hot-rolling mill, a continuous strip steel cold-rolling mill, ship unloaders for iron and coal, an oxygen plant; expand use of computers and other control equipment.
Baotou Iron & Steel Complex Baotou, Inner Mongolia	rails, seamless pipes	1984: 1.4m T steel 1990 target: 2.5m T	Improve seamless pipe quality for oil field use. Serialize production of 75 kg/meter rails.
Benxi Iron & Steel Co. Benxi, Liaoning	hot strip (0.4-0.5m T)	1983: 2.0m T steel 1990 target: 3.75m T	Upgrade hot strip mill to reach design capacity of 1.7m tpy. Probably add continuous caster. Update iron making processes. Improve service facilities and environmental protection.
Chongqing Iron & Steel Co. Chongqing, Sichuan	plates, bars, shapes	1984: 0.7m T steel, 0.7m T steel products	1984 reports said Chongqing will receive 150 million from Ordnance Ministry in 1985–86 to renovate open-hearth furnaces, a large steam-driven rolling mill, and other equipment. Renovation will increase steel capacity to 1.0m tpy and steel products capacity to 0.85m tpy.
Ma'anshan Iron & Steel Co. Ma'anshan, Anhui	railroad wheels and tires (130,000 T), medium sections (290,000 T), medium plate (150,000 T), wire-rods, bars and construction shapes (300,000 T)	1984: 1.5m T steel	Adding new 1,200 cu meter blast furnace, a new 500,000 tpy wire-rod mill, and a second small billet caster. Will renovate wheel and tire factory with US assistance.
Meishan Jiangsu	pig iron	1984: 1.5m T pig iron (est)	N/A
Panzhihua Iron & Steel Co. Dukou, Sichuan	rails, structurals	1978: 1.0m T steel products, 1.5m T steel, 1.6m T pig iron	Tentative plans to add a wide-flanged beam mill. May add hot and cold flat rolling facilities. Additional iron and steelmaking facilities may also be added.
Shanghai Iron & Steel Industry Shanghai	bars, rods, plates, sheets, cold-rolled high-speed strip, welded and seamless tubes	1984: 5.25m T steel, 4.5m T steel products	Consists of some 50 plants, many of which produce no steel, that do not constitute an integrated complex. The largest steel producers are Plants No. 1, No. 3, and No. 5, the latter a specialty steel producer. No. 3 plans to acquire new top-blown oxygen converters and to improve a steel plate roller. No. 2 Mill is upgrading wire-rod production.
Shoudu Iron & Steel Co. Beijing	bars, structural shapes, electric welded tubes	1983: 3.0m T iron, 1.5m T steel, 1.0m T steel products 1984: 2.1m T steel	Recently purchased 2.5m tpy of steelmaking capacity and a 1.0–2.0m tpy wire-rod mill. Will add continuous slab-caster. Automating many facilities. Shoudu is probably the best-managed steel mill in China.
Taiyuan Iron & Steel Complex Taiyuan, Shanxi	plates, stainless steel sheet, (15,000 T) electrical sheet	1984: 1.2m T steel, 0.85m T steel products 1990 targets: 1.5m T steel, 1.1m T iron, 1.15m T steel products	Over 1985–1991 period, complex plans to spend $560 million to rebuild an iron smelting mill, a line for continuous casting of stainless steel, a steel refining furnace, and a large capacity electric furnace. Other plans: revamp hot strip mill and complete auxiliary projects for 1,700 mm cold mill. Bringing cold-rolled electrical sheet mill to capacity (40,000 tpy) is another important priority.
Tangshan Iron & Steel Co. Tangshan, Hebei	bars, structurals	1984: 1.0m T steel	May add wire-rod capacity through used plant purchases.
Tianjin Iron & Steel Industry Tianjin	wires, bars, hot-rolled sheets, pipes, plates	1978: 0.3–0.5m T steel	Starting construction in 1985 on a seamless tube plant at Junliangcheng with annual capacity of 0.5m tpy.
Wuhan Iron & Steel Co. Wuhan, Hubei	structurals, plates, rails	1984: 3.5m T steel, 3.5m T pig iron 1985: 3.75m T steel, 3.8m T pig iron (forecast)	Plans to spend $1 billion to raise output to 6.0m tpy by 1990. Will rebuild a blast furnace, an open-hearth furnace, a coking oven, and the sintering system; install a huge dust removing device; bring hot strip mill, cold strip mill, tinning, galvanizing, and electrical sheet line up to capacity.

SOURCE: National Council files.

Selling Used Steel Making Equipment

The PRC is a good market for surplus plant, but let the seller beware

Martha Fray

One of the steel production lines at the Shanghai Steel Structure Factory is enjoying a second life. The line, which produces girders and other steel construction products, used to reside in Seattle, Washington, and belong to the Isaacson Corporation. Under an arrangement worked out by Hong Kong-based Fray & Company, Ltd., Isaacson sold the plant to Shanghai representative Lotus Company in late 1983—the first sale of a used steel production line to end users in China.

Once the largest steel fabricator in the northwestern United States, Isaacson closed its plant after a combination of rising operating costs, declining steel sales, and import competition made steel fabricating uneconomical. The plant was sold, disassembled, packed into containers, and shipped to Shanghai. As part of the sale, a team of Isaacson technicians spent three months in China overseeing reassembly of the plant and training employees of the Shanghai Steel Structure Factory.

The Chinese have discussed such used steel making equipment purchases with a number of US and European companies that want to shed surplus capacity. But sales of complete plants are still few and far between. One reason for this is that US sellers often fail to appreciate the idiosyncracies of transactions with China, and thus underestimate the care required to prepare for a prospective sale. Companies in the process of divestiture are learning the hard way that China, despite its aim to expand its industrial base by purchasing used facilities, does not buy factories without thorough investigation, tough negotiations, and a comprehensive review. As would-be sellers have discovered, sales to China are rarely easy: they are expensive, require a great deal of management time, and can be very frustrating.

Still, many ailing US steel makers face a limited, generally unpromising array of options, so a plant divestiture to China can be attractive if carefully planned. Firms would do well to consider the following general guidelines. While many can apply to a variety of industries, they bear special relevance to the steel sector.

▶*Do your homework*

If at all possible, an executive must establish the viability of a Chinese sale before committing significant resources. What constitutes viability? Obviously many factors enter into this equation, but the most important include the following: The would-be steel plant seller must identify specific demand in China for the facility in question, and the prospective customer must have access to the foreign exchange to buy the plant. The seller generally should try to sell his unneeded plant to China only in the absence of another even moderately attractive alternative. Ideally, no comparable facilities will be for sale, and the seller will not be under urgent time pressure.

▶*Maintain strict confidentiality*

Would-be sellers who disclose their intentions to sell a plant to China do themselves a great disservice. Such news encourages other companies in the same industry to get involved, thereby diminishing a seller's opportunity to command price. Sellers who disclose news of contract discussions, particularly without consulting their Chinese buyer, have historically found themselves without a sale.

▶*Offer appropriate equipment*

Don't waste time trying to sell steel facilities that are too old. Anxious to avoid being perpetually behind industries in the developed countries, China generally seeks used steel plant and equipment no older than 1970s technology. In addition, all equipment must qualify for an export license from the US government. In most cases this is fairly routine, although control is exercised, for example, over technical data relating to the manufacture of certain iron and steel alloys. Some metal rolling mills, presses, and process control equipment may also require an individual validated license.

▶*Prepare comprehensive offering materials*

Chinese buyers require a detailed list of every item in a plant. It is wise to prepare such a list *before* soliciting prospective buyers and to make sure it is absolutely accurate. The list will become the basis of the legal description of assets purchased. Once the list has been circulated in China, changes should be avoided.

▶*Set price to reflect contingencies*

A China sale is worth considering if the net proceeds from the sale sufficiently exceed those estimated from the next best alternative to justify the additional time and risk involved. The price for a facility must be high enough to reflect the likelihood that there will be substantial negotiation on price, unforeseen expenses, and payment made in installments. Furthermore, with installation and training in China, the sale will include substantial administrative expenses. The price must be low enough, however, to establish that the seller is indeed sincere. Chinese buyers do not spend money lightly, and generally research value thoroughly.

▶*Be prepared to provide technical assistance*

Chinese buyers typically will not purchase a steel facility "as is, where is." The seller must be willing to provide some form of technical assistance to meet the Chinese demand that the facility be properly installed and operational in China. Obviously the terms of such technical service must be negotiated very carefully. Yield guarantees, the Chinese goal, can be a seller's nemesis because they depend on so many factors beyond the US company's control.

▶*Learn to say maybe*

Negotiating with a Chinese buyer requires skill and a great deal of patience. Without going into detail about standard Chinese negotiating tactics, suffice it to say that under almost all circumstances, it is better to say maybe and avoid committing oneself than to say either yes or no. The use of intermediaries who must "check with superiors" is often useful.

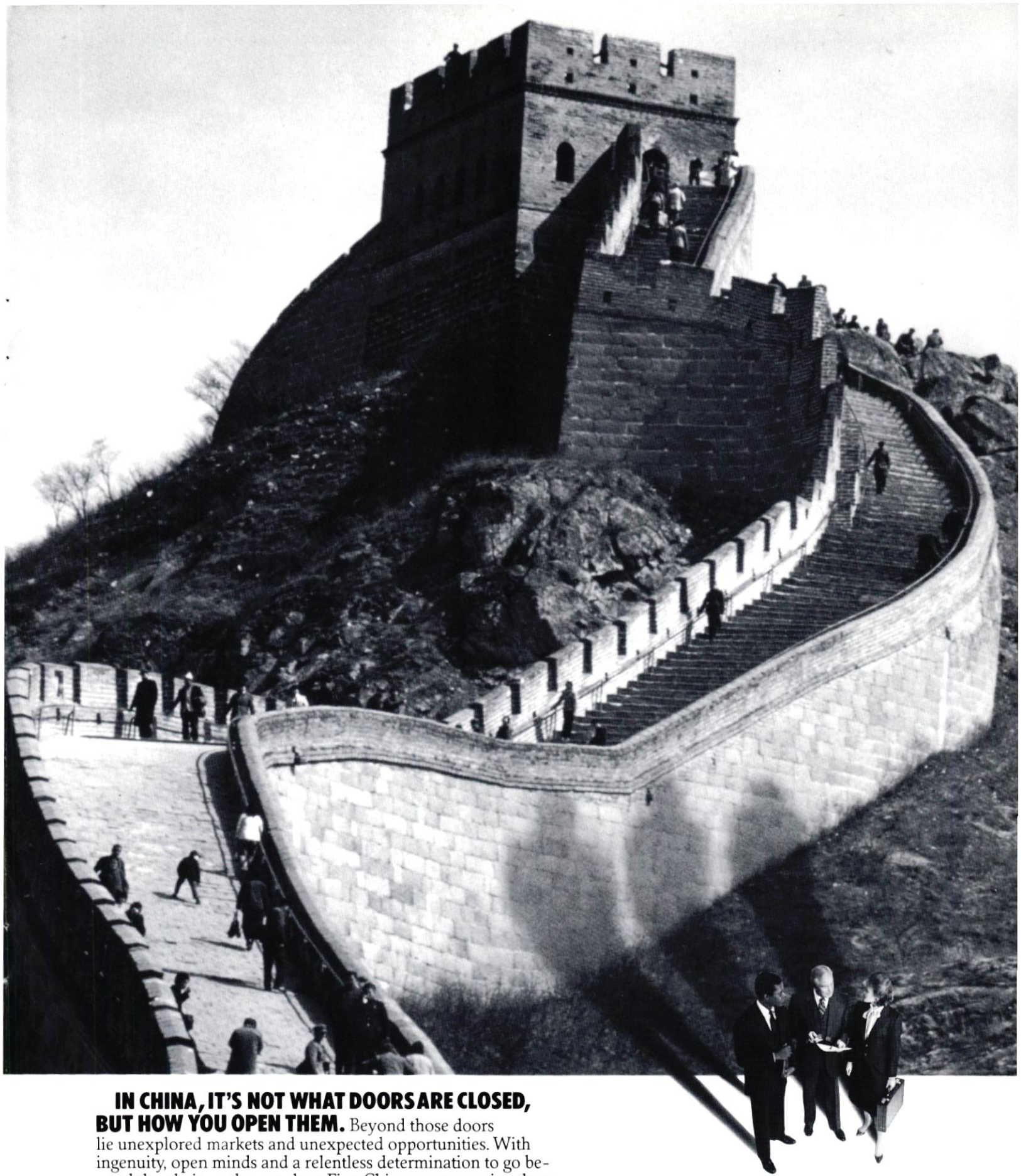
▶*Research China experts*

The marketplace abounds with so-called "China experts." These range from major banks' export trading companies to lone operators with relatives in China. Before committing to any such experts, interview several and research their backgrounds to determine their potential effectiveness and probable trustworthiness.

▶*Caveat vendor*

These general guidelines are designed to help "let the seller beware" when planning a steel plant divestiture to China. For US steel makers, the prospect of irreversible, structural changes in the industry poses serious questions for the future. The answer for some, like Isaacson, may well lie in China. 完

Martha Fray is managing director of Fray & Company, Ltd., a Hong Kong-based corporate advisory firm specializing in plant divestitures to China.



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Since the National Council for US–China Trade was established in 1973, two-way trade has grown from $805 million to a record last year of more than $6 billion. Facilitation of trade continues to be a major Council activity. In the past year, National Council committees and working groups encouraged the US government to further liberalize export controls for high-technology products, contributed to the successful effort to block the imposition of countervailing duties against the PRC, and worked on a variety of other issues of interest to importers as well as exporters.

Trade, however, is far from our only focus. The National Council's mandate is to promote all types of business activities in China on behalf of its membership. Over the past year, the growth in foreign investment, broadly defined to include technology transfer, licensing, countertrade, service centers, and all types of joint ventures, has led the Council in new directions. We are adding new programs and in-house expertise in response to this rapid increase in investment opportunities, and the consequent diversification of activity and interest among our members.

The Council has held three major investment seminars so far this year. Two-day programs in Chicago and Los Angeles in April featured individual case studies presented by business representatives who had negotiated and implemented such ventures in China. High-ranking PRC officials and other experts discussed China's current investment climate, financial strategies, legal framework, and access to the domestic market.

The third meeting took place in Washington in early May. The Council invited a large delegation organized by the China International Trust and Investment Corporation (CITIC) to hold negotiations on more than 100 national-priority investment projects. Leaders from CITIC and the State Economic Commission participated in the conference.

The National Council has also added an Investment Advisory Program to meet the needs of the growing number of US companies interested in investing in China. The program, funded in part for the first three years by a special project grant from the Overseas Private Investment Corporation (OPIC), will primarily assist small and medium-size firms. The goals are twofold: to provide US firms with the information they need to invest in China, and to assist Chinese organizations in preparing detailed project profiles to attract potential investors. In addition, the National Council will also try to increase the Chinese government's awareness of how US companies view China as an investment market, and how business conditions can be improved.

In order to encourage US firms to take a closer look at opportunities in China, the Council has also begun to provide special assistance to member firms through a variety of fee-based programs tailored to individual needs. These include general introductory services in both the United States and China, briefings focused on specific company goals, and market research studies that provide in-depth analysis of a particular product or industry. Briefings and studies completed to date have involved extensive information gathering at all levels in China, from central ministries to factories, and have yielded a wealth of knowledge about specific products as well as the organization, capacity, structure, and plans in general industry areas.

Photo by Ray Crowell

Lü Dong, minister of the State Economic Commission, addresses the opening session of the National Council/CITIC Investment Conference in May.

The National Council's Beijing office is also expanding its operations to meet member company needs in identifying opportunities, understanding the market, and selecting business partners in China. The Beijing office serves as an important link between US companies and Chinese organizations seeking investors. From a representative office of one person five years ago, the Beijing office has grown to a staff of three full-time expatriates and two Chinese nationals, with plans to hire more staff later this year. Additional space has been leased at the Xuanwumen Hotel for use as an office annex. The Beijing office is also in the process of automating information processing, correspondence, and communication to provide more thorough and timely information services.

The rapid increase in US trade and investment in China has made the expansion of both our Washington and Beijing offices necessary to provide the more sophisticated services companies request. The National Council will continue to adapt to China's rapidly changing business climate in order to provide a full range of services that meet member companies' needs.

For the 12 months ending December 31, 1984, Council revenues totaled $2,247,100. Expenses for the year were $2,144,400, yielding a surplus of $102,700. An audited financial report prepared by Arthur Andersen and Company is available to members.

US MANUFACTURING EQUITY JOINT VENTURES IN CHINA

(As of April 1985)

Just as US–China trade has increased dramatically in recent years, so has US investment in China, as the following list of equity joint ventures shows.* From 1979 through 1984 US firms committed some $100 million to approximately 60 equity joint ventures, second in number only to Hong Kong. (The Chinese estimate that by the end of 1984 they had signed 931 equity joint venture contracts with firms from many countries, but the vast majority from Hong Kong). In the first four months of 1985, the number of US ventures has risen to about 90. Most of these involve manufacturing and are listed here. Growth has been particularly apparent in the electronics and textiles sectors. In addition to manufacturing, there are a growing number of equity joint ventures in the services sector, which will be listed in the next issue of *The China Business Review*.

The rapid increase in foreign investment in China is partly the result of gradual decentralization of joint venture approval power to certain localities, which has significantly reduced the time required for approval. Until recently joint equity ventures lagged behind other forms of investment, but beginning in 1984 their rate of increase has been greater than that of other types of investment. The following list includes ventures under consideration as well as those in various stages of formalization.

Name of Venture	Total Investment	Partners (Equity Shares)	Purpose	Location	Date/Duration
Chemicals and Petrochemicals					
Hua-Mei Electro Plating Technology Co., Ltd.	$3.0 mil.	Asia OMI International (HK), sub. of OMI International Ltd./Duyun Electronics Industry Co. and China Electronic Technology I/E Co., Shenzhen Branch (50%-50%)	Produce OMI-patented chemical additives used for electroplating	Shenzhen	Approved 4/13/83 15 years
Shanghai Cosfra Ltd.	$549,000	Florasynth Inc. and Cintco Inc./ Shanghai Daily Chemicals Corp. and SITCO (US:57.5%-PRC:42.5%)	Produce flavors and fragrances	Shanghai	Approved 2/11/82 15 years
China Sun Oil Co.	Registered capital: $6.5 mil.	Sun Refining & Marketing Co./ China Petrochemical International Co. (US:45%-PRC:55%)	Build lubricant blending and packaging plant	Shekou Industrial District, Shenzhen	Signed contract 6/30/84; start-up fall '85 15 years
Construction Materials & Equipment					
Hua Mei Sanitary Ware Ltd.	$11 mil.	American Standard Inc./Qingyuan County Economic Development Corp. and China National Light Industrial Products I/E Corp., Guangzhou Branch (US:51%-PRC:49%)	Manufacture plumbing fixtures for China and export markets	On Pearl River near Guangzhou	Signed contract 4/85; start-up late '85 or early '86 30 years
China Tianjin Otis Elevator Co., Ltd.	$5 mil.	Otis Elevator Co./Tianjin Lift Co. and CITIC (US:30%-PRC:70%)	Produce, sell, install, and repair elevators, escalators, and moving walkways	Tianjin	Signed contract 5/18/82; approved 12/82 30 years
Consumer Goods					
Shenmei Daily Use Products Ltd. Co.	$2.8 mil.	Gillette Co./Shenyang Daily Use Metals Industrial Corp. (50%-50%)	Produce carbon steel coated razor blades, plastic razors, and uncoated blades for industrial use	Shenyang, Liaoning	Approved 1981; start-up 4/83 20 years
Sino-American Joint-Venture Leather Co. Ltd.	$2 mil.	Lee Co./Ningxia Fur and Leather Industry Co. (US:25%-PRC:75%)	Produce sheepskin and fur garments	Ningxia	Announced 9/25/84 10 years
Hua-Mei Co.	$20 mil.	R. J. Reynolds Tobacco International Inc./Xiamen Cigarette Factory and Xiamen Construction Co. (50%-50%)	Produce Camel, Winston, More, Salem Menthols, and new brand of cigarettes.	Xiamen	Announced 5/29/84; begin construction late '85 18 years
—	—	Tambrands Inc./Liaoning Pharmaceutical, Shenyang No. 5 Pharmaceutical Factory, Corp. and BoC (US:60%-PRC:40%)	Manufacture and market feminine hygiene products	Liaoning	Signed preliminary agreement 1/85
Shanghai, Changzhou Pigskin and Oxhide Products Co.	$5 mil.	Wolverine Inc./Shanghai, Changzhou, Jiangsu; MoLI, Foreign Technical Cooperation Co. (50%-50%)	Agreement under consideration to jointly manage company	—	Announced 9/24/84
Electronics Winton-Design Products Corp.	$600,000	Bishop Graphics Inc. (US) and Thai An Trading Co. (HK)/Shenzhen Electric Appliances Manufacturing Co. and BoC, Shenzhen Branch (US:16.7%-PRC:66.7%-HK:16.7%)	Manufacture and distribute printed circuit design products	Shenzhen	Approved 8/83 10 years
Bedis Electronics Co. Ltd.	—	China Development Co., Ltd./ Bengbu No. 6 Radio Factory and BoC, Bengbu Branch	Produce metal film resistors	Anhui	Announced 12/10/84
—	$45 mil.	Corporate Data Sciences Inc./ South China Normal University	Produce CDS computer technology	Guangdong	Signed letter of intent 12/20/84 30 years
Shanghai-Foxboro Co., Ltd.	$10 mil.	Foxboro Co./Shanghai Instrument Industry Co. (US:49%-PRC:51%)	Manufacture electronic process-control instruments	Shanghai	Signed contract 12/5/80; approved 4/82 20 years

*There are generally two types of joint ventures referred to in China: equity and contractual. An equity joint venture involves Chinese and foreign partners in a limited liability corporation including joint investment and operation, and mutual sharing of risks, profits, and losses in proportion to the equity shares of each party. Contractual joint ventures cover a variety of other types of cooperative projects that may or may not involve setting up a separate corporation. The partners bring readily available resources that do not necessarily include cash. The foreign partner often provides technology and equipment while the Chinese side contributes land, labor, and other resources. Profits are distributed according to a formula specified in the contract, rather than determined by equity shares, and payment is usually geared to provide a relatively rapid payback to the foreign partner.

Genisco-China Computer Graphics Terminals Corp.	$2.9 mil.	Genisco Computer Corp./Hunan Computer Factory (50%-50%)	Produce 500-1,000 computer graphics terminals	Changsha, Hunan	Signed contract 10/84 15 years
China Hewlett-Packard Co., Ltd.	$10 mil.	Hewlett-Packard Co./China Electronics I/E Corp. (50%-50%)	Manufacture and market electronic measuring instruments and computers	Beijing	Signed agreement in principle 8/84 10 years
—	—	Sperry Corp./CITIC, China Computer Technical Services Corp., and Wuxi Electronics & Instruments Industry Bureau	Manufacture Chinese language MAPPER-based general data processing system	Wuxi, Jiangsu	Signed agreement in principle 9/84
Sino-American New Star Computer International, Inc.	$500,000	Sun Associates/Shijiazhuang Radio Plant No. 8, Hebei (50%-50%)	Import and sell computers, develop new technology, provide technical and repair services, and assemble imported parts	Shijiazhuang, Hebei	Established 10/30/84
Xiamen Wang Computer Co.	Registered capital: $5 mil.	Wang Laboratories Inc./Xiamen SEZ Construction Development Co.	Assemble over 30,000 Wang personal computers and auxiliary equipment	Xiamen	Signed contract 11/28/84 15 years
China-Wang Computer Joint Venture, Ltd.	$50 mil.	Wang Laboratories/Ministry of Electronics Industry	Produce low-end VS computer products, including software	Beijing	Signed contract 1/85 3 years
—	—	Wang Laboratories/NA	Produce 50,000 units of Wang office assistant systems, including Chinese language software	Shanghai	Signed 1/85 5 years
—	—	Xerox Corp./Shanghai Movie & Photo Industrial Co. and China National Machinery and Equipment I/E Corp.	Sell 10,000 small copiers and set up plant to produce photocopiers and related products	Shanghai	Signed preliminary agreement 2/26/85
Food Processing					
—	$5 mil.	American Conserving Co. and Western Sales Service (US), and Taimao Trading Co. (HK)/Dalian Canning Factory; Fuxian County; and the BoC, Dalian Branch (50%-50%)	Build apple concentrate processing plant	Dalian	Signed probational contract 4/84
Guangmei Foods Co.	$10 mil.	Beatrice Cos./Guangzhou ITIC and Guangzhou Food Industry Corp.	Produce canned fruits and vegetables, soft drinks, juices, sherbets, and wafers	Guangzhou	Approved 11/81; start-up 10/84 15 years
Beatrice-CITIC Development Co.	$100 mil.	Beatrice Companies/CITIC (US:60%-PRC:40%)	Help develop food processing and light industrial products and seek export markets	Beijing	Signed contract 3/16/85 30 years
Dongmei Food Co. Ltd.	$2.3 mil.	General Foods Corp./Dongguan County Starch Factory (50%-50%)	Produce tapioca starch for sale in China and US	Dongguan County, Guangdong	Approved 3/83; signed 1/23/84 15 years
Pianmei Food Co. Ltd.	—	General Foods Corp./Great Wall Food Co.	Packaging consumer foods for domestic use and export	Tianjin	Signed contract 11/1/84
Guang Pong Food Co. Ltd.	—	General Foods Corp./Guangzhou Dairy Products Factory	Packaging consumer foods for domestic use and export	Guangzhou	Signed contract 12/1/84
Henglian Nutrient Food Factory	$10 mil.	H. J. Heinz Co./United Food Enterprise Inc. and the General Corporation of Agriculture, Industry, and Commerce	Produce high-nutrition cereal for infants, primarily for use in China	Guangzhou	Announced 9/1/84; began construction 10/16/84
Yili-Nabisco Biscuit & Food Co. Ltd.	$8.8 mil.	Nabisco Brands Inc./Yili Food Co. (US:51%-PRC:49%)	Produce biscuits and crackers	Beijing	Signed contract 3/20/85
Industrial Machinery					
Xibe Roll Covering Co.	$2.4 mil.	Beloit Corporation/Xian Paper Making Machinery Co. (US: 25%-PRC:75%)	Produce roll covering technology and act as springboard for large JVs in paper making machinery	Xian	Signed contract 9/84; approved 4/85 12 years
—	—	Midland Ross Corp./Shanghai Electric Furnace Co. (US:73%-PRC:27%)	Design and construct continuous cast belt furnace line to be installed at Tengxian Standard Parts Plant	Shandong	Announced 6/84; start-up 10/84
Ning-Ca Agricultural & Environmental Instrument Co., Ltd.	$10 mil.	MIS Co./Ningxia Yinchuan Electrical Meter Factory (50%-50%)	Manufacture agricultural and environmental instruments and equipment for export	Yinchuan, Ningxia, and Beijing	Signed letter of intent 8/3/83; start-up 11/84 25 years
Parker-Hubei Seals Co., Ltd.	$990,000	Parker Hannifin Corp./Hubei Automobile Industry Corp. (US:49%-PRC:51%)	Produce high-quality rubber O-rings and shape-molded sectional seals	Wuhan, Hubei	Approved 12/6/81; start-up 10/84 20 years
Shanghai Peerless Water Pump Co.	$1 mil.	Peerless Pump/SITCO	Produce deep-water pumps	Shanghai	Preliminary agreement reported 5/7/84
Guangzhou Locks Factory	$3 mil.	Scovill Yale Inc./Guangzhou City and MoLI's Foreign Technical Cooperation Co. (US:50%-Guangzhou:40%-MoLI:10%)	Produce cylindrical ball-type locks, two-bolt mortise locks, iron-plate laminated locks, and various moulds	Guangzhou	Signed letter of intent 9/24/84
Vetco-Dalong Offshore Equipment Co.	$5 mil.	Vetco Southeast Asia Ltd., sub. of Combustion Engineering/Dalong Machinery Works, Shanghai (US:60%-PRC:40%)	Produce and market sub-sea drilling equipment for offshore oil and gas drilling	Shanghai	Signed contract 11/84; approved 12/84; start-up 6/1/85 15 years

Medical Devices					
Beijing Contact Lens Co.	—	International Hydron Corp., sub. of National Patent Development Corp./ Beijing Optical Corp. (50%-50%)	Produce and market soft lenses in China	Beijing	Signed letter of intent 12/84
Spin Cast Contact Lens Corp.	$2 mil.	International Hydron Corp./Globe Biotechnology Development Corp. (50%-50%)	Final processing and sale of 5 mil. lenses/year	Shanghai	Finalized 12/84 10 years
Metals/Minerals					
Antaibao Open-Pit Coal Mine	$600 mil.	Occidental Petroleum Corp./China National Coal Development Co. and BoC Trust & Consultancy Corp. (US:58%-PRC:42%)	Continue to negotiate joint development of coal mine with mine annual capacity of 15 mil. tonnes	Pingshuo mining area, Shanxi	Signed 4/29/84; to begin construction '85; 30 years
Packaging					
Enmei DET Co., Ltd.	$3.75 mil.	World Industrial Co./Light Industrial Co. of Enping County, Guangdong (US:35%-PRC:65%)	Produce plastic bottles	Guangdong	Announced 4/6/84 10 years
	$600,000	Zhao Ruicheng (US citizen)/Xiamen SEZ Development Corp. and Xiamen Shipping Electronic Instruments Plant (US:20%-PRC:80%)	Develop, produce, and sell shipping containers for electronic instruments	Xiamen	Signed contract 10/84 15 years
Pharmaceuticals					
Sino-American Biotechnology Co.	$1 mil.	Promega Corp. (US) and Sinogenetik (Canada)/Luoyang Biochemical Factory, Henan, and CITIC (US:20%-Canada:20%-PRC:60%)	Genetic biochemical manufacturing facility	Zhengzhou, Henan	Signed contract 1/18/85 15 years
Tianjin SmithKline & French Laboratories Ltd.	$10 mil.	SmithKline Beckman Corp./Tianjin Pharmaceutical Industrial Co. (US:55%-PRC:45%)	Construct factories and produce pharmaceuticals	Tianjin	Announced 7/16/84
Sino-American Shanghai Squibb Pharmaceuticals Ltd.	$6.32 mil.	E. R. Squibb & Sons/State Pharmaceutical Administration, SITCO, and Shanghai Pharmaceutical Industry Corp. (50%-50%)	Produce pharmaceuticals (neomycin and anti-inflammation cream)	Shanghai	Approved 5/82 20 years
Power					
—	—	Sovonics Solar Systems, a Standard Oil Co. (Ohio) and Energy Conversion Devices Inc. partnership/NA	Build and market solar cells	—	Memorandum of understanding 10/30/84
Telecommunications					
Shenzhen Radio Telephone Co.	—	Chinatel (HK), joint venture company of Millicom International Ltd./ Shenzhen Telecommunications Development Co.	Provide radio telephone service	Shenzhen	Signed contract 4/10/85
CCC Elk Fiber Optic Telecom Inc.	$5-6 mil.	Elk Telecommunications Inc./ Changsha Computer Co. (50%-50%)	Trade and manufacture fiber-optics equipment	Hunan	Established 10/84; signed contract 1/26/85 15 years
China Telecom Systems (HK) Ltd.	—	Millicom International Ltd. (US), Comvik AB (Sweden), and Onwell Holdings Ltd. (HK)/Hua Ko Electronics Co. Ltd., sub. of China Resources Holdings	Provide mobile telephone services	Guangzhou	Signed preliminary agreement 1/29/84
Textiles and Textile Machinery					
Hubei-Lummus Machinery Co. Ltd.	$2.25 mil.	Lummus Industries Inc./Hubei General Cotton Machinery Plant	Produce cotton processing equipment	Wuhan	Announced 7/26/84
Sichuan Congcheng-Plenux Silk Co., Ltd.	$3 mil.	Plenux International Co./Guang'an Silk Co. (US:49%-PRC:51%)	Manufacture pure silk	Guang'an County, Sichuan	Approved 11/83 15 years
Shanghai Apparel Fasteners Factory	—	Scovill Apparel Fasteners Group/ Shanghai Municipality and MoLI's Foreign Technical Cooperation Co. (US:50%-Shanghai:40%-MoLI:10%)	Jointly manage factory	Shanghai	Announced 9/24/84
—	$5 mil.	Talon Zipper Co. and China Enterprises Corp./Jiangsu ITIC and Zhenjiang Zipper Factory	Manufacture zippers	Zhenjiang, Jiangsu	Signed contract 1/8/85
Transportation Equipment					
Xiamen Airlines	—	Aloha Airlines/Xiamen Aviation Co. Ltd.	Will cooperate on development of Xiamen's new civil airline	Xiamen	Signed memorandum of understanding 4/23/84
Beijing Jeep Corp. Ltd.	$51 mil.	American Motors Corp./Beijing Automobile Works (US:31.4%-PRC:68.6%)	Manufacture 4-wheel drive utility vehicles and trucks	Beijing	Signed contract 5/5/83 20 years
Guangzhou Orlando Helicopters Ltd.	—	Orlando Helicopter Airways (US) and Bates Associates Ltd. (HK)/Guangzhou ITIC Corp. (US & HK:60%-PRC:40%)	Produce and lease 10-seat gasoline-operated helicopters	Guangzhou	Signed contract 1/24/85 15 years

List prepared by Jennifer Little, Betsy Saik, and Beth Keck. Due to the rapid pace of joint venture approvals, this list may not be exhaustive. We regret any inadvertent omissions. Companies that have signed joint ventures are encouraged to send press releases to Jennifer Little at the National Council library.

KEY

BoC	Bank of China	ITIC	International Trust & Investment Corp.	SEZ	Special Economic Zone
CITIC	China Intl Trust & Investment Corp.	JV	Joint Venture	SITCO	Shanghai Trust & Investment Corp.
I/E	Import-Export	MoLI	Ministry of Light Industry		

New exchange programs introduce Western management techniques

China's Managers Look West

Beth Keck

Management IQ is on the rise in China, and for good reason. Recent economic reforms have given Chinese enterprise managers new responsibilities and made them more accountable for their actions. These policy shifts have raised interest in management theories and forced China to take a hard look at current management practices. The result has been a flurry of new management training programs, many of them sponsored by foreign governments, schools, and corporations.

Soviet-style management, in vogue in China since the 1950s, appears to be on its way out. This system, which emphasized collective decisions made by a factory Party Committee, gave the factory director little power. But lately China's leaders have advocated a very different approach. According to the "Decision on Reform of the Economic Structure" adopted by the Central Committee last October, "Government departments . . . will, in principle, not manage or operate enterprises directly. . . . Modern enterprises have . . . strict technological requirements, and complex cooperative relations. . . . This calls for a system of the director or manager assuming full responsibility. Party organizations in enterprises should actively support directors in exercising their authority." As if to legitimize the implication behind these statements, the document also states that, "We must draw on the world's advanced methods of management, including those of developed capitalist countries, that conform to the laws of modern socialist production."

In fact, Western management ideas have been gradually gaining acceptance in China over the last several years. One of the earliest Western management consultants to help spread the word was Canadian Joseph Battat, who began to work with the Ministry of Machine-Building Industry (MMBI) in 1978. MMBI has sponsored a series of management training programs for their employees at the Shanghai Institute of Mechanical Engineering. Battat helped the Ministry design appropriate curriculum and recruit Canadian and American faculty to teach some of the courses.

A proliferation of bilateral government programs

Another precedent-setting program, the National Center for Industrial Science and Technology Management Development in Dalian, Liaoning Province, was established by the US and Chinese governments in 1980 to introduce US management practices to Chinese managers. (*See* related article on page 39). Perhaps more than any other program, the Dalian center demonstrates the fact that these Western ideas can be tailored to China's needs. According to Richard Lee, who administers the center for the US Department of Commerce, the Chinese approach management as a science composed of basic concepts, tools, and skills, as well as an art that must be practiced in the context of society. According to Lee, "The Chinese said 'tell us how it works, and leave the adaptation to us.' "

The success of the Dalian program has helped spur the Chinese to pursue similar management training programs with other countries. The Canadian International Development Agency (CIDA), for example, is providing some $15 million for a management education project in Chengdu, Sichuan Province. The CIDA center, which opened last October, will train approximately 300 managers from small- and medium-sized enterprises each year. Eventually it will also become a consulting resource center where enterprises can contract with teams of Chinese and Canadian experts to examine specific management problems.

In addition, CIDA has funded an economic management and exchange program between eight Chinese universities and eight Canadian schools since 1981. This program provides for faculty exchanges, purchase of computers and audio-visual equipment for the Chinese schools, and scholarships for Chinese students. Currently 75 students from China are studying in Canadian MBA programs.

Not to be left out, the Japanese International Cooperation Agency is establishing a Corporate Management Center in Tianjin. Last year 25 Chinese teachers began their training. Upon completion of a two-year program, they will be responsible for training 300 managers a year from China's large- and medium-sized enterprises. The project is co-sponsored by the Chinese Enterprise Management Association (CEMA), under the State Economic Commission. CEMA is one of the few national organizations promoting management studies in China, and has become a partner in several foreign agreements.

Meanwhile, the European Economic Community has committed $3 million for operation of an MBA program at the Beijing Business Admin-

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istration Center. Some 35 Chinese are in the first class, which began in March. The coursework, taught in English, is being coordinated by the Manchester Business School in England, and will include training in EEC companies. China's State Economic Commission and the EEC have agreed to run two courses between 1984 and 1989. After that, the program will pass from government to private supervision.

West Germany is concentrating its efforts in Shanghai. In connection with the Shanghai Enterprise Management Association, the Germans plan to support short-term training of top- and middle-level managers in the Shanghai area. Bonn has allocated DM7.7 million ($2.5 million) for the five-year project.

International organizations such as the United Nations Development Program and the World Bank are also active in management training. These organizations emphasize immediately practical aspects of business education such as conducting feasibility studies, project evaluation, project management, finance, and capital construction. Courses have been taught through the World Bank's Economic Development Institute in conjunction with the Shanghai Institute of International Economic Management and the Beijing Central Finance Institute.

University exchanges take many forms

In addition to initiatives with foreign governments, the Chinese have pursued management education through academic exchanges. Exchanges with US universities tend to be small-scale because of the decentralized nature of the education system and lack of funding for such programs. (One notable exception is the Nanjing–Johns Hopkins program, described on page 42). Often, management exchange programs have been initiated as a result of alumni ties or the personal interest of university officials.

The University of Pennsylvania's exchange with Shanghai's Jiaotong University is a case in point. On a visit to China in 1979, Jeffrey Chuan Chu, an alumnus of both schools, discovered that officials at Jiaotong were interested in developing a management program. Since that initial contact, the University of Pennsylvania's Wharton School of business has sent about two dozen professors to China to aid with teaching and curriculum design for Jiaotong's MBA program. Jiaotong University established a formal School of Management and graduated its first class of 30 MBAs last year. Some of those graduates have gone to work for planning commissions in Beijing. However, five are now doctoral students at Wharton.

The School of Management at the University of Texas at Dallas developed a far-reaching program as a result of a contact made at a cocktail party in 1979. At the party, the Chinese ambassador to the United Nations mentioned to Stephen Guisinger, director of international management studies, that no Chinese students were coming to the US to study management. Guisinger responded by soliciting scholarships from two Dallas banks, and made an offer to the Chinese. One year later, Guisinger received a telex saying that a Bank of China employee was on the way. Since then, UT–Dallas has sponsored four Bank of China employees at its management school.

Last June, the school expanded its China program by signing an agreement with Qinghua University's School of Economic Management. Under this new program, 10 Qinghua lecturers will earn MBAs and Ph.Ds at UT–Dallas. The first group of five will begin studying in Texas this September. The two schools are also establishing a Joint Center for China–US Management Studies to promote training for Chinese managers.

In the summer of 1986, UT–Dallas will start a unique MBA night program in Beijing. Taught by US professors, the program will be open to Chinese students as well as expatriates living in Beijing.

Municipal and corporate sponsors

A variety of nonuniversity exchanges provide additional forums for exposure to Western management techniques. One component of the sister-city relationship between San Francisco and Shanghai is a two-year management training course now underway at the Shanghai Institute of Foreign Trade. Some 30 Chinese executives and engineers are participating in the program that includes a six-month apprenticeship in San Francisco Bay area companies. San Francisco State University provides lecturers for the program.

A business leaders symposium, sponsored by the Chinese Enterprise Management Association and the European Management Forum Foundation based in Geneva, has been held annually in Beijing since 1981. It gives business leaders from around the world an opportunity to exchange experiences in enterprise management with their Chinese counterparts.

Xerox Foundation is underwriting a $225,000 grant for a three-year lecture series sponsored by Unison International Corp. (US) and CEMA. This program sends a team of management experts from leading US business schools to lecture on practical aspects of management in key Chinese cities. During the 1984 tour that began the program, the team spent three weeks in the cities of Harbin, Beijing, Xi'an, and Shanghai speaking to a total of 500 Chinese managers. Teams are scheduled to return to China this summer and again in 1986.

Benefits and challenges

While these programs are designed primarily to benefit the Chinese, the gains have not been all one-sided. US business executives active in the Dalian program find the experience a useful way to establish contacts with Chinese managers and government officials. US academicians use these programs to conduct firsthand research on Chinese management problems. The presence of US students in China and Chinese students on US campuses has increased awareness of each other's approach to management issues, and interest in future cooperative ventures.

However, these exchanges are not trouble-free. Administrators of private university exchanges see support tapering off as more and more Chinese study in the US. As the novelty wears off, says one administrator, scholarship funds are becoming more difficult to raise, and company internships for Chinese students are becoming harder to arrange.

Language and cultural barriers persist. During one lecture series in China, foreign instructors discovered that their interpreters simply changed the translation of their lectures when they disagreed with the ideas. Chinese students studying in the United States sometimes arrive with inadequate language skills and

CORPORATE MANAGEMENT PROGRAMS: The Foxboro Case

Western management training in China is not confined to the classroom. Chinese enterprises involved in joint operations with foreign firms are finding these ventures reaching beyond the transfer of technology. In some cases they involve significant changes in organization and management style. The Shanghai Foxboro Company Ltd., which manufactures precision instruments, is a case in point.

Thomas A. Stuhlfire, former director of China joint ventures at Foxboro, says that his company gained insights into the operation of their Chinese counterpart as early as the negotiating phase of the project. "We learned what the Russian model meant. There was little horizontal communication, mainly vertical. For example, all external communication was funneled through the general manager's office. Any significant internal communication also required the participation of the general manager's office."

Because good internal communication is essential both to producing their line of products and ensuring a good working relationship with the parent company, Foxboro focused its negotiations on clarifying how the joint venture would be organized, how it would work internally, and how it would relate to Foxboro's Massachusetts headquarters. The result was a "hybrid" organizational structure that had similarities to Foxboro operations, but included features of the Chinese model appropriate to operations in China.

Once both sides agreed on the structure, the joint venture company's top 20 Chinese managers were brought to Massachusetts to be introduced to Foxboro management operations. The first two weeks were devoted to basics, says Stuhlfire. "We included an introduction to memo writing and how to use an inside mail system." The Chinese also learned about "FYI" or for-your-information notes and other types of internal communication that are standard practice in American businesses.

According to Stuhlfire, the purpose was to illustrate the importance of the flow of communication and to introduce their Chinese partners to standard Foxboro procedures. Once this was accomplished, the Chinese managers moved into more specialized areas, such as sales and financial management, where they received training through direct exposure.

Now these basic operating procedures are reinforced by an expatriate Foxboro general manager who heads the operation in Shanghai. Stuhlfire contends, however, that careful planning of the organization, combined with the basic training session in the early stage, was key to their success. By laying ground rules, he says, Foxboro has been able to relate to its China facility in the same manner as it would to any of its other operations around the world.

From the Foxboro experience, Stuhlfire offers the following suggestions for companies undertaking training programs:

- Prepare interpreters and instructors. All Foxboro instructors were briefed on how to work through interpreters. "They knew it would take two to four times as long," says Stuhlfire. In addition, all interpreters were given the same English dictionary so they, too, would be working from a common base.
- Anticipate cultural differences. Knowing that Chinese students have a different attitude toward teachers than Americans, Stuhlfire and his team were careful to set ground rules for discussion during the first session. They told the Chinese that Foxboro felt a good education included conversation. Therefore, if the conversation lagged, the Chinese could anticipate questions from instructors. As a result, says Stuhlfire, "It was never a problem."
- Ensure that your message is communicated. Foxboro's greatest fear was miscommunication. To make sure the Chinese were grasping every step of their training, a formal review process was instituted. At the end of each day teachers and students all wrote summaries of what had been covered. These were then reviewed by the teachers and a management committee at the end of the week to ensure that the instructors were communicating effectively. Over time this evolved into a more informal meeting between Foxboro management and the group leader.
- Finally, says Stuhlfire, to make sure the Chinese felt more at home during their US training, Foxboro put chopsticks in the cafeteria. —BK

Photo courtesy of the Foxboro Company

A demonstration of equipment manufactured by Shanghai Foxboro Company Ltd. takes place at Foxboro's Massachusetts headquarters.

educational background to tackle graduate training.

The scope of these exchanges has just scratched the surface of need in China. Only a small number of China's managers will have an opportunity to participate in these programs. One *China Daily* article estimated only 500 Chinese had studied management abroad in recent years. Of those that have, many have returned to factories and institutions where superiors are reluctant to let them use new methods. Until a critical mass of managers and teachers is developed, much of this training may be lost in practice.

There are likely to be problems applying Western management techniques to Chinese factories, particularly as China's enterprises weather changes brought on by economic reforms. On the one hand, enterprises are urged to become profitable as rapidly as possible. On the other hand, many have been blocked by an inflation-wary government from raising prices for their goods, even though recent subsidy reductions will likely raise raw material and energy prices. Managers are faced with devising new measures such as lengthening operating hours, renovating machinery, and shifting production to higher-profit goods in order to boost efficiency and make ends meet. Thus, new ideas alone will not be enough: China's managers will have to be flexible and creative in their application of ideas.

Finally, with the Chinese exploring so many diverse management ideas, it will take time to determine what each method has to offer and to integrate it into a "new" Chinese management style. No doubt CEMA will play a major role in this distillation process, and in the distribution of new ideas. Since its founding in 1979, CEMA has started an active publications program that includes translating foreign management materials, and publishing the magazine *Enterprise Management*. It also sponsors seminars and training courses, including a correspondence course in economic management.

However, even with these qualifications, it is clear that Chinese managers are already gaining useful tools from their exposure to Western techniques. Li Fuxiang's two years at the UT–Dallas School of Management provided him with valuable insights into the US financial system at a time when his employer, the Bank of China, was beginning to expand its international operations. Upon completion of his MBA in 1983, he was transferred to New York, where he now serves as deputy manager of the Foreign Exchange department.

After attending a Dalian center seminar, Liao Jin, manager of a Guangzhou bicycle company, initiated a market research program, commissioned improved designs, and through a Dalian contact arranged to purchase higher quality bicycle tubing from a Harbin company. As a result his company now builds a better bicycle.

It seems clear that China's open door to the West will continue to bring in new ideas on organization and management, along with trade and investment. As China's new Western-trained managers gain acceptance, they will help spread these ideas and perhaps increase the pace of modernization. 完

US–China management program at Dalian

Training Ground for a New Breed of Professionals

Richard W. H. Lee

The Dalian center in Liaoning Province is one of China's success stories in Western management training. Officially called the National Center for Industrial Science and Technology Management Development, it was the first joint management program to be organized by the Chinese in cooperation with a foreign government.

Now in its sixth year of operation, the center is often cited by government leaders of both countries as an example of positive bilateral cooperation. China's Premier Zhao Ziyang and Foreign Minister Wu Xueqian both discussed the Dalian program with US officials during visits to the United States last year. President Reagan praised the center's achievements during his China trip in April 1984, and signed a new protocol extending the program for five years from its original 1984 expiration date.

Senior Chinese managers and professionals in industry, R&D organizations, government, and universities are learning about US management practices through courses offered at the center. Located on the campus of the Dalian Institute of Technology on the outskirts of the industrial port city of Dalian, the center is jointly administered by the US Department of Commerce on the American side, and by China's State Economic Commission, State Science and Technology Commission, and Ministry of Education.

Since the first class graduated in 1980, the program has become associated with the achievements of its graduates. They include such prominent leaders as Wang Zhaoguo, director-general of the Central Office of the Chinese Communist Party. Wang's rise stemmed from reforms he initiated at the Second Automotive Plant in Hubei after studying at

Richard W. H. Lee is director of the Department of Commerce's Science and Technology Programs for East Asia and the Pacific. He negotiated the agreement with China to establish the Dalian center in 1980.

Dalian. He instituted product design innovations, sent out a sales force, and organized a comprehensive maintenance system for the plant. In a short time, plant revenue doubled. These successes caught the eye of the Chinese leadership and led to his appointment to the Party Central Committee and eventually to his current position.

Wang's classmate, Ye Qing, is now a vice-minister of China's Ministry of Coal Industry. Other Dalian graduates can be found working as mayors, governors, chairmen of provincial and municipal economic commissions, and as presidents of joint venture companies and national industrial enterprises.

Base Program introduces business

Some 1,000 Chinese managers have now graduated from the various training programs being offered at Dalian. The Base Program, also known as the Enterprise Managers Program, was established in 1980 by the first protocol signed under the US–China Science and Technology Agreement. The program is offered mainly to factory directors and managers, and to a smaller number of R&D program managers, government officials, and university faculty.

Each year, approximately 180 students in the Base Program follow a six to eight month curriculum similar to that found in US business schools. Subjects covered include accounting, applied statistics, managerial economics, finance, marketing, organizational behavior, and production management. The latter part of the program focuses on research and engineering management, information systems, and strategy and policy design, as well as narrower topics such as business law, project management, project financing, and countertrade. Because of China's modernization goals, the Dalian center places more emphasis on the management of scientific and technological change than most US schools.

Besides attending lectures, students are also introduced to the case study method. Instructors present both US and Chinese industrial management cases. The US cases are popular because they give the Chinese insights into how American managers operate. The Chinese cases were developed initially in 1980 by special case-writing teams composed of one American and two or three Chinese who were dispatched to Chinese factories. The studies have been updated and expanded since then, and are now being compiled into a book by veteran Dalian faculty member William Fischer of the University of North Carolina.

One of the most popular parts of the program is the computer-based management simulation game, which gives the Chinese an opportunity to test their knowledge in a US management context. Participants divide into teams to take on the roles of general manager, comptroller, chief engineer, and production manager for a company. Their management decisions are fed into a computer that analyzes their performance and reports the hypothetical company's profits and losses.

Before starting the core program, the participants attend preparatory courses taught by the Chinese faculty. Classes include basic work in mathematics, statistics, economics, and computer systems, as well as fundamental management topics.

Newer programs emphasize specialized training

The center's programs were expanded last year as a result of the second protocol signed by President Reagan. The new Senior Executives Program, designed for officials at the bureau director level and above, focuses on macroeconomic planning and management. The Chinese government selects some 40 officials each year to participate in the program's eight-week seminar, led by a US faculty team consisting of a dean and six or seven professors. While tailored to the participants' specific interests, typical seminar topics include managerial economics, management of technological change, economic development, financial management, strategy and policy, and international marketing and organization. During the sessions, participants are encouraged to discuss managerial policy problems and issues growing out of their own experiences.

Another addition to the Dalian program is the Young Executive (MBA) Program. Last October, 40 Chinese between the ages of 30 and 37 began intensive training in English and other prerequisite courses as the first step toward entering the two-year MBA degree program. Those who passed the required academic tests and the Test of English as a Foreign Language began work in May on the business degree, which will be awarded by the State University of New York at Buffalo. All MBA courses will be taught in English, and students will go to the Buffalo campus for their final semester. There they will complete degree requirements, including a thesis, and intern for a month at a US corporation.

Applicants for the first MBA class came from 24 provinces in China. Candidates are required to have three to five years of work experience, a record of leadership, and must be recommended by their em-

Photo courtesy of Richard W. H. Lee

Participants in the Dalian center Base Program attend a class in the main lecture hall, which is equipped with a simultaneous translation system.

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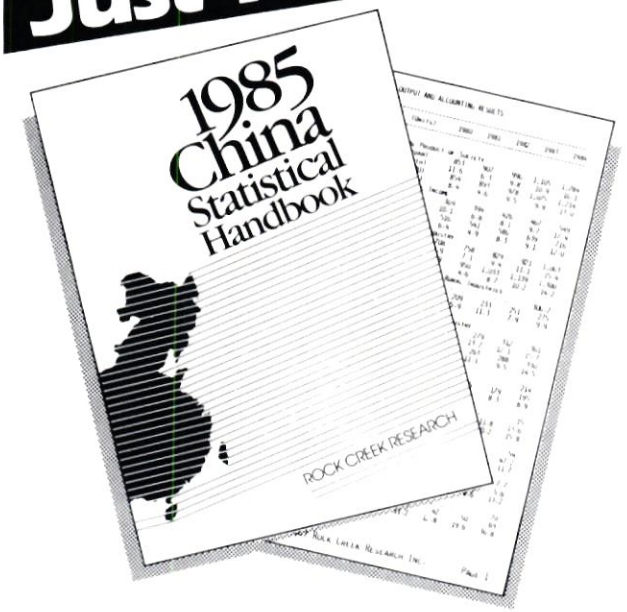

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Albert Keidel

Albert Keidel, President of Rock Creek Research, received his Doctorate in Economics from Harvard University and has traveled and worked in the People's Republic of China more than ten times since 1979. He is fluent in Chinese and Japanese. Prior to founding Rock Creek Research, Dr. Keidel was Senior Economist for China at Wharton Econometric Forecasting Associates.

Dwight H. Perkins, Senior Economic Adviser to Rock Creek Research, is Professor of Economics and Modern Chinese Studies at Harvard University and Director of the Harvard Institute for International Development.

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ployer. While most slots have been filled by promising young managers, some 15 percent of the students are from academia and government.

Joseph Alutto, dean of the School of Management at SUNY-Buffalo, serves as the MBA program director. In this capacity he monitors the curriculum and arranges for SUNY-Buffalo faculty to teach in the program.

In addition to Dalian's three regular programs, special training courses are being organized on an ad hoc basis. Two such seminars will be held in August 1985. In Beijing, approximately 40 Ministry of Petroleum Industry officials, oil field managers, and petroleum researchers will participate in a month-long seminar. Administrators from China's coastal economic development zones in the 14 open cities will meet at Dalian to learn more about urban planning. Both seminars will offer practical advice, with lecturers including executives from US corporations.

Working and planning together

Classes at the Dalian center are now held in a five-story building completed last year. The building houses a computer center equipped with systems donated by Control Data Corporation, IBM, and Wang Laboratories. Other equipment donations include calculators from Texas Instruments and Hewlett-Packard, copiers from Xerox, and audio-visual and video equipment from RCA, 3-M, and Eastman Kodak. Funding from the Asia Foundation and private individuals is helping to build a library collection of books, journals, and other materials on management practices. Students live in a seven-story dormitory also completed last year, while the American faculty are housed in an apartment complex adjacent to similar housing for the Chinese faculty and staff.

Initial program planning takes place between the US and Chinese program managers and faculty, and is finalized at an annual planning meeting. Academic work is directed jointly by the deans of the US faculty for each of the programs and the central director of the Chinese staff. Past deans include William Dill, Richard Holton, Jordan Baruch, Richard Van Horn, and Frank Jen, all well-known academics. In the formative years of the program, American faculty have taken the lead in curriculum design, development of teaching materials, and teaching. They are assisted by their Chinese counterparts in course planning, teaching, translations, and general feedback.

On the US side, curriculum design and recruitment of US faculty are guided by an Academic Advisory Committee appointed by the Commerce Department. US faculty, recruited from graduate business schools and the private sector, rotate every four to 10 weeks depending on the subject and schedule of instruction.

Chinese faculty are recruited from a consortium of nine schools organized by the Ministry of Education. Each school is responsible for one major subject area such as finance, marketing, managerial economics, and computer systems. Participating schools include the Harbin Institute of Technology, the Shanghai Institute of Finance and Economics, the Dalian Institute of Technology, People's University, the University of International Business and Economics, Liaoning University, Xiamen University, the Hubei Institute of Finance and Economics, and the Shanghai Institute of Science and Technology.

Center has broad spin-offs

In addition to helping the Chinese participants understand US management practices, the Dalian center has been a catalyst for establishing informal horizontal links among its graduates and faculty. Alumni groups have formed in several major cities, including Beijing, Shanghai, Tianjin, and Harbin. The center is expanding its textbook publication program to include a journal containing research papers on management as well as news about the center, its alumni, and American friends.

Future plans call for the center to expand its research and consulting activities. In the past, most research has been conducted on a short-term basis by visiting American faculty. Eventually, the Chinese faculty are to take the lead in setting the research agenda. Consulting, which began on a small scale last year, it is expected to grow as demand from government and industry for management advice increases. 完

Hopkins enters into academic joint venture with Nanjing University

An Experiment in International Relations

William M. Speidel

On September 1, 1984, Chinese and American educators and dignitaries donned hard hats and hefted shovels to break ground for a unique experiment in Sino–American graduate exchange programs—the Center for Chinese and American Studies. The principal aim of the center, a joint project of Nanjing University and the Washington, DC-based School of Advanced International Studies (SAIS) of the Johns Hopkins University, is to offer advanced academic training to Chinese and American students who will someday be managing aspects of the US–China relationship in both the public and private sectors.

Scheduled to open in September 1986, the center has been in the planning stages since 1979. Both sides agreed early on that there was little need for another exchange program in which American students studied "Chinese culture" in China. Instead, the Nanjing program stresses a SAIS-like curriculum focusing on the pre-

professional study of economics, foreign policy, and contemporary social problems.

Johns Hopkins President Steven Muller conceived of a program in China that would be somewhat analogous to the 30-year-old SAIS Bologna Center for European Studies, bringing together Chinese and Americans in class and daily life. Hopkins physics professor Chien Chih-yung, sent to China as Muller's representative, found strong interest in such a concept at Nanjing University. After several agreements between the two schools, China's State Council approved the project in March 1982, and by July 1984 preparations had moved into high gear.

Training for careers in private and public service

The center's first goal is to provide advanced training for young professionals interested in careers involving US–China relations. If this goal is met, those who have studied there will be attractive to a wide variety of employers in the fields of trade and industry, government, journalism, education, and cultural exchange. Other students will use the center experience to prepare themselves for continuing graduate studies in China or in the United States. The Nanjing center will also provide a meeting place for Chinese and American specialists in various disciplines, including both those resident for the year and those passing through as guest lecturers. Finally, the center library will attract scholars in international studies from various research institutes in east China, who will enrich the center's environment.

Center planners expect that the students will be a special group of people after completing their studies. Having lived with a person from the other country, they will have learned more about international communication and decision making. Perhaps most important, they will have developed friendships and understanding that should serve both nations well in the decades ahead.

William M. Speidel is a China historian who has taught at several institutions in the United States and Taiwan. From 1975 to 1980 He was director of the Inter-University Program for language studies in Taipei. he has been SAIS *director of the Hopkins–Nanjing project since June 1984.*

Day-to-day administration will be in the hands of two co-directors, one Chinese and one American. Under them, up to a dozen faculty members of both nationalities will offer a variety of courses at the master's and post-master's level. A student's nine-month academic program will consist of six to eight courses spread over two semesters. American students will study under Chinese professors and be expected to use Chinese in their coursework, while Chinese students will have American professors and use English. At least one common core course, team-taught by a Chinese and an American professor, will be offered to all students. Courses for the 1986–1987 academic year will be in the disciplines of history, politics, economics, and international relations.

A series of guest lectures by government and corporate personnel, based in China and abroad, will supplement the regular academic offerings. Field trips will permit students to visit the organizations and operations they will be studying.

An investment in the future

The Center for Chinese and American Studies will be located in a new 65,000-square-foot building, centrally air-conditioned and heated, which is expected to be completed in the spring of 1986. Although it is basically a Chinese construction project, the director of plant planning at Johns Hopkins, Thomas McCracken, is providing advice on design, construction, and furnishings.

While the Chinese planners are shouldering most of the cost of the construction (including purchase and clearing of the land, design, construction, and furnishings), Johns Hopkins will commit approximately $2.5 million to the establishment of the center. In addition, Hopkins will be providing about $1.5 million annually beginning with the opening of the center in the fall of 1986 to send American faculty and staff, provide student fellowships, and new books.

Foundations, government agencies, and corporations, as well as academicians, are all likely to see value in this cooperative international venture. Some expressions of support have taken a very practical bent in the form of equipment contributions. These include a Carrier air conditioner for the auditorium and an Otis elevator. Another company is considering the donation of a telecommunications system for the new building.

The center has already captured the interest of authorities on both sides of the Pacific. According to Hopkins President Muller, "The center offers the prospect of becoming the single most significant training ground in both countries for future professionals whose careers involve Sino–American interactions. The risks....include the dependence of the entire venture on the state of US–China relations; the awkwardness of joint management between two very different institutions, separated by much more than geographic distance; and the very high costs of the effort, costs so high that they make Hopkins dependent on external support to an extraordinary degree in this effort. In fact, the ability of Johns Hopkins to live up to its part in the enterprise rests on widespread recognition that the center is a national resource for the United States, rather than simply a program carried on by a single university." 完

会员动态

W. R. GRACE'S CHINA TRADE

W.R. Grace & Co.'s China business started with the importation of some silica gel bought at the 1973 Guangzhou Fair. That business steadily expanded over the next decade and now involves several of the firm's major groups in a variety of import and export lines.

On the import side, Grace buys goods from China for Herman's sporting goods stores, Berman's leather goods stores, and most of America's home center retailers. Grace imports a wide range of products from China for its home center customers, especially hardware tools, paint brushes, and cocoa mats. Herman's sells made-in-China down jackets, parkas, and other sportswear. For Berman's, which sells Chinese-made leather jackets, Grace installed 60 sewing machines in a new Chinese-owned factory in Guangzhou. With this equipment, the plant will be able to produce 84,000 leather jackets per year exclusively for Berman's. The plant will take ownership of all the new machinery from Grace by the end of this year.

On the export side, Grace divisions are selling everything from books to fertilizer. The firm's Baker & Taylor wholesale book business is selling books on science and technology to 28 top Chinese university libraries under a $5 million World Bank loan. The New York-based wholesaler is the project's principal US supplier of volumes published in North America.

Grace's Natural Resources Group has sold oil field tools to Daqing, China's largest field. It is also providing engineering services and technical advice to upgrade a bagasse (sugarcane residue) pulp mill in Jiangxi Province. Grace's Agricultural Chemicals division sold about 93,000 tons of diammonium phosphate fertilizer to China last year, and its Amicon Corporation subsidiary recently sold five ultrafiltration systems. Even this list is not complete.

Company chairman and CEO J. Peter Grace, who has visited China twice since 1980, believes the firm "can assist the new Chinese leaders, who are busily engaged in opening doors." His company appears to have made a profitable passage through those doors.

WEYERHAEUSER EARNS LUMBER JACK

US exports to China of forest products (logs, lumber, paper, and pulp) reached $337 million last year, and the Weyerhaeuser Company, headquartered in Tacoma, Washington, is the industry's largest supplier. The firm also has a continuing technology exchange program with the Chinese, coordinated through Weyerhaeuser's Beijing office.

The world's largest private owner of standing timber and largest lumber producer, Weyerhaeuser made its first sale to China in 1972 with a linerboard order. China now buys a wide range of forest products from the company, and has become its biggest customer in the Far East market after Japan. China uses logs and lumber it buys from Weyerhaeuser mainly for heavy construction projects rather than home building. The wood pulp is used to make paper while the linerboard is used in packaging China's light industrial exports.

Weyerhaeuser's forest technology exchange program with the Ministry of Forestry got underway in 1979 after Deng Xiaoping met with company executives in Seattle during his US visit. Since then company experts have traveled to Beijing to hold seminars with their Chinese counterparts on various aspects of forestry. Chinese foresters have come to the United States to observe operations on Weyerhaeuser's extensive holdings in the northwest and southeast and visit some of the firm's more than 100 manufacturing facilities. China's goal is to replant trees on 10 million acres every year for the rest of the century.

COMBUSTION ENGINEERING EXPANDS ENERGY INVOLVEMENT

Technology transfer has always been an important aspect of Combustion Engineering Inc.'s China business. Know-how from one C-E division, Lummus Crest Inc., is already at work in three ethylene plants operating in China and at a fourth now being built. C-E experts trained Chinese technicians on the operation of two fossil steam supply systems from the Power Systems division that will start up in 1986 and 1987, and on a ceramic fibers plant the Refractories division shipped in 1983. Since 1980 more than 200 Chinese experts have received further training under technology transfer agreements accompanying C-E equipment sales.

Recently two Combustion Engineering subsidiaries responded to China's promotion of direct foreign investment by signing agreements to enter new joint ventures. These underscore the company's long-standing commitment to helping China develop its energy resources.

The firm's Vetco Southeast Asia Ltd. is joining forces with the Dalong Machinery Works in Shanghai to manufacture underwater drilling equipment for use in offshore oil operations. The new venture, Vetco-Dalong Offshore Equipment Co., will be located in Shanghai and will sell drilling systems to companies searching for oil off China's coast.

Lummus Crest is entering a joint venture with the China National Petrochemical Corp.'s international subsidiary. The new company will provide design, engineering, and project management services to China's petroleum and petrochemical sector, as well as advice to overseas firms hoping to license their technology to Chinese producers. Lummus Crest's major role will be to transfer its technology to the venture.

—Tom Engle

"我不知道你是谁
"I don't know who you are.
我不知道你的公司
I don't know your company.
我不知道你的公司的产品
I don't know your company's product.
我不知道你的公司代表什么
I don't know what your company stands for.
我不知道你的公司有那些顾客
I don't know your company's customers.
我不知道你的公司办得怎样
I don't know your company's record.
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In 1985, Chinese language issues of six McGraw-Hill magazines will be published for readers in the People's Republic of China in these industries: *plastics, aviation, metalworking and machine tools, data communications, electronics, power generation and transmission.*

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商业旅行

The idea of planning a major conference or convention in China seemed, until recently, a pipe dream to Chinese officials and a nightmare to American business people. With neither the infrastructure nor the experience to back them up, the Chinese wisely decided to leave that market for the future.

Fortunately for them and for meeting planners abroad, the future has finally arrived. The opening of modern joint venture hotels in several key cities and the renovation of some older resort hotels are now making it possible to sell China as a serious meeting destination. Says one US tour operator in the convention and incentive travel business, "At last there is a product to sell."

In Beijing, the preeminent meeting property is the Sheraton Great Wall Hotel, with its 1,007 first-class rooms, dozen meeting rooms, complete audio-visual equipment, and a grand ballroom that accommodates up to 1,600 people. In Guangzhou, the sleek White Swan Hotel, the China Hotel, and the new Garden Hotel, a Peninsula Group property, offer all the business and recreational amenities that conference attendees expect—telex, audio-visual equipment, secretarial services, and transportation, as well as spa, pool, health club, tennis courts, etc. Smaller first-class properties in Beijing, such as the new Jinglun Hotel, the Jianguo, and the Lido, a modern Chinese hotel now managed by Holiday Inn, are used for medium-sized groups, as is the new Golden Flower Hotel in Xi'an. The natural attraction of Hangzhou as a meeting site has been enhanced by expansion of the Xiling Hotel and Conference Center. Shanghai, surprisingly, lags behind in its development of suitable meeting hotels, although several properties are expected to open by 1986–87. Nearby Nanjing offers an appealing alternative with the highly rated Jinling Hotel. (*See* "Conference Facilities in China," by Rudy and Sarah Wright, *The CBR*, May–June 1984).

These and a few other Chinese hotels are ideal for conferences, conventions, and incentive trips designed to reward executives and productive sales people. The Chinese have recently provided new evidence that they take the business travel market seriously. Last year China joined the Asian Association of Convention & Visitors Bureaus, and exhibited models of its newest hotels at the World Congress on Incentive Travel and Meeting Management in New York—the industry's main event. In March the highest-level CITS (China International Travel Service) delegation to visit the US promoted the idea of meetings and conventions to hundreds of travel agents. Yi Xiaoli, sales manager of the CITS International Conventions division, touted China's advantages as a meeting destination, and convinced her audience of CITS's eagerness to design flexible, competitively priced programs such as pre- and post-conference tours.

Indeed, new policies and new blood at CITS, coupled with the initiatives of several US meeting planners, are turning China into an attractive meeting and incentive destination. For instance:

Price. The idea that a China land program carries a much higher price tag and lower dollar-for-dollar value than other countries' programs is quickly being dispelled. Gerry Kerr, marketing vice-president for Inter Pacific Tours, points out that a classic four-city China package with air travel, deluxe hotels, domestic transportation, sightseeing, and meals can be developed for around $100 a day.

This major change has come from China's new willingness to customize programs to fit clients' needs. In the past, CITS offered meeting planners only one option: a standard tour package, with meals and sightseeing included whether they were wanted or not. Program essentials—a meeting place with proper equipment, special-interest activities, banquets, etc.,—were considered extras, and priced accordingly. Now, says International Conference Consortium's Rudy Wright, CITS "understands that the all-inclusive programs that work for tour groups don't work for meetings.

"For the first time," he continues, "we're finally able to get ground services for maybe two of the four days of a conference, fewer meals, and a two-tier pricing structure for delegates and their guests, who require more sightseeing and transportation services."

CITS is also more amenable these days to "component" buying. For instance, brief sightseeing excursions and special services are now offered as options or add-ons to the program (including, says CITS sales manager Yi, extensions to Hong Kong). Wright points out that the CITS International Conventions division will ship to any meeting location in China a complete equipment package, including audio-visual equipment, slide projectors, simultaneous translation equipment—"whatever would normally be needed for a meeting or convention anywhere."

Timing. Chinese tourism officials are at last making price concessions to encourage meetings during the off-season months for tourism, when such large events can be held more conveniently. Hotel overcrowding remains a problem in China's major tourist centers during May, September, and October. China has consequently taken steps to reduce prices 15 percent or more in the shoulder months, although conference planners privately admit the discount should be somewhat higher.

Off-season programs that take advantage of China's varied climate are also being developed, focusing on the warm, humid south in winter and

Carol S. Goldsmith is executive vice-president of China Travel Management USA, Ltd., a member of the First Family of Travel, based in Washington, DC.

on the drier northern and western regions during the rainy spring.

Length of Stay. Meeting planners and Chinese officials are trying to overcome one of the biggest disadvantages to a meeting or convention in China: the time (i.e., the money) required. Most companies try to limit their meeting or incentive programs to a week, whereas in China, a 10–14 day trip is the norm. Meeting planners point out, however, that costs can still be aligned with the budget.

For instance, a program centered around Shanghai can easily and economically fill 10 days. Suzhou, Wuxi, and Nanjing are short train rides from downtown; Hangzhou is a popular two-day trip. Delegates can spend some additional time cruising the Grand Canal or even take a three-day Yangzi River cruise departing from Wuhan.

Conversely, China can be visited on a four- or five-day extension from a Hong Kong or Japan trip. Such a side trip might actually reduce the total costs, given China's lower prices. Rudy Wright of International Conference Consortium is expanding on that principle for next April's World Energy Congress. The conference of energy engineers will convene in Hong Kong and then move on to Guangzhou for part two of the program, which includes field trips to offshore oil and nuclear facilities. In Guangzhou, deluxe hotels run by such preeminent operators as The Peninsula Group can be rented for a fraction of the cost in Hong Kong.

Professional tours. Another advantage to China as a meeting destination is its richness in professional contacts. Newcomers to the Asian arena are eager to meet their counterparts in China. Given enough notice, CITS can arrange professional meetings and site visits. Two New York companies—International Professional Meeting Coordinators, and Professional Group Travel—have been in this market for several years, arranging special programs for doctors, dentists, lawyers, and other professional groups. Says Allison Wiley of Professional Group Travel, "The Chinese go out of their way to assist with business-related services as well as special travel arrangements."

Planning. As a rule, say US meeting planners, staging an event in China requires about the same advance planning as anywhere else. "You need to work about 10 months in advance," says Gerry Kerr, "though we can of course work miracles in six months."

The key to planning is making the right contacts. Nancy Wu of Pacific Delight Tours says that "too many US companies try to arrange meetings in China without going through the appropriate agency." This is the single biggest reason for the misconception that conventions in China are nearly impossible to arrange. However, international meeting planners with contacts at CITS and industry organizations in China should be able to make the right connections at the outset.

No one would contend, of course, that staging meetings in China is easy or inexpensive. Telex traffic can drive up the initial planning costs, especially if there is undue confusion. Too often the Chinese require the US planners to make one more trip than the Americans deem necessary to get the program off the ground. Things can and do go wrong in China, but increasingly things are going right. By 1990 China intends to be an important international meeting, convention, and incentive destination, for old China hands and newcomers alike.

—Carol S. Goldsmith

书刊介绍

China Coal Industry Yearbook 1983 (English Edition), compiled by the Compiling Committee of the "China Coal Industry Yearbook," Ministry of Coal Industry, PRC. Hong Kong: Economic Information & Agency (342 Hennessey Road, 11th Floor), 1984. 299 pp. $25 surface; $30 airmail.

This excellent handbook on China's coal industry is an improvement on and a supplement to the 1982 version (*see* Bookshelf, *The CBR*, January–February 1984). Remarkably, there is very little duplication in the two volumes. The 1983 *Yearbook* reports chiefly on industry developments during 1982, although a chronology of major events in the coal industry since 1949 is included. Other useful information includes descriptions of major coal bases; statistical data; policy statements and legislation; the organizational structure of the industry; international exchanges, foreign trade, and cooperative development projects; descriptions of the coal products of key mining administrations; mine machinery products; and a directory of factories and mines.

The Executive Guide to China, by Edith Terry. New York: John Wiley & Sons, 1984. 365 pp. $14.95.

The Executive Guide to China ably fulfills author Edith Terry's goal of smoothing the way for the businessperson facing his or her first visit to China. The book presents a great deal of factual information without becoming dull and unreadable. Terry accomplishes this feat by kicking off with a lightning sketch of recent Chinese history and US–China relations. A collage of American experience doing business in China follows, leaving experienced China hands nodding in recognition. The book then covers the whos and hows of contacting the correct Chinese organizations, preparing technical seminars, briefing the US team, getting to China, and surviving once there.

The *Guide* proves a handy reference to addresses, procedures, and other basic necessities. It would be even more useful if the table of contents were structured to give the page numbers of individual charts. Unfortunately, the charts are lumped together in large groups, preventing easy access to the information.

An additional minor drawback is Terry's reliance on interviews with a small pool of businesspeople conducted, in some cases, over three years ago. China trade is in a continual state of flux due to the ebb and flow of Chinese reform and recentralization. China traders' social lives have also broadened (albeit ever so slightly) beyond the confines of the Beijing Hotel coffee shop. Despite this sort of unavoidable obsolescence, *The Executive Guide to China* is a solid reference that should remain useful to China traders for several years to come. —KG

How to Do Business With the People's Republic of China, by Philip Wik. Reston, VA: Reston Publishing Co., 1984. 322 pp. $34.95.

This new "how to" book is at its best putting trade with China into a historical and cultural context. Focusing on trade rather than investment, the book is both interesting and readable, but the reliability of its specific information should be questioned. Despite Wik's laudable efforts to avoid being out-of-date at publication, it is clear that the book was written in 1980 and unevenly revised in 1982. For instance, the organizational information provided on commissions and ministries in China is glaringly in error. Discussions of intellectual property protection, banking, and joint ventures are also badly out of date.

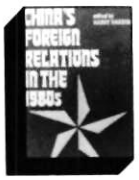
A third of the book is devoted to a variety of appendices: Pinyin conversions; acronyms of Chinese organizations; metric conversions; chronologies; texts of trade agreements and laws; sample sales, purchase, and insurance contracts; and a bibliography.

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.*

Guide to China's Foreign Economic Relations and Trade: Cities Newly Opened to Foreign Investors, edited by Policy Research Department, Ministry of Foreign Economic Relations and Trade, PRC. Hong Kong: Economic Information & Agency (342 Hennessey Road, 11th Floor), 1985. 434 pp.; 234 pp. in English, including advertising. $34 surface; $40 airmail.

The bilingual series *Guide to China's Foreign Economic Relations and Trade* is planned for four volumes. The first two volumes, *Investment Special* and *Import–Export Special*, were published in 1983 and 1984. The fourth volume, *International Economic Cooperation*, is forthcoming. This third volume of the series is devoted to the areas China has opened to foreign investors: the four special economic zones, 14 coastal cities, and Hainan Island. Policy statements and speeches on the opening of the coastal cities are followed by introductions to each of the open areas. Although the amount of information on each varies, the descriptions usually include a general introduction, an infrastructure description, investment priorities, and a listing of foreign trade and investment contact organizations. Regulations covering investment in these open areas, including the new enterprise income tax and consolidated industrial and commerical tax regulations, are re-

printed in the final section of the book.



China's Foreign Relations in the 1980s, edited by Harry Harding. New Haven: Yale University Press, 1984. 240 pp. $18.50.

Commissioned by the China Council of the Asia Society as part of its public education program, this book contains six essays on China's foreign policy. The essays are "Chinese Foreign Relations in Historical Perspective," by Michael H. Hunt; "Domestic Politics and Foreign Policy," by Kenneth Lieberthal; "China in the International Economy," by Bruce Reynolds; "China in Asia: the PRC as a Regional Power," by Steven I. Levine; "China and the Global Strategic Balance," by Jonathan D. Pollack; and "China's Changing Roles in the Contemporary World," by Harry Harding, the book's editor.

China Policy for the Next Decade: Report of the Atlantic Council's Committee on China Policy: Policy Papers. Washington, DC: The Atlantic Council of the United States (1616 H Street, NW, 20006), 1983. 54 pp. $5.

This volume of policy papers contains the recommendations that grew out of the Atlantic Council's two-year study of US policy toward China. It does not include the working papers developed during the study.

China Policy for the Next Decade: Report of the Atlantic Council's Committee on China Policy. Boston: Oelgeschlager, Gunn & Hain (131 Clarendon St., 02116), 1984. 445 pp. $27.50 hardbound; $12.50 paperback.

This volume includes the complete set of policy papers and 25 working papers prepared during the Atlantic Council's two-year study of US policy toward China. The Atlantic Council's China Policy Committee, composed of 51 prominent Americans and seven representatives from Western Europe and the Far East, studied various issues and made recommendations for the coming decade. Among the issues they considered are American and Chinese national interests and objectives; security, arms control, and arms sales; relations with Taiwan; trade and technology transfer; and foreign policy positions.

The China Quandary: Domestic Determinants of U.S. China Policy, 1972–1982, by Robert G. Sutter. Boulder, CO: Westview Press, 1984. 194 pp., $22.50.

In this book Robert G. Sutter, specialist in Asian affairs at the Congressional Research Service of the Library of Congress, assesses the domestic and foreign policy interests of the United States in relations with China, and offers policy options to meet the problems ahead. Sutter interviewed officials of the Carter and Reagan administrations and members of Congress to ascertain differences in their views and policy approaches to such dilemmas as relations with Taiwan, US–PRC military ties, aid to China, and secrecy versus openness in America's China policy.

Sino-American Normalization and Its Policy Implications, edited by Gene T. Hsiao and Michael Witunski. New York: Praeger, 1983. 515 pp. $45 hardbound; $15.95 paperback.

This volume is a sequel to *Sino–American Detente and Its Policy Implications*, published in 1974 under the editorship of Gene T. Hsiao. The latest book, the product of a conference held in St. Louis during March 1980, contains a prologue by Michael Witunski and six essays: "The Process of Rapprochement: Achievements and Problems," by Charles W. Freeman, Jr.; "The Legal Status of Taiwan in the Normalization of Sino-American Relations," and "Renewed Crisis over Taiwan and Its Impact on Sino–American Relations," both by Gene T. Hsiao; "Long-Term Educational Exchange with China," by Pierre Perrolle; and "Strategic Implications" and "Multilateral Political Aspects," by William R. Feeney. Over half the book is appendices containing official statements on US–China relations and texts of agreements signed between the two countries in 1979 and 1980.

中外贸易

Jennifer Little
Research Assistant

The following tables contain recent press reports of business contracts and negotiations 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 CBR*.

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

中外贸易

CHINA'S IMPORTS THROUGH MARCH 31

Foreign Party/ Chinese Party	Product/Value/ Date Reported
Agricultural Commodities	
(Malaysia)	200 tonnes of merbau and nyapuh hardwood. 11/22/84.
Shin Toa Koeki Kaisha Ltd. (Japan)/NA, Nei Monggol	CT: Will sell US seeds for cultivation in Nei Monggol in exchange for part of the crops. 2/26/85.
Agricultural Technology	
Elgep (Hungary)	Signed a contract for sale of a feed mill. 11/27/84.
Del Monte Corp. (US)/ Shanghai Foodstuff Industry Association	Signed an agreement that may lead to a joint venture to provide equipment, technical services, and raw materials to produce vegetables. 1/85.
JayBee Engineering Pty. Ltd. (Australia)/Shun Tak Food Bureau, Guangdong	Received an order to build a stock feed mill complex. $319,000 (Aus$430,000+). 1/28/85.
Chemicals, and Chemical and Petrochemical Plants and Equipment	
(Pakistan)	200,000 tonnes of urea. $40 million. 10/4/84.
Adcon (US)	Will provide equipment, laboratories and technology for an industrial adhesives facility. 12/84.
Davy McKee AG (W. Germany)/TECHIMPORT	Was awarded a contract to build a phthalic anhydride plant in Harbin. $6.7 million (DM22 million). 12/31/84.
Teijin, Toray Industries + others (Japan)/China National Textiles Import-Export Corp.	10,000 tonnes of polyester fiber. 1/85.
Toyo Polymer (Japan)/ Fujian Plastic Enterprises	Polyurethane for synthetic leather. 1/85.
Chisso Engineering Corp., Nippon Zeon Co., and Wako Koeki Co. (Japan)/Mudanjiang Resin Factory, Heilongjiang	Will construct a polyvinyl chloride paste-grade pellet plant. $2 million. 1/7/85.
(Australia)/Institute for the Control of Agrochemicals, Beijing	Australia will provide training and assistance for pesticide analysis, application research, and regulatory practice. 2/20/85.
Asahi Chemical Industry Co. and Chori Co. (Japan)/China National Chemical Construction Corp. and Tianjin International Trust & Investment Corp.	Signed a contract to supply a caustic soda plant. 2/26/85.
Mitsui & Co. and Chisso Engineering Co. (Japan)/ China North Industries Corp.	Signed a contract to build a plant for high-purity hydrogen and carbon monoxide at Lanzhou, Gansu. $7.7 million (J¥2 billion). 3/5/85.
Construction and Construction Materials and Equipment	
Glaverbel SA (Belgium)/ Tianjin Municipality	Won a contract to supply and install equipment for a flat glass production line. $7.7 million. 11/84.
Apollo Mech (Japan)/ Liaoning Foreign Trade Corp.	Will manufacture motors for electric fans and ventilation fans. $1 million (J¥260 million). 1/85.
Daikin Industry Co. (Japan)/CATIC	Signed a contract to provide technology for manufacturing air conditioners and air compressors. 1/17/85.
Caritas Veritas (HK)/ Taijing and Qinglong Counties, Guizhou	CT: Marble quarry equipment. 1/21/85.
Shine Construction Co. (HK)	Will finance and build a bridge over the Xijiang River at Jiujiang, near Guangzhou. 1/24/85.
Great Earth Architects and Engineers International (an overseas Chinese-PRC enterprise)	Is conducting feasibility studies for a new town in Xiamen and for a new university near Beijing. 1/24/85.
Consumer Goods	
Wilkinson Sword Ltd. (UK)/Shanghai Razor Blade Factory	Won a contract to supply razor blade manufacturing equipment. $1.5 million. 12/5/84.
Chabert et Duval (France)	Will sell a woodworking plant to a factory in Jiamusi, Heilongjiang. $13.1 million. (Fr123 million). 12/26/84.
Oriental Photo Industrial Co. Ltd. (Japan)/ TECHIMPORT; Technical Updating Bureau, SEC; New Materials Bureau, Ministry of Chemical Industry; and Baoding No. 1 Film Factory, Hebei	Signed a contract to provide equipment for a color film factory. 12/31/84.
Tasman Pulp and Paper Co. (New Zealand)	Negotiated a 3-year deal to supply 10,000 tonnes of newsprint in 1985 and 1986. $13.6 million (NZ$30 million). 2/85.

NA = Not available.

NOTES: Contracts denominated in foreign currencies are converted into US dollars at the most recent monthly average rate quoted in *International Financial Statistics (IMF)*. Contracts concluded over two months ago are also included if they were not reported in the last issue of *The CBR*. Licensing (LIC), Compensation (CT), and Assembling (ASSEM) deals are now included in the "China's Imports" section.

Electronics and Electrical Equipment

Kaga Electronics (Japan)	Will set up a factory in Shenzhen to manufacture computer monitors and peripherals. 11/1/84.
Abignano Ltd. (Australia)/ Great Wall Industrial Corp.	Signed an agreement to establish six production facilities for printed circuit boards. First plant: $6.7 million. 12/12/84.
International Geosystems Corp. (Canada)	LIC: Geophysical software systems for a State-operated engineering corporation. 12/27/84.
Indesit Engineering SpA (Italy)/China National Electronics Import–Export Corp.	Won a contract for a turnkey passive component plant to be located in Beijing. 1/85.
Electrical Conductors Inc. (US)/Carroway Enterprises (USA) Ltd. (a PRC–HK joint venture) and Xinhua Shenzhen Electric Wire and Cable Plant	CT: Cord production equipment in exchange for cords. 1/85.
Elicon (US)/Beijing Film Studio	A computer-controlled camera system. 1/85.
Scribel (France)	LIC: Contract for Chinese-character computer graphic terminal technology. 1/2/85.
Det-Tronics (US)/Administration of Computer Industry	LIC: Chinese-character processing technology. 1/4/85.
S.L. Electrotech (UK)	Will supply a multicomputer system for testing electricity meters. $109,600+ (£100,000+). 1/7/85.
Ranco Controls (UK)	LIC: Negotiating sale of thermostat technology. $1.09 million+ (£1 million+). 1/14/85.
Sanyo Electric Co. (Japan)	Won an order for 1,000 microcomputers. 1/15/85.
Integrated Business Computers (US)	200 multiuser 16-bit microcomputers. $3.6 million. 1/21/85.
Charles River Data Systems (UK)	LIC: Technology to produce 68040-based Universe computers. 1/24/85.
Hewlett-Packard (US)/ Beijing University	Donation of a minicomputer and software. $500,000. 2/85.
Nippon Electric Corp. (Japan)/China Electronics Import–Export Corp.	A production line to manufacture 16-bit microcomputers for a factory in Baoding, Hebei. Will cooperate in development of a Chinese-character coding system. 2/6/85.
Tokyo Electric Co. (Japan)	Reached a basic agreement to produce printers for personal computers at a factory in Shenyang. 2/12/85.
Siemens AG and AEG Telefunken AG (W. Germany)	Won a contract for electronic equipment for a steel rolling plant. $120 million. 2/14/85.
Tokyo Ferrite Mfg. Co. and Kinsho-Mataichi (Japan)	Magnet manufacturing skills for a plant in Tianjin. 2/19/85.
Kinsho-Mataichi and Taiko Electric Works Ltd. (Japan)	Relay production technology for a Tianjin factory. 2/19/85.
International Memories Inc. (US)	Disk drives, technology, assembly equipment and training. Approx. $3.5 million. 2/25/85.
Epson Corp. (Japan)	Will open a wholly owned plant, Epson Engineering (Shenzhen) Ltd., to produce computer printer parts. 3/4/85.
Toshiba Corp. (Japan)	Signed a contract with Nanjing to provide Chinese-character computer printer production technology. 3/12/85.
General Datacomm Industries (US)	LIC: Agreed to a 10-year provision of data communications systems technology. $5 million over first three years. 3/18/85.
Perkin-Elmer Corp. (US)/ CNOOC	Super minicomputer systems for offshore seismic data processing applications. 3/20/85.

Electronics (Consumer)

NA (Spain)/China North Industries Corp.	Signed three contracts for refrigerator, electric motor, and condenser production lines in Hunan. $3.3 million (600 million pesetas). 11/18/84.
Crown (Japan)	Signed a cooperation contract for cassette tape recorders and manufacturing techniques. $16 million (J¥4billion). 12/24/84.
Philips (Brazil)	Black and white TV tubes. $22 million in 1984. 12/6/84.
Philips (Netherlands)	Signed an agreement to build a compressor production plant in Beijing. $25 million. 1/85.
Shinano Onkyo (Japan)/ Shijiazhuang No. 1 Radio Factory, Hebei	Consignment processing agreement for 1.25 million stereo headphones. 1/85.
Shinano Onkyo (Japan)/ Hebei Light Industrial Products Import–Export Corp.	Consignment processing agreement for 250,000 radio-cassette recorders. 1/85.
General Corp. of Japan	Technical assistance and equipment for a refrigerator assembly line. $9 million (J¥2.5 billion). 1/85.
Sanyo Electric Co. (Japan)	ASSEM: A set of color TV assembly equipment and kits for 103,000 TV sets for two Chongqing factories. 1/10/85.
Thomson (France)	230,000 color TVs. 1/10/85.
Victor Co. and Nissho Iwai Corp. (Japan)/China Electronics Import–Export Corp., Shanghai Branch; Nantong TV Factory, Jiangsu; and Dadong TV Factory, Liaoning	Color TV assembly plants and technical assistance. 3/7/85.
Philips (France)	Color TV sets. $31 million. 3/21/85.

Finance, Leasing & Insurance

Insurance Union of Paris (France)/People's Insurance Co. of China	Signed a cooperation agreement. 11/13/84.
(Yugoslavia)/Bank of China	Signed a financial and banking cooperation agreement. 3/5/85.

Food Processing

General Foods Corp. (US)	Has a preliminary agreement to upgrade an instant coffee plant. 12/24/84.
Nippon Light Metals and Toyo Suisan Kaisha (Japan)/Ministry of Commerce	A retort processing system for cooking rice. $770,000–$1.15 million (J¥200–300 million). 1/85.
Corbas, Iffa-Merieux, and Rhone-Poulenc (France)	Will sign a contract to provide a meat processing plant to Beijing. 1/9/85.
Etablissements Olier (France)	Wine and oil processing equipment. 1/17/85.
Marubeni Corp. (Japan)	Has a basic agreement to establish food processing and distribution centers in Beijing and Tianjin. 1/28/85.
Pepsi-Cola International (US)	Will open a bottling plant in Guangzhou. 2/15/85.
Seikensha Co. (Japan)/ Ministry of Light Industry	Reached a basic agreement to provide know-how to build soybean milk processing plants. 2/19/85.

Foreign Aid

U.N. Fund for Population Activities/Ministry of Public Health	Aid for prenatal care and family planning. $4.75 million. 1/25/85.

Machine Tools

Kobe Steel Ltd. and Seiwa Engineering Co. (Japan)/Tianjin Tool Factory	New and used taper drill grove grinders. 2/12/85.

Mitsubishi Heavy Industries Ltd. (Japan)/Shenyang Automotive Industry Corp.	19 gear-making machines for manufacturing truck transmissions. $1.9 million. (J¥500 million). 2/19/85.
Krupp Widia (W. Germany)/EQUIMPEX and Tianjin Cement Carbide Factory	Machinery, equipment, and know-how for the manufacture of hard metal tools for metal processing and forming. $9.1 million. (DM30 million). 2/27/85.

Machinery

Process Evaluation and Development Corp., subsidiary of W.R. Grace & Co. (US)/Ganjiang Paper Mill, Jiangxi	Signed a contract to provide engineering and technical services to renovate the mill. 1/31/85.
Hettinga Equipment Inc. (US)/Jiangsu Provincial Import Corp.	A plastic mold-making machine and related equipment. 2/4/85.
Matsushita Industrial Equipment Co. (Japan)/EQUIMPEX	Technology to produce automatic carbonic acid gas welding machines. 2/12/85.
Rockwell International Corp. (US)	LIC: Technology to produce offset presses. 2/12/85.
Zurn Industries Inc. (US)/Suzhou China Purification Special Equipment Factory	Technology and equipment for the production of high-purity water treatment systems for the electronics industry. $1 million+. 2/18/85.

Medical Equipment

American Health Foundation (US)/Zhejiang Medical Institute	Provided an infant care center in Hangzhou. 10/30/84.
Shimadzu Corp. (Japan)/China National Medical and Health Products Import-Export Corp.	Technological assistance for medical X-ray diagnostic equipment. 1/85.
(Belgium)/Ruijin Hospital, Shanghai	Donation of an electronic scanner. $1 million. 2/16/85.

Metals, Minerals & Processing Technology

Western Mining (Australia)/China Nonferrous Metals Import-Export Corp.	Will build a nickel smelter at Jinchuan, Gansu. 11/84.
Jacques Ltd. (Australia)/China National Coal Import-Export Corp.	A crushing and screening plant for Shenzhen. 11/84.
Scintrex Pty. Ltd. (Canada)	Contracted to conduct mining surveys of Baiyin, Gansu, for a PRC-Australian joint venture. 12/84.
Seco-Warwick (US)/Harbin Light Alloy Manufacturing Factory	Contract for the design, manufacture and installation of an aluminum ingot pusher furnace. 12/3/84.
Foseco International (UK)	LIC: Won two contracts to provide technology for foundries in Shanghai and Shenyang. 12/19/84.
Krupp Industrietechnik GmbH, Essen Works (W. Germany)/Changzhou Smelter, Jiangsu and Xiangtan Cable Works, Hunan	Two copper rod casting-rolling plants. 12/20/84.
Davy McKee Equipment Corp., Swindell Furnace Div. (US)/Shanghai Iron & Steel Plant, No. 2 Rod Mill.	Received a subcontract from 1984 contract with Morgan Construction to rebuild an old US rod mill in Shanghai. 1/11/85.
Western Japan Trading Co. Ltd. and ELNA Co. Ltd. (Japan)/Dongguang Wireless Components Factory	An aluminum foil production line. 1/28/85
Sumitomo Metal Industries Ltd. (Japan)/CITIC, Anshan Iron & Steel Co., and Shanghai No. 5 Steel Works	Signed a contract for basic oxygen furnace top and bottom blowing process technology. 1/29/85.
Nippon Steel Corp., Nippon Kokan, Kawasaki Steel Corp., Sumitomo Metal Industries, Ltd., Kobe Steel Ltd., and Nisshin Steel Co.	Received an order for 1.52 million tonnes of ordinary rolled steel products for delivery in the first six months of 1985. 1/29/85.
Cockerill Co. (Belgium)/Shoudu Iron and Steel Complex, Beijing	Signed two contracts to provide a wire rod mill and a steel-making plant. $28 million. 2/11/85.
Kobe Steel Ltd. and Japan Consulting Institute/First Heavy Machinery Factory, Fula'erji, Heilongjiang	Won a consultancy contract to help modernize the factory. $192,000 (J¥50 million). 2/26/85.
(Papua New Guinea)	China said it was willing to invest in the Ok Tedi copper-mining facility. 2/28/85.

Mining Equipment

Engart Fans Ltd. (UK)/China National Coal Import-Export Corp.	100 dust extraction units and production technology. $1.25 million (£1.142 million). 12/14/84.
Drill Sure (UK)	Contract to build 18-ton mobile drilling rigs for coal exploration. $2.2 million (£2 million). 12/30/84.
Mesaba Service and Supply Co. (US)/Ministry of Metallurgical Industry and Benxi Iron and Steel Complex, Liaoning	Used mining equipment. 1/7/85.
Sieger Ltd. (UK)	Gas detection equipment. $2.3 million (£2.1 million). 1/14/85.
Harnischfeger Corp. (US)/Pingshuo First Coal Co. Ltd., subsidiary of China National Coal Development Corp.	Mining shovels. $31 million. 2/12/85.
Aveling Barford International Ltd. (UK)/Beijing Dump Truck Plant	LIC: Signed a seven-year contract for technology to manufacture mining dump trucks. 3/4/85.
Deilmannhaniel, Gestein und Tiefbau and Gewerkschaft Walter (W. Germany)/China National Coal Development Corp.	Signed a preliminary agreement for mining equipment for the Donghuantuo coal mine, Hebei. 3/16/85.

Packaging

Société Mécanique Verrière (France)	Will build a glass bottle-making plant in Zhuhai. $12 million (Fr120 million). 1/10/85.
Sasib SpA (Italy)/China National Tobacco Corp.	LIC: 100 cigarette packaging production lines. 2/16/85.
Kinsho-Mataichi and Maeda Mfg. Co. (Japan)	Will supply Tianjin with the expertise to produce paint cans. 2/19/85.
(Australia)	Will provide export packaging training and expertise. 2/20/85.

Petroleum and Natural Gas

Continental Emsco Co. (US) TECHIMPORT and Daqing Oilfield	A continuous piping machine. $610,000. 10/84
Technical Oil Tools Co. (US)/TECHIMPORT and Daqing Oilfield	A measuring and recording meter for drilling. $387,000. 10/84.
Norton Christensen (US)/TECHIMPORT and Daqing Oilfield	Vibration devices and fittings. $398,000. 10/84.
Export Oilfield Supply Co. (US)/TECHIMPORT and Daqing Oilfield	Drilling rigs and fittings. $152,000. 10/84.
I.P.S. (US)/TECHIMPORT and Daqing Oilfield	Reinforced drill rods. $96,000. 10/84.
Centrilift Hughes (US)/TECHIMPORT and Daqing Oilfield	Electric oil pumps and fittings. $8.1 million. 10/84.

Hughes-Oncor Inc. (US)/ TECHIMPORT and Zhongyuan Oilfield	Triangle hole expander and fittings. $68,500. 10/84.
SMT International (France)/TECHIMPORT and Zhongyuan Oilfield	Cold rolling press and parts. $32,000. 10/84.
Norton Christensen (US)/ TECHIMPORT and Zhongyuan Oilfield	Vibration devices and related equipment. $1.3 million. 10/84.
Cameron Iron Works, Inc. (US)/TECHIMPORT and Zhongyuan Oilfield	Blowout checker and controlling system. $2 million. 10/84.
C.I. Martin Decker (US)/ TECHIMPORT and Zhongyuan Oilfield	Meters and parts for wells. $183,000. 10/84.
Flopotral Johnston Schlumberger (US)/ TECHIMPORT and Zhongyuan Oilfield	Stratum test equipment and parts. $1.3 million. 10/84.
Taylor Woodrow Energy (US)/China Offshore Platform Engineering Corp.	Has a contract to provide consultancy and management services at the Chengbei project. 12/84.
Lloyd's Register of Shipping (UK)/Register of Shipping	Signed an agreement to cooperate on the survey of offshore structures built in China to LR class and/or certification. 12/11/84.
Becket Investment Corp. and Geophysics Service Corp. (US)	Are assisting in the planning and survey of Sichuan's gas reserves. 2/4/85.
Harry Burton Co. Ltd. (US) and NA (France)	Are providing extracting technology and drilling expertise for exploitation of Sichuan's gas reserves. 2/4/85.
Linde AG, TVT Munich div. (W. Germany)/ Everbright Industrial Corp.	Received a contract for two natural gas processing plants at Daqing. 2/4/85.
Nova Corp. (Canada) and British Gas Corp. (UK)/ China National Oil and Gas Exploration and Development Corp.	Signed contracts to design a pipeline to carry gas from Henan to a chemical fertilizer plant in Hebei. 2/22/85.
Pharmaceuticals	
Nippon Zeon Co. (Japan)/China Biotechnology Development Center	Signed a five-year biotechnology R&D agreement to develop pharmaceuticals and perfumes. 3/19/85.
Ports	
Dragages-de Nul-Di (French-Belgian joint venture)	Will dredge a channel for the port of Zhuhai and construct its harbor. $22.7 million. 1/22/85.
Oil (Asia) Pte. Ltd. (Singapore)	Will manage Zhuhai port and supply base. 1/22/85.
Power	
Asea (Sweden)	Will assist in building up a Beijing plant to produce high-efficiency thyristors. $1.6–2.1 million. (SwKr15–20 million). 11/3/84.
Flow Industries (UK)	Signed a preliminary agreement to provide 40 turbines to construct a wind power center near Beijing. $12 million. 12/19/85.
Utility Technical Services, Inc., subsidiary of Detroit Edison Co. (US)/Southwest Electric Power Adm.	Will provide consulting services to increase the steam generating capacity of a coal-fired plant in Sichuan. 1/85.
Stone & Webster (US)	Will evaluate a dam to be constructed in Jilin. 1/24/85.
Thermax Corp. (US)/ Beijing Foreign Trade Corp.	Sold 20 200-watt wind generators. 2/85.
General Electric Co. (US)/ TECHIMPORT and Ministry of Petroleum Industry	Two heavy-duty gas turbines and parts for a power project in Karamay and for a cogeneration plant in Daqing. $28 million. 3/4/85.
General Electric Co. (US)/ Nanjing Turbine and Electric Machinery Works	Have a manufacturing agreement to produce stationary parts for gas turbines in China and rotating parts in the US. 3/4/85.
Rolls Royce (UK)/Nan Jiang Oilfield	Will soon sign a contract for power generators. $17.5 million. (£16 million). 3/6/85.
Brown Boveri & Co. (Italy)	Received an order to supply 90,000 kw hydroelectric power generators. $35.5 million. 3/11/85.
Property Development	
Cipparone, Leonard, Engel and Ontai Architecture and Urban Design (US)/Anhui Foreign Affairs Office	Will develop a 1,000-unit resort hotel. 1/7/85.
Hirsch-Bedner (US)/ Beijing Construction Design Institute	Designed an extension to the Beijing Hotel. $32 million (¥90 million). 1/19/85.
Wan Hin & Co. (HK)	Will build a commercial and residential complex in Zhuhai. $17.7 million. 1/22/85.
Lianxin Construction Co. (Singapore)/Suzhou Economic Technology Development Corp.	Will build a hotel in Suzhou, Jiangsu. $30 million. 1/28/84.
Mitsui & Co. Ltd. (Japan)	Will construct a hotel, theater, restaurant, and exhibition hall in Xi'an, Shaanxi. 2/4/85.
Taisei Engineering and Construction Co. and Toko Trading Co. (Japan)	Will build a golf club in Dalian, Liaoning. 2/13/85.
Wing On Holdings Ltd. (HK)/Kunlun Hotel, Beijing	Signed an agreement to manage the hotel. 2/16/85.
Quadratec Hotel Management & Development Ltd. (HK)/Guangzhou Suihua House Property Development Co.	Will build a 1,000 room hotel in Guangzhou. $40 million. 3/4/85.
Wing On Co. (HK)/ Shanghai No. 10 Department Store	Plan to sign an agreement to renovate the store. 3/8/85.
Becket International (US)/ Shaanxi Travel and Tourism Corp.	Signed an agreement to build a hotel in Xi'an. $28 million. 3/15/85.
JNB Nominees Ltd. (HK)	Plans to build and manage the Zhong-Kong Hotel in Foshan. $15 million. 3/15/85.
Scientific Instruments	
Trio-Kentwood Corp. (Japan)	ASSEM: Will begin knock-down production of oscilloscopes. 10/24/84.
Midori Sokki (Japan)/No. 718 State-owned Factory	ASSEM: Knock-down production of potentiometers. 11/84.
Jard, Inc. (Japan)	Infrared radiation equipment for biotechnology for Dalian. 11/84.
Gamma Works (Hungary)	Geophysical equipment. $894,000. (SwFr2.5 million). 11/27/84.
Comtec Economation, Inc. (US)	Signed a contract to provide a turnkey plant to produce piezoelectric devices. $2.85 million. 12/10/84.
Datron Instruments (UK)	Will set up a factory to manufacture voltmeters. $3.8 million. (£3.5 million). 12/18/84.
CLASP International (UK)/China Academy of Sciences	Received a contract to refurnish and re-equip the CAS laboratory. $274,000 (£250,000). 12/20/84.
Edwards High Vacuum (UK)/INSTRIMPEX, Beijing Branch	Received an order for 19 Modulyo freeze driers and accessories. $120,000 (£110,000). 1/85.
Ono Sokki Co. (Japan)/ China Electronics Import–Export Corp. and Beijing Instrument Industry Corp.	ASSEM: Formed a two-year technology sharing and production agreement to produce fast fourier transform analyzers from kits. $3.8 million (J¥250 million). 1/85.
Osmonics Inc. (US)/ MACHIMPEX	Signed an agreement to provide reverse osmosis water purification technology. 2/85.
Litton Systems Canada, Ltd.	Received an order for an inertial referenced flight inspection system. 3/4/85.

Tektronix Inc. (US)/21st Radio Factory, Shanghai; Shanghai Electronic Instrument & Equipment Industry Corp.; and Shanghai Electronic Instrument and Equipment Import-Export Corp.	ASSEM: Signed an agreement to assemble oscilloscopes. $5 million+. 3/4/85.

Shipping

Norcontrol (Norway)/ Shanghai Shipyard	Will open a service station to handle vessel and training simulator systems. 12/12/84.
Norcontrol (Norway)/ China Shipbuilding Corp., Shanghai Branch	Discussing production of marine automation systems. 12/12/84.
Jonker en Stans + 2 other firms (Netherlands)	Negotiating an order for six fishing trawlers. $52.6 million. (Fls200 million). 12/20/84.
Marubeni Corp. (Japan)/ Shanghai	Two special chemical cargo ships. $7.7 million (J¥2 billion). 1/85.
DFDS (Denmark)	A roll-on, roll-off ship. $5 million+. 1/3/85.
Radar Devices, Inc. (US)	Collision avoidance systems for commercial fishing and cargo vessels. $15 million. 2/85.
Mitsui Engineering & Shipbuilding Co. and C. Itoh & Co. (Japan)/ MACHIMPEX	Awarded a contract for two 27,000 dwt coal carriers. $30.7 million (J¥8 billion). Will also provide assistance and design to build self-unloading coal carriers. 2/1/85.
Mitsui Engineering & Shipbuilding Co. (Japan)/ China State Shipbuilding Corp. and Hudong Shipyard, Shanghai	LIC: Concluded a two-year agreement to supply designs and parts for the W. German B&W marine diesel engine. 3/19/85.
Sumitomo Heavy Industries Ltd. (Japan)/Shanghai Shipyard	LIC: Technology to manufacture the Swiss Sulzer engine. 3/19/85.

Telecommunications

Infa Corp. Ltd. (Japan)/ CITIC	Radiophone production technology. 10/18/84.
Aydin Corp. (US)/ Guangxi Import Corp.	Received an order for satellite earth station equipment. $1 million. 12/17/84.
LM Ericsson Telephone Co. (Sweden)/ TECHIMPORT	Signed a contract to provide a cellular mobile system and a digital landline telephone network in Qinhuangdao. $3.5 million. 12/17/84.
BB Co. Ltd. (UK)/ Guangzhou Railway Bureau	Will undertake a feasibility study of a microwave communication system between Guangzhou and Hengyang. 1/7/85.
Racal Recorders (UK)/ CAAC	Airport communications recording equipment. $580,000. 1/9/85.
Sesa (France)	Contract for DPS 25 packet switches for a planned public data network. $2 million. 1/17/85.
Cit-Alcatel (France)	Will sign an agreement to transfer technology for a telecommunications research center near Shanghai. $84.4 million (Fr850 million). 1/25/85.
Spanish National Telephone Co./Ministry of Posts & Telecommunications	Signed a memorandum of understanding to conduct joint research and technical exchange. 1/26/85.
Ministry for Industry and Information Technology (UK)/Ministry of Astronautics	Signed an agreement to collaborate in space science and technology including satellite systems, ground stations, and carrier rockets. 1/28/85.
Awa New Zealand	Reached an agreement to supply VHF radios for a weather and flood alert system. $1.4 million (NZ$3 million). 2/85.
Tait Electronics (New Zealand)	Negotiated a contract to sell advanced radio trans-receivers. 2/85.
GEC Telecommunications (UK)/Shenda Telephone Co. and Zhuhai Industrial Development Corp.	Two contracts for IXT telephones. 2/4/85.
Offshore Navigation (US)/CAAC	Signed a contract for air traffic control and search and rescue operations in conjunction with offshore helicopter operations in the Pearl River/Hainan areas. 2/11/85.
Ministry of Research and Technology (France)/ Ministry of Astronautics Industry	Signed a protocol to cooperate in research on civil use of space, satellites, and in development of other specialized equipment. 2/12/85.
Fujitsu Ltd. (Japan)/Ministry of Posts and Telecommunications	30 digital switching systems for telephone stations in 12 provinces. $77-115 million (J¥20-30 billion). 2/19/85.
Toshiba Corp. and Nissho Iwai Corp. (Japan)	Won an order for 10 civilian air traffic control radars. $7.7 million. (J¥2 billion). 2/19/85.
Alcatel-Thomson S.A. (France)/Ministry of Astronautics Industry	Signed a contract for six satellite receivers to be used for TV transmission. $9.5 million (Fr100 million). 3/1/85.
Alcatel-Thomson S.A. (France)	Signed a contract to supply Guangzhou with three digital telephone systems. $4 million (Fr40 million). 3/1/85.
Cable & Wireless PLC (UK)/Ministry of Posts and Telecommunications	Have agreed to continue development of telecommunications in the Yangzi River delta area and to establish a research center in Beijing. $520 million+. 3/5/85.

Textile Plants & Equipment

Fritz Buser AG (Switzerland)/MACHIMPEX and Zhengzhou Textile Machinery Plant, Henan	LIC: Flat-bed textile printing machine production technology. 11/9/85.
Kelvin Industries (New Zealand)/Shanghai Investment and Trust Corp.	CT: Wool-manufacturing equipment, technology, and raw wool for unspecified products in return. 2/85.
Tokyo Juki Industrial Co. (Japan)/TECHIMPORT and Shanghai Sewing Machine Factory	Technology to manufacture industrial, high-speed sewing machines. 2/12/85.
Silver Seiko Ltd. (Japan)/ TECHIMPORT and Chongqing Industrial Sewing Machine Factory, Sichuan	Parts and training to produce knitting machines. $960,000. (J¥250 million). 3/12/85.

Transportation Equipment

Mitsubishi Motors Corp. (Japan)/China National Automotive Industry Import-Export Corp. and Changchun No. 1 Automobile Factory	10,000 heavy trucks and technology for cabin design and the making of metallic molds and dies. $121 million (J¥30 billion). 12/84.
Nissan Diesel (Japan)/ China No. 2 Automobile Factory	Eight-ton trucks. $192 million (J¥50 billion). 12/84
Suzuki Motors (Japan)/ China National Aerotechnology Import-Export Corp.	Discussing production of mini-vans. 12/84
Csepel Works (Hungary)	Trucks. 11/27/84.
Brush Electrical Machines, part of Hawker Siddeley group (UK)	A computer-controlled rolling road vehicle test system. $438,000 (£400,000). 12/6/84.
Goldoni SpA (Italy)/CITIC	LIC: Technology to manufacture 20-35 hp tractors and trucks for a factory in Hebei. 1/85.
Nissan Motor (Japan)/ Beijing Zhongbei Automobile Co.	310 Cedric automobiles for taxi use. 1/85.
Zahnradfabrik Friedrichshafen (W. Germany)/China National Automotive Industry Import-Export Corp. and NORINCO	LIC: Technology to make gears for heavy trucks. May also license steering system production technology for agricultural and construction equipment. 1/1/85.
Aerospatiale (France)	LIC: Negotiating the production of commuter aircraft. 1/3/85.

Thomson-CSF (France)	Three sonar systems and two acoustic data treatment systems for installation in helicopters. 1/3/85.
Crouzet (France)	Three navigation and mission management systems for retrofitting in helicopers. 1/4/85.
Sully Produits de Precision (France)	Will supply windshields for Y-8 transport planes. 1/4/85.
Hutchison China Trade Holdings (HK)/Hualin Rubber Factory, Heilongjiang	Signed a contract to provide a rubber tire factory. 1/4/85.
Boeing Vertol (UK)/Harbin Aircraft Factory and China Aerotechnology Import–Export Corp.	Are discussing manufacture of Chinooks in China. 1/30/85.
Hong Kong Aircraft Engineering Co./Xi'an Aircraft Factory	Is modifying the Yun-7 by installing a redesigned cockpit, new passenger seats and oxygen systems. 2/4/85.
Boeing Co. (US)/CAAC	Negotiating purchase of 747, 767, and 737 aircraft. 2/5/85.
Eaton Corp. (US)/China National Automotive Industry Import–Export Corp. and Heavy Duty Truck Corp.	LIC: Engineering assistance and training to produce truck transmissions. 2/5/85.
Short Brothers (UK)/CAAC	Signed a contract to provide eight regional airliners. $40 million. 2/5/85.
Aviaexport (USSR)/CAAC	Nine 3-engine 160-seat airplanes. 2/11/85.
Volkswagen (Brazil)	1,000 11-ton trucks. $20 million. 2/15/85.
Dunlop International Products Ltd. (UK)/Dalian International Trust & Consultancy Co. and Changzheng Tire Plant, Chaoyang, Liaoning	CT: Will set up a second truck tire plant. $18.6 million. (£17 million). 2/15/85.
General Motors, Detroit Diesel Allison div. (US)/Qijian Gear Works, Sichuan, and China National Automotive Industry Corp.	LIC: Transmission equipment and technology to produce transmissions for construction and mining trucks. 3/1/85.
Rolls Royce Ltd. (UK)/China National Aerotechnology Import–Export Corp.	Signed a protocol to cooperate on production of aircraft engines. 3/5/85.
Hong Kong Mass Transit Railway Corp.	Signed an agreement to conduct a feasibility study for the construction of a subway system in Shanghai. 3/8/85.
Cessna Aircraft Co. (US)	Discussing manufacturing agricultural aircraft in China. 3/11/85.
Yamaha Motor Co. (Japan)/China National Aerotechnology Import–Export Corp.	Agreed to provide motorcycle production technology. 3/11/85.
Althsom-Atlantique S.A. (France)/MACHIMPEX	Will provide 150 "twinned" locomotives. $268 million. 3/28/85
Fiat SpA (Italy)/Nanjing Motor Corp. and China National Automotive Industry Import–Export Corp.	Signed an agreement to produce three- and five-ton trucks. 3/28/85.
Miscellaneous	
(Australia)	Will conduct a training program for Chinese auditors. 2/20/85.
Japan Chamber of Commerce and Industry/CITIC	Signed an cooperation agreement. 3/1/85.

中外贸易 CHINA'S EXPORTS THROUGH MARCH 31

Foreign Party/ Chinese Party	Product/Value/ Date Reported
Agriculture	
(USSR)/Qinghai	300 tonnes frozen yak meat. 2/7/85.
(Japan)	Signed long-term contracts for corn supply (at least 1.7 million mt). 2/22/85.
Sumitomo Corp. (Japan)/China Seed Corp.	Signed a contract to purchase evening primrose seeds. 2/26/85.
Construction Materials	
Asia Development Corp. (US)	Will import marble and granite products over a 20-year period. 1/8/85.
Ceramco (New Zealand)/China Abrasives Export Corp.	Reached an agreement to become CAEC's agent in New Zealand and Australia. 2/85.
Electronics	
IBM Japan	Will buy small voltage regulators and equipment frames. 1/15/85.
ADI Electronics (US)/China Electronics Import–Export Corp.	Signed a letter of protocol to distribute Chinese aluminum electrolytic and tantalum capacitors in the US under the ADI logo. 1/28/85.
Foreign Aid	
(Benin)	Medicine and medical equipment. $67,250 (¥190,000). 10/26/84.
(Ghana)	Grain. 11/9/84.
(Tanzania)	5,000 tonnes of maize. 2/12/85.
United Nations	$10,000 for the "Year of Peace" fund. 3/2/85.
(Somalia)	Medical instruments. 3/20/85.
Military Equipment	
(Zimbabwe)	Negotiating to purchase up to 24 Xian F-7s. 1/5/85.
Customs Associates (US)	Is acting as a sales agent for MiG fighter aircraft to US operators and collectors. 1/21/85.
Petroleum	
(New Zealand)	Reached an agreement to buy 20,000 tonnes of diesel oil for shipment in first quarter 1985. 2/85.
(Sri Lanka)	Will purchase 20,000 tonnes of oil. $8 million. 3/85.
(Japan)/SINOCHEM	Will purchase 8 million tonnes of crude oil in 1985. 3/5/85.
Shipping	
Cell Singapore Pte. Ltd./Chongqing Shipbuilding Industry Corp.	Cell Singapore concluded an agreement to sell Chinese marine turbochargers in Southeast Asia, UK, and Holland. 12/19/84.
Trade Agreements	
(Hungary), (Bangladesh), and (Cuba)	Signed trade agreements in January and February 1985.
(Mongolia) and (Albania)	Signed goods exchange protocols in January and March 1985.
(Philippines)	Signed a science and technology cooperation agreement. 3/85

中外贸易

JOINT VENTURES AND DIRECT INVESTMENT THROUGH MARCH 31

Foreign Party/ Chinese Party	Arrangement/Value/ Date Reported
Agriculture	
NA (HK)/Dalian Grain Bureau	Signed a contract to construct an animal feed mill, a soybean processing mill, and a warehouse. $15–20 million. 11/13/84.
NA (France)/Shantou Agricultural Development Corp.	Signed an agreement to set up an aquatic products breeding and processing enterprise. 11/13/84.
(New Zealand)/NA	Reached an agreement to establish a joint prawn farm. (NZ:60%–PRC:40%). 2/85.
HK Soya Bean Products Co. Ltd. and Petersville Co. (Australia)/CEROILS, Guangdong Branch	Looking into setting up 10 more vegetable processing factories in addition to Modern Foods and Vegetables Development Co., their first venture. Investment: $1.8 million (¥5 million). 2/4/85.
Taiyo Fishery Co. (Japan)/ China Zhouyan No. 2 Fishery Co., Zhejiang	Will set up the Zhouyan Fishery Co. to jointly catch fish in Chinese coastal waters for sale in Japan and China. 3/5/85.
Chemicals and Chemical and Petrochemical Plants & Equipment	
Chikami Laboratories (Japan)/EQUIMPEX	Jointly producing waterproofing and sealing agents. 11/84.
High Den Enterprises (HK)/Shenzhen Petrochemical Industrial Corp.	Set up plant in Shenzhen to produce color base for plastic resins. (50%–50%). $2.8 million. 12/84.
BOC Group PLC (UK)/ Shanghai Wusong Chemical Works	BOC signed a letter of intent to purchase a 50% stake in the Chinese industrial gas company. $30–50 million. 3/11/85.
Construction Materials	
Ceramco (New Zealand)/ China Light Industrial Corp. for Foreign Economic and Technical Cooperation	Discussing joint ceramic and sanitary ware manufacturing operations. 2/85.
Electronics and Electrical Equipment	
Mr. Peng (New Zealand)/ Haikou Electronics Industrial Co.	Set up the New China Computer Development and Trading Corp. to develop and produce computers. 8/24/84.
HK Luk's Industrial Co. Ltd./Zhenhua Electronics Industry Corp. and Shenzhen Electronics Industry General Corp.	Set up Huafa Electronics Corp. Ltd. to produce color TVs and printed circuit boards. Registered capital: $5 million. 12/31/84.
Nanguang Trade Corp. (Macao)/Weifang Electronics Industry Corp., Shandong	Established the Shenli Electronics Co. Ltd. in Weifang to manufacture and market radio equipment and computers. Registered capital: $3.5 million. 12/31/84.
Sansei Koki (Japan)	Has agreed to set up a camera production venture. (50%–50%). 1/1/85.
Toyo Electronics (HK) Co., Ltd./Kunming Radio Factory, Kunming Trust and Consultancy Co. and Yunnan Provincial Import–Export Corp.	Formed the Huaxing Electronics Joint Co. to produce multifunction technical indicators. 1/7/85.
Wang Laboratories (US)/ NA, Shanghai	Will produce 50,000 units of Wang office assistance systems over the next five years in Shanghai. 1/11/85.
Ko family (Singapore)/ Hua Jian Co.	Formed Kaihin Enterprises Co. Ltd. in Hong Kong to invest in China and Southeast Asia and introduce advanced technology. (50–50). 1/15/85.
Whole Tone Co., Ltd. (HK)/Guangzhou White Swan Audio Product Plant and Guangzhou Foreign Trade General Co.	Set up White Swan Audio Art Co. Ltd. to produce master tape recordings and rerecordings of literary and art programs. 1/28/85.
Perkin-Elmer Corp. (US)	Will open the Perkin-Elmer Computer Service Center in Beijing. 2/6/85.
Wang Laboratories (US)/ Beijing Communications Wire Plant	Reached an agreement to establish Wang Computer China Ltd. in Beijing to produce computers and office automation equipment. 2/12/85.
Onyx & IMI Inc. (US)/ Fujian Electronic Computer Co.	Onyx sold some of the assets of International Memories Inc. to the Fujian company. 2/18/85.
Xerox Corp. (US)/Shanghai Movie & Photo Industrial Co. and EQUIMPEX	Signed a preliminary agreement to sell 10,000 small copiers and to set up a Shanghai plant to produce photocopiers and related products. 2/25/85.
Cosmo 80 Co. (Japan)	Will set up the Shenzhen Computer Development Co. to write software, import and export computer equipment, and provide consulting services and training. Capital: $384,000 (J¥100 million). (50%–50%). 3/5/85.
Kanematsu-Gosho Ltd. (Japan)	Will set up a personal computer service center in Beijing. 3/5/85.
Burroughs Corp. (US)/ Huafeng Industrial Corp.	Discussing joint production of large-scale computers. 3/16/85.
Hitachi Ltd. (Japan)	Will build a second color TV production plant in Fujian. 3/19/85.
Simpson Holdings (Australia)/Tianjin Household Electrical Appliance Corp.	Will establish a plant in Tianjin to produce washing machines. (50%–50%). 3/26/85.
Engineering and Construction	
(W. Germany)/Jiangxi	Formed the Jiangxi Sino-German Economic and Technical Consultation and Development Co. to provide consulting services for navigation and highway construction projects in Jiangxi. 9/15/84.
E. A. Botti (US)/Beijing Central Engineering & Research Inc.	Will cooperate on engineering consulting services and develop new software products for use in large-scale industrial projects. 1/20/85.
M. W. Kellogg Co. (US)/ China Petrochemical International Co.	Signed an agreement to set up an engineering and construction firm for new petrochemical and energy plants inside and outside China. Investment: $1.5 million each. (50%–50%). 2/8/85.
M. W. Kellogg Co. (US)/ TECHIMPORT	Signed an agreement to design, plan, and build an expatriate community in Beijing. 1/85.
Lummus Crest Inc., subsidiary of Combustion Engineering (US)/SINOPEC International	Agreed to form a venture to provide design engineering and project management services for developing and modernizing petroleum and petrochemical process plants. 2/85.
M. W. Kellogg Co. (US)/ Chengdu Chemical Engineering Co.	Agreed to form an engineering and construction company to jointly build chemical, fine chemical, and pharmaceutical projects. 2/25/85.
Sekisui House, Ltd. (Japan)	Agreed to jointly conduct housing research. 3/12/85.
Bechtel China Inc. (US)/ Xinjiang International Economic Cooperation Co.	Signed a letter of intent to establish a company to assist Xinjiang develop its petroleum refining and petrochemical industries, and participate in mining, electricity and transportation projects. 3/14/85.
Finance, Insurance, and Leasing	
Mitsui & Co. Ltd. (Japan)/ Chinese Investment Bank and TECHIMPORT	Signed an agreement to set up the China International Leasing Co. located in Shanghai to handle leasing of machinery, electrical equipment, instruments, and vehicles. Capital: $3 million. 2/13/85.

Banque Nationale de Paris (France), Hokkaido Takushoku Bank (Japan), and Bank of Communications (HK)/Bank of China, Shenzhen Branch; China Merchants Steam Navigation Co. Ltd.; and Nanhai Oil Shenzhen Development and Services Corp.	Formed South China International Leasing Co. Ltd. located in Shenzhen to lease equipment, assist in trade negotiations, and provide financing for projects. $5 million. (Fr:30%–BoC:30%–?:40%). 3/19/85.

Food Processing

NA (UK)/Dalian	Will modernize and expand a winery. Investment: $5 million. 11/13/84.
Chong Ho (Netherlands)/Shanghai Foreign Economic and Technical Cooperation Co.	Will build a restaurant in Rotterdam. Investment: $520,000. (1.94 million guilders). 11/26/84.
Continental Grain Co. (US)/Sanho, Shenzhen	Will conduct a feasibility study for setting up a soybean processing factory. $30 million. 12/84.
International Beer Co. Ltd., and ASS Co. (Switzerland)/Huizhou City, Guangdong	Signed a contract to construct a non-alcohol brewery. 2/9/85.
Koshuen Co. and Kanematsu-Gosho Ltd. (Japan)/NA	Reached a 15-year agreement to form China–Japan Friendship Winery located in Yantai, Shandong. (Koshuen:35%–KG:15%–PRC:50%). Investment: $1.54 million (J¥400 million). 2/11/85.
Hingchong Food Processing Ltd. (Canada)/Maling Canned Food Co., Shanghai	Joined to set up a Chinese pork food processing plant in Brantford, Canada. 2/18/85.
Suntory Ltd. and Green House Co. Ltd. (Japan)/CITIC; Agricultural Bank of China, Beijing Branch; Beijing Minrong Industrial Co.; and Beijing Agricultural, Industrial and Commercial Corp.	Signed a 20-year contract to supply boxed meals to students, workers, and government employees. $5 million. (Japan:40%–PRC:60%). 3/2/85.
Nabisco Brands Inc. (US)/Yili Food Co., Beijing	Signed an agreement to set up the Yili-Nabisco Biscuit & Food Co. Ltd. in Beijing to produce biscuits and crackers. $8.8 million. (US:51%–PRC:49%). Signed 3/20/85.
Beatrice Cos. (US)/CITIC	Signed a 30-year agreement to form Beatrice-CITIC Development Co. to help develop food processing and light industrial products in China and seek export markets. $100 million. (US:60%–PRC:40%). Signed 3/16/85.

Medical Equipment

Toshiba Corp. (Japan)/China National Medical and Health Products Import–Export Corp.	Opened a maintenance center for medical equipment in Beijing. 11/17/84.

Minerals & Metals

Bundy Tubing Co. Pty. Ltd. (Australia)/Hua Yan Steel Tube Technology Development Corp.	Signed a contract to begin production of small-diameter steel tubing at a factory to be built in Qinhuangdao. Investment: $3.7 million. (Aus$5 million). (50%–50%). 2/26/85.

Power

Hopewell Power (China) Ltd. (HK)/Shenzhen Power Development Co.	Signed a 10-year contract to jointly develop the Shenzhen Shajiao Coal-Fired Power Plant. HK investment: $318.6 million (¥900 million). 3/9/85.

Property Development

NA (HK)/Ningbo Travel Co.	Signed a contract to form the Ningbo Huagang Co. Ltd. to construct the Ningbo Grand Hotel. Investment: $30 million. 11/25/84.
Japan Travel Bureau/Rong Hu Hotel, Guilin	Signed a 15-year agreement to establish a venture to construct a 20-story hotel. $15 million (J¥3.9 billion). (Japan:45%–PRC:55%). 11/27/84.
Showa Shoji Co. Ltd. (Japan)/Hangzhou Tourism Co.	Are jointly constructing the Hangzhou Friendship Hotel. Investment: $7.5 million. 1/14/85.
Marubeni Corp. (Japan)/China Civil Engineering Corp. and Shengli Hotel	Will cooperate to renovate the Shengli Hotel. $11.5 million (J¥3 billion). (Japan:32.5%–CCEC:32.5%–Hotel:35%). 1/24/85.
Aoki Construction and Industrial Bank of Japan/Shanghai Tourism Corp.	Will cooperate to build a hotel in Shanghai. Capital: $12 million. (Aoki:45%–IBJ:5%–PRC:50%). 1/24/85.
Taisei Corp. (Japan) and RKB Ltd. (Malaysia)/MINMETALS and Sijiqing Agricultural Cooperative	Will join to build a hotel in Beijing. $33.8 million (J¥8.8 million). 1/24/85.
Logistica Building (France)/Chunghua Trading Co., Shenzhen	Will construct a hotel complex in Shenzhen. $400 million (Fr4 billion). 1/21/85.
Shimizu Construction Co. Ltd. and Nissho Iwai Corp. (Japan)/CITIC and Beijing Inst. of Architectural Design	Set up China Prosperity Building Design Joint Venture Corp. Ltd. based in Beijing to contract for design of building projects. Will design a trade building for Hangzhou, a Hangzhou hotel, and trade buildings in Shanghai. Capital: $1 million. 2/8/85.
Tai Hing (Asia) Development Co. Ltd. (HK)/Guilin, Guangxi	Will jointly construct the Wenhua Hotel in Guilin. Investment: $18.5 million. 2/11/85.
China–American International Engineering, Inc. (US–PRC joint venture)/Capital Overseas Chinese Service Co.	Signed an agreement to build a hotel and office complex in Beijing called the Overseas Chinese International Building. $200 million. 2/25/85.
Everwealthy International, Ltd. (Japan) and Shin Wah Fung Co. (HK)/Guangdong Foreign Economic & Trade Consulting Corp.	Agreed to establish Yue Yang Economic Development Corp. to build a world trade center in Guangzhou. (50%–50%). 2/26/85.
Wah Kong Construction Co. Ltd. (HK)/Qingda Economic and Trade Co., Daqing	Will construct a hotel in Dalian. $10.6 million (¥30 million). (HK:40%–PRC:60%). 2/27/85.
UTG Investments (Far East) Ltd. (Jordan)/Xiamen International Information Development Co.	Signed a contract to build a commercial information center in Huli, Fuzhou. $23 million. 3/1/85.
Seapower Consortium Co. (HK)/Westlake Hotel, Fuzhou	Will jointly develop a hotel project in Fuzhou. 3/12/85.
Sheraton Corp., Becket Investment Corp., Unison Pacific Corp./CITS, Beijing Branch	Will manage jointly the Great Wall Hotel. 3/20/85.

Shipping

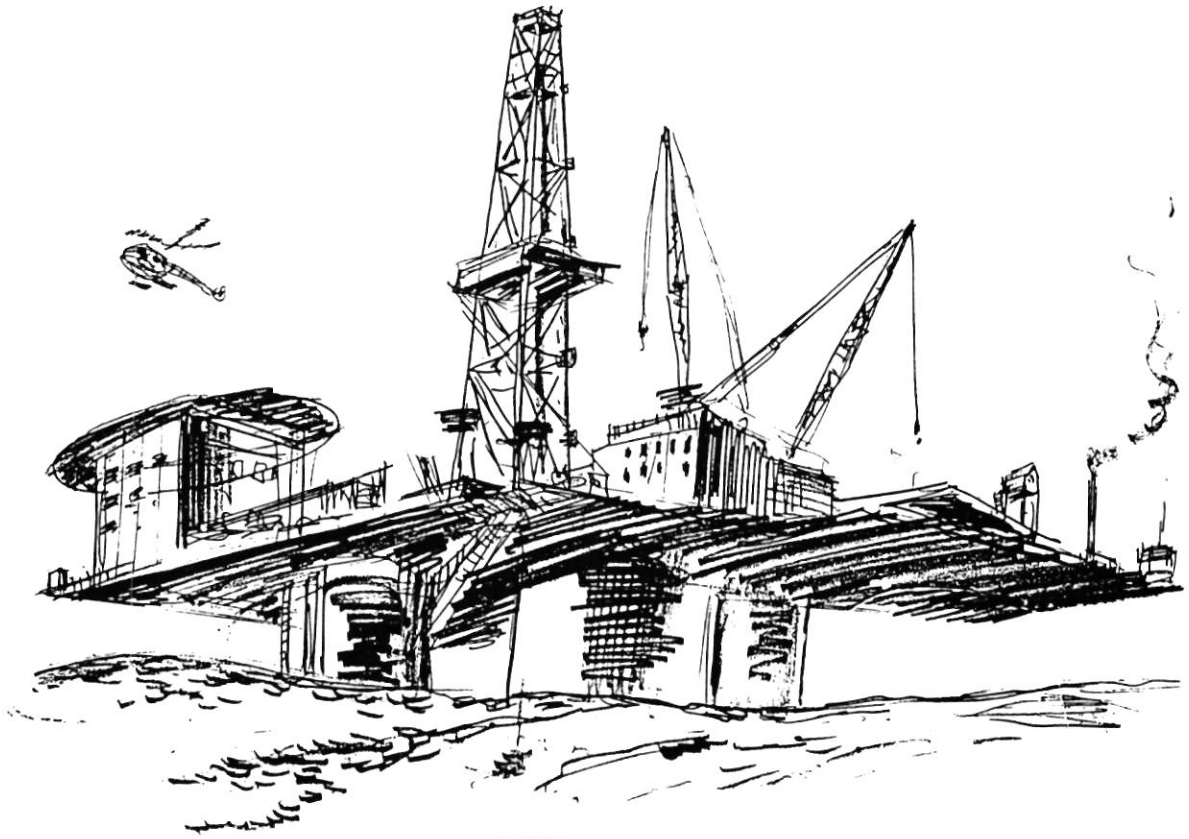
NA (HK)/Ningbo Navigation Co.	Set up Ningbo Huagang Co. Ltd. to manage passenger shipping and related services. Investment: $3.5 million (¥10 million). 11/25/84.
T. Klaveness Shipping Co. (Norway)/China Ocean Shipping Co.	Signed an agreement to set up a joint shipping company. 12/9/84.
Manda Shipping Co. Ltd. (HK)/Shoudu Iron and Steel Co., Shougang Branch	Signed a contract to set up China SG Shipping Co. to handle its ocean transportation. Capital: $4 million. (HK:30%–PRC:70%). 2/26/85.
Wen Hua Maritime International Co. Ltd. (HK)/Dalian International Economic and Technical Cooperation Corp.	Set up a container shipping company to handle shipping between Japan and Dalian. Investment: $500,000. (50%–50%). 3/4/85.

Telecommunications

Nagano Japan Radio Co.	Formed Nanchang–Nagano Japan Radio Co. to produce equipment for marine communications. Investment: $1 million (Japan:25%—PRC:75%). 1/85.
Fuba Communications (W. Germany)	Is negotiating ventures with radio factories in Wuhan and Hefei. 2/85.

Cable & Wireless Ltd. (UK)/Guangdong Posts & Telecommunications Bureau	Have signed an agreement to install a digital telephone system in the Pearl River delta. $10 million. (50%–50%). 3/11/85.
Elk Telecommunications Inc. (US)/Changsha Computer Co., Hunan	Signed an agreement to establish CCC Elk Fiber Optic Telecom Inc. to import and eventually produce fiber-optics equipment. $5–6 million. 3/16/85.
Textiles	
Itokin Co. (Japan)/Shanghai Silk Corp.	Reached an agreement to set up a joint apparel venture. 2/9/85.
Transportation Equipment	
Tokai Salvage (Japan) Tianjin Hotel and Tianjin New Technology Development Corp.	Set up taxi service venture. $531,000 (¥1.5 million). 1/85.
NA (Romania)/Jinan General Automobile Factory	Will jointly produce heavy-duty trucks. 1/28/85.
Isuzu Motors Ltd. (Japan)/Chongqing Automotive Industry Corp.	Agreed to form Qingling Motors Corp. in Chongqing to produce small trucks. 2/11/85.
Marubeni Corp. (Japan)/China Civil Engineering Corp. and Wuhan City Automotive Corp.	Plan to begin a taxi venture in Wuhan. (Japan:30%–CCEC:35%–Wuhan:35%). 2/12/85.
Peugeot Automobiles and Banque Nationale de Paris (France)/Guangzhou Automobile Factory and CITIC	Signed a contract to set up a pickup truck factory. $63.7 million (¥180 million). 3/13/85.
JNB Nominees Ltd. (HK)/Foshan Beijing Machinery Factory	Will set up a motorcycle manufacturing venture. Investment: $4.5 million. 3/15/85.
Jingdao Development Co. (HK)/Tianjin Trust and Consultancy Corp.	Set up the Tianjin Yindao Taxi Co. 3/21/85.
Miscellaneous	
(Malta)/NA	Established the China-Malta Service Co. Ltd. to set up a Changcheng dining hall and an acupuncture and massage center. 11/23/84.
China Worldwide Travel Inc. (US)/Fujian Tourism Bureau	Set up the Lantin Institute to study Chinese culture. 2/2/85.
Japan Broadcasting Corp./China Central Television	Are jointly producing a 30-segment series about the Yellow River. 2/8/85.
Union Shipping Co. Ltd. (HK)/Shenzhen Industrial Development Service Corp. and Shenzhen Light Industrial Corp.	Have set up the Hua Kang Equipment Co. Ltd. in Shenzhen to source equipment, provide design and technical services, and construct factories. 2/11/85.
Novel Enterprises Ltd. (HK)/Jinling Hotel, Nanjing	Set up the Jinli Supermarket Co. Ltd. to sell imported and local goods. 2/12/85.
Japan Association for the Promotion of International Trade/CCPIT, Jilin Branch and SINOTRANS, Jilin Branch	Established the Jilin–Japan Economic and Technological Development Service Corp. with offices in Changchun and Tokyo to promote economic and technology exchange. 2/14/85.
U.S. Domes America, Inc./NA	Set up a spheric screen cinema in Fuzhou, Fujian. 2/17/85.
John Swire and Sons Ltd. (UK)/CITIC	Signed an agreement to establish an investment and development company, CS Development Co. Ltd., based in Hong Kong. 3/15/85.
Kidabit Ltd. (HK), Shenzhen Branch/Nanhai Oil Shenzhen Development Service Corp. and Jilin International Economic and Technical Cooperation Corp.	Set up the Hai Lin Jie International Information Engineering Co. Ltd. to provide information resources to commercial and industrial businesses in Shenzhen. 3/22/85.

What's China Consultants International doing about energy business in China?



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